District 3 - Franklin County

Round 34

STATE CAPITAL IMPROVEMENT PROGRAM
&
LOCAL TRANSPORTATION IMPROVEMENT PROGRAM

APPLICATION

Project Name: Gender Road Improvements, Phase V
Applicant: City of Canal Winchester, Ohio

[X] Priority 1 [ ] Priority 2 [ ] Priority 3 [ ] Priority 4

Submit application to:
Nathaniel Vogt
District 3 Liaison
Mid-Ohio Regional Planning Commission
111 Liberty Street, Suite 100
Columbus, OH 43215

Deadline – September 9, 2019 by 5:00 p.m.

District 3 Application Checklist
Round 34

[X] OPWC Application for Financial Assistance Form
Form OPWC0001.
Place the following attachments immediately after the OPWC application. Templates are available in the application material:

- Authorizing Legislation
- Chief Financial Officer Certification / Loan Repayment Letter
- Detailed Engineer's Estimate
- Certification of Detailed Cost Estimate & Design Service Capacity/Useful Life
- Cooperative Agreement (if applicable)
- Farmland Preservation Review Letter (if applicable)

[X] District 3 SCIP/LTIP Application – Round 34
The submittal must include all documents in PDF format.
One hard copy submittal of the application is encouraged, but not required.

District 3 Supportive Documentation Checklist

[X] Plan View or Map
Attach a plan view or map illustrating the scope or limits of the project

[X] A1) Physical Condition
Support for the selected condition rating (e.g., pavement condition rating form or data, ODOT Bridge Inspection Field Report, documentation of waterline break frequency etc.). Photos depicting the physical condition are encouraged.

[X] A3) Public Safety
Supportive evidence (such as letters, photos, media articles, etc.) is required for each unsafe condition.

[NA] A4) Public Health Problem
Supportive evidence (such as letters, photos, media articles, enforcement actions, etc.) is required. Contamination must be documented with evidence of the presence of contamination in excess of standards protective of public health.

[NA] A5) Economic Growth & Development

A5a) Signed letter from an economic development entity

A5b) Signed contract or letter from the commercial developer

A5c) Development proposal stating number of permanent jobs that will be located there and the geographical area from which any existing jobs would be relocating.

[X] **A6) Congestion**
Level of service calculation (using the Highway Capacity Manual, Synchro or similar, including growth rate rationale and showing peak hour, timing, and movements) If current ADT is not from MORPC or ODOT, provide a traffic count report.

[X] **A7) Public Involvement**
Written comments, public meeting notices and sign-in sheets, etc.

[X] **A8) Recognized Need**
Excerpts of plans, studies & project lists; signed engineering design contract

[X] **A9) Service to the District**
For road and bridge projects, provide traffic count report only if the ADT is not from MORPC or ODOT. For other project types, provide a map of the service area.

[X] **A10) Special Conditions/Important Community Facilities**
Documentation of the number of users of community facilities; other supportive documentation.

[X] **A12) Ability & Effort to Finance the Project**
Annual Tax Budget for the year commencing January 1, 2020. Identify portions of the budget eligible to fund this project.

[X] **A13) Special Tax or Fee**
Documentation (e.g. legislation) for each specific tax or fee, with the exception of the optional motor vehicle license fee.

[NA] **A15) Joint Financial Partnerships**
Provide a letter of commitment from another local subdivision or a cooperative agreement between the local subdivisions that documents the financial responsibilities of each party. If the application is successful, a cooperative agreement will be required to receive OPWC funding.

[NA] **S1) Applicant Match**
Letter of commitment or intent from another entity with maintenance responsibility making a financial or in-kind contribution.

[NA] **S2) Other Match**
Letter of commitment or intent from another entity making a financial or in-kind contribution that does **not** have maintenance responsibility.

[NA] **S5) Useful Life**
Documentation for any components with a useful life exceeding worksheet guidance

[X] **Design Service Capacity & Useful Life Worksheet**

- S5) Useful Life
- S8) Percent New/Expansion
- S9) Percent Road, Bridge, or Storm Drainage

SCIP

State of Ohio

Public Works Commission

Application for Financial Assistance

IMPORTANT: Please consult "Instructions for Financial Assistance for Capital Infrastructure Projects" for guidance in completion of this form.

Applicant

Applicant: City of Canal Winchester Subdivision Code: 049-11332

District Number: 3 County: Franklin Date: 09/09/2019

Contact: Mr. Matthew Peoples Phone: (614) 834-5100
(The individual who will be available during business hours and who can best answer or coordinate the response to questions)

Email: mpeoples@canalwinchesterohio.gov FAX: (614) 837-0145

Project

Project Name: Gender Road Improvements, Phase V Zip Code: 43110

Subdivision Type

(Select one)

- [ ] 1. County
- [x] 2. City
- [ ] 3. Township
- [ ] 4. Village
- [ ] 5. Water (6119 Water District)

Project Type

(Select single largest component by $)

- [x] 1. Road
- [ ] 2. Bridge/Culvert
- [ ] 3. Water Supply
- [ ] 4. Wastewater
- [ ] 5. Solid Waste
- [ ] 6. Stormwater

Funding Request Summary

(Automatically populates from page 2)

Total Project Cost:	1,199,960 .00
1. Grant:	250,000 .00
2. Loan:	750,000 .00
3. Loan Assistance/ Credit Enhancement:	0 .00
Funding Requested:	1,000,000 .00

District Recommendation (To be completed by the District Committee)

Funding Type Requested

(Select one)

- [ ] State Capital Improvement Program
- [ ] Local Transportation Improvement Program
- [ ] Revolving Loan Program
- [ ] Small Government Program

District SG Priority: _____

SCIP Loan - Rate: ____ % Term: ____ Yrs Amount: _____ .00

RLP Loan - Rate: ____ % Term: ____ Yrs Amount: _____ .00

Grant: Amount: _____ .00

LTIP: Amount: _____ .00

Loan Assistance / Credit Enhancement: Amount: _____ .00

For OPWC Use Only

STATUS

Project Number: _____

_____

Release Date: _____

OPWC Approval: _____

Grant Amount: _____ .00

Loan Amount: _____ .00

Total Funding: _____ .00

Local Participation: _____ %

OPWC Participation: _____ %

Loan Type: ☐ SCIP ☐ RLP

Date Construction End: _____

Date Maturity: _____

Rate: _____ %

Term: _____ Yrs

SCIP

1.0 Project Financial Information (All Costs Rounded to Nearest Dollar)

1.1 Project Estimated Costs

Engineering Services

Preliminary Design:	10,000 .00			
Final Design:	98,180 .00			
Construction Administration:	77,800 .00			
Total Engineering Services:		a.)	185,980 .00	20 %
Right of Way:		b.)	.00	
Construction:		c.)	921,800 .00	
Materials Purchased Directly:		d.)	.00	
Permits, Advertising, Legal:		e.)	.00	
Construction Contingencies:		f.)	92,180 .00	10 %
Total Estimated Costs:		g.)	1,199,960 .00	

1.2 Project Financial Resources

Local Resources

Local In-Kind or Force Account:	a.)	.00	
Local Revenues:	b.)	199,960 .00	
Other Public Revenues:	c.)	.00	
ODOT / FHWA PID: _____	d.)	.00	
USDA Rural Development:	e.)	.00	
OEPA / OWDA:	f.)	.00	
CDBG: ☐ County Entitlement or Community Dev. "Formula" ☐ Department of Development	g.)	.00	
Other: _____	h.)	.00	
Subtotal Local Resources:	i.)	199,960 .00	17 %

OPWC Funds (Check all requested and enter Amount)

Grant: 25 % of OPWC Funds	j.)	250,000 .00	
Loan: 75 % of OPWC Funds	k.)	750,000 .00	
Loan Assistance / Credit Enhancement:	l.)	0 .00	
Subtotal OPWC Funds:	m.)	1,000,000 .00	83 %
Total Financial Resources:	n.)	1,199,960 .00	100 %

OHIO PUBLIC WORKS FOR YOU

LTIP

State of Ohio

Public Works Commission

Application for Financial Assistance

IMPORTANT: Please consult "Instructions for Financial Assistance for Capital Infrastructure Projects" for guidance in completion of this form.

Applicant

Applicant: City of Canal Winchester Subdivision Code: 049-11332

District Number: 3 County: Franklin Date: 09/09/2019

Contact: Mr. Matthew Peoples Phone: (614) 834-5100
(The individual who will be available during business hours and who can best answer or coordinate the response to questions)

Email: mpeoples@canalwinchesterohio.gov FAX: (614) 837-0145

Project

Project Name: Gender Road Improvements, Phase V Zip Code: 43110

Subdivision Type

(Select one)

- [ ] 1. County
- [x] 2. City
- [ ] 3. Township
- [ ] 4. Village
- [ ] 5. Water (6119 Water District)

Project Type

(Select single largest component by $)

- [x] 1. Road
- [ ] 2. Bridge/Culvert
- [ ] 3. Water Supply
- [ ] 4. Wastewater
- [ ] 5. Solid Waste
- [ ] 6. Stormwater

Funding Request Summary

(Automatically populates from page 2)

Total Project Cost:	1,199,960 .00
1. Grant:	1,199,960 .00
2. Loan:	0 .00
3. Loan Assistance/ Credit Enhancement:	0 .00
Funding Requested:	1,199,960 .00

District Recommendation (To be completed by the District Committee)

Funding Type Requested

(Select one)

- [ ] State Capital Improvement Program
- [ ] Local Transportation Improvement Program
- [ ] Revolving Loan Program
- [ ] Small Government Program

District SG Priority: _____

SCIP Loan - Rate: ____ % Term: ____ Yrs Amount: _____ .00

RLP Loan - Rate: ____ % Term: ____ Yrs Amount: _____ .00

Grant: Amount: _____ .00

LTIP: Amount: _____ .00

Loan Assistance / Credit Enhancement: Amount: _____ .00

For OPWC Use Only

STATUS

Project Number: _____

_____

Release Date: _____

OPWC Approval: _____

Grant Amount: _____ .00

Loan Amount: _____ .00

Total Funding: _____ .00

Local Participation: _____ %

OPWC Participation: _____ %

Loan Type: ☐ SCIP ☐ RLP

Date Construction End: _____

Date Maturity: _____

Rate: _____ %

Term: _____ Yrs

LTIP

1.0 Project Financial Information (All Costs Rounded to Nearest Dollar)

1.1 Project Estimated Costs

Engineering Services			
Preliminary Design:	10,000 .00		
Final Design:	98,180 .00		
Construction Administration:	77,800 .00		
Total Engineering Services:	a.)	185,980 .00	20 %
Right of Way:	b.)	.00	
Construction:	c.)	921,800 .00	
Materials Purchased Directly:	d.)	.00	
Permits, Advertising, Legal:	e.)	.00	
Construction Contingencies:	f.)	92,180 .00	10 %
Total Estimated Costs:	g.)	1,199,960 .00	

1.2 Project Financial Resources

Local Resources

Local In-Kind or Force Account:	a.)	.00	
Local Revenues:	b.)	.00	
Other Public Revenues:	c.)	.00	
ODOT / FHWA PID:	d.)	.00	
USDA Rural Development:	e.)	.00	
OEPA / OWDA:	f.)	.00	
CDBG: ☐ County Entitlement or Community Dev. "Formula" ☐ Department of Development	g.)	.00	
Other:	h.)	.00	
Subtotal Local Resources:	i.)	0 .00	0 %

OPWC Funds (Check all requested and enter Amount)

Grant: 100 % of OPWC Funds	j.)	1,199,960 .00	
Loan: 0 % of OPWC Funds	k.)	.00	
Loan Assistance / Credit Enhancement:	l.)	0 .00	
Subtotal OPWC Funds:	m.)	1,199,960 .00	100 %
Total Financial Resources:	n.)	1,199,960 .00	100 %

1.3 Availability of Local Funds

Attach a statement signed by the Chief Financial Officer listed in section 5.2 certifying all local resources required for the project will be available on or before the earliest date listed in the Project Schedule section. The OPWC Agreement will not be released until the local resources are certified. Failure to meet local share may result in termination of the project. Applicant needs to provide written confirmation for funds coming from other funding sources.

2.0 Repair / Replacement or New / Expansion

2.1 Total Portion of Project Repair / Replacement:	1,199,960 .00	100 %	A Farmland Preservation letter is required for any impact to farmland
2.2 Total Portion of Project New / Expansion:	0 .00	0 %	
2.3 Total Project:	1,199,960 .00	100 %	

3.0 Project Schedule

3.1 Engineering / Design / Right of Way	Begin Date: 01/01/2020	End Date: 01/01/2021
3.2 Bid Advertisement and Award	Begin Date: 01/02/2021	End Date: 03/01/2021
3.3 Construction	Begin Date: 03/30/2021	End Date: 10/30/2021

Construction cannot begin prior to release of executed Project Agreement and issuance of Notice to Proceed.

Failure to meet project schedule may result in termination of agreement for approved projects. Modification of dates must be requested in writing by project official of record and approved by the Commission once the Project Agreement has been executed.

4.0 Project Information

If the project is multi-jurisdictional, information must be consolidated in this section.

4.1 Useful Life / Cost Estimate / Age of Infrastructure

Project Useful Life: 20 Years Age: 2010 (Year built or year of last major improvement)

Attach Registered Professional Engineer's statement, with seal or stamp and signature confirming the project's useful life indicated above and detailed cost estimate.

4.2 User Information

Road or Bridge: Current ADT 32,780 Year 2019 Projected ADT 43,950 Year 2042

Water / Wastewater: Based on monthly usage of 4,500 gallons per household; attach current ordinances.

Residential Water Rate Current $ _____ Proposed $ _____

Number of households served: _____

Residential Wastewater Rate Current $ _____ Proposed $ _____

Number of households served: _____

Stormwater: Number of households served: _____

4.3 Project Description

A: SPECIFIC LOCATION (Supply a written location description that includes the project termini; a map does not replace this requirement.) 500 character limit.

This project is the 5th phase of reconstruction of Gender Rd and will occur at the intersections of Gender Rd with Winchester Blvd and Canal St, which are 1,545 ft and 2,640 ft. south of the US 33 Interchange respectively. Both are signal controlled 4-way intersections. The project will add turn lanes at each to accomodate the growing traffic demands. Work at Canal St begins 200 feet south and 100 feet east of the intersection. Work at Winchester Blvd begins 650 feet south of the intersection

B: PROJECT COMPONENTS (Describe the specific work to be completed; the engineer's estimate does not replace this requirement) 1,000 character limit.

This project consists of the widening of the Gender Road pavement south of each intersection to add dedicated right turn lanes to the northbound approaches. The project will also reconstruct Canal Street east of Gender Road to provide the appropriate radius for turning trucks. The work will include partial depth and full depth pavement replacement and the modification of the traffic signal as needed to accommodate the new geometry. The project will include incidental improvements such as stormwater drainage, lighting, curb ramps, signage, striping, guardrail etc. as needed.

C: PHYSICAL DIMENSIONS (Describe the physical dimensions of the existing facility and the proposed facility. Include length, width, quantity and sizes, mgd capacity, etc in detail.) 500 character limit.

New lanes are proposed at 12 ft width. Project includes 1,600 SY partial depth pavement, 430 SY of full depth pavement, 845 SF sidewalk, 1,110 SY of multi-use trail, modifications to the traffic signal, and the related incidental improvements

5.0 Project Officials

Changes in Project Officials must be submitted in writing from an officer of record.

5.1 Chief Executive Officer

(Person authorized in legislation to sign project agreements)

Name: Michael Ebert
Title: Mayor
Address: 36 S. High St.
City: Canal Winchester State: OH Zip: 43110
Phone: (614) 837-7493
FAX: (614) 837-0145
E-Mail: mebert@canalwinchesterohio.gov

5.2 Chief Financial Officer

(Can not also serve as CEO)

Name: Amanda Jackson
Title: Finance Director
Address: 36 S. High St.
City: Canal Winchester State: OH Zip: 43110
Phone: (614) 837-6937
FAX: (614) 837-0145
E-Mail: ajackson@canalwinchesterohio.gov

5.3 Project Manager

Name: Matthew Peoples
Title: Director of Public Works
Address: 36 S. High St.
City: Canal Winchester State: OH Zip: 43110
Phone: (614) 834-5100
FAX: (614) 837-0145
E-Mail: mpeoples@canalwinchesterohio.gov

6.0 Attachments / Completeness review

Confirm in the boxes below that each item listed is attached (Check each box)

- [x] A certified copy of the legislation by the governing body of the applicant authorizing a designated official to sign and submit this application and execute contracts. This individual should sign under 7.0, Applicant Certification, below.

- [x] A certification signed by the applicant's chief financial officer stating the amount of all local share funds required for the project will be available on or before the dates listed in the Project Schedule section. If the application involves a request for loan (RLP or SCIP), a certification signed by the CFO which identifies a specific revenue source for repaying the loan also must be attached. Both certifications can be accomplished in the same letter.

- [x] A registered professional engineer's detailed cost estimate and useful life statement, as required in 164-1-13, 164-1-14, and 164-1-16 of the Ohio Administrative Code. Estimates shall contain an engineer's seal or stamp and signature.

- [ ] A cooperative agreement (if the project involves more than one subdivision or district) which identifies the fiscal and administrative responsibilities of each participant.

- [ ] Farmland Preservation Review - The Governor's Executive Order 98-IIV, "Ohio Farmland Protection Policy" requires the Commission to establish guidelines on how it will take protection of productive agricultural and grazing land into account in its funding decision making process. Please include a Farm Land Preservation statement for projects that have an impact on farmland.

- [x] Capital Improvements Report. CIR Required by O.R.C. Chapter 164.06 on standard form.

- [x] Supporting Documentation: Materials such as additional project description, photographs, economic impact (temporary and/or full time jobs likely to be created as a result of the project), accident reports, impact on school zones, and other information to assist your district committee in ranking your project. Be sure to include supplements which may be required by your local District Public Works Integrating Committee.

7.0 Applicant Certification

The undersigned certifies: (1) he/she is legally authorized to request and accept financial assistance from the Ohio Public Works Commission as identified in the attached legislation; (2) to the best of his/her knowledge and belief, all representations that are part of this application are true and correct; (3) all official documents and commitments of the applicant that are part of this application have been duly authorized by the governing body of the applicant; and, (4) should the requested financial assistance be provided, that in the execution of this project, the applicant will comply with all assurances required by Ohio Law, including those involving Buy Ohio and prevailing wages.

Applicant certifies that physical construction on the project as defined in the application has NOT begun, and will not begin until a Project Agreement for this project has been executed with the Ohio Public Works Commission. Action to the contrary will result in termination of the agreement and withdrawal of Ohio Public Works Commission funding from the project.

Michael Ebert, Mayor

Certifying Representative (Printed form, Type or Print Name and Title)

Michael Ebert 9-4-19

Original Signature / Date Signed

ORDINANCE NO. 19-051

AN ORDINANCE AUTHORIZING THE MAYOR AND FINANCE DIRECTOR TO SEEK FINANCIAL ASSISTANCE FROM THE OHIO PUBLIC WORKS COMMISSION FOR FUNDING OF THE GENDER ROAD IMPROVEMENTS, PHASE V PROJECT, AND DECLARING AN EMERGENCY

WHEREAS, Pursuant to article VIII, Section 2K of the Ohio Constitution, the state of Ohio is authorized to issue bonds and other obligations of the state for the purpose of financing public infrastructure capital improvements of political subdivisions as designated by law; and,

WHEREAS, pursuant to Section 164.06 of the Ohio Revised Code, the District Three Public Works Integrating Committee has been created to accept, evaluate and recommend applications for state financing of capital improvement projects of political subdivisions in Franklin County; and,

WHEREAS, pursuant to Section 164.05 of the Ohio Revised Code, the Ohio Public Works Commission has been created to accept and approve applications for stated financing of capital infrastructure improvement projects of political subdivisions in Franklin County; and,

WHEREAS, the City has conducted a capital inventory and needs assessment and has determined that it is necessary to submit applications for financial assistance for the Gender Rd. Phase V infrastructure improvement project.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF CANAL WINCHESTER, STATE OF OHIO:

Section 1. That the Mayor and Finance Director are hereby authorized to apply to the District Three Public Works Integrating Committee and the Ohio Public Works Commission for financial assistance for the Gender Road Improvements, Phase V Project.

Section 2. The Mayor and Finance Director are further authorized to enter into any agreement as may be necessary and appropriate for obtaining this financial assistance in conjunction with the recommendations of the Director of Public Service, and approved as to form by the Law Director in accordance with all authority granted to and limitations upon by the Finance Director.

Section 3. That this ordinance is hereby declared to be an emergency measure, necessary for the preservation of public health, safety and welfare, such emergency arising for the need to meet a specific application submission schedule; wherefore this ordinance shall take effect and be in force from and after its passage.

DATE PASSED 9-3-19

PRESIDENT OF COUNCIL

ATTEST Acting Clerk

MAYOR

DATE APPROVED 9-4-19

APPROVED AS TO FORM:

LEGAL COUNSEL

I hereby certify that the ordinance as set forth above was published for a period of not less than fifteen days after passage by the Council, by posting a copy thereof in not less than three (3) public places in the municipal corporation, as determined by Council and as set forth in the Canal Winchester Charter.

Clerk of Council

Acting Clerk

CHIEF FINANCIAL OFFICER'S CERTIFICATION OF LOCAL FUNDS / LOAN REPAYMENT LETTER

September 9, 2019

I understand the staff administrative fee for the SCIP & LTIP programs is funded from a contribution of up to 1% of the original award amount. I understand that all communities receiving awards in Round 34 will receive an invoice during second quarter of 2021 for administrative services. In addition, I understand that payment for these services must come from local general funds and not from the award funds.

I, Finance Director of the City of Canal Winchester, hereby certify City of Canal Winchester has the amount of $199,960 in the General Fund and that this amount will be used to pay the local share for the Gender Road Improvements, Phase 5 Project when it is required.

I, Finance Director of the City of Canal Winchester, hereby certify that the City of Canal Winchester has / will have / will collect the amount of $750,000 in the General Fund and that this amount will be used to repay the Ohio Public Works Commission SCIP or RLP loan requested for the Gender Road Improvements, Phase 5 Project over a 20 term.

Amanda M Jackson

Amanda Jackson, Finance Director, City of Canal Winchester

9/6/19

Date

Gender Road Phase 5

Gender Road at Canal Street and Winchester Boulevard

Preliminary Opinion of Construction Cost

September 5, 2019

Summary of Project Costs		Gender Road Phase 5
Roadway Subtotal	$	195,800
Sediment & Erosion Control Subtotal	$	38,000
Drainage Subtotal	$	108,100
Pavement Subtotal	$	121,500
Maintenance of Traffic Subtotal	$	97,300
Traffic Control Subtotal	$	11,900
Traffic Signal Subtotal	$	313,800
Miscellaneous Subtotal	$	35,400
2021 Preliminary Opinion of Construction Cost Total:		$921,800
Contingency (10%):		$92,180
2021 Preliminary Opinion of Construction Cost with Contingency:		**$1,013,980**
Design (10%):		$92,180
Contract Bidding:		$6,000
Floodplain Analysis:		$5,000
Geotechnical Investigations:		$5,000
Construction Administration & Inspection (8%):		$77,800
ESTIMATED PROJECT COST:		**$1,199,960**

STATE OF OHIO
JOSHUA A. GINNETTI
E-81338
REGISTERED
PROFESSIONAL ENGINEER

Signature

Notes

Estimate assumes that traffic will be maintained through the intersection during construction.

Estimate assumes no acquisitions are required for the above Project.

Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. Unit rates have been obtained from historical records and/or discussion with contractors. The unit rates reflect current bid costs in the area. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors and general contractors. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since EMH&T has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, the statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents EMH&T's best judgment as a consultant familiar with the construction industry. EMH&T does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

Prepared by: EMH&T
Prepared for: City of Canal Winchester

Gender Road Phase 5
Gender Road at Canal Street
Gender Road at Winchester Boulevard

ITEM NO.	TOTAL QUANTITY	CANAL STREET	WINCHESTER BOULEVARD	UNIT	DESCRIPTION	ENGINEER'S ESTIMATE	
						UNIT COST	TOTAL EXTENDED PRICE
					Roadway		
201	1	0.5	0.5	L. Sum	Clearing and Grubbing	$ 1,070.00	$ *1,070*
202	175	65	110	Ft	Curb and Gutter Removed	$ 8.00	$ *1,400*
202	100	100	0	Ft	Guardrail Removed	$ 6.00	$ *600*
202	200	100	100	Ft	Pipe Removed, 24" and Under	$ 33.00	$ *6,600*
202	1,105	175	930	Sq Ft	Walk Removed	$ 4.00	$ *4,420*
203	2,700	1,300	1,400	Cu Yd	Excavation	$ 22.00	$ *59,400*
203	3,900	1,800	2,100	Cu Yd	Embankment	$ 10.00	$ *39,000*
204	430	140	290	Sq Yd	Subgrade Compaction	$ 3.00	$ *1,290*
204	1,110	300	810	Sq Yd	Subgrade Compaction (For Path)	$ 3.00	$ *3,330*
204	2	1	1	Hour	Proof Rolling	$ 220.00	$ *440*
204*	80	30	50	Cu Yd	Excavation of Subgrade	$ 22.00	$ *1,760*
204*	80	30	50	Cu Yd	Granular Material, Type B	$ 49.00	$ *3,920*
204*	120	40	80	Sq Yd	Geotextile Fabric Type D	$ 4.00	$ *480*
606	100	100	0	Ft	Guardrail, Type MGS	$ 25.00	$ *2,500*
606	1	1	0	Each	Anchor Assembly Type E	$ 2,790.00	$ *2,790*
608	80	80	0	Sq Ft	4" Concrete Walk	$ 11.00	$ *880*
608	765	200	565	Sq Ft	8" Concrete Walk	$ 12.00	$ *9,180*
608	5	3	2	Each	Curb Ramp	$ 430.00	$ *2,150*
608	76	50	26	Sq Ft	Detectable Warning	$ 33.00	$ *2,508*
SPEC	1	0.5	0.5	L. Sum	Relocation of Private Utilities	$ 33,000.00	$ *33,000*
SPEC	1	0.5	0.5	L. Sum	Roadway Miscellaneous	$ 19,000.00	$ *19,000*
						Roadway Subtotal	***$ 195,800***
					Sediment & Erosion Control		
CW 205	290	120	170	Cu Yd	Topsoil (T=4")	$ 42.00	$ *12,180*
CMSC 207	1,400	600	800	Sq Yd	Construction Seeding and Mulching	$ 2.00	$ *2,800*
CMSC 207	11	6	5	Each	Inlet Protection	$ 214.00	$ *2,354*
CMSC 207	14	7	7	Each	Rock Ditch Check	$ 270.00	$ *3,780*
CW 210	2,550	1,040	1,510	Sq Yd	Seeding and Mulching	$ 1.40	$ *3,570*
659	0	0.14	0.20	Ton	Commercial Fertilizer	$ 810.00	$ *280*
659	15	6	9	M Gal	Water	$ 38.00	$ *570*
SPEC	2	1	1	Each	Concrete Washout Area	$ 4,300.00	$ *8,600*
SPEC	1	0.5	0.5	L. Sum	Sediment & Erosion Control Miscellaneous	$ 3,800.00	$ *3,800*
						Sediment & Erosion Control Subtotal	***$ 38,000***
					Drainage		
605	840	200	640	Ft	4" Base Pipe Underdrain	$ 11.00	$ *9,240*
611	3	2	1	Each	Standard 2' x 2' Catch Basin (ST-03-01)	$ 2,140.00	$ *6,420*
611	6	0	6	Each	Curb and Gutter Inlet (CW ST-04-01)	$ 3,210.00	$ *19,260*
611	2	1	1	Each	Catch Basin Adjusted to Grade	$ 1,070.00	$ *2,140*
CW 1460	130	0	130	Ft	12 Inch Polyethylene Drain Pipe with Granular Backfill per CW164	$ 75.00	$ *9,750*
CW 1460	250	0	250	Ft	18 Inch Polyethylene Drain Pipe with Granular Backfill per CW164	$ 107.00	$ *26,750*
CW 1460	130	0	130	Ft	24 Inch Polyethylene Drain Pipe with Granular Backfill per CW164	$ 156.00	$ *20,280*
CW 2000	1	0	1	Each	Manhole (CW ST-01-01)	$ 3,750.00	$ *3,750*
SPEC	1	0.5	0.5	L. Sum	Drainage Miscellaneous	$ 10,500.00	$ *10,500*
						Drainage Subtotal	***$ 108,100***
					Pavement		
252	1,115	265	850	Ft	Full Depth Pavement Sawing	$ 4.00	$ *4,460*
254	1,600	850	750	Sq Yd	Pavement Planing (T=1.25")	$ 4.00	$ *6,400*
259	20	0	20	Cu Yd	Permanent Pavement Replacement, Type I	$ 124.00	$ *2,480*
301	50	20	30	Cu Yd	Asphalt Concrete Base (T=7")	$ 145.00	$ *7,250*
304	40	20	20	Cu Yd	Aggregate Base (T=6")	$ 65.00	$ *2,600*
304	190	50	140	Cu Yd	Aggregate Base (For Path) (T=6")	$ 65.00	$ *12,350*
407	20	10	10	Gal	Non-Tracking Tack Coat (0.055 Gal/SY) (For Full-Depth)	$ 7.00	$ *140*
407	150	80	70	Gal	Non-Tracking Tack Coat (0.085 Gal/SY) (For Resurfacing)	$ 7.00	$ *1,050*
407	20	10	10	Gal	Non-Tracking Tack Coat for Intermediate Course (0.055 Gal/SY)	$ 7.00	$ *140*
423	555	180	375	Pound	Crack Sealing	$ 22.00	$ *12,210*
441	20	10	10	Cu Yd	Asphalt Concrete, Intermediate Course, Type 2, (448), PG64-22 (T=1.75")	$ 166.00	$ *3,320*
441	20	10	10	Cu Yd	Asphalt Concrete, Surface Course, Type 1, (448), PG64-22 (T=1.25")	$ 182.00	$ *3,640*
441	60	30	30	Cu Yd	Asphalt Concrete, Surface Course, Type 1, (448), PG64-22 (For Resurfacing) (T=1.25")	$ 182.00	$ *10,920*
609	840	200	640	Ft	Combination Curb & Gutter, Type Special 8"	$ 27.00	$ *22,680*
618	85	25	60	Ft	Rumble Strips, (Asphalt Concrete)	$ 9.00	$ *765*
823	80	20	60	Cu Yd	Asphalt Concrete, Surface Course, Type 1, (448) (For Path) (T=2.5")	$ 240.00	$ *19,200*
SPEC	1	0.5	0.5	L. Sum	Pavement Miscellaneous	$ 11,800.00	$ *11,800*
						Pavement Subtotal	***$ 121,500***
					Maintenance of Traffic		
614	1	0.5	0.5	L. Sum	Maintaining Traffic, As Per Plan	$ 80,250.00	$ *80,250*
616	1	0.5	0.5	L. Sum	Dust Control, As Per Plan	$ 7,500.00	$ *7,500*
SPEC	1	0.5	0.5	L. Sum	Maintenance of Traffic Miscellaneous	$ 9,500.00	$ *9,500*
						Maintenance of Traffic Subtotal	***$ 97,300***

Prepared by: EMH&T
Prepared for: City of Canal Winchester

Gender Road Phase 5
Gender Road at Canal Street
Gender Road at Winchester Boulevard

ITEM NO.	TOTAL QUANTITY	CANAL STREET	WINCHESTER BOULEVARD	UNIT	DESCRIPTION	ENGINEER'S ESTIMATE	
						UNIT COST	TOTAL EXTENDED PRICE
					Traffic Control		
630	240	120	120	Ft.	Ground Mounted Sign, No. 3 Post	$ 12.00	$ 2,880
630	128	64	64	SF	Sign, Flat Sheet	$ 20.00	$ 2,560
630	5	2	3	Each	Removal of Ground Mounted Sign and Disposal	$ 23.00	$ 115
630	9	4	5	Each	Removal of Post Mounted Support and Disposal	$ 23.00	$ 207
644	0	0.05	0.01	Mile	Edge Line, 4"	$ 3,000.00	$ 180
644	0	0.02	0.00	Mile	Center Line	$ 4,500.00	$ 90
644	780	180	600	Ft.	Channelizing Line, 8"	$ 3.00	$ 2,340
644	52	40	12	Ft.	Stop Line	$ 7.00	$ 364
644	170	140	30	Ft.	Crosswalk Line	$ 4.00	$ 680
644	45	30	15	Ft.	Transverse/Diagonal Line	$ 7.00	$ 315
644	6	2	4	Each	Lane Arrow	$ 91.00	$ 546
644	3	2	1	Each	Word on Pavement, 72"	$ 140.00	$ 420
SPEC	1	0.5	0.5	L. Sum	Traffic Control Miscellaneous	$ 1,200.00	$ 1,200
					Traffic Control Subtotal		***$ 11,900***
					Traffic Signal		
625	50	50	0	Ft	Conduit Encased, 2", 725.051	$ 14.00	$ 700
625	400	300	100	Ft	Conduit, 2", 725.051	$ 6.00	$ 2,400
625	60	60	0	Ft	Conduit, 3", 725.051	$ 9.00	$ 540
625	1,050	600	450	Ft	Conduit, 2", 725.04, Jacked or Drilled, As Per Plan	$ 27.00	$ 28,350
625	150	0	150	Ft	Conduit, 3", 725.04, Jacked or Drilled, As Per Plan	$ 33.00	$ 4,950
625	4	3	1	Each	Pull Box, 725.08, 27" (COC Std 4022), As Per Plan	$ 1,400.00	$ 5,600
625	1	1	0	Each	Pull Box, 725.08, 32", (COC Std 4023), As Per Plan	$ 1,700.00	$ 1,700
625	250	200	50	Ft	Trench	$ 8.00	$ 2,000
625	250	200	50	Ft	Plastic Caution Tape	$ 1.00	$ 250
625	11	10	1	Each	Ground Rod	$ 190.00	$ 2,090
625	8	8	0	Each	Luminaire, 83W LED, 120 Volt, Tear Drop, As Per Plan	$ 1,400.00	$ 11,200
625	4	4	0	Each	Connection, Fused Pull-Apart, Type II	$ 75.00	$ 300
625	4	4	0	Each	Connection, Unfused Pull-Apart, Type III	$ 75.00	$ 300
625	500	500	0	Ft	No. 8 AWG, 600 Volt Distribution Cable (Combination Lighting)	$ 1.70	$ 850
625	800	500	300	Ft	No. 4 AWG, 600 Volt Distribution Cable, As Per Plan (Grounding and Bonding)	$ 2.60	$ 2,080
625	250	250	0	Ft	Pole and Bracket Cable, No. 10 AWG, 600 Volt	$ 2.70	$ 675
630	4	4	0	Each	Sign, Double Faced, Street Name, As Per Plan	$ 540.00	$ 2,160
630	5	5	0	Sq Ft	Sign, Flat Sheet, As Per Plan	$ 54.00	$ 270
630	8	8	0	Each	Sign Hanger Assembly, Mast Arm, As Per Plan	$ 540.00	$ 4,320
630	2	1	1	L.Sum	Signs, As Per Plan	$ 8,560.00	$ 17,120
632	2	1	1	Each	Removal of Traffic Signal Installation, As Per Plan	$ 2,700.00	$ 5,400
632	4	4	0	Each	Vehicular Signal Head, (LED), 3-Section, 12" Lens, 1-Way, With Backplate (Black), As Per Plan	$ 860.00	$ 3,440
632	7	6	1	Each	Vehicular Signal Head, (LED), 5-Section, 12" Lens, 1-Way, With Backplate (Black), As Per Plan	$ 1,300.00	$ 9,100
632	8	8	0	Each	Pedestrian Signal Head, As Per Plan	$ 750.00	$ 6,000
632	2	0	2	Each	Reuse of Pedestrian Signal Head	$ 540.00	$ 1,080
632	11	10	1	Each	Covering of Vehicular Signal Head, As Per Plan	$ 65.00	$ 715
632	8	8	0	Each	Covering of Pedestrian Signal Head	$ 54.00	$ 432
632	4	4	0	Each	Covering of Pedestrian Pushbutton	$ 38.00	$ 152
632	4	4	0	Each	Pedestrian Pushbutton, As Per Plan	$ 320.00	$ 1,280
632	1	0	1	Each	Reuse of Pedestrrian Pushbutton	$ 220.00	$ 220
632	2	2	0	Each	Combination Signal Support, Type TC-81.21, Design No. 11, As Per Plan	$ 17,200.00	$ 34,400
632	2	2	0	Each	Combination Signal Support, Type TC-81.21, Design No. 13, As Per Plan	$ 21,400.00	$ 42,800
632	4	4	0	Each	Signal Support Foundation, As Per Plan	$ 4,300.00	$ 17,200
632	6	4	2	Each	Pedestal Foundation, As Per Plan	$ 860.00	$ 5,160
632	5	4	1	Each	Pedestal, 11', As Per Plan	$ 2,700.00	$ 13,500
632	1	0	1	Each	Reuse of Pedestal Support, As Per Plan	$ 540.00	$ 540
632	3,200	1,600	1,600	Ft	Signal Cable, 7 Conductor, No. 14 AWG	$ 2.20	$ 7,040
632	900	400	500	Ft	Signal Cable, 3 Conductor, No. 14 AWG	$ 2.10	$ 1,890
632	600	200	400	Ft	Loop Detector Lead-In Cable	$ 1.90	$ 1,140
632	1	1	0	Each	Conduit Riser, 2" Diameter, SCH 80	$ 860.00	$ 860
632	100	100	0	Ft	Power Cable, 3 Conductor, No. 6 AWG, As Per Plan	$ 3.80	$ 380
632	1	1	0	Each	Power Service, As Per Plan	$ 2,500.00	$ 2,500
633	1	1	0	Each	Controller Unit, Type TS-2/A2 with Cabinet, Type TS-2, As Per Plan	$ 19,300.00	$ 19,300
633	1	1	0	Each	Cabinet Foundation, As Per Plan	$ 1,820.00	$ 1,820
633	1	1	0	Each	Controller Work Pad, As Per Plan	$ 1,100.00	$ 1,100
633	1	1	0	Each	Uninterruptible Power Supply (UPS), 1000 Watt, As Per Plan	$ 5,700.00	$ 5,700
633	1	1	0	Each	Reuse of Emergency Vehicle Preemption, As Per Plan	$ 2,200.00	$ 2,200
815	1	1	0	Each	Reuse of Spread Spectrum Radio Interconnect System, As Per Plan	$ 2,200.00	$ 2,200
816	2	1	1	Each	Reuse of Video Detection System, As Per Plan	$ 3,300.00	$ 6,600
SPEC	4	4	0	Each	Duplex Receptacles, GFCI Type, 120V, As Per Plan	$ 330.00	$ 1,320
SPEC	1	0.5	0.5	L. Sum	Traffic Signal Miscellaneous	$ 30,400.00	$ 30,400
					Traffic Signal Subtotal		***$ 313,800***
					Miscellaneous		
623	1	0.5	0.5	L.Sum	Construction Layout Stakes, As Per Plan	$ 10,700.00	$ 10,700
624	1	0.5	0.5	L.Sum	Mobilization, As Per Plan	$ 21,400.00	$ 21,400
SPEC	1	0.5	0.5	L. Sum	OPWC Signage	$ 3,300.00	$ 3,300
					Miscellaneous Subtotal		***$ 35,400***
* Denotes Contingency Quantity to be Used as Directed.							

Certification of Detailed Cost Estimate & Design Service Capacity/Useful Life

(Must be completed by a certified professional engineer)

Project: Gender Road Improvements Phase V

Detailed Cost Estimate

As required by Rule 164-1-16(A) of the Ohio Administrative Code, I hereby certify the accuracy of the dollar amounts contained in Project Estimated Costs - Section 1.1 on the OPWC Application and as outlined on the Detailed Cost Engineer's Cost Estimate.

Design Service Capacity

In addition, as per 164-1-14, I attest that the costs entailed in this project are **100 %** **for repair** of existing infrastructure without substantially increasing design service capacity or replacement of existing infrastructure with infrastructure that has a design service capacity substantially equivalent to the design service capacity of the existing infrastructure and **0 %** **for new** infrastructure that adds to existing infrastructure or expansion that replaces existing infrastructure with infrastructure that has a design service capacity substantially greater than the design service capacity of the existing infrastructure, regardless of the relative physical dimensions of the existing or replacement infrastructure or that uses a substantially different service technology than is used by the existing infrastructure.

Useful Life

Further, as required by Rule 164-1-13(A) of the Ohio Administrative Code, I hereby state that this project will result in infrastructure with **a minimum useful life of 20.78 years** as determined in accordance with generally accepted engineering principles and practices within this state and taking into account both the specific climatic and other environmental conditions of the infrastructure's site, as well as the infrastructure's full, anticipated design use loads.

Erik Meininger 9/6/2019

Professional Engineer's Signature & Official Seal

Design Service Capacity & Useful Life Worksheet

All applications to the District 3 Public Works Integrating Committee must include this or a similar work sheet.

Applicant City of Canal Winchester Project: Gender Road Improvements Phase V

	(a)	(b)	(c)	(d)	(e)	(f)
√	**Major Infrastructure Component***	**Cost ($1,000)**	**Portion Repair or Replacement (%)**	**Repair/ Replace Product (b) x (c)**	**Individual Useful Life (years)**	**Useful Life Product (b) x (e)**
√	Full-depth road construction with drainage	298.62	100	298.62	25	7,465.52
	Full-depth road construction without drainage					
√	Less than full-depth replacement with drainage	44.53	100	44.53	15	667.88
	Less than full-depth replacement without drainage					
√	Electrical traffic control & lighting	385.12	100	385.12	12	4,621.40
	Bridge					
√	Storm Sewers	132.67	100	132.67	40	5,306.70
	Sanitary Sewers					
	Water lines					
	Pumps, lift stations, equipment					
√	Sidewalks	18.06	100	18.06	25	451.57
√	Bike facility (lane, path, etc.)	42.81	100	42.81	15	642.11
	Total	921.80		921.80		19,155.18

* Major Infrastructure Components should correspond to the subtotaled elements in the engineer's detailed estimate.

(g) Portion Repair/Replacement: Σ (d)/ Σ (b) = **100.00 %**

(h) Portion New or Expansion: 100% - Σ (d)/ Σ (b) = **0 %**

(i) Weighted Useful Life: Σ (f)/ Σ (b) = **20.78 years**

Ohio Public Works Commission
State Capital Improvements Program (SCIP) &
Local Transportation Improvement Program (LTIP)

District 3 Application
Round 34

In addition to this application form and attachments, applicants must submit the Ohio Public Works Commission Application for Financial Assistance, following Instructions Modified for Applications to District 3. Please see the District 3 Applicant Manual for Round 34 for program policies and procedures.

Projected Funds Available for Round 34

The OPWC has provided preliminary allocations for SCIP and LTIP for Round 34, which is the fiscal year beginning July 1, 2020. The projections for District 3 are shown below.

Program	Form of Assistance	Projected Amount
SCIP	Grants (maximum amount)	$14,330,700
SCIP	Loans/Debt Support (minimum amount)	$1,592,300
SCIP	Revolving Loan Program	$4,032,000
LTIP	Grants	$6,849,000
	Total	**$26,804,000**

These projections will be updated in December 2019, during the district's project selection. All programs are subject to appropriation by the General Assembly.

No more than 20% of the SCIP allocation (excluding the Revolving Loan Program) may be used for costs related to new or expanded infrastructure. This constraint does not apply to the LTIP allocation.

Loan interest rates for Round 34 are 0% for all project types.

LTIP Township Set-Aside

Over each five-year funding period, District 3's Public Works Integrating Committee (PWIC) must award at least 20 percent of one-third of the total LTIP allocation to townships. There are four years remaining in the current five-year cycle (Rounds 33-37). After the previous round, District 3 is now approximately $220,000 short of the five-year minimum amount of LTIP funds to townships.

As explained in the Applicant Manual, District 3 will set aside up to $400,000 in LTIP funds for townships for each round in order to meet this requirement. If District 3 meets the required township amounts (for a given round or five-year cycle) through the regular LTIP award process, the PWIC may adjust the set-aside.

For Round 34, the set-aside is subject to an adjustment by the PWIC.

APPLICANT EVALUATION CRITERIA – Round 34

Instructions: Read each criterion carefully and respond as directed. Many criteria will ask you to enter information in a table. Enter other information for each criterion under the **RESPONSE** prompts. Note that all responses under Applicant Evaluation Criteria are limited to one page per question.

Each question (A1-A15) has a raw score between 0 and 5 points. The raw score for each criterion will be multiplied by its weight to determine its final score.

Begin by completing the project component chart below. Attach a plan view or map to illustrate the scope of the project.

Component	Existing? (Y/N)	Quantity	Proposed Change? (Y/N)	Quantity
ADA curb ramps	Yes	3	Yes	5
Bike lanes	Yes	1 – east side of Gender Road	Yes	Project will convert lane to multi use path at the intersection of Gender & Canal and Gender & Winchester
Bus stop/shelter	No	0	No	0
Curb and gutter	Yes	On Canal St and Winchester Boulevard	Yes	200 LF
Multi-use path	No	0	Yes	Converting 825 LF of bike lane to multi use path
Road	Yes	100 LF	Yes	100 LF of Canal St replaced
Roundabout	No	0	No	0
Sanitary sewer	Yes	Existing sewer not impacted by project	Yes	Existing sewer not impacted by project
Sidewalks	Yes	At intersections	Yes	280 SF replaced
Street lighting	Yes	Not impacted by project	Yes	Not impacted by project
Storm sewer	Yes	Various	Yes	510 LF pipe, 10 structures
Traffic signal	Yes	2	Yes	Modifications to both existing signals
Turn lane(s)	No	-	Yes	Project creates new right turn lanes on northbound Gender Road at Canal St and Winchester Blvd
Waterlines	Yes	Not impacted by project	Yes	Not Impacted by project
Other (specify)				

A1) PHYSICAL CONDITION (Weight: SCIP= 8; LTIP= 6)

Skip this question if your project is 100% new or expansion work.

Condition is based on the amount of deterioration that is field verified or documented exclusive of capacity, serviceability, or health, safety and welfare issues. Condition is rated only on the existing facility being repaired or abandoned. If the existing facility is not being abandoned or repaired, but a new facility is being built, it shall be considered as an expansion project.

Complete chart below for the infrastructure to be repaired or replaced and the applicable project type. Only project types not mentioned elsewhere may complete the "Other" chart. Include supportive documentation for every answer.

Roads, Bridges and Culverts

Location (Road Segment, Bridge Location, etc.)	Rating (e.g. PCR, Bridge Rating)
Gender Road at Canal St	63.15
Gender Road at Winchester Blvd	67.8

Water Supply

Average number of breaks per 1000 miles of pipe	Not applicable
Percent of water unaccounted for (out of total produced)	
Number of EPA violations in the past year	
Peak demand compared to design capacity (percent)	
Tuberculation in water lines (Yes/No)	

Wastewater Systems

Facility influent flows and/or organic loads compared to design levels (percent)	Not applicable
Number of violations that exceed 20% of the NPDES permit limits in the past year *	
Have formal enforcement proceedings started? (Yes/No)	

** Do not include violations due to improper operation of the facility.*

Stormwater Collection

Average number of breaks per 1000 miles of pipe	Not applicable
***Instances of flooding (select one):**	
After heavy storms, in limited areas	
After heavy storms, fairly widespread	
Often, in limited areas	
Often, fairly widespread	

** Documentation includes testimony from utility, emergency and public services and/or property owners. Provide pictures if possible.*

Solid Waste

Start year of operations	Not applicable
Percent of approved floor space filled	
Estimated remaining life (years and months)	
List any best available technology (BAT) features in use:	

Other (signals, curb ramps, etc.)

Construction year	
Estimated remaining years of useful life	
Year & type of most recent rehabilitation or maintenance	
Does the facility meet current standards?	

For any project type, consider the information provided and select the condition rating that represents the average physical condition of all components of the infrastructure to be repaired or replaced.

Select Condition	Condition Rating	Description	Points
	Good	Requires routine maintenance and periodic repairs to maintain integrity.	1
	Fair	Requires minor rehabilitation to maintain integrity.	2
X	Poor	Requires partial reconstruction or extensive rehabilitation to maintain integrity.	3
	Critical	Requires major reconstruction to maintain integrity.	4
	Failed	Permanently closed or out of service. Beyond any corrective action.	5

Why did you select the physical condition checked above? Explain. Applicants are encouraged to provide photos depicting the current physical conditions.

For road, bridge, and culvert projects, identify the methodology for rating the condition. Attach documentation of how the rating was determined (with the pavement condition rating form, ODOT Bridge Inspection Field Report, etc.).

RESPONSE:

An engineering consultant evaluated the conditions of the pavement at the 2 intersections being improved by this project. The evaluation utilized the ODOT PCR System evaluation process. The segments within this project area resulted in scores of 63.15 and 67.8 at Canal St and Winchester Blvd respectively, which represents per the ODOT process, a "Fair to Poor" rating, according to the PCR score. For this reason the condition is being rated as "Poor", requiring partial reconstruction to maintain integrity. See the PCR Forms attached to this application.

A2) CRASHES (Weight: SCIP = 3; LTIP = 6)

Why will the project result in a reduction in the number and/or severity of crashes?

Without a reasonable rationale, the score will be zero.

Do NOT include police crash reports with the application. If the rationale is sufficient, MORPC staff will analyze three years of crash data using information from the Ohio Department of Public Safety and the Ohio Department of Transportation.

RESPONSE:

This project will provide multiple features that will result in a reduction to the number of crashes observed at the intersection. The crashes on record indicate that 40% are rear end crashes, 25% are left turn crashes, 12% are sideswipe crashes, and 10% are angle crashes. The remaining 13% of crashes are of varying types. The improvements proposed herein will reduce these types of crashes.

EMH&T conducted an analysis of the Crash Modifications Factors for the proposed improvements. This is a method of estimating the reduction in crashes that can be anticipated based on proposed safety improvements. The following improvements are expected to reduce crashes as follows:

Provide right turn lane on one major road approach – 9% Reduction

See the attached memo from EMH&T for further detail.

A3) PUBLIC SAFETY (Weight: SCIP = 1; LTIP = 2)

Check If Applicable	Current Condition	Points (Cumulative, up to 5)
	Hazard, icy conditions or media report of hazards	1
	Insufficient fire hydrant flow	2
	Geometric issues (sharp curve, severe drop-off, poor sight distance, etc.)	1 to 3
	Extended closure resulting in rerouted traffic	3
	Extended closure of bridge or emergency route	5
	Other unsafe conditions	1 to 2

Complete the chart above. Describe the unsafe conditions or situations caused by the existing infrastructure. Supportive evidence (such as letters, photos, media articles, etc.) is required for each unsafe condition.

RESPONSE:

This project will improve safety at the intersection by creating new turn lanes, upgrading the traffic signals, providing ADA compliant curb ramps, and converting the bike lane to and multi-use path separated from the traffic lanes. The fire department has issued a letter of support for the project, which is included in the supporting documents of this application. See also the attached Crash Data and Crash Modification Factors in the supporting documents for A2.

A4) PUBLIC HEALTH PROBLEM (Weight: SCIP = 5; LTIP = 0)

Check applicable conditions in the chart below.

Check If Applicable	Current Condition	Points (Cumulative, up to 5)
N/A	Infestation of mosquitoes, insects or rodents	1 to 2
	Basement flooding (stormwater)	1 to 3
	Basement flooding (sanitary)	2 to 4
	Health department or EPA orders to fix	2 to 4
	Biofilm in water lines OR contamination of drinking water	1 to 4
	Contamination of environment	2 to 4
	Other public health problem	1 to 5

Describe any public health problems or unhealthy conditions. Explain how the existing infrastructure contributed to them, and how the proposed project will correct or mitigate them. Supportive evidence (such as letters, photos, media articles, enforcement actions, etc.) is required. Contamination must be documented with evidence of the presence of contamination in excess of standards protective of public health.

RESPONSE:

Not Applicable

A5) ECONOMIC GROWTH AND DEVELOPMENT (Weight: SCIP = 3; LTIP = 5)

This criterion relates to the potential of the project to facilitate the creation or retention of commercial (i.e., office, industrial, or manufacturing) jobs in District 3 (Franklin County). Retail or residential development does not receive credit. Depending on the type of documentation provided, applicants can receive points for either A5a or the sum of A5b and A5c, for a maximum of 5 total points.

Check If Documented	Documentation	Points
	A5a) Letter from an economic development entity	1
OR		
	A5b) Contract or letter from a commercial developer	3
	A5c) Less than 25 jobs created or retained	1
	A5c) At least 25 jobs created or retained	2

A5a) Letter from an Economic Development Entity

Provide a copy of a signed letter from an economic development entity not affiliated with the applicant indicating that the project supports the potential creation or retention of commercial (i.e., office, industrial, or manufacturing) jobs in Franklin County.

To receive credit for A5b and A5c, the applicant must provide a satisfactory responses to the three items below:

Is this infrastructure improvement necessary to secure a particular commercial (i.e., office, industrial, or manufacturing) development or redevelopment? If so, please explain the relationship between the project and the development. Stating that the improvement will promote development in the area is not sufficient.

RESPONSE:

Not Applicable

Name of the commercial development.
RESPONSE:

Not Applicable

Identify the type of industry proposed in this commercial development.
RESPONSE:

Not Applicable

A5b) Contract or Letter from the Commercial Developer
Provide a copy of a signed contract or letter of commitment from the commercial developer outlining the proposed plan.

A5c) Creation of New Jobs or Retention of Existing Commercial Jobs

How many permanent new jobs are being created in District 3?
RESPONSE:

No permanent jobs will be created as a result of this infrastructure project. However, temporary construction jobs will be created as a result of this project, which will benefit the local economy.

How many permanent commercial jobs are being retained within District 3? Provide an explanation below or attach documentation that demonstrates that the jobs would have been lost to the district without the development.
RESPONSE:

Not applicable

Provide documentation of a development proposal stating number of permanent jobs that will be located there and the geographical area from which any existing jobs would be relocating. The applicant must provide a letter or agreement from the prospective commercial developer outlining the proposed plan or provide an existing land use plan that this improvement directly supports economic development intended to create commercial/office jobs.

A Community Reinvestment Area (CRA) is ineligible unless the agreement clearly states the CRA focuses on commercial development, not retail or residential development.

A6) CONGESTION (Weight: SCIP = 0; LTIP = 7)

If the facility currently or forecasted to be congested, complete the chart below with the current and design year (opening + 20 years) average daily traffic (ADT) and level of service (LOS) for the no-build and build scenarios.

If current ADT is not from MORPC or ODOT, a traffic count report is required.

Note that the level of service calculation (using the Highway Capacity Manual, Synchro or similar, including growth rate rationale and showing peak hour, timing, and movements) must be included in Supportive Documentation to receive credit.

Location	ADT		Opening Year LOS		Design Year LOS	
	Current	Design Year	No-Build Scenario	Build Scenario	No-Build Scenario	Build Scenario
Gender Road and Winchester Blvd	32,780	43,950	Not Calculated	Not Calculated	E (northbound right turn)	B (northbound right turn)
Gender Road and Canal St	32,780	43,950	Not Calculated	Not Calculated	E (west bound through and west bound right turn)	D (west bound through and west bound right turn)

The scoring rubric is below uses the year (current/opening or design) and location that results in the highest score. Improvements beyond LOS C do not receive credit.

Average Daily Traffic			Points
>20,000	8,000 – 20,000	<8,000	
-	-	1	1
-	1	-	2
1	-	≥2	3
-	≥2	-	4
≥2	-	-	5

Please explain how design year ADT was developed, including the growth rate rationale. If these are insufficient, only current ADT and Opening Year LOS will be used to determine the score.

RESPONSE:

A Traffic Analysis was conducted by EMH&T (dated July 29, 2019) and is attached to this application. It was determined that the improvement would improve specific movements LOS for both intersections. The most pronounced improvement at the intersection of Gender and Winchester Blvd occurs on the north bound right turn movement, which improves from a LOS E to LOS B in the build condition as proposed. The most pronounced improvement at the intersection of Gender and Canal Street occurs on the west bound through and west bound right turn movements, which improve from an LOS E to an LOS D in the build condition. See the attached Traffic Analysis and count data.

A7) PUBLIC INVOLVEMENT (Weight: SCIP = 4; LTIP = 4)

Complete the chart below to identify how the applicant has identified the project as a need. Supportive Documentation is required.

Check If Documented	Public Participation	Required Documentation and Examples	Points (Cumulative, up to 5)
	Oral comments	Summary of comments received (e.g. council minutes, log of phone calls, 311 records, etc.)	1 to 2
X	Written comments	Copy of the comments as received (e.g. letter to the editor, email, comments collected at a public meeting, newspaper articles, etc.)	2 to 3
X	Public meeting for the project held within the past two years	Sign-in sheet, advance notice of meeting (e.g. flyer, newspaper, neighborhood newsletter, electronic postings, etc.) A social media posting, without any other documentation, is not sufficient evidence of a meeting. A regularly occurring council or board meeting is acceptable *only* if the public receives prior notice of project-specific discussion beyond a typical meeting.	4
X	Public meeting in combination with written comments	See above	5

The City of Canal Winchester held a public meeting to inform its citizens of the Gender Road Phase V project. This meeting was held on September 3, 2019 at 5:30 PM at the City Town Hall. Representatives from the City attended these meetings, as did the City's Engineering Consultant. Citizens and business owners were made aware of the meeting by a Notice of Public Meeting advertised in a local paper and as posted in a prominent place in the municipal building. At the meeting, the details of the project were reviewed and questions were answered. Meeting attendees were given an opportunity to voice opposition or support for this project. A project questionnaire was also provided at the public meeting and was made available to the public. Comments were received at the meeting in support of the project.

The project received broad support, including from residents, The X Church, Canal Winchester City Schools, and The Opus Group. See the attached letters of support.

See attached copies of meeting notices, meeting minutes, sign-in sheet, and public comments.

A8) RECOGNIZED NEED (Weight: SCIP = 3; LTIP = 3)

Check If Documented	Required Documentation and Examples	Points (Cumulative, up to 5)
X	Identified as first priority below	1
X (Systematic Signal Timing and Phasing Request, Traffic Analysis)	Plans: • Preliminary engineering study complete • Comprehensive or community plan • Special study • Task force findings • Other planning document	2
X	Programs: • Capital Improvement Program (CIP) • Annual budget • Voluntary submission of a Capital Improvement Report (CIR) • Other systematic infrastructure inventory	1
	Progress/Readiness: • Signed engineering design contract specific to the project • Authorized task order within a general contract • A statement that design is in-house (or, for townships and villages, will be completed by the Franklin County Engineer's Office)	2

Complete the chart above to identify how the project was identified as a need. Include an excerpt of the applicable document as proof for each row except priority. If the origin of the excerpt is unclear, also include the cover, introduction or executive summary.

Is the project the applicant's highest priority among the applications (or the only application) submitted this round?

RESPONSE:

__X__ Yes _____ No

This project is the City's first priority for OPWC funding this round, it appears on the CIP, a Systemic Signal Timing and Phasing (SSTP) Program Request was prepared and submitted to ODOT in March of 2019, and a traffic study has been completed. The SSTP request was accepted and awarded funds by ODOT, see the attached email from Jeremy Thompson in the supporting documents for A8. See the attached supporting documents, including the traffic analysis in the supporting documents for A6.

A9) SERVICE TO THE DISTRICT (Weight: SCIP = 6; LTIP = 6)

Complete the chart below for the applicable project type. Provide the documentation requested in the table to support the number of people or size of area served.

Facility Type	Measure & Documentation	People/Area Served	Scoring Guidelines	
Road Bridge	Average Daily Traffic (ADT) Include a traffic count report if the ADT is not from MORPC or ODOT.	32,780 ADT (2019) 43,950 ADT (2042)	Staff reviews current ADTs to establish five groups relative to applications for this round	
Waterlines Sanitary Sewer Solid Waste	Number of residents and employees OR Number of residences and businesses Provide a map of the service area.		<175 people	1 point
			175-231	2
			231-519	3
			520-1000	4
			>1000	5
ADA Curb Ramps	Number of pedestrians served daily Provide documentation if available.		Staff compares current and past numbers	
Storm Sewer	Tributary drainage area (in acres) Provide a map of the service area.		<41 acres	1 point
			41-160	2
			161-480	3
			481-800	4
			>800	5

See the traffic analysis in the attachments for A6 for further detail.

A10) AREA WITH SPECIAL CONDITIONS OR IMPORTANT COMMUNITY FACILITIES (Weight: SCIP= 4; LTIP = 4)

List community facilities directly served by the project. Community facilities are those that provide public/institutional services, such as hospitals, schools, police/fire stations, community centers, parks, libraries, etc. The facility or combination of facilities must serve at least 500 people daily to count as one item. Provide documentation of daily users.

Name of Community Facility	Address/Location	Number of Daily Users

Complete the table below for other community resources or special conditions directly served by the project.

Check If Applicable	Community Resources or Special Conditions	Check If Documentation Provided
	Community facilities (from table above)	
	Regionally significant facility	
	Public housing site or Federal CDBG-designated low-income area	
X	Access for persons with disabilities (new sidewalks and ADA curb ramps)	
X	COTA route or bus stop within project limits	X
	Historic district - must be federal or state approved	
X	Tie-in with other improvements, such as neighborhood revitalization, or earlier phases	

Provide descriptive information to identify the specific resources claimed in the chart above, such as name, address, etc. Do not repeat information from the Community Facilities table above.

RESPONSE:

This project will serve an area that has at least four (3) special conditions attributable:

1) Special Condition – ADA accessibility**:**

This project will include the construction of a multi-use path that will be constructed in accordance with ADA guidelines. The project includes the construction of 5 curb ramps and the addition of push button controlled pedestrian crossing signals. In addition, the project will correct existing deficient ADA accessibility facilities.

2) Special Condition – Tie-in with previous phases:

This project is the fifth phase of the improvements planned for the Gender Road corridor and is contiguous with the prior improvements. Phases 1, 2, 3, & 4 of the Gender Road improvements were funded through the OPWC program in Rounds 24, 25, 27, and 31 respectively. The project also includes the improvement traffic signals, which are part of a larger plan for traffic signal improvement that is a joint effort between Canal Winchester and the township.

3) COTA Route and Bus Stops:

COTA buses use the intersections that are being improved by this project. COTA Route 25 operates in the corridor providing service to the residents of Canal Winchester. The intersection with Canal Street is the southernmost point of the route. The final stop is between Canal Street and Winchester Boulevard on Prentiss School Drive (one block west of Gender Road). COTA buses use the subject intersections 30 times daily. See the supporting information attached to this application.

Scoring:
2 points for one item
4 points for two items
5 point for three or more items

A11) OTHER INFORMATION (Weight: SCIP = 2; LTIP = 2)

What other information should the District 3 Committee know that would warrant additional points? Highlight qualities and characteristics that would not be evident elsewhere in the application.

Examples:

- Unusual/unique and relevant material
- Innovative green construction techniques (LEED certification, etc.)
- Project characteristics considered under other criteria, which either do not meet the standards to receive points or greatly exceed the guidelines for maximum points

RESPONSE:

The City of Canal Winchester is a vibrant and growing community in central Ohio, as evident by the population growth between 1990 and 2010. The population of the City increased almost 230% in the twenty (20) year period and almost 30% between 2000 and 2010. With the increase in population comes an increase in demand for services and an increase in demand for and on infrastructure that does not always directly correlate to the amount of population growth. The City has taken a proactive stance in regard to the increased demand on its infrastructure, of which the project outlined herein is attributable. The City has recognized the need to continually increase and improve upon its infrastructure, as a direct result of both the experienced and anticipated population growth.

The City is proactively exploring a multitude of funding opportunities and partnerships and methods to help complete the numerous roadway projects throughout the City. The importance of the success of OPWC funding is thus very high and OPWC financial support is essential. If OPWC funding is not secured, then the project may not occur as planned. This is especially true as the City of Canal Winchester is experiencing financial constraints through 2021.

Gender Road is designated in the City of Columbus Southeast Regional (Community) Plan, as a key roadway (for) improvement. Improvements planned for this project are consistent with this vision.

The project corridor has seen rapid growth in ADT in the last 6 years, increasing from 26,422 to 32,780 vehicles per day, which far exceeds the anticipated growth rate from the 2013 traffic study (excerpts attached, complete report available on request).

Traffic is expected to grow further with the growth of the Brew Dog facility on Gender Road, south of the project limits. This critical facility employs 125 people and produces 852,000 barrels of beer at full capacity. The facility also includes and on site destination hotel “The DogHouse” which was recently named one to the “100 Greatest Places on Earth” by Time Magazine in 2019. The development of this facility has received tremendous support through the local and state level as its economic importance to the region is easily recognized. See the attached article from the Columbus Dispatch from August 27, 2019

The project will maintain accommodation for bicyclists through use of a multi-use path, which is consistent with the MORPC Regional Bikeway plan.

As discussed above, the Project improvements will achieve a public benefit that is specifically aligned with improvements deemed warranted in a previous traffic impact study prepared to support the development of the nearby Elementary School Campus. The development of the Canal Winchester Elementary Schools south of the project site contributes to the additional demand at the intersection.

A12) ABILITY & EFFORT TO FINANCE THE PROJECT (Weight: SCIP= 2; LTIP = 2)

Is the unfunded project cost more than 50% of the subdivision's total general fund plus any other funds that can be used for this type of infrastructure? The **unfunded project cost** is the total project cost less any Other Match sources in Criterion S2 (federal, state, private, etc.).

To receive credit, the applicant is required to submit a copy of the subdivision's Annual Tax Budget for the year commencing January 1, 2020. ORC 5705.28 asks subdivisions to submit these budgets to the Franklin County Auditor's office in July 2019. The applicant must highlight or mark the portions of the budget eligible to fund this project.

For an application in which more than one subdivision is contributing to the Applicant Match, submit the Annual Tax Budget for the subdivision making the largest contribution to the project.

Check If Documented	Percentage of Subdivision's Total Funds for the Infrastructure Type	Points
X	Unfunded project cost represents **less than 50%** of subdivision's total annual funding that can be used for this project.	0
	Unfunded project cost represents **50% to 100%** of subdivision's total annual funding that can be used for this project.	3
	Unfunded project cost represents **more than 100%** of subdivision's total annual funding that can be used for this project.	5

A13) SPECIAL TAX OR FEE (Weight: SCIP= 3; LTIP = 3)

Complete the chart below to show any taxes, fees, or funding mechanisms devoted to local public infrastructure eligible for SCIP or LTIP. The revenue source does not have to be directly related to the project in the application. Documentation (e.g. legislation) is required for any specific tax or fee, with the exception of the optional motor vehicle license fee.

Check If Documented	Special Tax or Fee
	Optional motor vehicle license fee
X (See attached Ordinance 42-07)	Storm water management fee
X (See attached TIF agreement)	Tax Increment Financing (TIF) Revenue
	Other (specify):

The purpose of this question is to determine the level of effort the applicant has made to fund its infrastructure by enacting a special tax or fee to improve its infrastructure.

Scoring:
3 points for one item
5 points for two or more items

A14) PEDESTRIAN, BICYCLE & TRANSIT ACCOMMODATION (Weight: SCIP = 2; LTIP = 2)

Does the proposed project provide pedestrian, bicycle and transit accommodations as appropriate based on the type of roadway and current/future land use in the project area? When designing accommodations for all users of the transportation system, it is important to ensure safety, ease of use, and ease of transfer between modes.

Information about Complete Streets and a toolkit that contains information on different roadway scenarios that accommodate all user is available at: http://www.morpc.org/tool-resource/complete-streets/. Applicants are encouraged to contact MORPC for assistance in designing their project.

Check If Applicable	Proposed Accommodations	Points
X	Includes appropriate pedestrian, bicycle and/or transit accommodations in the project or already exist throughout the project area	5
	Does not provide appropriate pedestrian, bicycle or transit accommodations	0

The project includes an off-road shared-use bike & pedestrian facility and is thus consistent with the MORPC planning documents.

A15) JOINT FINANCIAL PARTNERSHIPS (Weight: SCIP = 1; LTIP = 1)

Is this a joint financial partnership where another agency provides **at least 10% of the required local match or 1% of the total project cost (whichever is higher)** as part of the local share? Funds provided by federal or state agencies are not included.

A letter documenting financial commitment between the agencies must be included in Supportive Documentation. Eligible participating local entities are all political and taxing jurisdictions in Franklin County including schools, libraries, SWACO, etc.

Check If Documented	Participating Local Entity	Match Provided
N/A		

The score will be determined by the criteria below. All partnerships must meet minimum criteria above to be considered for scoring.

Type of Partnership	Points
1 entity is partnering with applicant, providing **less than 20%** of the total project cost	3
1 entity is partnering with applicant, providing **more than 20%** of the total project cost	5
2 or more entities are partnering with applicant	5

STAFF EVALUATION CRITERIA – Round 34

Instructions: Read each criterion carefully and respond, if necessary, as directed. Most Staff Evaluation Criteria are scored using information entered into the Ohio Public Works Commission Application for Financial Assistance and the Applicant Evaluation Criteria. The **RESPONSE** prompts indicate places where the applicant is expected to provide information. The other criteria are provided here to inform the applicant of the scoring methodology.

Staff will review the information contained in the Round 34 application to score each of the questions outlined below.

Each question (S1- S12) is worth between 0-5 points (raw score). Final score for each question is determined by multiplying the raw score times the weight for each question.

The Overmatch is the portion of the match that exceeds the Required Minimum Match. Applications that provide an Overmatch earn points for S1 or S2, depending on the source of the match.

Funds from other sources are weighted more heavily than those from the applicant because: the applicant is leveraging OPWC funds, thereby using all available resources; because it demonstrates that another agency has seen enough merit in the applicant's project to commit funding to it; and the OPWC assistance may prevent the loss of the other funds to the district, if the applicant could not otherwise find enough funding to proceed with the project.

APPLICANT MATCH – (Weight: SCIP =2; LTIP = 2)

S1) Is the applicant or other responsible local public agency putting more than the required minimum into the project?

The Applicant Match is the total local revenues committed to the project by the applicant and any other local agencies that have the responsibility to maintain a portion of the project. It includes:

- Any funds from another local entity, if it has any maintenance responsibility for the project.
- Tax increment fund (TIF) revenues.
- Permissive license fee revenues, county motor vehicle license tax revenues, or any other funds held by the Franklin County Engineer that are earmarked for a specific local agency.
- Any funds under control of the applicant or other local agencies that have any responsibility to maintain a portion of the project.
- The portion of funds from a Special Improvement District (SID) that were paid by the applicant.

RESPONSE: Enter the Applicant Match information.

Local Subdivision with Maintenance Responsibility	Cash Contribution	In-Kind or Force Account Contribution
Applicant	$199,960	
Other:		
Other:		
Other:		
Total	$199,960	

The Applicant Match does not include federal, state, or private sources or any other sources included in Other Match (Criterion S2).

The City of Canal Winchester is requesting $750,000 as an OPWC SCIP Loan for the project (75% of the total funds requested).

SCIP

The Required Minimum Match for SCIP assistance is 10 percent of the repair/replacement portion of the project cost and 50 percent of the new/expansion portion of the project cost.

For SCIP scoring, the SCIP Applicant Match is the sum of the Applicant Match and the SCIP loan requested on the application.

The Applicant Overmatch is the percentage of SCIP Applicant Match minus the percentage Required Minimum Match.

(Applicant does not need to fill in this table. Staff will perform calculations.)

SCIP Applicant Match:	_____ %	(Local Public Agency Funds + SCIP Loan Request)
Required Minimum Match:	_____ %	(10% for repair/replace & 50% for new/expansion)
Applicant Overmatch (if > 0) OR		
Unmet Minimum Match (if < 0)	_____ %	(SCIP Applicant Match - Required Minimum Match)

If the SCIP Applicant Match is less than the Required Minimum Match, there is unmet minimum match, which must be met with Other Match (S2). The Applicant Overmatch becomes the Unmet Minimum Match in S2.

LTIP

There is no Required Minimum Match for LTIP grants. Therefore, the Applicant Overmatch is equal to the Applicant Match.

Points for SCIP and LTIP are awarded on the size of the Applicant Overmatch.

Applicant Overmatch (%)				
Greater than	and	Less than or equal to	earns	Points
—	≤	5%		0
> 5%	≤	15%		1
> 15%	≤	25%		2
> 25%	≤	35%		3
> 35%	≤	45%		4
> 45%		—		5

Documentation Required

If any agencies, other than the applicant, that have any responsibility to maintain a portion of the project are contributing to the Applicant Match, the applicant must provide a letter of commitment or intent from the entity providing the funds.

OTHER MATCH – (Weight: SCIP = 4; LTIP = 8).

S2) What other funds (federal, state, private) will be utilized in the project's undertaking?

Other Match contributions come from sources that are not under the control of the applicant and **not** from agencies with maintenance responsibility for a portion of the project. Applications that attract Other Match and that provide an Overmatch earn points. The Required Minimum Match is first counted against the Applicant Match (S1). Sources of Other Match may include:

- State, federal, or other public sources.
- Private contributions, such as from a developer.
- County Engineer contributions, if the county has no maintenance responsibility for any portion of the project.
- Portion of Special Improvement District (SID) that were not paid by the applicant.

RESPONSE: Enter the Other Match information below.

Other Match Contributor	Revenue Contribution	Value of In-Kind Contribution
Not Applicable	$0	
Total	$0	

The Other Match does not include fund from the applicant or any other sources included in Applicant Match (Criterion S1).

SCIP

There is a Required Minimum Match for SCIP Assistance, which was determined for S1. To determine the Other Overmatch, the Other Match must be reduced by any Unmet Minimum Match, also determined in S1.

(Applicant does not need to fill in this table. Staff will perform calculations.)

Other Match:	____%	
Unmet Minimum Match (if any):	____%	From S1, must be < 0.
Other Overmatch:	____%	(Other Match + Unmet Minimum Match)

LTIP

There is no Required Minimum Match for LTIP grants. Therefore, the Other Overmatch is equal to the Other Match.

Points for SCIP and LTIP are awarded on the size of the Other Overmatch.

Other Overmatch (%)

Greater than	and	Less than or equal to	earns	Points
—	≤	5%		0
> 5%	≤	15%		1
> 15%	≤	25%		2
> 25%	≤	35%		3
> 35%	≤	45%		4
> 45%		—		5

Documentation Required

The applicant must provide a letter of commitment or intent from any entities contributing to the Other Match.

SCIP LOAN REQUEST – (Weight: SCIP= 8; LTIP =0)

S3) What portion of the total SCIP assistance requested is in the form of a loan or loan assistance?

The City of Canal Winchester is requesting 75% of the total OPWC Funds as a Loan.

The following points will be awarded as long as the SCIP loan requested is no less than $50,000 OR the applicant requests 100% of their assistance in the form of a loan or loan assistance, whichever is less:

Loan Portion of Request

Greater than	and	Less than or equal to	earns	Points
—	≤	10%		0
> 10%	≤	25%		1
> 25%	≤	75%		3
> 75%	≤	100%		5

APPLICANT'S ECONOMIC CONDITION – (Weight: SCIP= 5; LTIP = 0)

S4) What is the subdivision's per capita income?

(See staff look up table.)

Agencies with fewer resources available to them earn more points than agencies with more resources. In practice, the community's per capita income is used as a surrogate for its financial health. Per capita income is taken from census data and cannot be directly affected by the applicant.

USEFUL LIFE – (Weight: SCIP = 0; LTIP = 1)

S5) What is the project's composite useful life?

Use the Design Service Capacity & Useful Life Worksheet to determine the weighted useful life of the project. Staff will use the following table to score the useful life.

Useful Life (Years)

Greater than	and	Less than or equal to	earns	Points
7	≤	10		1
10	≤	20		2
20	≤	30		3
30	≤	40		4
40		—		5

If the useful life of any component exceeds the typical useful life outlined in the worksheet instructions, please explain in the response below, and provide any Supportive Documentation if necessary.

RESPONSE:

The Project Composite Useful Life is 20.78 Years. See the preceding Useful Life Calculations.

OLDER LAND-LOCKED SUBURBS (Weight: SCIP= 1; LTIP = 1)

S6) Is this project within an older land locked suburb and only repairing or replacing aging infrastructure?

	Points
Yes	5
No	0

To receive credit, the following conditions must be met:

1. The project is within the corporate boundary of an "older land locked suburb," that is, a municipal corporation with a boundary that has been primarily fixed for at least 30 years and for which no substantial opportunity exists for further expansion. These municipalities are listed below:

Bexley	Riverlea
Brice	Valleyview
Grandview Heights	Whitehall
Marble Cliff	Worthington
Minerva Park	Upper Arlington

2. The costs of the proposed project are 100% for the repair or replacement of infrastructure as certified on the Design Service Capacity & Useful Life Certification.

LAST ROUND FUNDED – (Weight: SCIP = 1; LTIP = 1)

S7) In what round did the applicant last receive any form of OPWC funding: SCIP; LTIP; or the Small Government Commission?

Staff will use OPWC records to determine the last round in which the applicant received OPWC assistance and determine the number of years that have since elapsed.

Years Since Last OPWC Award	Points
1 to 2	0
2 to 4	1
5 to 6	3
7 or more	5

PERCENT NEW/EXPANSION – (Weight: SCIP= 2; LTIP =0)

S8) What percent of this project is new or expansion?

Staff will use the Design Service Capacity & Useful Life Worksheet to determine the percentage of the project that is for new infrastructure or expansion of existing infrastructure.

Expansion (%)

Greater than	and	Less than or equal to	earns	Points
—	≤	0%		5
> 0%	≤	25%		4
> 25%	≤	50%		3
> 50%	≤	75%		2
> 75%	≤	90%		1
> 90%		—		0

PERCENT ROAD, BRIDGE, OR STORM DRAINAGE – (Weight: SCIP= 2; LTIP = 0)

S9) What percent of this project is for road, bridge, or storm drainage infrastructure?

Staff will use the Design Service Capacity & Useful Life Worksheet to determine the percentage and calculate the score.

(Applicant does not need to fill in this table. Staff will perform calculations.)

_____ % × 5 = _____ points

The District 3 Committee emphasizes the use of SCIP funds for projects that do not have a direct relationship with a user fee collection. In the SCIP program, projects with higher proportions of road, bridge, or storm drainage components earn more points.

CONSTRUCTION START – (Weight: SCIP=1; LTIP=1)

S10) Is the project construction start date on or before March 31, 2021, and does the applicant have fewer than two delinquent projects from earlier rounds?

It is important that projects start construction within the program year. To encourage projects to meet this requirement, projects scheduled to begin construction by March 31 of the program year are eligible to receive points. The applicant provides the Construction Begin Date in Item 3.3 of the OPWC application form.

Local agencies are also encouraged to complete construction and close out projects with OPWC without undue delay, because any unused project funds will become available for current applications.

Projects that do not begin construction and close out in a timely fashion are considered delinquent. A project is delinquent when any of the following conditions are met:

- Projects awarded assistance in Round 32 or earlier that have not started construction by June 1, 2019. Staff will contact applicants to obtain the construction status of their projects by June 30.
- Projects awarded assistance in Round 29 or earlier that have not been closed out with OPWC by June 30, 2019. “Closed out” means final disbursement has been requested and the appropriate paperwork has been submitted to OPWC to close this project.

If the project construction start date is on or before March 31, 2021, then points will be awarded as follows:

Number of Delinquent Projects	Points
0	5
1	3
2 or more	0

Applicants with delinquent projects based on information on record with OPWC will be notified by July 31, 2019.

TOWNSHIP – (Weight: SCIP = 0; LTIP = 2)

S11) Is the applicant a township?

	Points
Yes	5
No	0

Because the District Committee has difficulty in reaching its statutory goal for providing a certain portion of the LTIP funding to townships, bonus points are awarded to township applicants under the LTIP program.

PORTION OF OPWC FUNDS REQUESTED – (Weight: SCIP = 2; LTIP = 1)

S12) What is the total amount of OPWC assistance requested?

Total **SCIP** Assistance Requested

Greater than	and	Less than or equal to	earns	Points
—	≤	$1,000,000		5
> $1,000,000	≤	$2,000,000		3
> $2,000,000	≤	$5,000,000		1
> $5,000,000	≤	—		0

LTIP Grant Requested

Greater than	and	Less than or equal to	Earns	Points
—	≤	$1,000,000		5
> $1,000,000	≤	$3,500,000		3
> $3,500,000	≤	—		0

Staff Look-Up Table

AGENCY	TYPE	SMALL (1)	ECOCOND (2)	MVLICFE (3)	TOWNSHIP
Bexley	City		2	5	0
Canal Winchester	City		3	5	0
Columbus	City		4	5	0
Dublin	City		2	0	0
Gahanna	City		2	5	0
Grandview Heights	City		2	0	0
Grove City	City		3	5	0
Groveport	City		3	5	0
Hilliard	City		3	5	0
New Albany	City		1	5	0
Reynoldsburg	City		3	5	0
Upper Arlington	City		2	5	0
Westerville	City		3	5	0
Whitehall	City		4	5	0
Worthington	City		2	5	0
Blendon	Township		3	5	5
Brown	Township	Y	2	0	5
Clinton	Township	Y	4	5	5
Franklin	Township		4	5	5
Hamilton	Township	Y	4	5	5
Jackson	Township	Y	3	5	5
Jefferson	Township		2	5	5
Madison	Township		4	5	5
Mifflin	Township	Y	3	0	5
Norwich	Township	Y	3	0	5
Perry	Township	Y	2	5	5
Plain	Township	Y	1	5	5
Pleasant	Township		3	0	5
Prairie	Township		4	5	5
Sharon	Township	Y	2	5	5
Truro	Township	Y	4	5	5
Washington	Township	Y	3	0	5
Brice	Village	Y	4	0	0
Harrisburg	Village	Y	3	0	0
Lockbourne	Village	Y	5	0	0
Marble Cliff	Village	Y	1	5	0
Minerva Park	Village	Y	3	0	0
Obetz	Village	Y	4	0	0
Riverlea	Village	Y	2	5	0
Urbancrest	Village	Y	5	5	0
Valleyview	Village	Y	4	0	0
Franklin County	County		3	5	0
Jefferson W/S	District		2	0	0

(1) SMALL - Any community with a 2010 population of 5,000 or less
(2) ECOCOND- based on 2010 per capita income
(3) MVLICFE - communities that have enacted the local motor license fee per Chapter 4504 of the Ohio Revised Code. Source: Leora Knight at Ohio Department of Public Safety – 614-752-7685 or LKnight@dps.ohio.gov

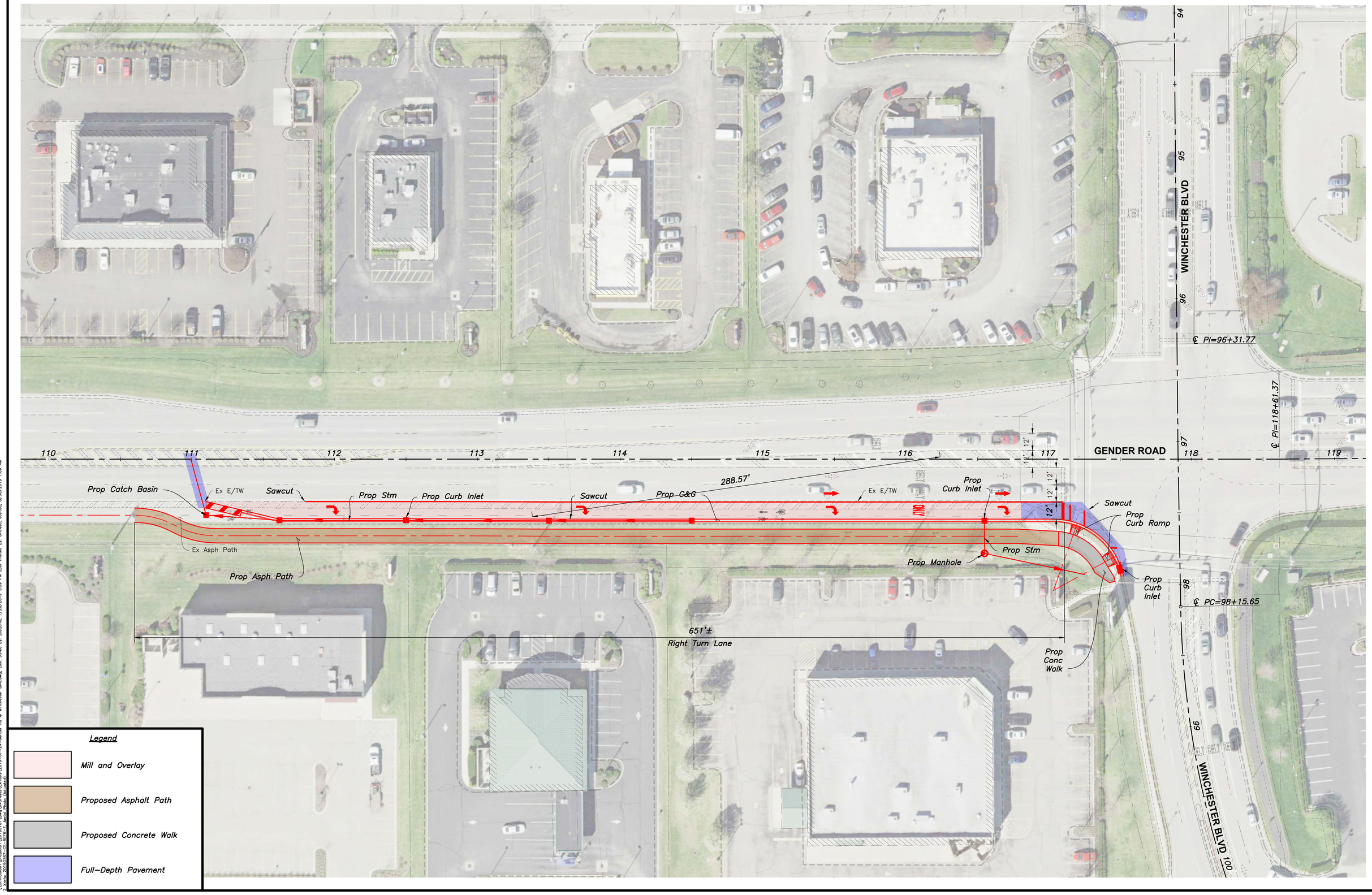
Supportive Documentation

PLAN VIEW EXHIBIT

GENDER ROAD @ CANAL STREET
EXHIBIT

GENDER ROAD
PHASE 5

1
2



Hori: 1 inch = 30 feet

GENDER ROAD @ WINCHESTER BOULEVARD
EXHIBIT

GENDER ROAD
PHASE 5

2
2

\\Cmhatsd1\proj\sd01\20190767\Dwg\GdSheets\Exhibits\2019-07-24-Gender Rd @ Winchester Blvd.dwg, Last Saved By: jbotzenn, 7/26/2019 3:59 PM Last Printed By: Cinotti, Joshua, 8/30/2019 7:09 AM
Xrefs: 20190917-CS-SIGNAL-Aerial Photo (Updated)

Supportive Documentation

SECTION A1: PHYSICAL CONDITION

Section: Gender Road @ Canal St. **KEY** Date: 9/6/2019

Log Mile: _____ to _____ **ASPHALT SURFACE LOCAL** Rated by: ERM

Sta: _____ to _____ **RATING FORM** # of Utility Cuts _____

DISTRESS	Distress Weight	SEVERITY*			EXTENT**			STR ***
		L	M	H	O	F	E	
RAVELING	10	Slight Loss of Sand	Open Texture	Rough or Pitted	<20%	20-50%	>50%	
BLEEDING	5	not rated	Bitumen & Agg. Visible	Black Surface	<10%	10-30%	>30%	
PATCHING	5	<1 ft^2	<1 yd^2	>1 yd^2	<10/mile	10-20/mile	>20/mile	
SURFACE DISINTEGRATION / DEBONDING /POTHOLES	5	depth <1" area <1 yd^2	<1", >1 yd^2 >1",<1 yd^2	>1" and >1 yd^2	<5/mile	5-10/mile	>10/mile	
RUTTING	10	1/8" - 3/8"	3/8" - 3/4"	>3/4"	<20%	20-50%	>50%	U
MAP CRACKING	5	5' x 5' to 9' x 9'	1' x '1 to 5' x 5'	< 1' x 1' or alligator	<20%	20-50%	>50%	
BASE FAILURE	10	Barely Noticeable Pitch & Roll	Noticeable Pitch & Roll, Jarring Bump	Severe Distortion, Poor Ride	<2/mi	2-5/mi	>5/mi	U
SETTLEMENTS	5	Noticeable effect on ride	Some Discomfort	Poor Ride	<2/mi	2-4/mi	>4/mi	
TRANSVERSE CRACKS	10	<1/4", no spalling	1/4 - 1", >.5 spalled	>1", >.5 spalled	CS>100'	100'<CS<50'	CS<50'	U
WHEEL TRACK CRACKING	15	Single/multiple cracks <1/4"	Multiple cracks >1/4"	Alligator >1/4" Spalling	<20%	20-50%	>50%	U
LONGITUDINAL CRACKING	5	<1/4", no spalling	1/4 - 1", >.5 spalled	>1", >.5 spalled	<50' per 100	50 -150' per 100'	>150' per 100	U
EDGE CRACKING	5	Tight, <1/4"	>1/4", some Spalling	>1/4",moderate Spalling	<20%	20-50%	>50%	U
PRESSURE DAMAGE/ UPHEAVAL	5	bump <½", Barely Noticeable	½" -1", Fair Ride	>1", Poor Ride	<5/mile	5-10/mile	>10/mile	
CRACK SEALING DEFIC.	5	Not considered			<50%	>50%	No Sealant	

*L = LOW
M = MEDIUM
H = HIGH

**O = OCCASIONAL
F = FREQUENT
E = EXTENSIVE

***STR = DISTRESS INCLUDED IN STRUCTURAL DEDUCT CALCULATIONS.

Section: Gender Road @ Canal St

Log mile: _____ to _____

Sta: _____ to _____

LOCAL

Date: 9/6/2019

Rated by: ERM

# of Utility Cuts _____

PAVEMENT CONDITION RATING FORM

DISTRESS	DISTRESS WEIGHT	SEVERITY WT.*			EXTENT WT.**			DEDUCT POINTS***
		L	M	H	O	F	E	
RAVELING	10	0.3	0.6	1	0.5	0.8	1	3
BLEEDING	5	0.8	0.8	1	0.6	0.9	1	2.4
PATCHING	5	0.3	0.6	1	0.6	0.8	1	0.9
SURFACE DISINTEGRATION or DEBONDING	5	0.3	0.6	1	0.6	0.8	1	1.8
RUTTING	10	0.3	0.7	1	0.6	0.8	1 **T**	4.2
MAP CRACKING	5	0.2	0.6	1	0.4	0.8	1	0.4
BASE FAILURE	10	0.6	0.8	1	0.7	0.9	1 **T**	4.2
SETTLEMENTS	5	0.4	0.7	1	0.6	0.8	1	1.2
TRANSVERSE CRACKS	10	0.4	0.7	1	0.5	0.7	1 **T**	2
WHEEL TRACK CRACKING	15	0.4	0.7	1	0.5	0.7	1 **T**	7.35
LONGITUDINAL CRACKING	5	0.2	0.6	1	0.4	0.8	1 **T**	2.4
EDGE CRACKING	5	0.4	0.7	1	0.5	0.7	1 **T**	1
PRESSURE DAMAGE/UPHEAVAL	5	0.4	0.6	1	0.5	0.8	1	1
CRACK SEALING DEFICIENCY	5	1	1	1	0.5	0.8	1	5

*L = LOW **O = OCCASIONAL

M = MEDIUM F = FREQUENT

H = HIGH E = EXTENSIVE

TOTAL DEDUCT = 36.85

SUM OF STRUCTURAL DEDUCT (**T**) = 16.95

100 - TOTAL DEDUCT = PCR = 63.15

*** DEDUCT POINTS = DISTRESS WEIGHT X SEVERITY WT. X EXTENT WT.

REMARKS:

Section: Gender Road @ Winchester Blvd

KEY

Date: 9/6/2019

Log Mile: _____ to _____

ASPHALT SURFACE LOCAL

Rated by: ERM

Sta: _____ to _____

RATING FORM

# of Utility Cuts _____

DISTRESS	Distress Weight	SEVERITY*			EXTENT**			STR ***
		L	M	H	O	F	E	
RAVELING	10	Slight Loss of Sand	Open Texture	Rough or Pitted	<20%	20-50%	>50%	
BLEEDING	5	not rated	Bitumen & Agg. Visible	Black Surface	<10%	10-30%	>30%	
PATCHING	5	<1 ft^2	<1 yd^2	>1 yd^2	<10/mile	10-20/mile	>20/mile	
SURFACE DISINTEGRATION / DEBONDING /POTHOLES	5	depth <1" area <1 yd^2	<1", >1 yd^2 >1",<1 yd^2	>1" and >1 yd^2	<5/mile	5-10/mile	>10/mile	
RUTTING	10	1/8" - 3/8"	3/8" - 3/4"	>3/4"	<20%	20-50%	>50%	U
MAP CRACKING	5	5' x 5' to 9' x 9'	1' x '1 to 5' x 5'	< 1' x 1' or alligator	<20%	20-50%	>50%	
BASE FAILURE	10	Barely Noticeable Pitch & Roll	Noticeable Pitch & Roll, Jarring Bump	Severe Distortion, Poor Ride	<2/mi	2-5/mi	>5/mi	U
SETTLEMENTS	5	Noticeable effect on ride	Some Discomfort	Poor Ride	<2/mi	2-4/mi	>4/mi	
TRANSVERSE CRACKS	10	<1/4", no spalling	1/4 - 1", >.5 spalled	>1", >.5 spalled	CS>100'	100'<CS<50'	CS<50'	U
WHEEL TRACK CRACKING	15	Single/multiple cracks <1/4"	Multiple cracks >1/4"	Alligator >1/4" Spalling	<20%	20-50%	>50%	U
LONGITUDINAL CRACKING	5	<1/4", no spalling	1/4 - 1", >.5 spalled	>1", >.5 spalled	<50' per 100	50 -150' per 100'	>150' per 100	U
EDGE CRACKING	5	Tight, <1/4"	>1/4", some Spalling	>1/4",moderate Spalling	<20%	20-50%	>50%	U
PRESSURE DAMAGE/ UPHEAVAL	5	bump <½", Barely Noticeable	½" -1", Fair Ride	>1", Poor Ride	<5/mile	5-10/mile	>10/mile	
CRACK SEALING DEFIC.	5	Not considered			<50%	>50%	No Sealant	

*L = LOW
M = MEDIUM
H = HIGH

**O = OCCASIONAL
F = FREQUENT
E = EXTENSIVE

***STR = DISTRESS INCLUDED IN STRUCTURAL DEDUCT CALCULATIONS.

Section: Gender Road @ Winchester Blvd

Log mile: _____ to _____

Sta: _____ to _____

LOCAL

Date: 9/6/2019

Rated by: ERM

# of Utility Cuts _____

PAVEMENT CONDITION RATING FORM

DISTRESS	DISTRESS WEIGHT	SEVERITY WT.*			EXTENT WT.**			DEDUCT POINTS***
		L	M	H	O	F	E	
RAVELING	10	0.3	0.6	1	0.5	0.8	1	3
BLEEDING	5	0.8	0.8	1	0.6	0.9	1	2.4
PATCHING	5	0.3	0.6	1	0.6	0.8	1	0.9
SURFACE DISINTEGRATION or DEBONDING	5	0.3	0.6	1	0.6	0.8	1	0.9
RUTTING	10	0.3	0.7	1	0.6	0.8	1 **T**	5.6
MAP CRACKING	5	0.2	0.6	1	0.4	0.8	1	0.4
BASE FAILURE	10	0.6	0.8	1	0.7	0.9	1 **T**	4.2
SETTLEMENTS	5	0.4	0.7	1	0.6	0.8	1	1.2
TRANSVERSE CRACKS	10	0.4	0.7	1	0.5	0.7	1 **T**	2
WHEEL TRACK CRACKING	15	0.4	0.7	1	0.5	0.7	1 **T**	4.2
LONGITUDINAL CRACKING	5	0.2	0.6	1	0.4	0.8	1 **T**	0.4
EDGE CRACKING	5	0.4	0.7	1	0.5	0.7	1 **T**	1
PRESSURE DAMAGE/UPHEAVAL	5	0.4	0.6	1	0.5	0.8	1	1
CRACK SEALING DEFICIENCY	5	1	1	1	0.5	0.8	1	5

*L = LOW	**O = OCCASIONAL	TOTAL DEDUCT = 32.2
M = MEDIUM	F = FREQUENT	SUM OF STRUCTURAL DEDUCT (**T**) = 17.4
H = HIGH	E = EXTENSIVE	**100 - TOTAL DEDUCT = PCR =** 67.8

*** DEDUCT POINTS = DISTRESS WEIGHT X SEVERITY WT. X EXTENT WT.

REMARKS:

Gender Road at Canal Street facing North. Evidence of raveling, rutting, and utility cuts are visible.

Gender Road at Canal Street facing south. Rutting, wheel track cracking, and map cracking are visible. The pedestrian and pedestrian lane is currently adjacent to the vehicular lanes.

Canal Street facing west. The signal is currently a span wire type signal.

Existing turn lane pavement is deteriorating.

Supportive Documentation

SECTION A2: CRASHES

EMH&T

Engineers, Surveyors, Planners, Scientists

MEMO

Date: September 9, 2019

To: Erik Meininger, PE

From: Charles Wu, PE

Subject: Gender Road Phase 5 Improvements

Crash Data and Crash Modification Factors (CMFs)

Copies: File

We have summarized and examined crash data occurring on Goodale Boulevard between Yard Street and Edgeworth Street for the three-year period between January 2016 and December 2018. The crash data were retrieved from ODOT GIS Crash Analysis Tool and summarized in Crash Analysis Module (CAM Tool) as attached. Summary page of the CAM tool is attached. **Table 1** shows the summary of this crash data based on crash type. There are twenty (100) non-animal related crashes. Out of the 100 reported crashes, there are 40 rear-end crashes, 25 left turn crashes, 12 sideswipe crashes, and 10 angle crashes. Summary pages of the CAM tool are attached.

Table 1 - Crash Summary based on Type of Crash

TYPE_OF_CRASH	Number	%
Rear End	**40**	40.0%
Left Turn	**25**	25.0%
Sideswipe - Passing	**12**	12.0%
Angle	**10**	10.0%
Right Turn	**4**	4.0%
Head On	**3**	3.0%
Backing	**3**	3.0%
Fixed Object	**2**	2.0%
Overturning	**1**	1.0%
Grand Total	**100**	**100.0%**

The proposed improvements for Gender Road is to construct exclusive northbound right turn lanes on Canal Street and Winchester Boulevard. See attached exhibits

Various traffic safety studies conducted around the country over the years have quantified the crash reduction potential of roadway improvements. The Crash Modification Factors Clearinghouse web-based

database of FHWA compiles the crash modification factors (CMFs) generated from these studies. A search of the CMF database indicated two CMFs related to the subject improvement will have potential to reduce crashes in the area. CMF ID number 288 is to provide a right turn lane on one major road approach. Its CMF value is 0.91 and can be applied to all crash types and all crash severity. The detail description of the CMF is attached.

The application of the above CMF due to the proposed improvements. There is potential to reduce future expected crashes. The quantified number of crashes will be expected to be reduced can be analyzed with ODOT Economic Crash Analysis Tool (ECAT).

Gender Rd 2016-2018

	Number
Total	**100**

CRASH_SEVERITY	Number	%
Injury Crash	**23**	23.0%
Property Damage Crash	**77**	77.0%
Grand Total	**100**	**100.0%**

TRAFFIC_CRASH_YEAR	Number	%
2016	**27**	27.0%
2017	**26**	26.0%
2018	**47**	47.0%
Grand Total	**100**	**100.0%**

DAY_OF_WEEK	Number	%
Friday	**18**	18.0%
Wednesday	**17**	17.0%
Sunday	**16**	16.0%
Thursday	**13**	13.0%
Saturday	**12**	12.0%
Tuesday	**12**	12.0%
Monday	**12**	12.0%
Grand Total	**100**	**100.0%**

HOUR_OF_DAY	Number	%
00	**1**	1.0%
01	**1**	1.0%
05	**1**	1.0%
06	**4**	4.0%
07	**5**	5.0%
08	**4**	4.0%
09	**2**	2.0%
10	**1**	1.0%
11	**5**	5.0%
12	**5**	5.0%
13	**6**	6.0%
14	**6**	6.0%
15	**10**	10.0%
16	**5**	5.0%
17	**12**	12.0%
18	**11**	11.0%
19	**6**	6.0%
20	**5**	5.0%
21	**5**	5.0%
22	**4**	4.0%
23	**1**	1.0%
Grand Total	**100**	**100.0%**

TYPE_OF_CRASH	Number	%
Rear End	**40**	40.0%
Left Turn	**25**	25.0%
Sideswipe - Passing	**12**	12.0%
Angle	**10**	10.0%
Right Turn	**4**	4.0%
Head On	**3**	3.0%
Backing	**3**	3.0%
Fixed Object	**2**	2.0%
Overturning	**1**	1.0%
Grand Total	**100**	**100.0%**

Gender Rd 2016-2018

WEATHER_CONDITION	Number	%
Clear	63	63.0%
Rain	16	16.0%
Cloudy	14	14.0%
Snow	4	4.0%
Other/Unknown	2	2.0%
Severe Crosswinds	1	1.0%
Grand Total	**100**	**100.0%**

ROAD_CONDITION	Number	%
Dry	73	73.0%
Wet	24	24.0%
Other	1	1.0%
Snow	1	1.0%
Ice	1	1.0%
Grand Total	**100**	**100.0%**

LIGHT_CONDITION	Number	%
Daylight	62	62.0%
Dark - Lighted Roadway	22	22.0%
Dark - Roadway Not Lighted	6	6.0%
Dawn	4	4.0%
Dusk	3	3.0%
Dark - Unknown Roadway Lighting	2	2.0%
Unknown	1	1.0%
Grand Total	**100**	**100.0%**

NUMBER_OF_VEHICLES	Number	%
1	3	3.0%
2	90	90.0%
3	6	6.0%
4	1	1.0%
Grand Total	**100**	**100.0%**

LOCATION	Number	%
Four-Way Intersection	67	67.0%
Not An Intersection	27	27.0%
T-Intersection	5	5.0%
Railroad Grade Crossing	1	1.0%
Grand Total	**100**	**100.0%**

CRASH_MONTH_NBR	Number	%
1	7	7.0%
2	14	14.0%
3	11	11.0%
4	8	8.0%
5	9	9.0%
6	5	5.0%
7	8	8.0%
8	10	10.0%
9	4	4.0%
10	10	10.0%
11	5	5.0%
12	9	9.0%
Grand Total	**100**	**100.0%**

ROAD_CONTOUR	Number	%
Straight Level	90	90.0%
Straight Grade	5	5.0%
Curve Level	5	5.0%
Grand Total	**100**	**100.0%**

SPECIAL_AREA	Number	%
(blank)	100	100.0%
Grand Total	**100**	**100.0%**

ANIMAL_TYPE	Number	%
(blank)	100	100.0%
Grand Total	**100**	**100.0%**

Gender Rd 2016-2018

ACTION1	Number	%
Straight Ahead	51	51.0%
Making Left Turn	26	26.0%
Changing Lanes	7	7.0%
Making Right Turn	6	6.0%
Backing	3	3.0%
Entering Traffic Lane	2	2.0%
Slowing Or Stopped In Traffic	2	2.0%
Overtaking/Passing	1	1.0%
Unknown	1	1.0%
Other Motorist Action	1	1.0%
Grand Total	**100**	**100.0%**

CONTRIBUTING_FACTOR1	Number	%
Followed To Closely/ACDA	38	38.0%
Failure To Yield	21	21.0%
Improper Lane Change/Passing/Offroad	11	11.0%
Ran Red Light	7	7.0%
Unknown	6	6.0%
Improper Turn	5	5.0%
Failure To Control	5	5.0%
Improper Backing	3	3.0%
Left Of Center	3	3.0%
None-Motorist	1	1.0%
Grand Total	**100**	**100.0%**

	Number	%
Total	**100**	**100.0%**

TRAFFIC_CONTROL1	Number	%
Traffic Signal	73	73.0%
No Controls	13	13.0%
Stop Sign	7	7.0%
Pavement Markings	6	6.0%
Traffic Flashers	1	1.0%
Grand Total	**100**	**100.0%**

DRIVER_ALCOHOL1	Number	%
No	99	99.0%
Yes	1	1.0%
Grand Total	**100**	**100.0%**

DRIVER_DRUGS1	Number	%
No	99	99.0%
Yes	1	1.0%
Grand Total	**100**	**100.0%**

Gender Rd 2016-2018

DIRECTION_FROM1	Number	%
North	38	38.0%
South	30	30.0%
East	19	19.0%
West	12	12.0%
Unknown	1	1.0%
Grand Total	100	100.0%

DIRECTION_TO1	Number	%
South	24	24.0%
East	24	24.0%
North	23	23.0%
West	17	17.0%
Unknown	5	5.0%
Northwest	3	3.0%
Northeast	2	2.0%
Southwest	1	1.0%
Southeast	1	1.0%
Grand Total	100	100.0%

POSTED_SPEED1	Number	%
35	72	72.0%
25	18	18.0%
45	3	3.0%
50	2	2.0%
10	1	1.0%
15	1	1.0%
20	1	1.0%
5	1	1.0%
	1	1.0%
Grand Total	100	100.0%

ESTIMATED_SPEED1	Number	%
5	21	21.0%
15	18	18.0%
20	14	14.0%
10	12	12.0%
35	10	10.0%
25	8	8.0%
30	6	6.0%
1	3	3.0%
0	3	3.0%
3	2	2.0%
60	1	1.0%
45	1	1.0%
6	1	1.0%
Grand Total	100	100.0%

VEHICLE_TYPE1	Number	%
Sport Utility Vehicle	27	27.0%
Mid Size	18	18.0%
Full Size	18	18.0%
Compact	12	12.0%
Unknown Or Hit/Skip	9	9.0%
Pickup	5	5.0%
Minivan	4	4.0%
Van	3	3.0%
Single Unit Truck Or Van 2 Axle, 6 Tires	2	2.0%
Motorized Bicycle	1	1.0%
Sub-Compact	1	1.0%
Grand Total	100	100.0%

VEHICLE_TYPE2	Number	%
Full Size	26	26.0%
Mid Size	24	24.0%
Sport Utility Vehicle	22	22.0%
Compact	10	10.0%
Minivan	5	5.0%
Pickup	4	4.0%
Sub-Compact	3	3.0%
	3	3.0%
Van	1	1.0%
Other Passenger Vehicle	1	1.0%
Bus/Van (9-15 Seats Inc Driver)	1	1.0%
Grand Total	100	100.0%

Gender Rd 2016-2018

ACTION2	Number	%
Straight Ahead	49	49.0%
Slowing Or Stopped In Traffic	33	33.0%
Making Left Turn	10	10.0%
Making Right Turn	4	4.0%
	3	3.0%
Changing Lanes	1	1.0%
Grand Total	**100**	**100.0%**

CONTRIBUTING_FACTOR2	Number	%
None-Motorist	90	90.0%
Unknown	4	4.0%
	3	3.0%
Improper Turn	1	1.0%
Ran Red Light	1	1.0%
Improper Lane Change/Passing/Offroad	1	1.0%
Grand Total	**100**	**100.0%**

DIRECTION_FROM2	Number	%
North	38	38.0%
South	31	31.0%
East	15	15.0%
West	13	13.0%
	3	3.0%
Grand Total	**100**	**100.0%**

DIRECTION_TO2	Number	%
South	31	31.0%
North	27	27.0%
East	22	22.0%
West	14	14.0%
	3	3.0%
Unknown	2	2.0%
Northwest	1	1.0%
Grand Total	**100**	**100.0%**

DRIVER_ALCOHOL2	Number	%
(blank)	100	100.0%
Grand Total	**100**	**100.0%**

DRIVER_DRUGS2	Number	%
(blank)	100	100.0%
Grand Total	**100**	**100.0%**

Gender Rd 2016-2018

SEVERITY	CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR	Property Damage Crash	Injury Crash
2016	20	7
2017	18	8
2018	39	8
Grand Total	**77**	**23**

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2016	0	0
2017	0	0
2018	0	0
Grand Total	**0**	**0**

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2016	0	7	10
2017	0	2	8
2018	0	1	10
Grand Total	**0**	**10**	**28**

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 288

Provide a right-turn lane on one major-road approach

Description:

Prior Condition: ***No Prior Condition(s)***

Category: Intersection geometry

Study: ***Safety Effectiveness of Intersection Left- and Right-Turn Lanes,*** **Harwood et al., 2002**

Star Quality Rating:	★★★★★

Crash Modification Factor (CMF)

Value:	0.91
Adjusted Standard Error:	0.04
Unadjusted Standard Error:	0.03

Crash Reduction Factor (CRF)

Value:	9 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	4
Unadjusted Standard Error:	3

Applicability

Crash Type:	All
Crash Severity:	K (fatal),A (serious injury),B (minor injury),C (possible injury)
Roadway Types:	Not Specified
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	All

Traffic Volume:	
Average Traffic Volume:	
Time of Day:	
If countermeasure is intersection-based	
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	3-leg,4-leg
Traffic Control:	Signalized
Major Road Traffic Volume:	Minimum of 7200 to Maximum of 55100 Average Daily Traffic (ADT)
Minor Road Traffic Volume:	Minimum of 550 to Maximum of 8400 Average Daily Traffic (ADT)
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes

Other Details

Included in Highway Safety Manual?	Yes. HSM lists this CMF in **bold** font to indicate that it has the highest reliability since it has an adjusted standard error of 0.1 or less.
Date Added to Clearinghouse:	Dec-01-2009
Comments:	Countermeasure name changed to match HSM

View the Full Study Details

Export Detail Page As A PDF

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For more information, contact Karen Scurry at karen.scurry@dot.gov

Supportive Documentation

SECTION A3: PUBLIC SAFETY

Madison Township Fire Department
Franklin County, Ohio
4567 Firehouse Lane
Groveport, Ohio 43125
Office: (614) 837-7883 Fax: (614) 836-0716

Jeffrey J. Fasone
Chief

September 5, 2019

Public Works Integrating Committee
District 3
Mid-Ohio Regional Planning Committee
111 Liberty St.
Columbus, Ohio 43215

Re: Gender Road Improvements, Phase V, City of Canal Winchester

Dear Esteemed Members of the Public Works Integrating Committee:

This letter signifies my support of the Gender Rd. Improvement, Phase V project, for which the City of Canal Winchester is seeking financial assistance from the Ohio Public Works Commission. This project includes critical improvements to the intersections of Gender Rd./Canal St., and Gender Rd./Winchester Blvd. intersections that will positively affect our facilities and operations. As the Chief of the Madison Township Fire Department, I am well aware of the congestion issues at these intersections and the safety concerns related to traffic congestion. These issues directly affect the operational aspects of the Madison Township Fire Station 182, which is directly south of these intersections.

I understand as part of the project additional turn lanes and optimization of the traffic signal will mitigate much of the congestion issues and improve safety in the area. These improvements are necessary from an operational standpoint of the Fire Department as the majority of the emergency calls require us to travel north on Gender Rd. through these intersections. These improvements will reduce congestion and thus reduce response times for our emergency equipment.

Once again, the Madison Township Fire Department fully supports the efforts of the City of Canal Winchester to make necessary improvements proposed in the application. I trust the application will receive due consideration from the District Three Public Works Integrating Committee and will be selected for funding assistance based on its merits. If you have any questions or would like to discuss the matter further, please do not hesitate to contact me at 614-837-7883.

Sincerely,

Jeff Fasone
Fire Chief

Supportive Documentation

SECTION A4: PUBLIC HEALTH PROBLEM

N/A

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SECTION A5: ECONOMIC GROWTH AND DEVOLOPMENT

N/A

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SECTION A6: CONGESTION

Engineers, Surveyors, Planners, Scientists

July 29, 2019

Mr. Matt Peoples
Director of Public Service
City of Canal Winchester
36 South High Street
Canal Winchester, Ohio 43110

Subject: Gender Road Phase 5
Traffic Analysis

Dear Mr. Peoples,

EMH&T has been commissioned by City of Canal Winchester to prepare conceptual engineering and funding evaluation on Gender Road corridor with the addition of northbound right turn lanes. This report is the summary of the traffic data collection and capacity analysis.

Study Area

Four intersections along Gender Road are included in this analysis. They are listed below and also shown in **Figure 1**.

- Gender Road/US-33 Eastbound Ramp
- Gender Road/Waterloo Street
- Gender Road/Winchester Boulevard
- Gender Road/Canal Street

Data Collection

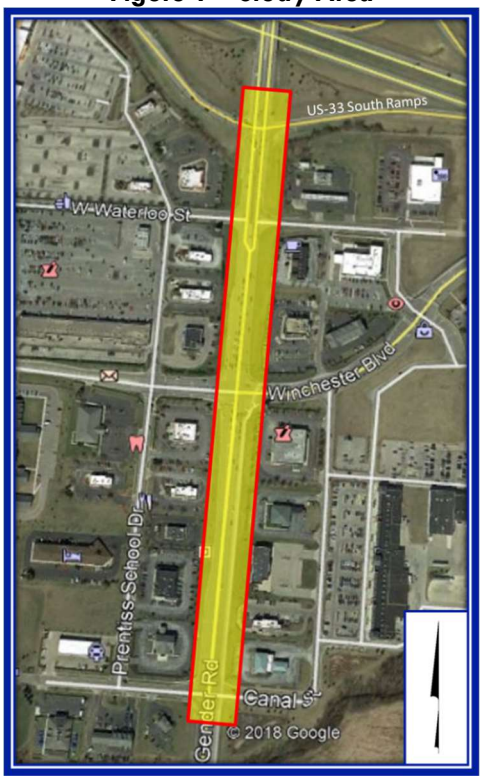
Turning movement counts were conducted at the Gender Road/US-33 Eastbound Ramp at the hours of 7am-9am and 4pm-6pm on Wednesday July 17, 2019. Other recent count data (2018) used in this analysis were obtained from the *Canal Winchester Warehouse TIS* done by Carpenter Marty Transportation dated November 9, 2018. A copy of the count data is attached.

Future Traffic Volume Projections

The future traffic volumes consist of future background traffic volumes plus the traffic expected from known planned developments in the surrounding area. For the purpose of this analysis, it was assumed the design year is 2042. In order to forecast 2042 background traffic volumes, a 1.7% linear growth rate was applied to the study area intersections. This growth rate was used in the Winchester Boulevard Access Management Plan and subsequently applied in *Canal Winchester Warehouse TIS*.

The trips generated by approved developments in the area are acquired from the *Canal Winchester Warehouse TIS* and the *Crossroads Church TIS* prepared by Smart Services dated April 2016. A copy of the volume calculation is attached.

Figure 1 – Study Area



Turn Lane Length Calculations

Turn lane lengths were calculated for the proposed northbound turn lanes based on procedures in accordance with the *Location and Design Manual, Volume 1* (Ohio Department of Transportation, 2019). The speed limit on Gender Road in the study area is 35 mph. Both 35 mph and 40 mph design speeds were utilized in the calculation of turn lane lengths. The results of the northbound turn lane sizing is shown in **Table 1**. At the Gender Road/US33 Eastbound Ramp intersection, the no blocking distance for the northbound right turn lane will extend past the Winchester Boulevard. It is recommended that this turn lane be installed between US33 Eastbound Ramp stop line to just north of Winchester Boulevard, with a resulting length of this turn lane is approximately 945 feet. A copy of the calculation is attached.

Table 1 – Turn Lane Length for an Exclusive Northbound Right Turn Lane

Intersection	Design Speed (mph)	Calculated Length	No Block Length	Recommended Length
US-33 Eastbound Ramp	35	575	1175	945
	40	640'	1175'	945'
Winchester Boulevard	35	225	650	650
	40	290'	650'	650'
Canal Street	35	325	675	675
	40	390'	675'	675'

All lengths include a 50-foot diverging taper.

Intersection Capacity Analysis

Synchro 10 software was used to evaluate operational characteristics of study area intersections based on design year 2042 weekday morning and afternoon peak hour traffic volume conditions. Two geometric conditions are analyzed to show what impact will be made due to the construction of a northbound right turn lane. The two geometric conditions are no-build (current lane configuration) and build (the addition of a northbound right turn lane). The results of the analysis is summarized in **Table 2.** The overall intersection delay will be improved/reduced during both AM and PM peak hours after the proposed northbound right turn lanes are in place.

Table 2 – Summary of Capacity Analysis

Time Period	Scenario	EBLT	EBTH	EBRT	WBLT	WBTH	WBRT	NBLT	NBTH	NBRT	SBLT	SBTH	SBRT	TOTAL
Gender Road/US33 Eastbound Ramp														
AM Peak Hour	No Build	E/75.7	E/75.7	C/21.5	-	-	-	-	B/19.4	-	E/77.1	C/23.1	-	C/26.0
	Build	E/55.6	E/55.6	C/21.4	-	-	-	-	B/19.0	-	E/66.6	B/19.2	-	C/22.2
PM Peak Hour	No Build	F/119.2	F/119.2	C/27.4	-	-	-	-	F/148.9	-	F/297.6	E/73.0	-	F/116.7
	Build	F/158.8	F/158.8	D/36.8	-	-	-	-	D/48.4	-	F/159.4	C/34.0	-	D/52.4
Gender Road/Waterloo Street														
AM Peak Hour	No Build	-	-	E/45.1	-	-	F/90.9	-	-	-	-	-	-	
	Build	-	-	E/45.1	-	-	F/61.0	-	-	-	-	-	-	
PM Peak Hour	No Build	-	-	F/63.5	-	-	F/364.2	-	-	-	-	-	-	
	Build	-	-	F/63.5	-	-	F/278.5	-	-	-	-	-	-	
Gender Road/Winchester Boulevard														
AM Peak Hour	No Build	E/70.6	C/25.3	C/20.8	C/26.0	C/31.4	D/36.4	C/32.0	E/62.5	E/61.9	E/68.7	D/35.2	B/17.4	D/44.9
	Build	E/70.6	C/26.0	C/21.5	C/25.3	C/31.4	D/36.4	C/32.1	D/45.1	B/17.9	E/68.7	D/35.2	B/17.4	D/40.6
PM Peak Hour	No Build	F/282.1	D/39.6	C/27.2	C/34.8	D/42.9	D/41.3	F/150.9	F/118.8	F/119.5	F/286.0	F/55.2	B/13.3	F/130.0
	Build	F/246.9	D/38.4	C/26.4	C/34.6	D/42.9	D/37.3	F/154.0	F/107.6	C/25.6	F/228.6	F/62.2	B/13.4	F/114.1
Gender Road/Canal Street														
AM Peak Hour	No Build	D/39.4	D/52.0	D/52.0	D/40.7	D/44.7	D/44.7	A/8.4	A/2.3	A/2.3	A/4.8	A/6.0	A/4.4	A/8.7
	Build	D/39.4	D/52.0	D/52.0	D/40.7	D/44.7	D/44.7	A/8.4	A/1.5	A/0.7	A/4.8	A/6.0	A/4.4	A/8.3
PM Peak Hour	No Build	D/44.7	F/85.8	F/85.8	F/171.2	E/56.2	E/56.2	B/14.4	A/7.4	A/7.5	B/18.5	B/10.6	A/8.1	C/27.8
	Build	D/38.3	F/85.8	F/85.8	E/73.6	D/51.2	D/51.2	B/17.8	A/7.3	A/3.4	C/20.6	B/13.5	B/10.2	C/22.6

X/X = Overall LOS / Average Delay Per Vehicle

No Build: Current Lanes, Build: Addition of a northbound right turn lane

We also reviewed the measures of effectiveness for the whole study area by total delay and fuel consumption as summarized in **Table 3**. The total delay for the study area will be decrease by 6% and 34% during AM and PM peak hour, respectively. The fuel consumption will be decreased by 3% and 22% during AM and PM peak hour, respectively. The reduction of delay and fuel consumption during PM peak hour is significant due to the addition of northbound right turn lanes at the study intersections. A copy of the Synchro capacity analysis output is attached.

If there is any question or comment, please feel free to let me know.

Table 3 – Network Measures of Effectiveness

Scenario	Total Delay (hr)	Fuel Consumed (gal)
2042 AM No Build	67	167
2042 AM Build	63	162
2042 PM No Build	348	421
2042 PM Build	228	329

Sincerely,

Charles Wu, PE
Traffic Engineer

EMH&T
5500 New Albany Road
Columbus, OH 43054
emht.com

File Name : US 33 EB Ramp - Gender Rd
Site Code : 00000000
Start Date : 7/17/2019
Page No : 1

Groups Printed- Cars - Trucks - School Buses

	GENDER RD Southbound					US 33 EB RAMP Westbound					GENDER RD Northbound					US 33 EB RAMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	15	134	0	0	149	0	0	0	0	0	0	305	26	0	331	13	0	49	0	62	542
07:15 AM	24	151	0	0	175	0	0	0	0	0	0	281	28	0	309	23	0	69	0	92	576
07:30 AM	35	162	0	0	197	0	0	0	0	0	0	287	23	0	310	24	0	77	0	101	608
07:45 AM	26	179	0	0	205	0	0	0	0	0	0	260	21	0	281	28	0	65	0	93	579
Total	100	626	0	0	726	0	0	0	0	0	0	1133	98	0	1231	88	0	260	0	348	2305
08:00 AM	31	150	0	0	181	0	0	0	0	0	0	275	20	0	295	32	0	58	0	90	566
08:15 AM	25	170	0	0	195	0	0	0	0	0	0	260	26	0	286	25	0	66	0	91	572
08:30 AM	26	204	0	0	230	0	0	0	0	0	0	294	34	0	328	26	0	76	0	102	660
08:45 AM	36	173	0	0	209	0	0	0	0	0	0	220	32	0	252	26	0	70	0	96	557
Total	118	697	0	0	815	0	0	0	0	0	0	1049	112	0	1161	109	0	270	0	379	2355
*** BREAK ***																					
04:00 PM	40	235	0	0	275	0	0	0	0	0	0	333	76	0	409	40	0	150	0	190	874
04:15 PM	45	218	0	0	263	0	0	0	0	0	0	309	68	0	377	39	0	158	0	197	837
04:30 PM	49	218	0	0	267	0	0	0	0	0	0	314	73	0	387	49	0	137	0	186	840
04:45 PM	73	236	0	0	309	0	0	0	0	0	0	313	74	0	387	43	0	153	0	196	892
Total	207	907	0	0	1114	0	0	0	0	0	0	1269	291	0	1560	171	0	598	0	769	3443
05:00 PM	59	269	0	0	328	0	0	0	0	0	0	267	79	0	346	44	0	111	0	155	829
05:15 PM	60	281	0	0	341	0	0	0	0	0	0	340	73	0	413	51	0	160	0	211	965
05:30 PM	32	275	0	0	307	0	0	0	0	0	0	333	71	0	404	56	0	144	0	200	911
05:45 PM	42	210	0	0	252	0	0	0	0	0	0	324	58	0	382	58	0	105	0	163	797
Total	193	1035	0	0	1228	0	0	0	0	0	0	1264	281	0	1545	209	0	520	0	729	3502
Grand Total	618	3265	0	0	3883	0	0	0	0	0	0	4715	782	0	5497	577	0	1648	0	2225	11605
Apprch %	15.9	84.1	0	0		0	0	0	0		0	85.8	14.2	0		25.9	0	74.1	0		
Total %	5.3	28.1	0	0	33.5	0	0	0	0	0	0	40.6	6.7	0	47.4	5	0	14.2	0	19.2	
Cars	601	3213	0	0	3814	0	0	0	0	0	0	4642	772	0	5414	562	0	1570	0	2132	11360
% Cars	97.2	98.4	0	0	98.2	0	0	0	0	0	0	98.5	98.7	0	98.5	97.4	0	95.3	0	95.8	97.9
Trucks	17	52	0	0	69	0	0	0	0	0	0	73	10	0	83	15	0	78	0	93	245
% Trucks	2.8	1.6	0	0	1.8	0	0	0	0	0	0	1.5	1.3	0	1.5	2.6	0	4.7	0	4.2	2.1
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EMH&T
5500 New Albany Road
Columbus, OH 43054
emht.com

File Name : US 33 EB Ramp - Gender Rd
Site Code : 00000000
Start Date : 7/17/2019
Page No : 2

	GENDER RD Southbound					US 33 EB RAMP Westbound					GENDER RD Northbound					US 33 EB RAMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	26	179	0	0	205	0	0	0	0	0	0	260	21	0	281	28	0	65	0	93	579
08:00 AM	**31**	150	0	0	181	0	0	0	0	0	0	275	20	0	295	**32**	0	58	0	90	566
08:15 AM	25	170	0	0	195	0	0	0	0	0	0	260	26	0	286	25	0	66	0	91	572
08:30 AM	26	**204**	0	0	**230**	0	0	0	0	0	0	**294**	**34**	0	**328**	26	0	**76**	0	**102**	**660**
Total Volume	108	703	0	0	811	0	0	0	0	0	0	1089	101	0	1190	111	0	265	0	376	2377
% App. Total	13.3	86.7	0	0		0	0	0	0		0	91.5	8.5	0		29.5	0	70.5	0		
PHF	.871	.862	.000	.000	.882	.000	.000	.000	.000	.000	.000	.926	.743	.000	.907	.867	.000	.872	.000	.922	.900
Cars	103	682	0	0	785	0	0	0	0	0	0	1058	97	0	1155	103	0	234	0	337	2277
% Cars	95.4	97.0	0	0	96.8	0	0	0	0	0	0	97.2	96.0	0	97.1	92.8	0	88.3	0	89.6	95.8
Trucks	5	21	0	0	26	0	0	0	0	0	0	31	4	0	35	8	0	31	0	39	100
% Trucks	4.6	3.0	0	0	3.2	0	0	0	0	0	0	2.8	4.0	0	2.9	7.2	0	11.7	0	10.4	4.2
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EMH&T

5500 New Albany Road
Columbus, OH 43054
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File Name : US 33 EB Ramp - Gender Rd
Site Code : 00000000
Start Date : 7/17/2019
Page No : 3

	GENDER RD Southbound					US 33 EB RAMP Westbound					GENDER RD Northbound					US 33 EB RAMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**73**	236	0	0	309	0	0	0	0	0	0	313	74	0	387	43	0	153	0	196	892
05:00 PM	59	269	0	0	328	0	0	0	0	0	0	267	**79**	0	346	44	0	111	0	155	829
05:15 PM	60	**281**	0	0	**341**	0	0	0	0	0	0	**340**	73	0	**413**	51	0	**160**	0	**211**	**965**
05:30 PM	32	275	0	0	307	0	0	0	0	0	0	333	71	0	404	**56**	0	144	0	200	911
Total Volume	224	1061	0	0	1285	0	0	0	0	0	0	1253	297	0	1550	194	0	568	0	762	3597
% App. Total	17.4	82.6	0	0		0	0	0	0		0	80.8	19.2	0		25.5	0	74.5	0		
PHF	.767	.944	.000	.000	.942	.000	.000	.000	.000	.000	.000	.921	.940	.000	.938	.866	.000	.888	.000	.903	.932
Cars	222	1053	0	0	1275	0	0	0	0	0	0	1244	295	0	1539	190	0	552	0	742	3556
% Cars	99.1	99.2	0	0	99.2	0	0	0	0	0	0	99.3	99.3	0	99.3	97.9	0	97.2	0	97.4	98.9
Trucks	2	8	0	0	10	0	0	0	0	0	0	9	2	0	11	4	0	16	0	20	41
% Trucks	0.9	0.8	0	0	0.8	0	0	0	0	0	0	0.7	0.7	0	0.7	2.1	0	2.8	0	2.6	1.1
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

IV. Projected Traffic

A. Background Traffic

For analysis, the Opening Year of the development is 2020 and the Design or Horizon Year is 2030. In order to project the count data to the Opening and Horizon Years, growth rates were researched from previous studies completed in Canal Winchester. The highest growth rate was used in order to produce conservative results. A linear, annual growth rate of 1.7% was obtained from a traffic study with the subject line *Winchester Boulevard Access Management Plan - Proposed Traffic Signal - Winchester Boulevard @ Prentiss School Road/Winchester Square Drive* provided by Canal Winchester. This growth rate was applied to the 2018 count data to produce Background traffic for the Opening and Horizon Years. Additional traffic for the proposed Winchester Office Park was also added to the grown Background traffic to produce No Build traffic for the Opening and Horizon Years. The Winchester Office park is proposed to be constructed on the south side of Winchester Boulevard opposite of the proposed development. The above referenced traffic study can be found in **Appendix B.**

B. Site Traffic

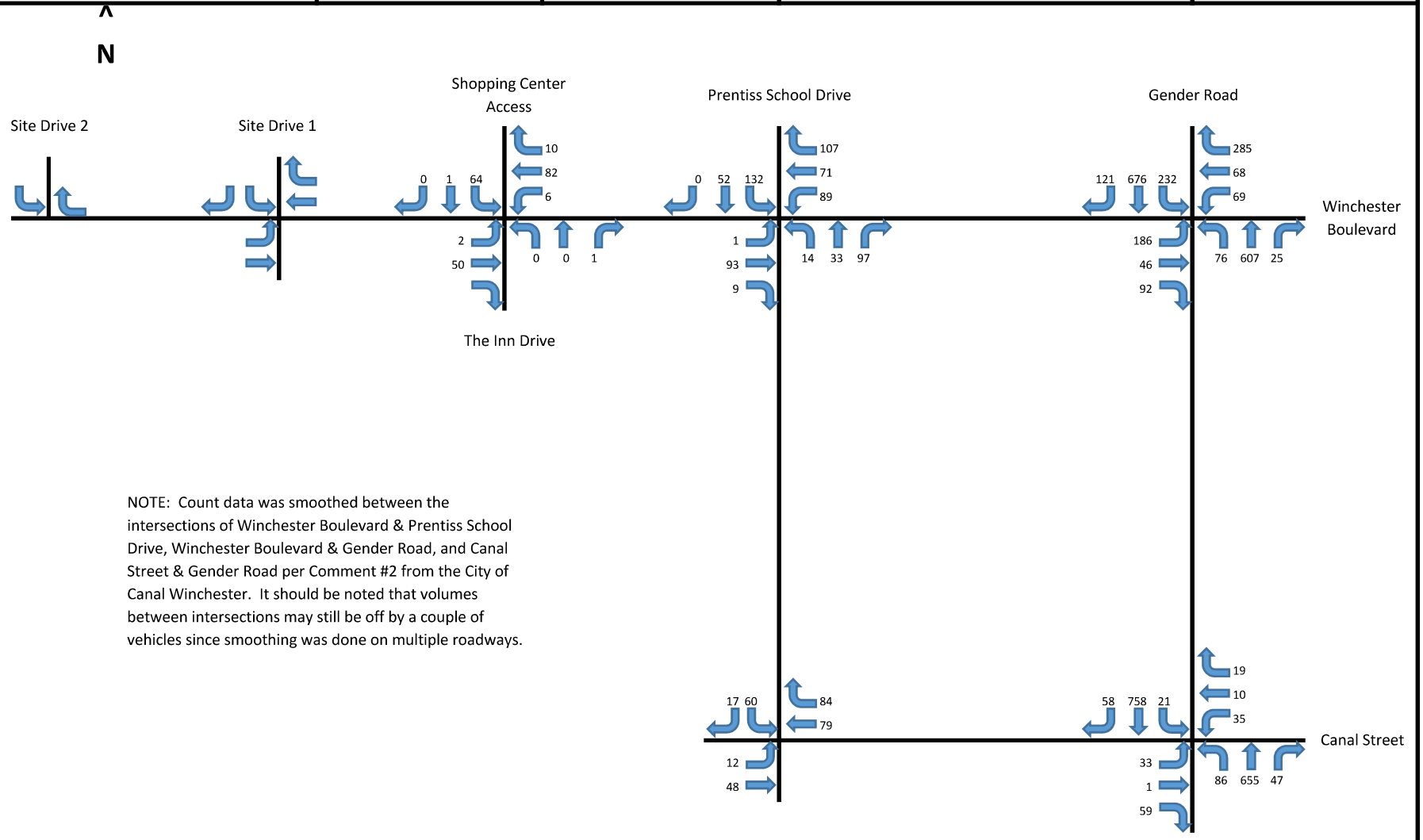
Trips for the proposed development and background Winchester Office Park were generated using standard Institute of Transportation Engineers (ITE) practices and the *Trip Generation* Manual, 10th edition, data via the OTISS program[2]. Land Use Codes *(LUC) 150 – Warehousing, 710 – General Office Building,* and *310 – Hotel* were used to generate trips for the proposed development and the Winchester Office Park. *LUC 150 - Warehousing* was determined to be the best land use code for the proposed development based on the ITE description. The development is expected to be 90-95% warehousing storage and distribution space with 5-10% office space. After further review, the most likely use for the site would be *LUC 154 - High-Cube Transload and Short-Term Storage Warehouse*. This LUC generates approximately 30% less trips than *LUC 150 - Warehousing. The LUC 150 - Warehousing* was maintained for this TIS as the end users of the proposed site are unknown. Based on this information, the results of this TIS are expected to be conservative. Internal capture and pass-by do not apply to the proposed development or the Winchester Office Park. **Table 1** shows the trip generation of the proposed development. **Table 2** shows the trip generation for the Winchester Office Park. The full trip generation analysis and LUC descriptions can be found in **Appendix C.**

Trips generated by this proposed development are anticipated to be mostly standard passenger vehicles for persons who are traveling to and from work daily. It is also anticipated that there will be a slight increase in truck traffic during peak hours. However, most truck pickups and deliveries take place outside of peak traffic hours for efficiency. Warehousing/light manufacturing developments are becoming more modernized, requiring less employees for day-to-day operations and thus, generating less vehicle trips. Based on conversations with the City of Canal Winchester, it was assumed that 20% of the generated traffic for the proposed site would be trucks. Schematics of anticipated design vehicles associated with the proposed site entering and exiting Winchester Boulevard from Gender Road are provided in **Appendix D** per the request of the City.

[2] Online Traffic Impact Study Software developed by ITE and Transoft Solutions.

Canal Winchester Warehouse TIS
Traffic Volume Calculations

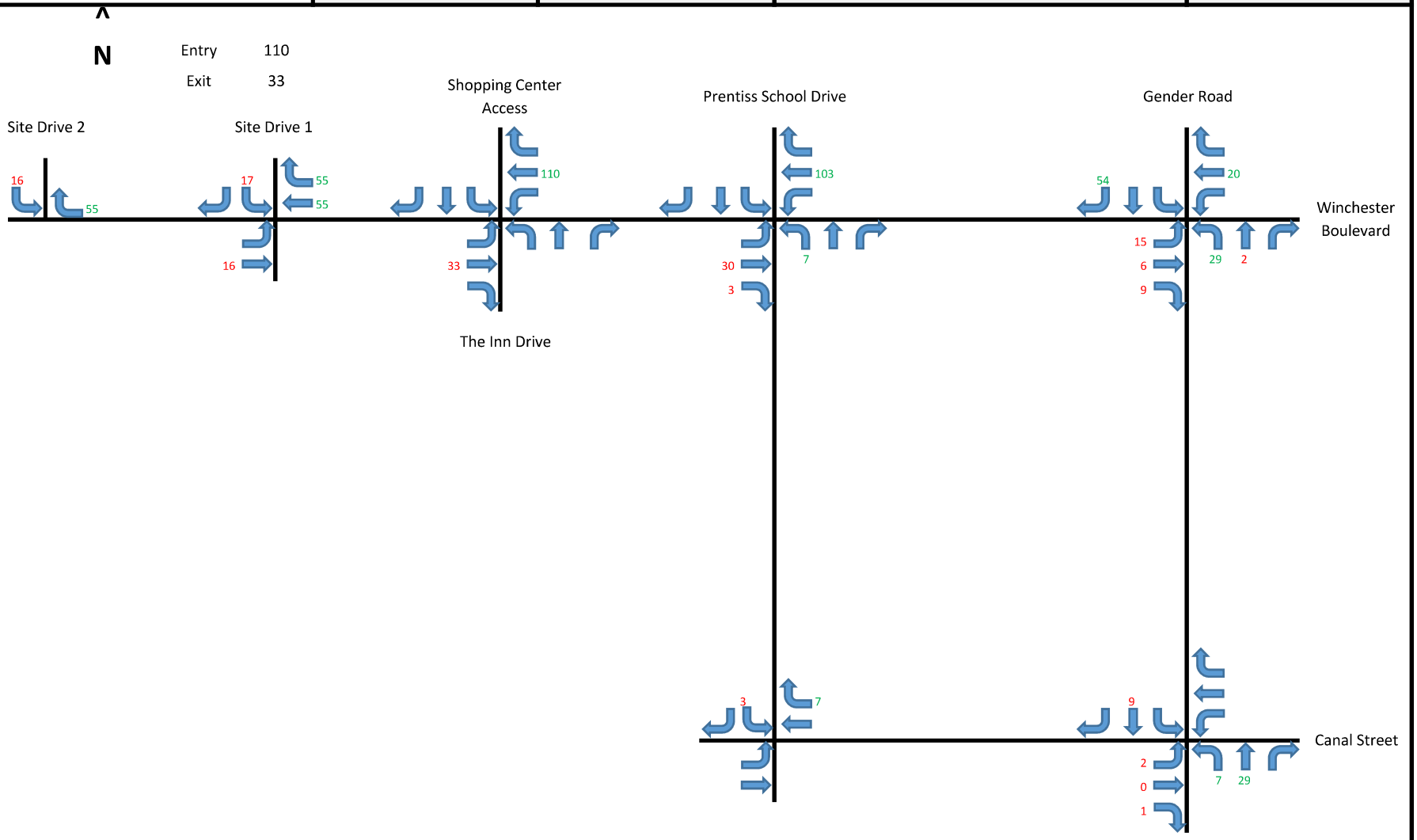
Year	Period	Scenario	Plate
2018	AM	Count	



NOTE: Count data was smoothed between the intersections of Winchester Boulevard & Prentiss School Drive, Winchester Boulevard & Gender Road, and Canal Street & Gender Road per Comment #2 from the City of Canal Winchester. It should be noted that volumes between intersections may still be off by a couple of vehicles since smoothing was done on multiple roadways.

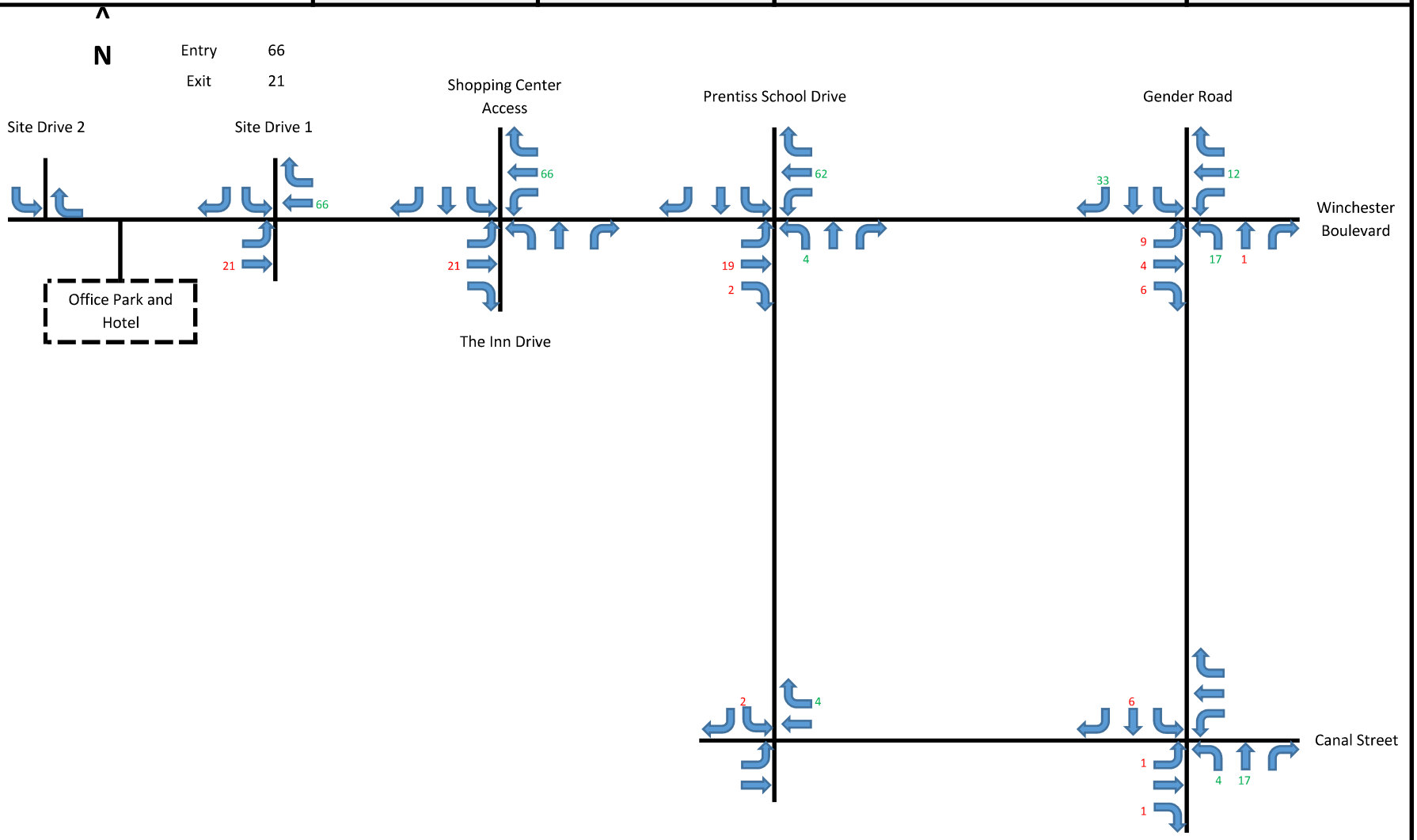
Canal Winchester Warehouse TIS
Traffic Volume Calculations

Year	Period	Scenario	Plate
	AM	Site Non-Pass-By	D



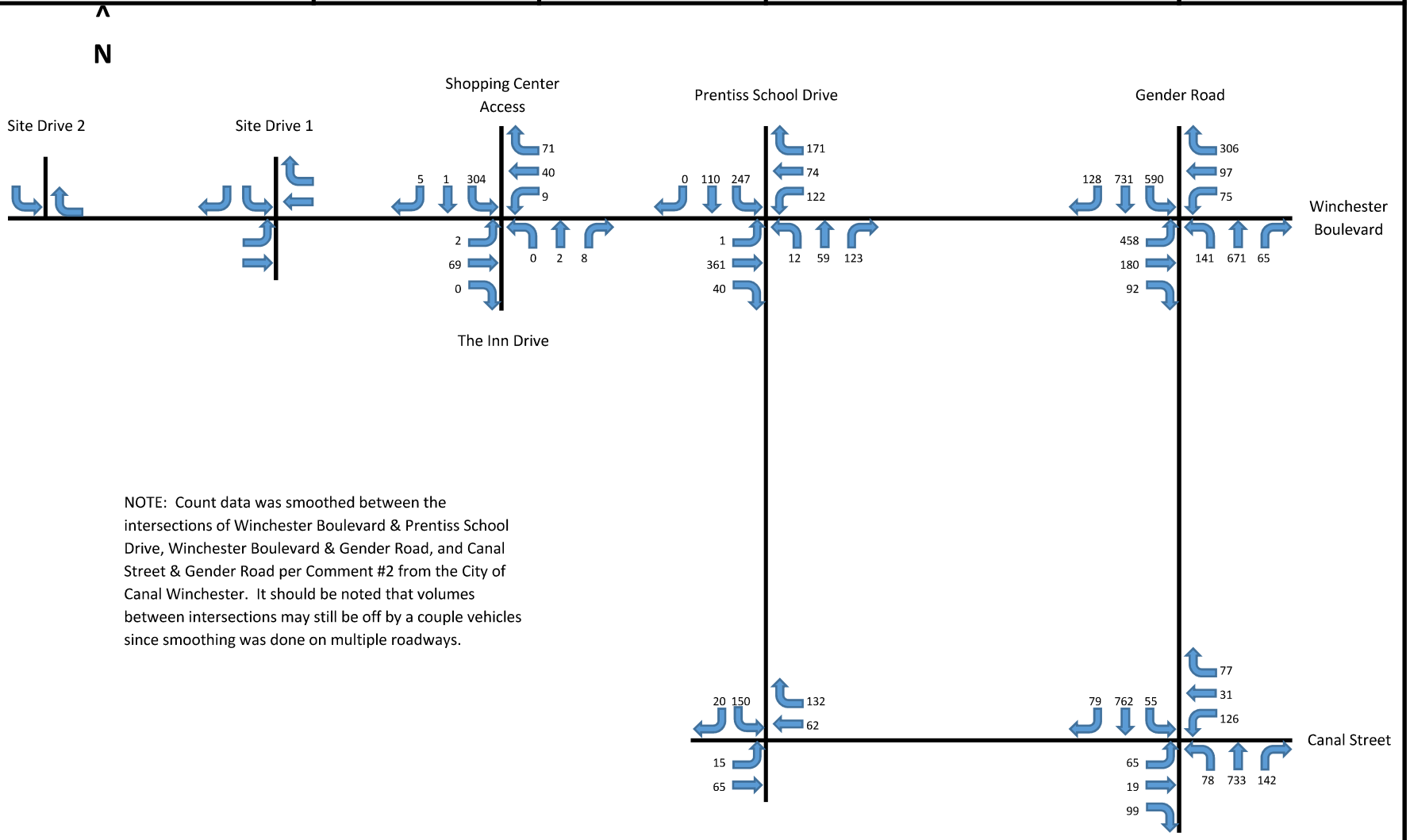
Canal Winchester Warehouse TIS
Traffic Volume Calculations

Year	Period	Scenario	Plate
	AM	Office Park / Hotel Traffic	B



Canal Winchester Warehouse TIS
Traffic Volume Calculations

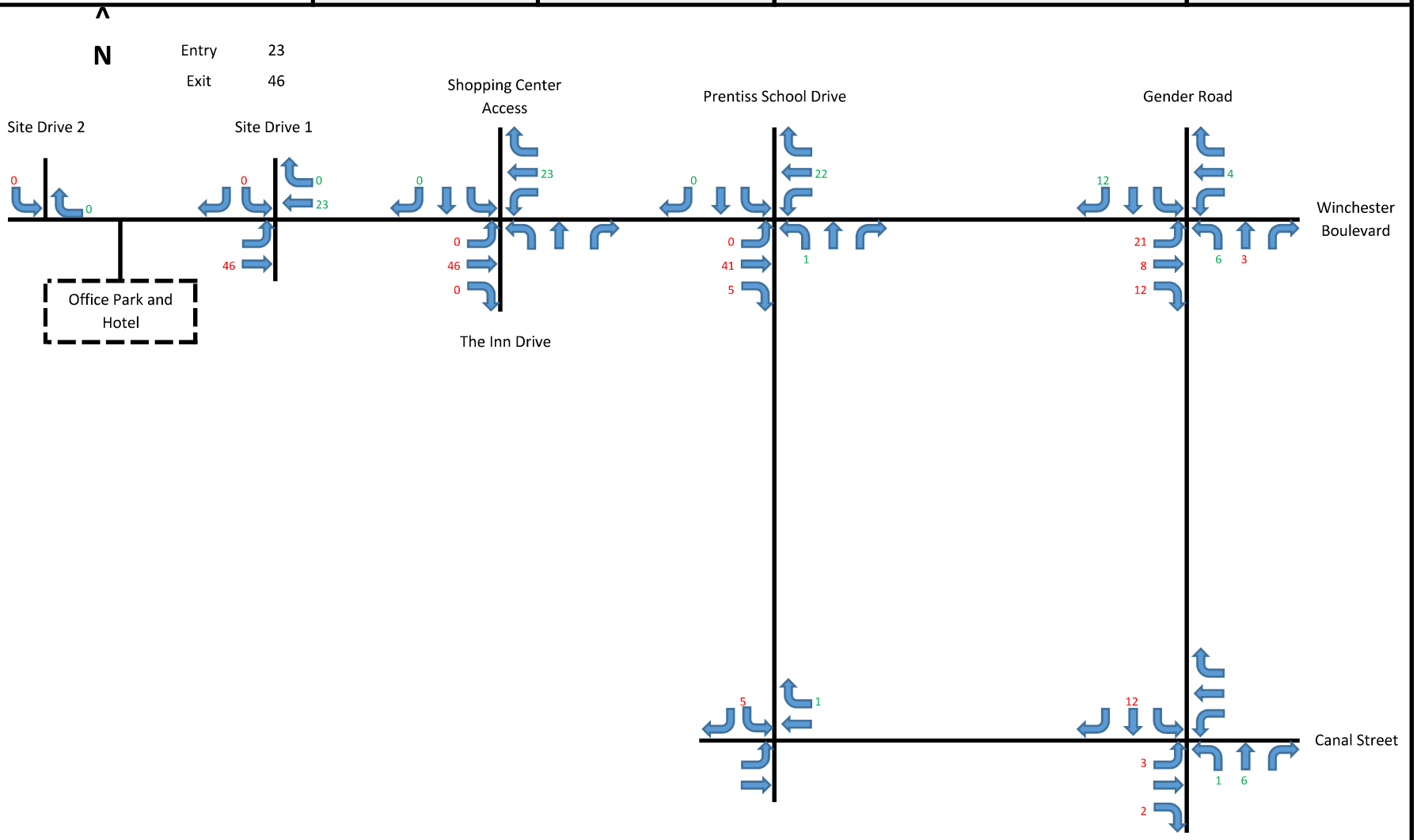
Year	Period	Scenario	Plate
2018	PM	Count	



NOTE: Count data was smoothed between the intersections of Winchester Boulevard & Prentiss School Drive, Winchester Boulevard & Gender Road, and Canal Street & Gender Road per Comment #2 from the City of Canal Winchester. It should be noted that volumes between intersections may still be off by a couple vehicles since smoothing was done on multiple roadways.

Canal Winchester Warehouse TIS
Traffic Volume Calculations

Year	Period	Scenario	Plate
	PM	Office Park / Hotel Traffic	B

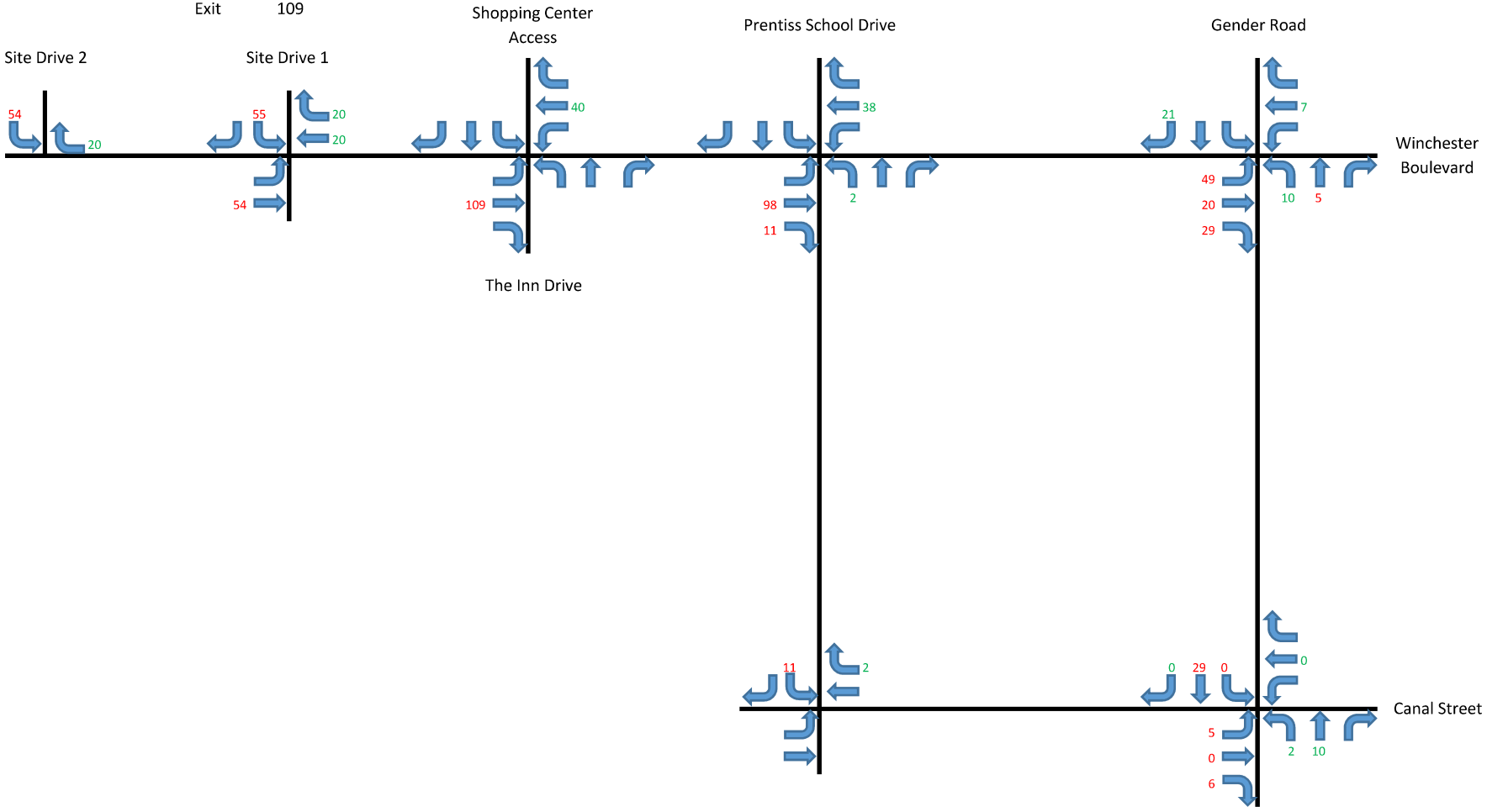


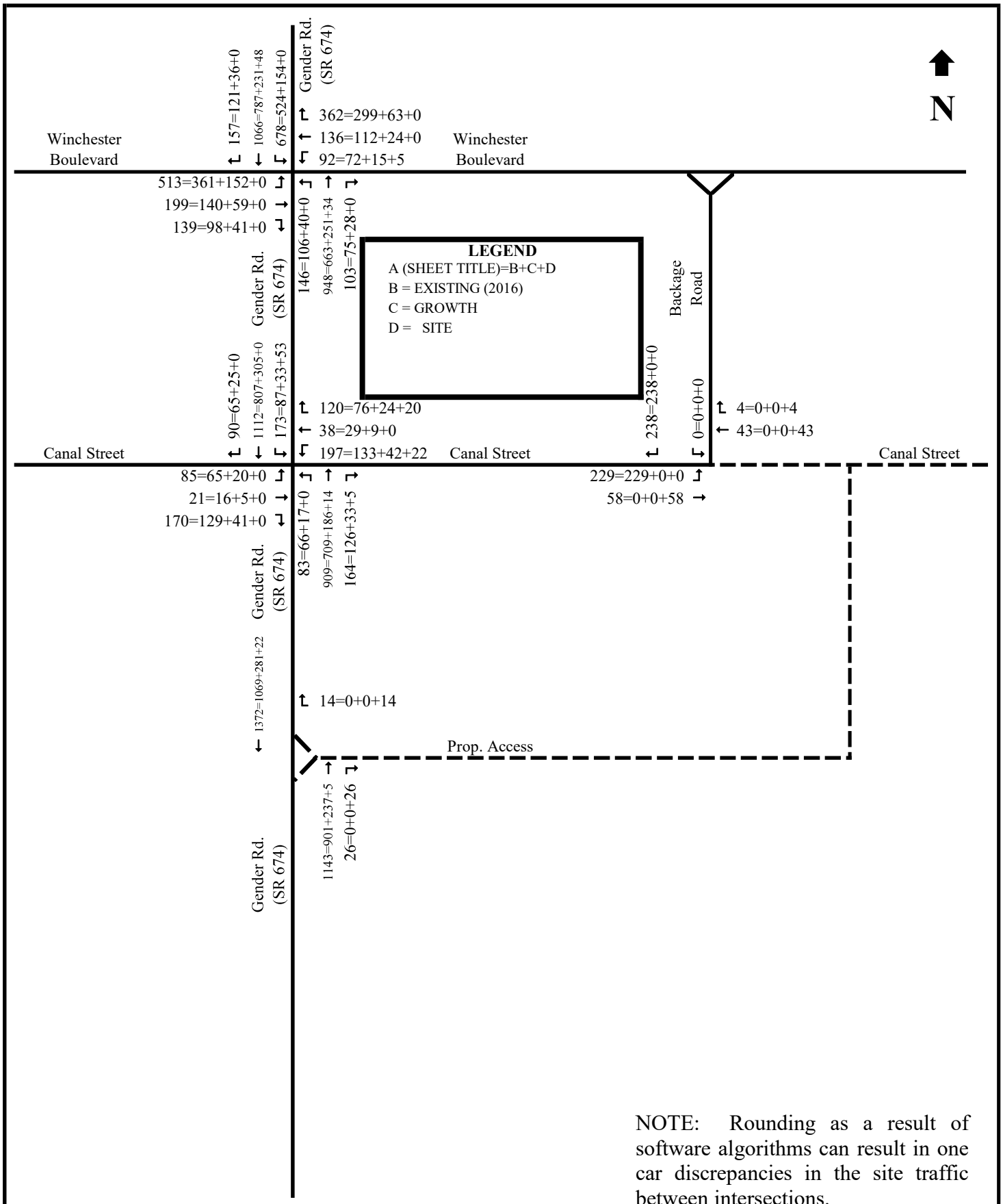
Canal Winchester Warehouse TIS
Traffic Volume Calculations

Year	Period	Scenario	Plate
	PM	Site Non-Pass-By	D

N

Entry 40
Exit 109





NOTE: Rounding as a result of software algorithms can result in one car discrepancies in the site traffic between intersections.

CROSSROADS CHURCH
TRAFFIC IMPACT STUDY
PREPARED BY: SMART SERVICES, INC. REV. 1 8/2016

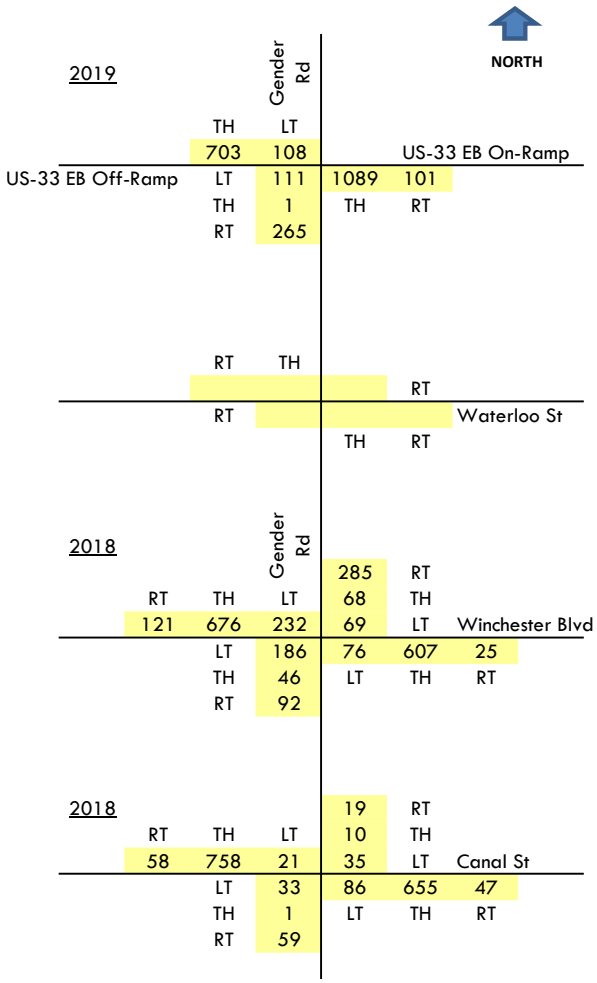
FIGURE 6

2037 'BUILD' - PM PEAK

Gender Road Phase 5

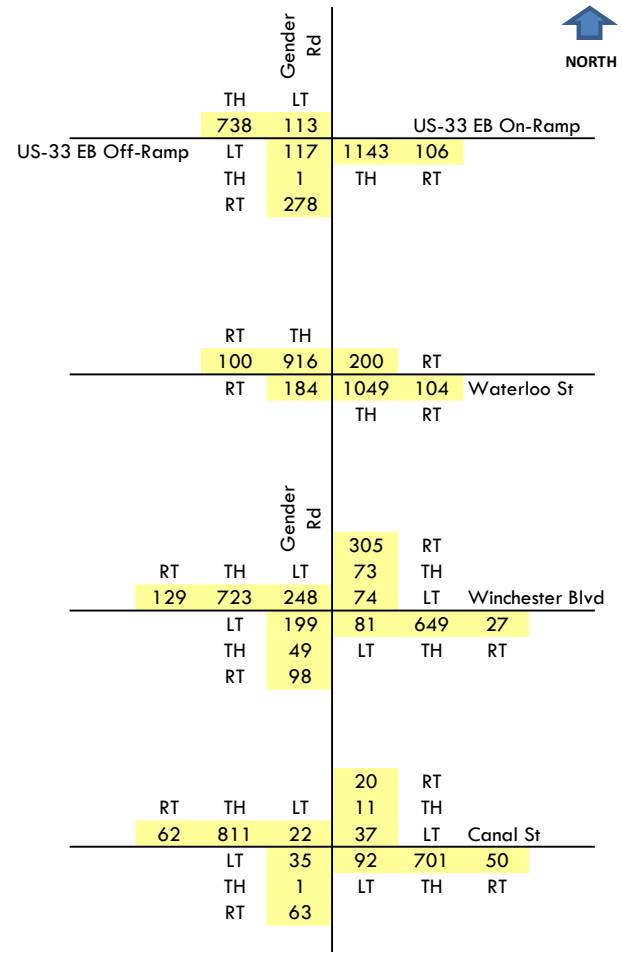
Traffic Volume Calculations

Counted Traffic Volumes — **AM Peak Hour A**



Projected 2022 Background Traffic Volumes — **AM Peak Hour B**

Growth rate: 1.7%
Growth factor: 1.05 (US33 EB Ramp)
Growth factor: 1.07 (Winchester Blvd & Canal St)



Gender Road Phase 5

Traffic Volume Calculations

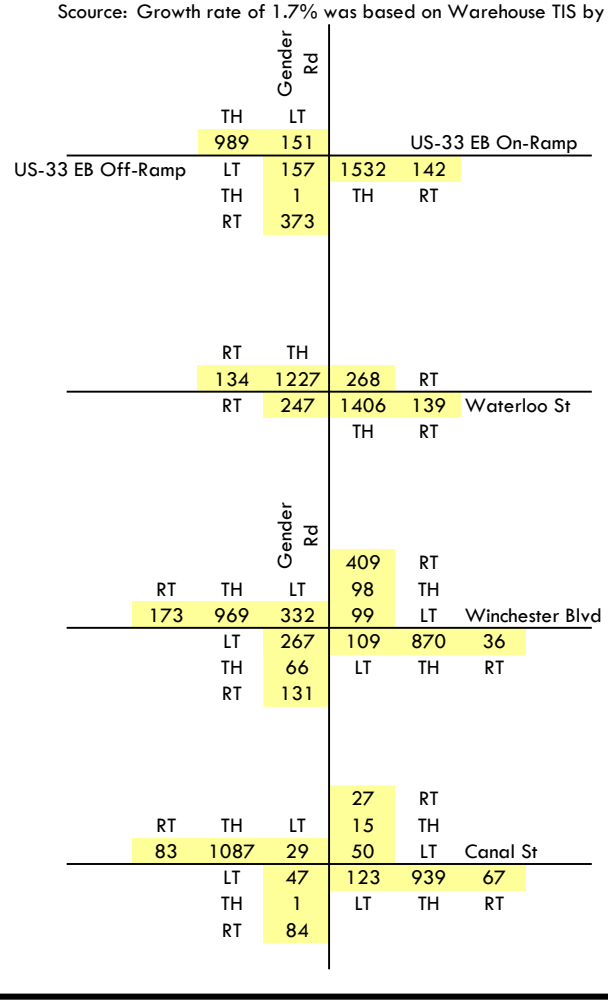
Projected 2042 Background Traffic Volumes **AM Peak Hour**

C

Growth rate: 1.7%

Growth factor: 1.34

Scource: Growth rate of 1.7% was based on Warehouse TIS by CMT



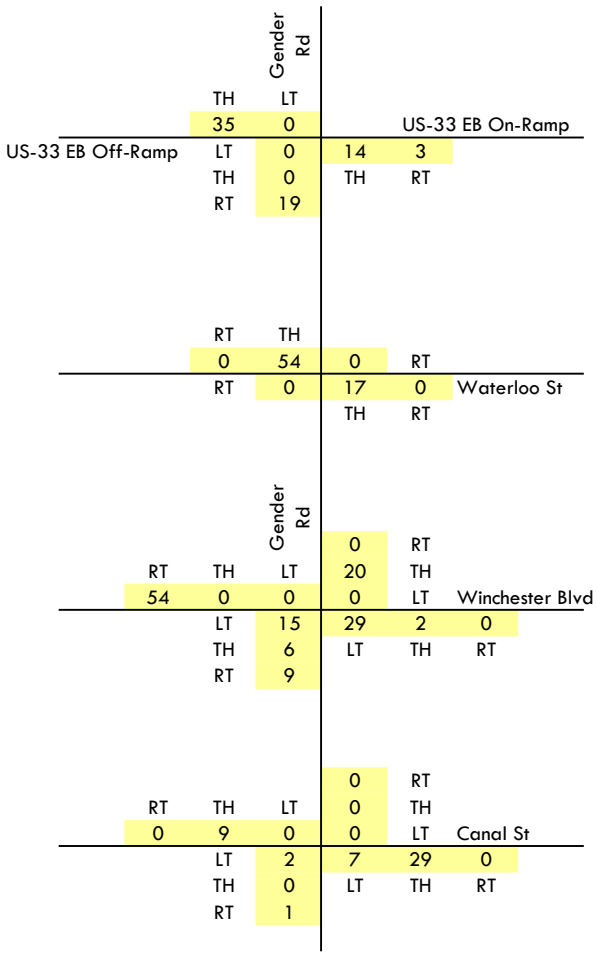
Gender Road Phase 5

Traffic Volume Calculations

Warehouse Traffic Volumes — **AM Peak Hour E**

Source: Plate D in Canal Winchester Warehouse TIS dated November 9, 2018

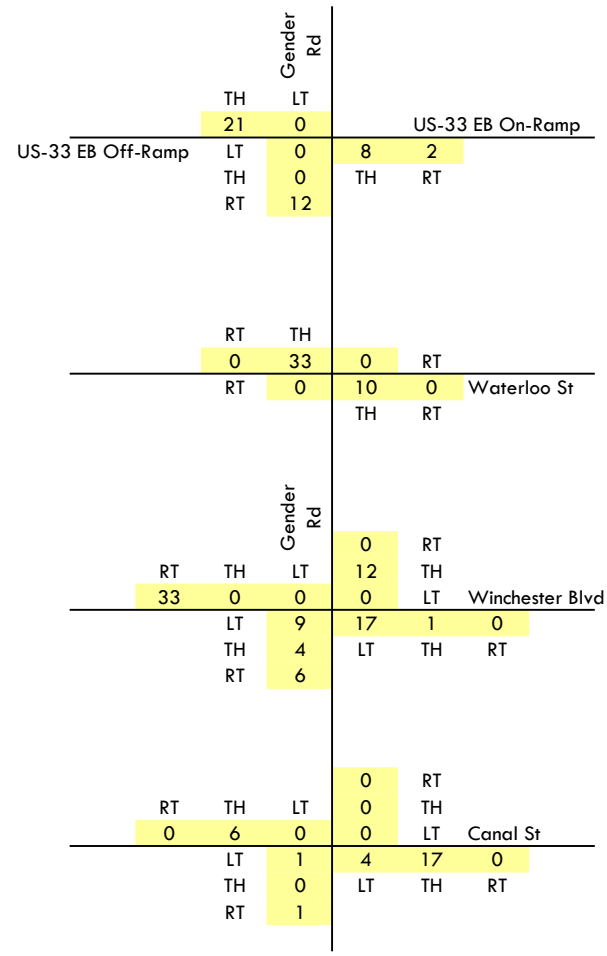
NORTH



Office Park/Hotel Traffic Volumes — **AM Peak Hour F**

Source: Plate B in Canal Winchester Warehouse TIS dated November 9, 2018

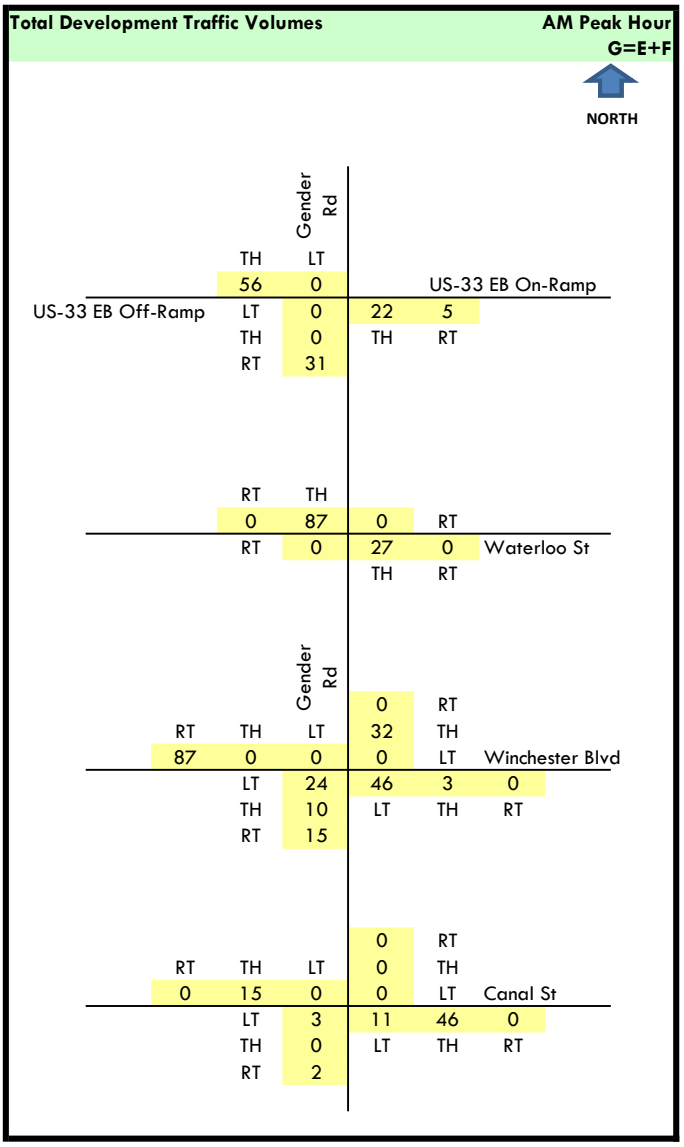
NORTH



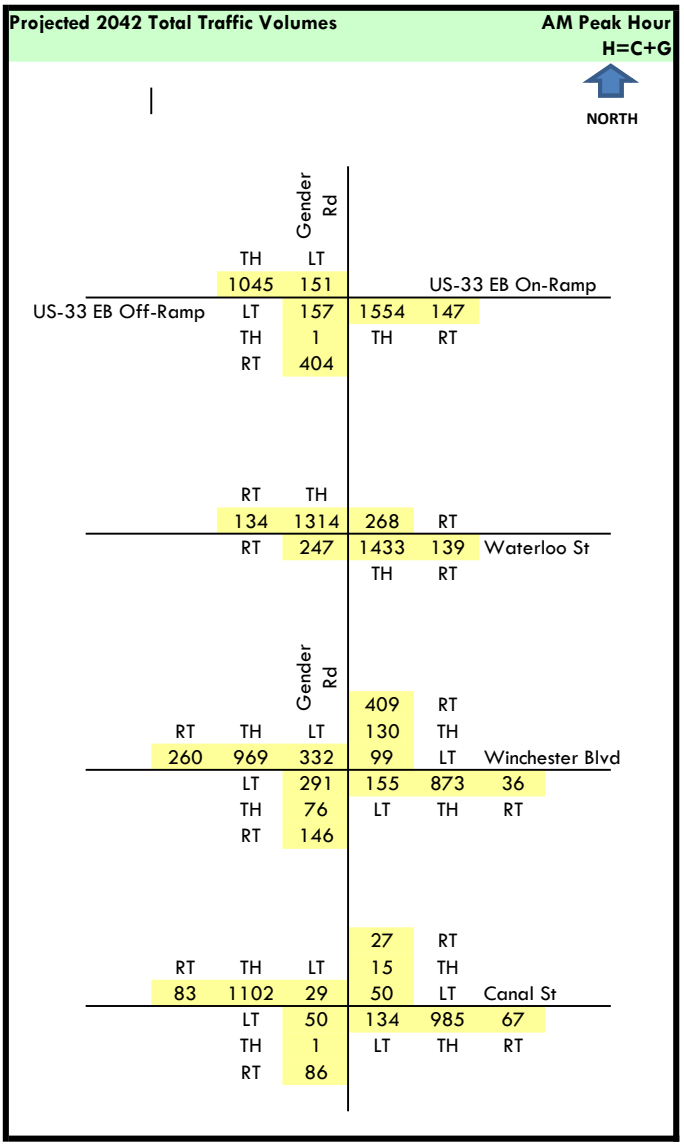
Gender Road Phase 5

Traffic Volume Calculations

Total Development Traffic Volumes — **AM Peak Hour G=E+F**

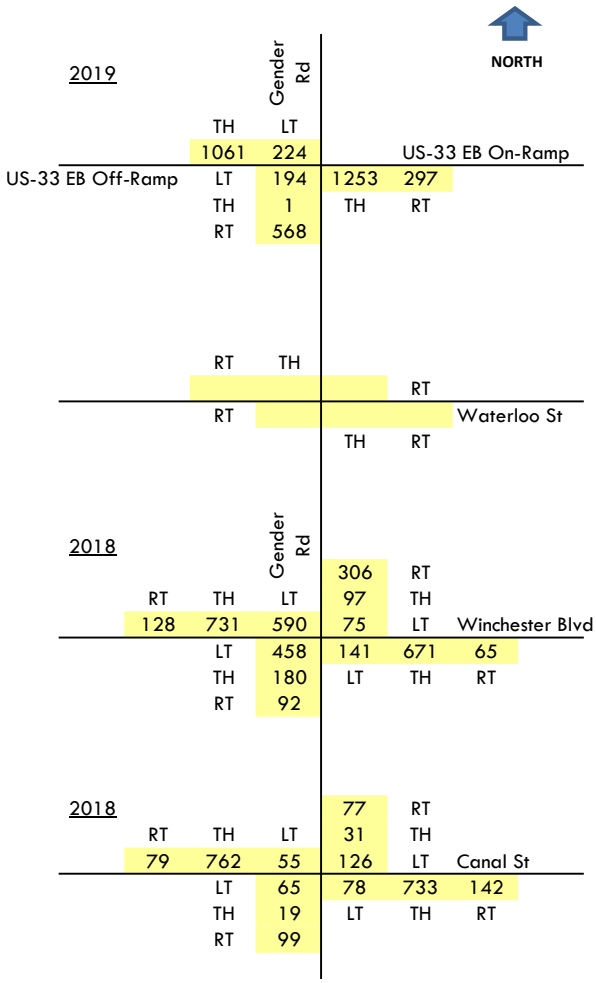


Projected 2042 Total Traffic Volumes — **AM Peak Hour H=C+G**



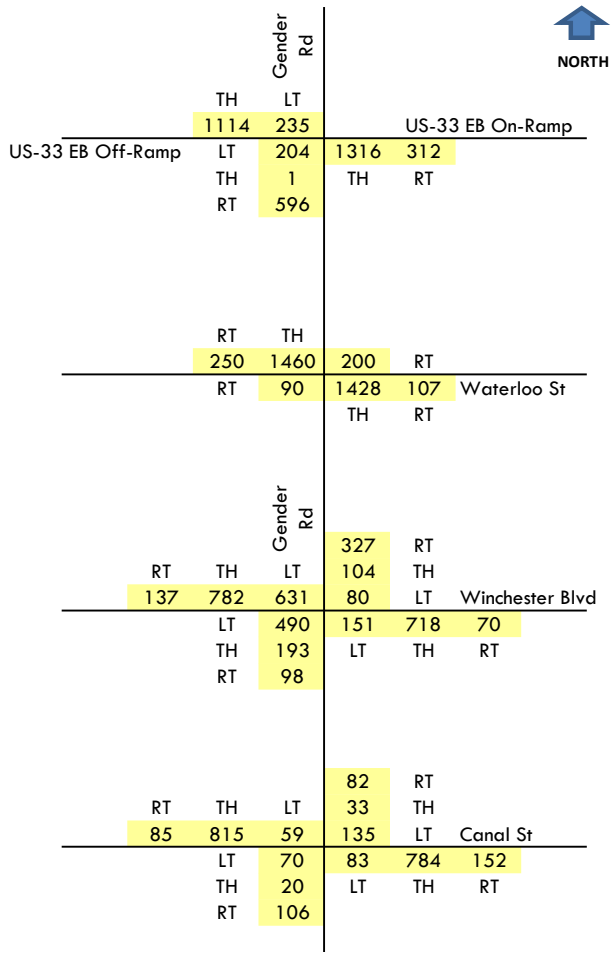
Development Name
Traffic Impact Study
Traffic Volume Calculations

Counted Traffic Volumes — **PM Peak Hour** — **A**



Projected 2022 Background Traffic Volumes — **PM Peak Hour** — **B**

Growth rate: 1.7%
Growth factor: 1.05 (US33 EB Ramp)
Growth factor: 1.07 (Winchester Blvd & Canal St)



Development Name
Traffic Impact Study
Traffic Volume Calculations

Projected 2042 Background Traffic Volumes — **PM Peak Hour C**

Growth rate: 1.7%
Growth factor: 1.34

NORTH

Scource: Growth rate of 1.7% was based on CMT TIS

			Gender Rd			
		TH	LT			
		1493	315		US-33 EB On-Ramp	
US-33 EB Off-Ramp	LT	273	1763	418		
	TH	1	TH	RT		
	RT	799				
		RT	TH			
		335	1956	268	RT	
		RT	121	1914	143	Waterloo St
				TH	RT	
			Gender Rd	438	RT	
	RT	TH	LT	139	TH	
	184	1048	846	107	LT	Winchester Blvd
		LT	657	202	962	94
		TH	259	LT	TH	RT
		RT	131			
				110	RT	
	RT	TH	LT	44	TH	
	114	1092	79	181	LT	Canal St
		LT	94	111	1051	204
		TH	27	LT	TH	RT
		RT	142			

Crossroads Church Traffic Volumes — **PM Peak Hour D**

Source: Figure 6 in Crossroads Church TIS dated August 22, 2016

NORTH

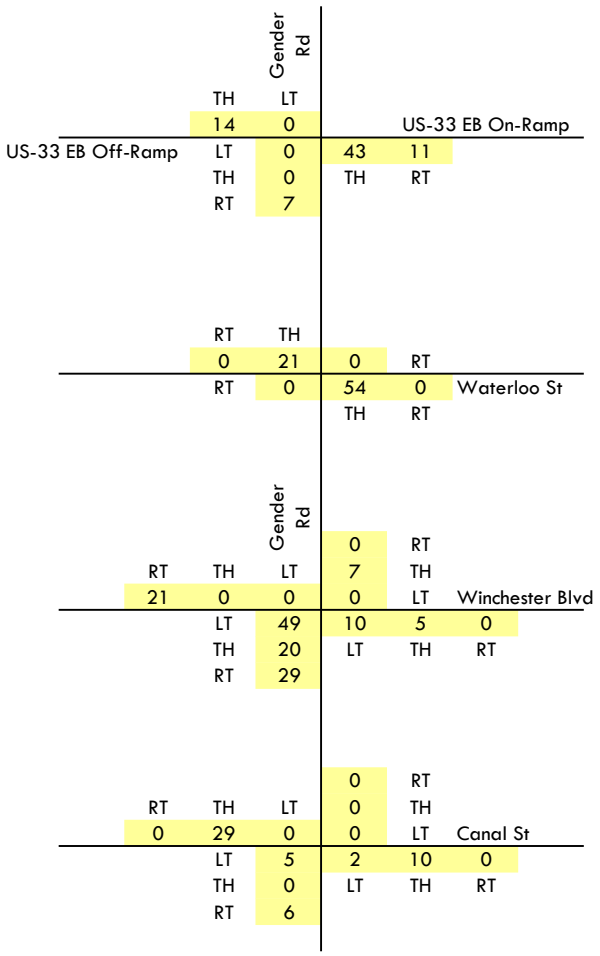
			Gender Rd			
		TH	LT			
		31	0		US-33 EB On-Ramp	
US-33 EB Off-Ramp	LT	0	27	7		
	TH	0	TH	RT		
	RT	17				
		RT	TH			
		0	48	0	RT	
		RT	0	34	0	Waterloo St
				TH	RT	
			Gender Rd	0	RT	
	RT	TH	LT	0	TH	
	0	48	0	5	LT	Winchester Blvd
		LT	0	0	34	0
		TH	0	LT	TH	RT
		RT	0			
				20	RT	
	RT	TH	LT	0	TH	
	0	0	53	22	LT	Canal St
		LT	0	0	14	5
		TH	0	LT	TH	RT
		RT	0			

Development Name
Traffic Impact Study
Traffic Volume Calculations

Warehouse Traffic Volumes — **PM Peak Hour E**

Source: Plate D in Canal Winchester Warehouse TIS dated November 9, 2018

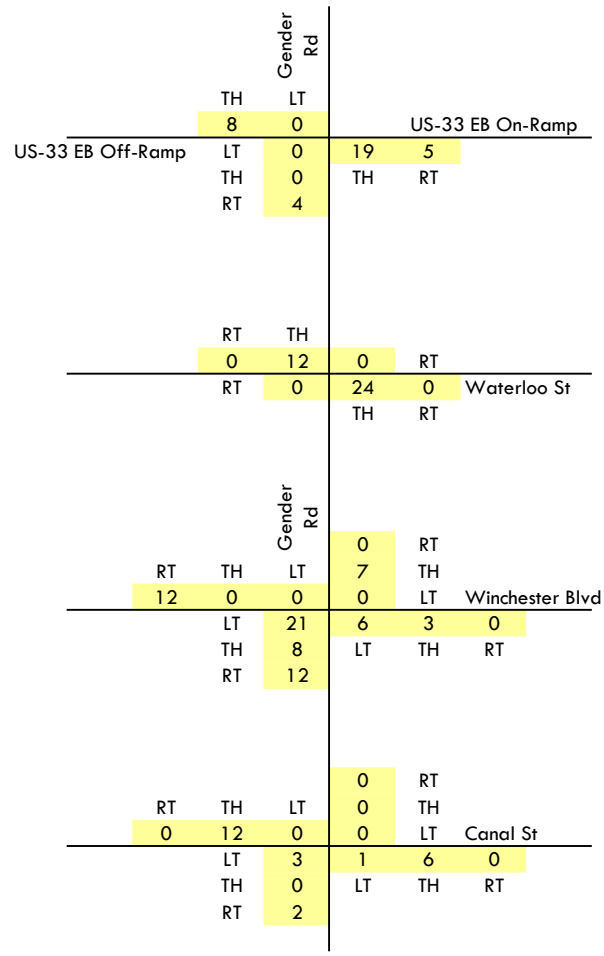
NORTH



Office Park/Hotel Traffic Volumes — **PM Peak Hour F**

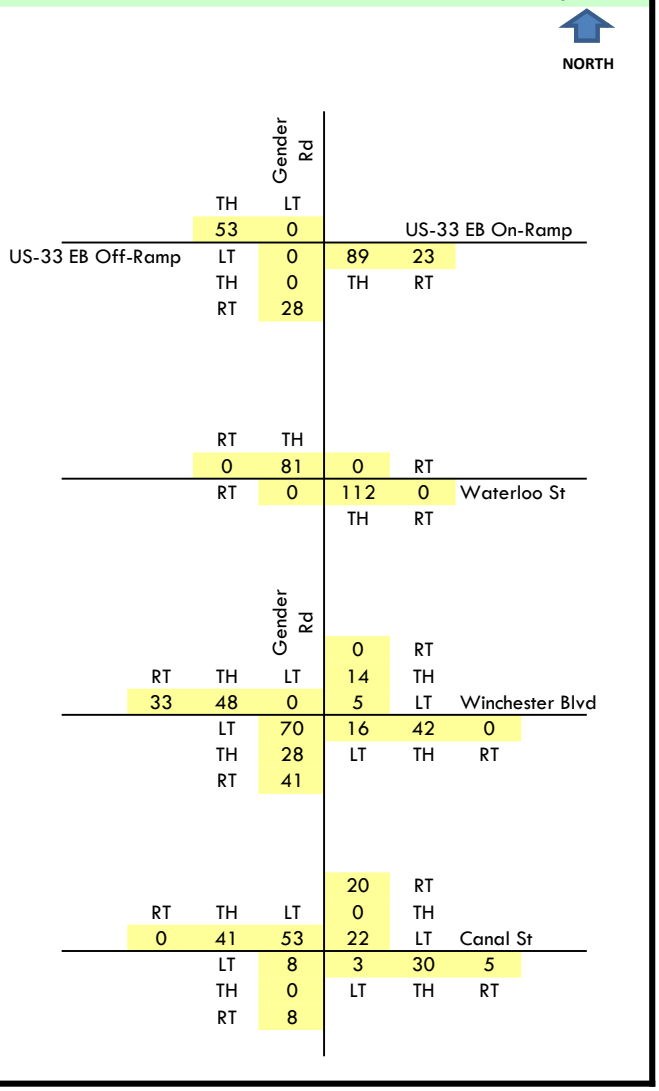
Source: Plate B in Canal Winchester Warehouse TIS dated November 9, 2018

NORTH

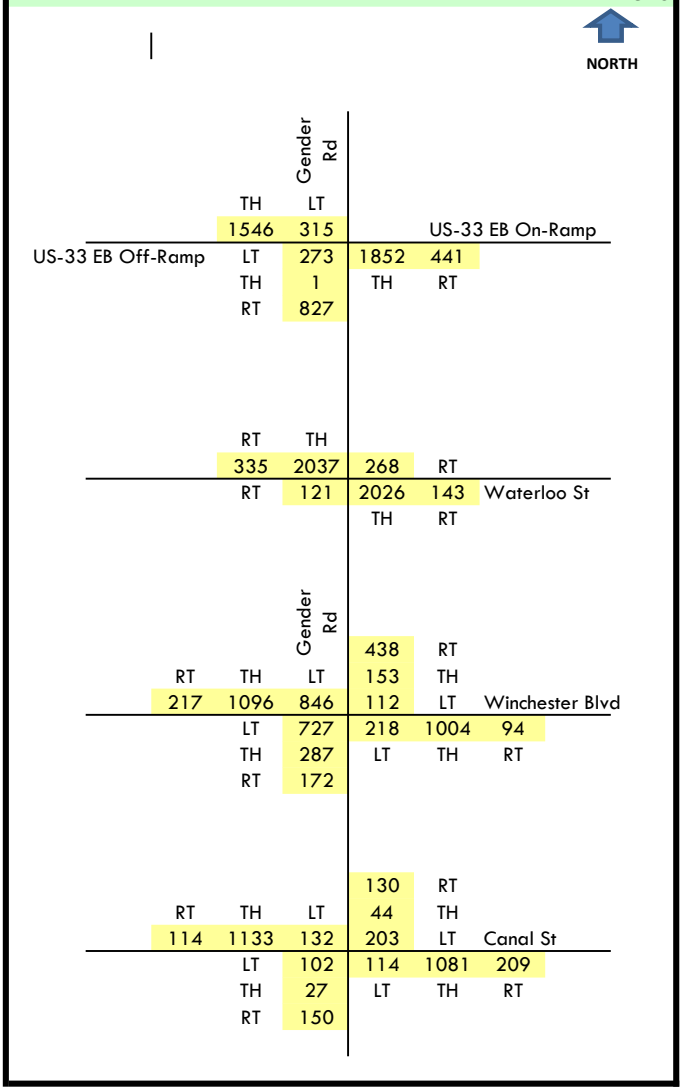


Development Name
Traffic Impact Study
Traffic Volume Calculations

Total Development Traffic Volumes — **PM Peak Hour G=D+E+F**



Projected 2042 Total Traffic Volumes — **PM Peak Hour H=C+G**



GENDER ROAD CORRIDOR - COORDINATION TIMINGS

US 33 (North Ramps)

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	3	0	58	0	42	0	58	0	0
2/1/1 (AM Peak)	100	82	0	61	0	39	0	61	0	0
2/2/1 (AM School)	100	82	0	61	0	39	0	61	0	0
3/1/1 (PM Peak)	120	101	0	82	0	38	0	82	0	0
3/2/1 (PM School)	120	116	0	69	0	51	0	69	0	0

US 33 (South Ramps)

Plan	Cycle Length	Offset	1 NB/EBRT	2 NB/SB	3 EB	4 EBRT/SBLT	5	6	7	8
1/1/1 (Off Peak)	100	71	24	39	18	19				
2/1/1 (AM Peak)	100	52	26	39	18	17				
2/2/1 (AM School)	100	52	26	39	18	17				
3/1/1 (PM Peak)	120	61	24	48	25	23				
3/2/1 (PM School)	120	80	29	49	18	24				

Winchester Blvd (MASTER CONTROLLER)

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	0	15	44	21	20	22	37	14	27
2/1/1 (AM Peak)	100	0	14	48	18	20	23	39	14	24
2/2/1 (AM School)	100	0	14	48	18	20	23	39	14	24
3/1/1 (PM Peak)	120	0	19	51	27	23	28	42	14	36
3/2/1 (PM School)	120	0	15	51	27	27	29	37	14	40

Winchester Blvd at Prentiss School Drive

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	50	13	0	14	0	36	0	14	13	23
2/1/1 (AM Peak)	50	8	0	14	0	36	0	14	13	23
2/2/1 (AM School)	50	4	0	14	0	36	0	14	13	23
3/1/1 (PM Peak)	60	39	0	24	0	36	0	24	13	23
3/2/1 (PM School)	60	42	0	23	0	37	0	23	13	24

Canal St

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	28	15	44	15	26	0	59	18	23
2/1/1 (AM Peak)	100	24	16	49	15	20	0	65	14	21
2/2/1 (AM School)	100	24	16	50	15	19	0	66	14	20
3/1/1 (PM Peak)	120	40	13	75	13	19	0	88	16	16
3/2/1 (PM School)	120	34	16	61	15	28	0	77	19	24

Walnut St

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	44	15	56	0	29	15	56	0	29
2/1/1 (AM Peak)	100	72	15	63	0	22	15	63	0	22
2/2/1 (AM School)	100	72	15	62	0	23	15	62	0	23
3/1/1 (PM Peak)	120	36	13	77	0	30	13	77	0	30
3/2/1 (PM School)	120	26	15	73	0	32	14	74	0	32

Groveport Rd

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	54	13	52	17	18	13	52	13	22
2/1/1 (AM Peak)	100	58	13	42	13	32	13	42	13	32
2/2/1 (AM School)	100	68	13	44	13	30	13	44	13	30
3/1/1 (PM Peak)	120	54	13	71	20	16	13	71	13	23
3/2/1 (PM School)	120	96	13	72	18	17	13	72	13	22

Fox Hill Dr

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	90	14	56	15	15	14	56	0	30
2/1/1 (AM Peak)	100	70	13	61	13	13	13	61	0	26
2/2/1 (AM School)	100	4	13	32	25	30	13	32	0	55
3/1/1 (PM Peak)	120	84	13	81	13	13	13	81	0	26
3/2/1 (PM School)	120	102	13	42	30	35	13	42	0	65

Dietz Dr

Plan	Cycle Length	Offset	1 NBLT	2 SB	3 EBLT	4 WB	5 SBLT	6 NB	7 WBLT	8 EB
1/1/1 (Off Peak)	100	~~14~~ **3**	0	~~77~~ **63**	0	~~23~~ **37**	~~21~~ **18**	~~56~~ **45**	0	~~23~~ **37**
2/1/1 (AM Peak)	100	30	0	73	0	27	16	57	0	27
2/2/1 (AM School)	100	64	0	74	0	26	16	58	0	26
3/1/1 (PM Peak)	120	102	0	94	0	26	22	72	0	26
3/2/1 (PM School)	120	52	0	93	0	27	24	69	0	27

3/27/2013 Revisions

1/1/1	Midday/Off Peak	9:15AM - 3:45PM, 7:30PM - 10:00PM
2/1/1	AM Peak	6:00 - 8:50AM
2/2/1	AM Peak (School)	8:50 - 9:15AM
3/1/1	PM Peak	4:15 - 7:30PM
3/2/1	PM Peak (School)	3:45 - 4:15PM
0/0/4	Free Operation	10:00PM - 6:00AM

All splits and offsets are in seconds, referenced to Beginning of Yellow for coordinated Phases 2 & 6.
(Except at Winchester Blvd/Prentiss School Dr which is referenced to Phases 4 & 8.)

Gender Road Phase 5

Turn Lane Length Calculations

AM Peak Hour
2042 Build

Gender Road & US-33 EB Ramp		
Movement	**NBRT**	
Design Speed	40	mph
Cycle Length	100	seconds
Control (Stop or Signal)	Signal	
Through Volume	1554	vph
Number of Through Lanes	2	
Turning Volume	147	vph
Number of Turning Lanes	1	
Turning Percentage	9%	
Vehicles Per Cycle	4.1	
Storage Length	200	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	250	feet
Deceleration/Taper (Condition B)	125	feet
Decel & Storage (Condition C)	315	feet
No Block Distance		
No Block Distance	750	feet
No Block Turn Lane Length	800	feet

PM Peak Hour
2042 Build

Gender Road & US-33 EB Ramp		
Movement	**NBRT**	
Design Speed	40	mph
Cycle Length	120	seconds
Control (Stop or Signal)	Signal	
Through Volume	1852	vph
Number of Through Lanes	2	
Turning Volume	441	vph
Number of Turning Lanes	1	
Turning Percentage	19%	
Vehicles Per Cycle	14.7	
Storage Length	525	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	575	feet
Deceleration/Taper (Condition B)	125	feet
Decel & Storage (Condition C)	640	feet
No Block Distance		
No Block Distance	1125	feet
No Block Turn Lane Length	1175	feet

AM Peak Hour
2042 Build

Gender Road & Winchester Boulevard		
Movement	**NBRT**	
Design Speed	40	mph
Cycle Length	100	seconds
Control (Stop or Signal)	Signal	
Through Volume	873	vph
Number of Through Lanes	2	
Turning Volume	36	vph
Number of Turning Lanes	1	
Turning Percentage	4%	
Vehicles Per Cycle	1.0	
Storage Length	50	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	100	feet
Deceleration/Taper (Condition B)	125	feet
Decel & Storage (Condition C)	165	feet
No Block Distance		
No Block Distance	475	feet
No Block Turn Lane Length	525	feet

PM Peak Hour
2042 Build

Gender Road & Winchester Boulevard		
Movement	**NBRT**	
Design Speed	40	mph
Cycle Length	120	seconds
Control (Stop or Signal)	Signal	
Through Volume	1004	vph
Number of Through Lanes	2	
Turning Volume	94	vph
Number of Turning Lanes	1	
Turning Percentage	9%	
Vehicles Per Cycle	3.1	
Storage Length	175	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	225	feet
Deceleration/Taper (Condition B)	125	feet
Decel & Storage (Condition C)	290	feet
No Block Distance		
No Block Distance	600	feet
No Block Turn Lane Length	650	feet

AM Peak Hour
2042 Build

Gender Road & Canal Street		
Movement	**NBRT**	
Design Speed	40	mph
Cycle Length	100	seconds
Control (Stop or Signal)	Signal	
Through Volume	985	vph
Number of Through Lanes	2	
Turning Volume	67	vph
Number of Turning Lanes	1	
Turning Percentage	6%	
Vehicles Per Cycle	1.9	
Storage Length	100	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	150	feet
Deceleration/Taper (Condition B)	125	feet
Decel & Storage (Condition C)	215	feet
No Block Distance		
No Block Distance	500	feet
No Block Turn Lane Length	550	feet

PM Peak Hour
2042 Build

Gender Road & Canal Street		
Movement	**NBRT**	
Design Speed	40	mph
Cycle Length	120	seconds
Control (Stop or Signal)	Signal	
Through Volume	1081	vph
Number of Through Lanes	2	
Turning Volume	209	vph
Number of Turning Lanes	1	
Turning Percentage	16%	
Vehicles Per Cycle	7.0	
Storage Length	275	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	325	feet
Deceleration/Taper (Condition B)	125	feet
Decel & Storage (Condition C)	390	feet
No Block Distance		
No Block Distance	625	feet
No Block Turn Lane Length	675	feet

Gender Road Phase 5

Turn Lane Length Calculations

AM Peak Hour
2042 Build

Gender Road & US-33 EB Ramp		
Movement	NBRT	
Design Speed	35	mph
Cycle Length	100	seconds
Control (Stop or Signal)	Signal	
Through Volume	1554	vph
Number of Through Lanes	2	
Turning Volume	147	vph
Number of Turning Lanes	1	
Turning Percentage	9%	
Vehicles Per Cycle	4.1	
Storage Length	200	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	250	feet
Deceleration/Taper (Condition B)	N.A.	feet
Decel & Storage (Condition C)	N.A.	feet
No Block Distance		
No Block Distance	750	feet
No Block Turn Lane Length	800	feet

PM Peak Hour
2042 Build

Gender Road & US-33 EB Ramp		
Movement	NBRT	
Design Speed	35	mph
Cycle Length	120	seconds
Control (Stop or Signal)	Signal	
Through Volume	1852	vph
Number of Through Lanes	2	
Turning Volume	441	vph
Number of Turning Lanes	1	
Turning Percentage	19%	
Vehicles Per Cycle	14.7	
Storage Length	525	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	575	feet
Deceleration/Taper (Condition B)	N.A.	feet
Decel & Storage (Condition C)	N.A.	feet
No Block Distance		
No Block Distance	1125	feet
No Block Turn Lane Length	1175	feet

AM Peak Hour
2042 Build

Gender Road & Winchester Boulevard		
Movement	NBRT	
Design Speed	35	mph
Cycle Length	100	seconds
Control (Stop or Signal)	Signal	
Through Volume	873	vph
Number of Through Lanes	2	
Turning Volume	36	vph
Number of Turning Lanes	1	
Turning Percentage	4%	
Vehicles Per Cycle	1.0	
Storage Length	50	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	100	feet
Deceleration/Taper (Condition B)	N.A.	feet
Decel & Storage (Condition C)	N.A.	feet
No Block Distance		
No Block Distance	475	feet
No Block Turn Lane Length	525	feet

PM Peak Hour
2042 Build

Gender Road & Winchester Boulevard		
Movement	NBRT	
Design Speed	35	mph
Cycle Length	120	seconds
Control (Stop or Signal)	Signal	
Through Volume	1004	vph
Number of Through Lanes	2	
Turning Volume	94	vph
Number of Turning Lanes	1	
Turning Percentage	9%	
Vehicles Per Cycle	3.1	
Storage Length	175	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	225	feet
Deceleration/Taper (Condition B)	N.A.	feet
Decel & Storage (Condition C)	N.A.	feet
No Block Distance		
No Block Distance	600	feet
No Block Turn Lane Length	650	feet

AM Peak Hour
2042 Build

Gender Road & Canal Street		
Movement	NBRT	
Design Speed	35	mph
Cycle Length	100	seconds
Control (Stop or Signal)	Signal	
Through Volume	985	vph
Number of Through Lanes	2	
Turning Volume	67	vph
Number of Turning Lanes	1	
Turning Percentage	6%	
Vehicles Per Cycle	1.9	
Storage Length	100	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	150	feet
Deceleration/Taper (Condition B)	N.A.	feet
Decel & Storage (Condition C)	N.A.	feet
No Block Distance		
No Block Distance	500	feet
No Block Turn Lane Length	550	feet

PM Peak Hour
2042 Build

Gender Road & Canal Street		
Movement	NBRT	
Design Speed	35	mph
Cycle Length	120	seconds
Control (Stop or Signal)	Signal	
Through Volume	1081	vph
Number of Through Lanes	2	
Turning Volume	209	vph
Number of Turning Lanes	1	
Turning Percentage	16%	
Vehicles Per Cycle	7.0	
Storage Length	275	feet
Calculated Turn Lane Length		
Storage Only (Condition A)	325	feet
Deceleration/Taper (Condition B)	N.A.	feet
Decel & Storage (Condition C)	N.A.	feet
No Block Distance		
No Block Distance	625	feet
No Block Turn Lane Length	675	feet

BASIS FOR COMPUTING LENGTH OF TURN LANES

401-9E

REFERENCE SECTIONS 401.6.1, 401.6.3

Type of Traffic Control	Design Speed		
	30-35	40-65	
	Turn Demand Volume		
	All	Low*	High
Signalized	A	** B or C	** B or C
Unsignalized Stopped Crossroad	A	A	A
Unsignalized Through Road	A	B	** B or C

*Low is considered 10% or less of approach traffic volume
**Whichever is greater

CONDITION A	STORAGE ONLY
Length = 50' (diverging taper) + Storage Length (Figure 401-10)	

CONDITION B	HIGH SPEED DECELERATION ONLY
Design Speed	Length (including 50' Diverging Taper)
40	125
45	175
50	225
55	285
60	345
65	405

CONDITION C	MODERATE SPEED DECELERATION AND STORAGE
Design Speed	Length (including 50' Diverging Taper)
40	115 + Storage Length (Figure 401-10)
45	125 "
50	145 "
55	165 "
60	185 "
65	205 "

For explanation, see Turn Lane Design Example

July 2018

STORAGE LENGTH AT INTERSECTIONS

401-10E

REFERENCE SECTIONS 401.6.1, 401.6.3

* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)	* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)
1	50	17	600
2	100	18	625
3	150	19	650
4	175	20	675
5	200	21	725
6	250	22	750
7	275	23	775
8	325	24	800
9	350	25	825
10	375	30	975
11	400	35	1125
12	450	40	1250
13	475	45	1400
14	500	50	1550
15	525	55	1700
16	550	60	1850

$$\text{* AVERAGE VEHICLES PER CYCLE} = \frac{\text{DHV (TURNING LANE)}}{\text{CYCLES/HOUR}}$$

IF CYCLES ARE UNKNOWN ASSUME:

UNSIGNALIZED OR 2 PHASE = 60 CYCLES/HOUR

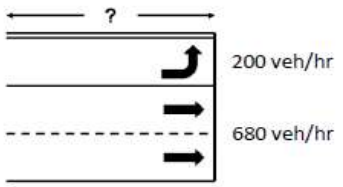
3 PHASE = 40 CYCLES/HOUR

4 PHASE = 30 CYCLES/HOUR

Example - Turn Lane Design Using Figures 401-9 and 401-10

Problem
Calculate the length of an exclusive left turn lane.

Traffic Control: **Signalized**
Design Speed: **55 mph**
Cycle Length: **90 sec**



Determine Storage and Turn Lane Lengths

Turn Lane Demand (High/Low) $= \frac{200 \text{ veh/hr}}{200 \text{ veh/hr} + 680 \text{ veh/hr}} = 23\% =$ **High Demand**

Refer to the matrix in **Figure 401-9**.

For Signalized, 55 mph, High Demand, use Method B or C, whichever is greater.

Method B – For 55 mph, a **285'** turn lane length is required (235' storage + 50' taper).

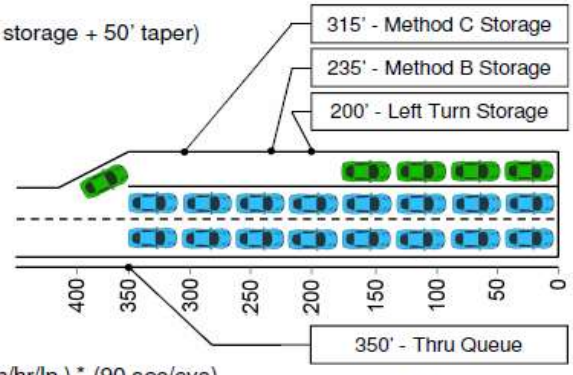
Method C – For 55 mph, 165' + calculated storage length in **Figure 401-10**.

Average Vehicles per Cycle $= \frac{(200 \text{ veh/hr}) * (90 \text{ sec/cyc})}{3600 \text{ sec/hr}} = 5 \text{ veh/cyc} \rightarrow 200'$

Total Length = 165' + 200' = **365'** (315' storage + 50' taper)

Method C = **365'** > Method B = **285'**

Use Method C



Check Length for Thru-Block

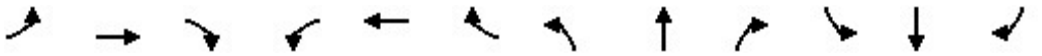
Refer to **Figure 401-10** to calculate thru lane(s) queue distance.

680 veh/hr / 2 lanes = 340 veh/hr/ln

Average Vehicles per Cycle $= \frac{(340 \text{ veh/hr/ln}) * (90 \text{ sec/cyc})}{3600 \text{ sec/hr}} = 9 \text{ veh/cyc/ln} \rightarrow$ **350 ft/ln**

Thru Block = **350'** > Method C Storage = **315'** → **Turn Lane Blocked**

Use **350'** storage + **50'** taper = **400' Turn Lane Length**

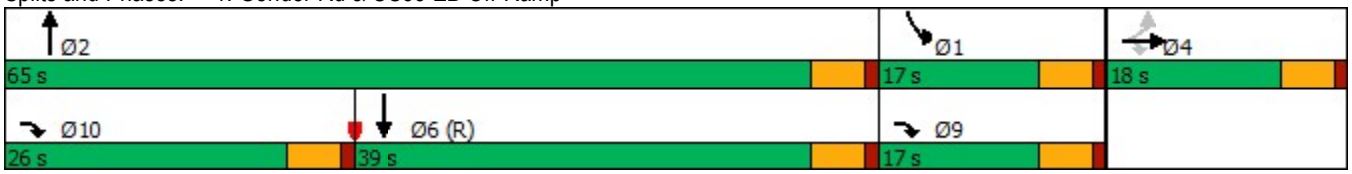


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	1	404	0	0	0	0	1554	147	151	1045	0
Future Volume (vph)	157	1	404	0	0	0	0	1554	147	151	1045	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		0	0		0	230		0
Storage Lanes	0		2	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.984				
Flt Protected		0.953								0.950		
Satd. Flow (prot)	0	1693	2538	0	0	0	0	3445	0	1719	3505	0
Flt Permitted		0.953								0.950		
Satd. Flow (perm)	0	1693	2538	0	0	0	0	3445	0	1719	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22					23				
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1215			516			399			710	
Travel Time (s)		20.7			8.8			7.8			13.8	
Peak Hour Factor	0.87	0.92	0.87	0.92	0.92	0.92	0.92	0.93	0.74	0.87	0.86	0.92
Heavy Vehicles (%)	7%	2%	12%	2%	2%	2%	2%	3%	4%	5%	3%	2%
Adj. Flow (vph)	180	1	464	0	0	0	0	1671	199	174	1215	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	181	464	0	0	0	0	1870	0	174	1215	0
Turn Type	Perm	NA	custom					NA		Prot	NA	
Protected Phases		4	9 10					2		1	6	
Permitted Phases	4		4									
Detector Phase	4	4	9 10					2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						5.0		5.0	5.0	
Minimum Split (s)	18.0	18.0						23.0		10.0	23.0	
Total Split (s)	18.0	18.0						65.0		17.0	39.0	
Total Split (%)	18.0%	18.0%						65.0%		17.0%	39.0%	
Maximum Green (s)	13.0	13.0						60.0		12.0	34.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)		0.0						0.0		0.0	0.0	
Total Lost Time (s)		5.0						5.0		5.0	5.0	
Lead/Lag								Lead		Lag	Lag	
Lead-Lag Optimize?								Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		12.6	41.2					60.4		12.0	48.8	
Actuated g/C Ratio		0.13	0.41					0.60		0.12	0.49	
v/c Ratio		0.85	0.44					0.90		0.84	0.71	
Control Delay		75.7	21.5					19.4		77.1	23.1	
Queue Delay		0.0	0.0					0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		75.7	21.5					19.4		77.1	23.1	
LOS		E	C					B		E	C	
Approach Delay		36.7						19.4			29.8	
Approach LOS		D						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 52 (52%), Referenced to phase 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 26.0		Intersection LOS: C	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Gender Rd & US33 EB Off-Ramp



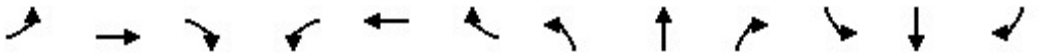
Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	247	0	0	268	0	1433	139	0	1314	134
Future Vol, veh/h	0	0	247	0	0	268	0	1433	139	0	1314	134
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	88	92	92	91	92	91	91	92	88	88
Heavy Vehicles, %	2	2	3	2	2	3	2	3	3	2	3	3
Mvmt Flow	0	0	281	0	0	295	0	1575	153	0	1493	152

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	747	-	-	864	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	353	0	0	295	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	353	-	-	295	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.1	90.9	0	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	353	295	-	-
HCM Lane V/C Ratio	-	-	0.795	0.998	-	-
HCM Control Delay (s)	-	-	45.1	90.9	-	-
HCM Lane LOS	-	-	E	F	-	-
HCM 95th %tile Q(veh)	-	-	6.7	10.5	-	-



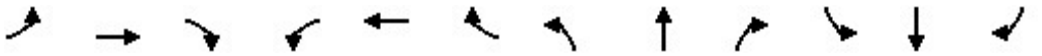
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	291	76	146	99	130	409	155	873	36	332	969	260
Future Volume (veh/h)	291	76	146	99	130	409	155	873	36	332	969	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1781	1870	1856	1841	1856	1870	1826	1826	1781	1811	1870
Adj Flow Rate, veh/h	378	94	197	130	167	487	185	981	57	400	1031	347
Peak Hour Factor	0.77	0.81	0.74	0.76	0.78	0.84	0.84	0.89	0.63	0.83	0.94	0.75
Percent Heavy Veh, %	4	8	2	3	4	3	2	5	5	8	6	2
Cap, veh/h	408	552	634	448	460	598	259	1000	58	428	1170	729
Arrive On Green	0.12	0.31	0.31	0.06	0.25	0.25	0.12	0.40	0.40	0.17	0.45	0.45
Sat Flow, veh/h	3401	1781	1585	1767	1841	1572	1781	3332	194	3291	3441	1585
Grp Volume(v), veh/h	378	94	197	130	167	487	185	511	527	400	1031	347
Grp Sat Flow(s),veh/h/ln	1700	1781	1585	1767	1841	1572	1781	1735	1791	1646	1721	1585
Q Serve(g_s), s	11.0	3.8	8.5	5.5	7.5	25.0	7.1	29.1	29.1	12.0	27.3	13.8
Cycle Q Clear(g_c), s	11.0	3.8	8.5	5.5	7.5	25.0	7.1	29.1	29.1	12.0	27.3	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	408	552	634	448	460	598	259	520	537	428	1170	729
V/C Ratio(X)	0.93	0.17	0.31	0.29	0.36	0.81	0.72	0.98	0.98	0.93	0.88	0.48
Avail Cap(c_a), veh/h	408	552	634	448	460	598	259	520	537	428	1170	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	25.1	20.6	25.7	30.9	27.8	24.0	29.8	29.8	40.9	25.6	15.2
Incr Delay (d2), s/veh	27.0	0.1	0.3	0.4	0.5	8.5	8.0	32.7	32.1	27.8	9.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	1.6	3.1	2.3	3.3	11.4	3.3	15.3	15.7	6.2	11.1	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	25.3	20.8	26.0	31.4	36.4	32.0	62.5	61.9	68.7	35.2	17.4
LnGrp LOS	E	C	C	C	C	D	C	E	E	E	D	B
Approach Vol, veh/h		669			784			1223			1778	
Approach Delay, s/veh		49.6			33.6			57.6			39.3	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	35.0	11.0	36.0	14.0	39.0	17.0	30.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	13.0	30.0	6.0	31.0	9.0	34.0	12.0	25.0
Max Q Clear Time (g_c+I1), s	14.0	31.1	7.5	10.5	9.1	29.3	13.0	27.0
Green Ext Time (p_c), s	0.0	0.0	0.0	1.1	0.0	3.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	44.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



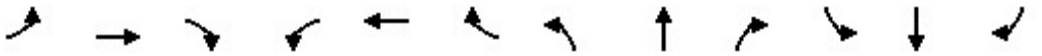
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1	86	50	15	27	134	985	67	29	1102	83
Future Volume (veh/h)	50	1	86	50	15	27	134	985	67	29	1102	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1826	1870	1722
Adj Flow Rate, veh/h	72	4	105	86	18	46	174	1132	114	44	1224	128
Peak Hour Factor	0.69	0.25	0.82	0.58	0.83	0.59	0.77	0.87	0.59	0.66	0.90	0.65
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	5	2	12
Cap, veh/h	233	5	139	192	43	110	365	2312	233	334	2141	879
Arrive On Green	0.05	0.09	0.09	0.05	0.09	0.09	0.08	0.94	0.94	0.80	0.80	0.80
Sat Flow, veh/h	1781	58	1535	1781	466	1190	1781	3260	328	436	3554	1459
Grp Volume(v), veh/h	72	0	109	86	0	64	174	616	630	44	1224	128
Grp Sat Flow(s),veh/h/ln	1781	0	1594	1781	0	1656	1781	1777	1811	436	1777	1459
Q Serve(g_s), s	3.6	0.0	6.7	4.4	0.0	3.6	3.5	3.7	3.7	2.3	12.6	2.0
Cycle Q Clear(g_c), s	3.6	0.0	6.7	4.4	0.0	3.6	3.5	3.7	3.7	2.3	12.6	2.0
Prop In Lane	1.00		0.96	1.00		0.72	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	145	192	0	153	365	1260	1285	334	2141	879
V/C Ratio(X)	0.31	0.00	0.75	0.45	0.00	0.42	0.48	0.49	0.49	0.13	0.57	0.15
Avail Cap(c_a), veh/h	236	0	335	192	0	348	442	1260	1285	334	2141	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	38.7	0.0	44.4	39.0	0.0	42.9	7.4	0.9	0.9	4.2	5.2	4.1
Incr Delay (d2), s/veh	0.7	0.0	7.7	1.6	0.0	1.8	1.0	1.4	1.3	0.6	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	3.0	2.0	0.0	1.6	1.2	1.1	1.1	0.2	3.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.4	0.0	52.0	40.7	0.0	44.7	8.4	2.3	2.3	4.8	6.0	4.4
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		181			150			1420			1396	
Approach Delay, s/veh		47.0			42.4			3.0			5.8	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	75.9	10.0	14.1	10.7	65.3	9.9	14.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	59.0	5.0	21.0	10.0	44.0	5.0	21.0
Max Q Clear Time (g_c+I1), s	5.7	6.4	8.7	5.5	14.6	5.6	5.6
Green Ext Time (p_c), s	11.3	0.0	0.4	0.2	12.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	1	404	0	0	0	0	1554	147	151	1045	0
Future Volume (vph)	157	1	404	0	0	0	0	1554	147	151	1045	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		0	0		0	230		0
Storage Lanes	0		2	0		0	0		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected		0.953								0.950		
Satd. Flow (prot)	0	1693	2538	0	0	0	0	3505	1553	1719	3505	0
Flt Permitted		0.953								0.950		
Satd. Flow (perm)	0	1693	2538	0	0	0	0	3505	1553	1719	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			76						195			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1215			516			399			710	
Travel Time (s)		20.7			8.8			7.8			13.8	
Peak Hour Factor	0.87	0.92	0.87	0.92	0.92	0.92	0.92	0.93	0.74	0.87	0.86	0.92
Heavy Vehicles (%)	7%	2%	12%	2%	2%	2%	2%	3%	4%	5%	3%	2%
Adj. Flow (vph)	180	1	464	0	0	0	0	1671	199	174	1215	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	181	464	0	0	0	0	1671	199	174	1215	0
Turn Type	Perm	NA	custom					NA	Perm	Prot	NA	
Protected Phases		4	9 10					2		1	6	
Permitted Phases	4		4						2			
Detector Phase	4	4	9 10					2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0						23.0	23.0	10.0	23.0	
Total Split (s)	23.0	23.0						59.0	59.0	18.0	44.0	
Total Split (%)	23.0%	23.0%						59.0%	59.0%	18.0%	44.0%	
Maximum Green (s)	18.0	18.0						54.0	54.0	13.0	39.0	
Yellow Time (s)	4.0	4.0						4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0						5.0	5.0	5.0	5.0	
Lead/Lag								Lead	Lead	Lag	Lag	
Lead-Lag Optimize?								Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Recall Mode	None	None						Max	Max	None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		15.1	36.5					56.9	56.9	13.0	53.5	
Actuated g/C Ratio		0.15	0.36					0.57	0.57	0.13	0.54	
v/c Ratio		0.71	0.48					0.84	0.21	0.78	0.65	
Control Delay		55.6	21.4					19.0	0.6	66.6	19.2	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		55.6	21.4					19.0	0.6	66.6	19.2	
LOS		E	C					B	A	E	B	
Approach Delay		31.0						17.0			25.1	
Approach LOS		C						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 49 (49%), Referenced to phase 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Gender Rd & US33 EB Off-Ramp

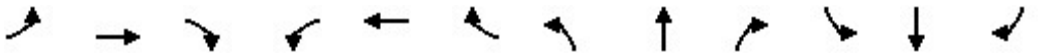
Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	247	0	0	268	0	1433	139	0	1314	134
Future Vol, veh/h	0	0	247	0	0	268	0	1433	139	0	1314	134
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	88	92	92	91	92	91	91	92	88	88
Heavy Vehicles, %	2	2	3	2	2	3	2	3	3	2	3	3
Mvmt Flow	0	0	281	0	0	295	0	1575	153	0	1493	152

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	747	-	-	788	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	353	0	0	332	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	353	-	-	332	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.1	61	0	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	353	332	-	-
HCM Lane V/C Ratio	-	-	0.795	0.887	-	-
HCM Control Delay (s)	-	-	45.1	61	-	-
HCM Lane LOS	-	-	E	F	-	-
HCM 95th %tile Q(veh)	-	-	6.7	8.4	-	-



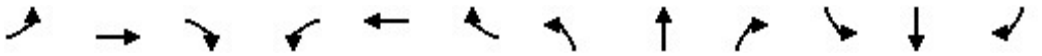
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	291	76	146	99	130	409	155	873	36	332	969	260
Future Volume (veh/h)	291	76	146	99	130	409	155	873	36	332	969	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1781	1870	1856	1841	1856	1870	1826	1841	1781	1811	1870
Adj Flow Rate, veh/h	378	94	197	130	167	487	185	981	57	400	1031	347
Peak Hour Factor	0.77	0.81	0.74	0.76	0.78	0.84	0.84	0.89	0.63	0.83	0.94	0.75
Percent Heavy Veh, %	4	8	2	3	4	3	2	5	4	8	6	2
Cap, veh/h	408	534	618	466	460	598	259	1041	577	428	1170	729
Arrive On Green	0.12	0.30	0.30	0.07	0.25	0.25	0.12	0.40	0.40	0.17	0.45	0.45
Sat Flow, veh/h	3401	1781	1585	1767	1841	1572	1781	3469	1560	3291	3441	1585
Grp Volume(v), veh/h	378	94	197	130	167	487	185	981	57	400	1031	347
Grp Sat Flow(s),veh/h/ln	1700	1781	1585	1767	1841	1572	1781	1735	1560	1646	1721	1585
Q Serve(g_s), s	11.0	3.9	8.7	5.4	7.5	25.0	7.1	27.2	2.1	12.0	27.3	13.8
Cycle Q Clear(g_c), s	11.0	3.9	8.7	5.4	7.5	25.0	7.1	27.2	2.1	12.0	27.3	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	408	534	618	466	460	598	259	1041	577	428	1170	729
V/C Ratio(X)	0.93	0.18	0.32	0.28	0.36	0.81	0.72	0.94	0.10	0.93	0.88	0.48
Avail Cap(c_a), veh/h	408	534	618	466	460	598	259	1041	577	428	1170	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	25.9	21.2	25.0	30.9	27.8	24.0	29.2	17.6	40.9	25.6	15.2
Incr Delay (d2), s/veh	27.0	0.2	0.3	0.3	0.5	8.5	8.2	15.8	0.3	27.8	9.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	1.6	3.2	2.3	3.3	11.4	3.3	12.1	0.8	6.2	11.1	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	26.0	21.5	25.3	31.4	36.4	32.1	45.1	17.9	68.7	35.2	17.4
LnGrp LOS	E	C	C	C	C	D	C	D	B	E	D	B
Approach Vol, veh/h		669			784			1223			1778	
Approach Delay, s/veh		49.9			33.5			41.8			39.3	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	35.0	12.0	35.0	14.0	39.0	17.0	30.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	13.0	30.0	7.0	30.0	9.0	34.0	12.0	25.0
Max Q Clear Time (g_c+I1), s	14.0	29.2	7.4	10.7	9.1	29.3	13.0	27.0
Green Ext Time (p_c), s	0.0	0.5	0.0	1.1	0.0	3.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



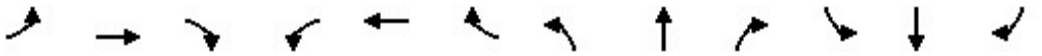
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1	86	50	15	27	134	985	67	29	1102	83
Future Volume (veh/h)	50	1	86	50	15	27	134	985	67	29	1102	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1826	1870	1722
Adj Flow Rate, veh/h	72	4	105	86	18	46	174	1132	114	44	1224	128
Peak Hour Factor	0.69	0.25	0.82	0.58	0.83	0.59	0.77	0.87	0.59	0.66	0.90	0.65
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	5	2	12
Cap, veh/h	233	5	139	192	43	110	365	2520	1203	334	2141	879
Arrive On Green	0.05	0.09	0.09	0.05	0.09	0.09	0.08	0.94	0.94	0.80	0.80	0.80
Sat Flow, veh/h	1781	58	1535	1781	466	1190	1781	3554	1585	436	3554	1459
Grp Volume(v), veh/h	72	0	109	86	0	64	174	1132	114	44	1224	128
Grp Sat Flow(s),veh/h/ln	1781	0	1594	1781	0	1656	1781	1777	1585	436	1777	1459
Q Serve(g_s), s	3.6	0.0	6.7	4.4	0.0	3.6	3.5	3.1	0.4	2.3	12.6	2.0
Cycle Q Clear(g_c), s	3.6	0.0	6.7	4.4	0.0	3.6	3.5	3.1	0.4	2.3	12.6	2.0
Prop In Lane	1.00		0.96	1.00		0.72	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	233	0	145	192	0	153	365	2520	1203	334	2141	879
V/C Ratio(X)	0.31	0.00	0.75	0.45	0.00	0.42	0.48	0.45	0.09	0.13	0.57	0.15
Avail Cap(c_a), veh/h	236	0	335	192	0	348	442	2520	1203	334	2141	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	38.7	0.0	44.4	39.0	0.0	42.9	7.4	0.9	0.6	4.2	5.2	4.1
Incr Delay (d2), s/veh	0.7	0.0	7.7	1.6	0.0	1.8	1.0	0.6	0.2	0.6	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	3.0	2.0	0.0	1.6	1.2	0.8	0.1	0.2	3.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.4	0.0	52.0	40.7	0.0	44.7	8.4	1.5	0.7	4.8	6.0	4.4
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		181			150			1420			1396	
Approach Delay, s/veh		47.0			42.4			2.3			5.8	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	75.9	10.0	14.1	10.7	65.3	9.9	14.2
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	59.0	5.0	21.0	10.0	44.0	5.0	21.0
Max Q Clear Time (g_c+I1), s	5.1	6.4	8.7	5.5	14.6	5.6	5.6
Green Ext Time (p_c), s	11.5	0.0	0.4	0.2	12.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	8.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	1	827	0	0	0	0	1852	441	315	1546	0
Future Volume (vph)	273	1	827	0	0	0	0	1852	441	315	1546	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		0	0		0	230		0
Storage Lanes	0		2	0		0	0		0	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850					0.972				
Flt Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	2760	0	0	0	0	3440	0	1770	3539	0
Flt Permitted		0.953								0.950		
Satd. Flow (perm)	0	1775	2760	0	0	0	0	3440	0	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			18					38				
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1215			516			399			710	
Travel Time (s)		20.7			8.8			7.8			13.8	
Peak Hour Factor	0.87	0.92	0.89	0.92	0.92	0.92	0.92	0.92	0.94	0.77	0.94	0.92
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	314	1	929	0	0	0	0	2013	469	409	1645	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	315	929	0	0	0	0	2482	0	409	1645	0
Turn Type	Perm	NA	custom					NA		Prot	NA	
Protected Phases		4	9 10					2		1	6	
Permitted Phases	4		4									
Detector Phase	4	4	9 10					2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0						23.0		10.0	23.0	
Total Split (s)	25.0	25.0						72.0		23.0	48.0	
Total Split (%)	20.8%	20.8%						60.0%		19.2%	40.0%	
Maximum Green (s)	20.0	20.0						67.0		18.0	43.0	
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0	
Lost Time Adjust (s)		0.0						0.0		0.0	0.0	
Total Lost Time (s)		5.0						5.0		5.0	5.0	
Lead/Lag								Lead		Lag	Lag	
Lead-Lag Optimize?								Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Recall Mode	None	None						Max		None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		20.0	57.2					67.0		18.0	52.8	
Actuated g/C Ratio		0.17	0.48					0.56		0.15	0.44	
v/c Ratio		1.07	0.70					1.28		1.54	1.06	
Control Delay		119.2	27.4					148.9		297.6	73.0	
Queue Delay		0.0	0.0					0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		119.2	27.4					148.9		297.6	73.0	
LOS		F	C					F		F	E	
Approach Delay		50.6						148.9			117.8	
Approach LOS		D						F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 61 (51%), Referenced to phase 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.54			
Intersection Signal Delay: 116.7		Intersection LOS: F	
Intersection Capacity Utilization 110.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Gender Rd & US33 EB Off-Ramp

Intersection	
Int Delay, s/veh	21

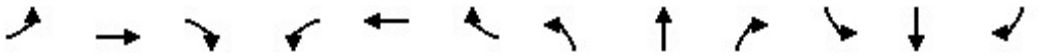
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	121	0	0	268	0	2026	143	0	2037	335
Future Vol, veh/h	0	0	121	0	0	268	0	2026	143	0	2037	335
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	88	92	92	91	92	91	91	92	88	88
Heavy Vehicles, %	2	2	3	2	2	3	2	3	3	2	3	3
Mvmt Flow	0	0	138	0	0	295	0	2226	157	0	2315	381

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1158	-	-	1192	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	188	0	0	~ 178	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	188	-	-	~ 178	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.5	$ 364.2	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	188	178	-	-
HCM Lane V/C Ratio	-	-	0.731	1.655	-	-
HCM Control Delay (s)	-	-	63.5	$ 364.2	-	-
HCM Lane LOS	-	-	F	F	-	-
HCM 95th %tile Q(veh)	-	-	4.7	20.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



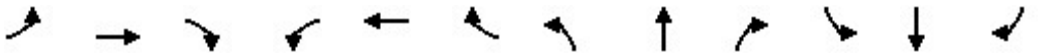
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	727	287	172	112	153	438	218	1004	94	846	1096	217
Future Volume (veh/h)	727	287	172	112	153	438	218	1004	94	846	1096	217
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	773	330	202	135	194	509	269	1068	129	961	1370	275
Peak Hour Factor	0.94	0.87	0.85	0.83	0.79	0.86	0.81	0.94	0.73	0.88	0.80	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	518	531	595	307	390	621	223	931	112	634	1362	845
Arrive On Green	0.15	0.28	0.28	0.07	0.21	0.21	0.12	0.39	0.39	0.24	0.51	0.51
Sat Flow, veh/h	3456	1870	1585	1781	1870	1585	1781	3193	385	3456	3554	1585
Grp Volume(v), veh/h	773	330	202	135	194	509	269	594	603	961	1370	275
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	1870	1585	1781	1777	1801	1728	1777	1585
Q Serve(g_s), s	18.0	18.4	10.9	7.1	11.0	25.0	11.0	35.0	35.0	22.0	46.0	10.0
Cycle Q Clear(g_c), s	18.0	18.4	10.9	7.1	11.0	25.0	11.0	35.0	35.0	22.0	46.0	10.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	518	531	595	307	390	621	223	518	525	634	1362	845
V/C Ratio(X)	1.49	0.62	0.34	0.44	0.50	0.82	1.20	1.15	1.15	1.52	1.01	0.33
Avail Cap(c_a), veh/h	518	531	595	307	390	621	223	518	525	634	1362	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	37.4	26.8	33.8	42.0	32.7	31.3	36.7	36.7	45.4	29.4	12.2
Incr Delay (d2), s/veh	231.1	2.2	0.3	1.0	1.0	8.6	119.5	82.0	82.7	240.6	25.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.3	8.7	4.2	3.1	5.1	14.3	11.7	25.6	26.0	30.0	21.8	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	282.1	39.6	27.2	34.8	42.9	41.3	150.9	118.8	119.5	286.0	55.2	13.3
LnGrp LOS	F	D	C	C	D	D	F	F	F	F	F	B
Approach Vol, veh/h		1305			838			1466			2606	
Approach Delay, s/veh		181.3			40.6			124.9			135.9	
Approach LOS		F			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	40.0	14.0	39.0	16.0	51.0	23.0	30.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	22.0	35.0	9.0	34.0	11.0	46.0	18.0	25.0
Max Q Clear Time (g_c+I1), s	24.0	37.0	9.1	20.4	13.0	48.0	20.0	27.0
Green Ext Time (p_c), s	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	130.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



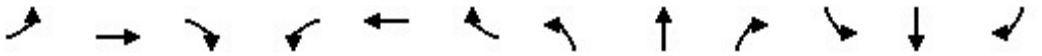
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	27	150	203	44	130	114	1081	209	132	1133	114
Future Volume (veh/h)	102	27	150	203	44	130	114	1081	209	132	1133	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	34	231	231	68	160	128	1175	240	150	1245	207
Peak Hour Factor	0.75	0.79	0.65	0.88	0.65	0.81	0.89	0.92	0.87	0.88	0.91	0.55
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	36	247	194	91	214	271	1864	378	249	1955	872
Arrive On Green	0.06	0.17	0.17	0.07	0.18	0.18	0.06	0.84	0.84	0.73	0.73	0.73
Sat Flow, veh/h	1781	207	1409	1781	495	1165	1781	2943	597	380	3554	1585
Grp Volume(v), veh/h	136	0	265	231	0	228	128	706	709	150	1245	207
Grp Sat Flow(s),veh/h/ln	1781	0	1617	1781	0	1661	1781	1777	1763	380	1777	1585
Q Serve(g_s), s	7.0	0.0	19.4	8.0	0.0	15.6	3.7	15.9	16.4	33.9	21.1	5.1
Cycle Q Clear(g_c), s	7.0	0.0	19.4	8.0	0.0	15.6	3.7	15.9	16.4	40.2	21.1	5.1
Prop In Lane	1.00		0.87	1.00		0.70	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	283	194	0	304	271	1125	1117	249	1955	872
V/C Ratio(X)	0.60	0.00	0.94	1.19	0.00	0.75	0.47	0.63	0.63	0.60	0.64	0.24
Avail Cap(c_a), veh/h	225	0	283	194	0	304	271	1125	1117	249	1955	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Uniform Delay (d), s/veh	40.2	0.0	48.8	44.6	0.0	46.4	13.1	4.7	4.8	14.9	10.1	7.9
Incr Delay (d2), s/veh	4.5	0.0	36.9	126.6	0.0	9.8	1.3	2.7	2.8	3.6	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	10.8	8.8	0.0	7.3	1.4	4.2	4.2	2.5	5.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	85.8	171.2	0.0	56.2	14.4	7.4	7.5	18.5	10.6	8.1
LnGrp LOS	D	A	F	F	A	E	B	A	A	B	B	A
Approach Vol, veh/h		401			459			1543			1602	
Approach Delay, s/veh		71.8			114.1			8.0			11.0	
Approach LOS		E			F			A			B	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	81.0	13.0	26.0	10.0	71.0	12.0	27.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	76.0	8.0	21.0	5.0	66.0	7.0	22.0
Max Q Clear Time (g_c+I1), s	18.4	10.0	21.4	5.7	42.2	9.0	17.6
Green Ext Time (p_c), s	14.7	0.0	0.0	0.0	13.7	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	1	827	0	0	0	0	1852	441	315	1546	0
Future Volume (vph)	273	1	827	0	0	0	0	1852	441	315	1546	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		600	0		0	0		0	230		0
Storage Lanes	0		2	0		0	0		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850						0.850			
Flt Protected		0.953								0.950		
Satd. Flow (prot)	0	1775	2760	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted		0.953								0.950		
Satd. Flow (perm)	0	1775	2760	0	0	0	0	3539	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64						313			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		1215			516			399			710	
Travel Time (s)		20.7			8.8			7.8			13.8	
Peak Hour Factor	0.87	0.92	0.89	0.92	0.92	0.92	0.92	0.92	0.94	0.77	0.94	0.92
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	314	1	929	0	0	0	0	2013	469	409	1645	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	315	929	0	0	0	0	2013	469	409	1645	0
Turn Type	Perm	NA	custom					NA	Perm	Prot	NA	
Protected Phases		4	9 10					2		1	6	
Permitted Phases	4		4						2			
Detector Phase	4	4	9 10					2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0						23.0	23.0	10.0	23.0	
Total Split (s)	23.0	23.0						69.0	69.0	28.0	64.0	
Total Split (%)	19.2%	19.2%						57.5%	57.5%	23.3%	53.3%	
Maximum Green (s)	18.0	18.0						64.0	64.0	23.0	59.0	
Yellow Time (s)	4.0	4.0						4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0						1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0						5.0	5.0	5.0	5.0	
Lead/Lag								Lead	Lead	Lag	Lag	
Lead-Lag Optimize?								Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Recall Mode	None	None						Max	Max	None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		18.0	47.4					64.0	64.0	23.0	62.6	
Actuated g/C Ratio		0.15	0.40					0.53	0.53	0.19	0.52	
v/c Ratio		1.18	0.82					1.07	0.47	1.21	0.89	
Control Delay		158.8	36.8					48.4	0.7	159.4	34.0	
Queue Delay		0.0	0.0					0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		158.8	36.8					48.4	0.7	159.4	34.0	
LOS		F	D					D	A	F	C	
Approach Delay		67.7						39.4			58.9	
Approach LOS		E						D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 37 (31%), Referenced to phase 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 52.4		Intersection LOS: D	
Intersection Capacity Utilization 96.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Gender Rd & US33 EB Off-Ramp

Intersection	
Int Delay, s/veh	16.5

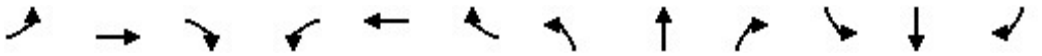
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱			↱		↑↑	↱		↑↑	↱
Traffic Vol, veh/h	0	0	121	0	0	268	0	2026	143	0	2037	335
Future Vol, veh/h	0	0	121	0	0	268	0	2026	143	0	2037	335
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	120
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	88	92	92	91	92	91	91	92	88	88
Heavy Vehicles, %	2	2	3	2	2	3	2	3	3	2	3	3
Mvmt Flow	0	0	138	0	0	295	0	2226	157	0	2315	381

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1158	-	-	1113	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	188	0	0	~ 201	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	188	-	-	~ 201	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.5	278.5	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	188	201	-	-
HCM Lane V/C Ratio	-	-	0.731	1.465	-	-
HCM Control Delay (s)	-	-	63.5	278.5	-	-
HCM Lane LOS	-	-	F	F	-	-
HCM 95th %tile Q(veh)	-	-	4.7	17.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



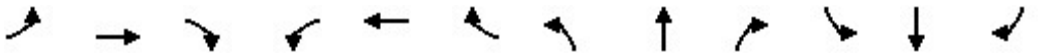
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	727	287	172	112	153	438	218	1004	94	846	1096	217
Future Volume (veh/h)	727	287	172	112	153	438	218	1004	94	846	1096	217
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	773	330	202	135	194	509	269	1068	129	961	1370	275
Peak Hour Factor	0.94	0.87	0.85	0.83	0.79	0.86	0.81	0.94	0.73	0.88	0.80	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	547	546	608	315	390	647	223	948	541	691	1333	845
Arrive On Green	0.16	0.29	0.29	0.07	0.21	0.21	0.12	0.35	0.35	0.27	0.50	0.50
Sat Flow, veh/h	3456	1870	1585	1781	1870	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	773	330	202	135	194	509	269	1068	129	961	1370	275
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	1870	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	19.0	18.2	10.8	7.1	11.0	25.0	11.0	32.0	6.3	24.0	45.0	10.1
Cycle Q Clear(g_c), s	19.0	18.2	10.8	7.1	11.0	25.0	11.0	32.0	6.3	24.0	45.0	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	547	546	608	315	390	647	223	948	541	691	1333	845
V/C Ratio(X)	1.41	0.60	0.33	0.43	0.50	0.79	1.20	1.13	0.24	1.39	1.03	0.33
Avail Cap(c_a), veh/h	547	546	608	316	390	647	223	948	541	691	1333	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	36.5	26.1	33.7	42.0	30.9	31.8	38.7	24.7	44.0	30.1	12.4
Incr Delay (d2), s/veh	196.4	1.9	0.3	0.9	1.0	6.4	122.2	68.9	0.9	184.5	32.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.0	8.5	4.1	3.1	5.1	13.6	12.1	21.8	2.4	27.3	22.6	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	246.9	38.4	26.4	34.6	42.9	37.3	154.0	107.6	25.6	228.6	62.2	13.4
LnGrp LOS	F	D	C	C	D	D	F	F	C	F	F	B
Approach Vol, veh/h		1305			838			1466			2606	
Approach Delay, s/veh		160.0			38.2			108.9			118.4	
Approach LOS		F			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	37.0	14.0	40.0	16.0	50.0	24.0	30.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	24.0	32.0	9.0	35.0	11.0	45.0	19.0	25.0
Max Q Clear Time (g_c+I1), s	26.0	34.0	9.1	20.2	13.0	47.0	21.0	27.0
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	114.1
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	27	150	203	44	130	114	1081	209	132	1133	114
Future Volume (veh/h)	102	27	150	203	44	130	114	1081	209	132	1133	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	34	231	231	68	160	128	1175	240	150	1245	207
Peak Hour Factor	0.75	0.79	0.65	0.88	0.65	0.81	0.89	0.92	0.87	0.88	0.91	0.55
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	279	36	247	253	98	230	248	2132	1110	243	1836	819
Arrive On Green	0.08	0.17	0.17	0.10	0.20	0.20	0.06	0.80	0.80	0.69	0.69	0.69
Sat Flow, veh/h	1781	207	1409	1781	495	1165	1781	3554	1585	380	3554	1585
Grp Volume(v), veh/h	136	0	265	231	0	228	128	1175	240	150	1245	207
Grp Sat Flow(s),veh/h/ln	1781	0	1617	1781	0	1661	1781	1777	1585	380	1777	1585
Q Serve(g_s), s	7.4	0.0	19.4	12.0	0.0	15.3	4.0	14.3	3.4	36.0	24.6	5.9
Cycle Q Clear(g_c), s	7.4	0.0	19.4	12.0	0.0	15.3	4.0	14.3	3.4	40.3	24.6	5.9
Prop In Lane	1.00		0.87	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	0	283	253	0	327	248	2132	1110	243	1836	819
V/C Ratio(X)	0.49	0.00	0.94	0.91	0.00	0.70	0.52	0.55	0.22	0.62	0.68	0.25
Avail Cap(c_a), veh/h	303	0	283	253	0	327	248	2132	1110	243	1836	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.30	0.30	0.30
Uniform Delay (d), s/veh	37.0	0.0	48.8	39.1	0.0	44.8	16.0	6.3	3.0	17.0	12.9	10.0
Incr Delay (d2), s/veh	1.3	0.0	36.9	34.4	0.0	6.3	1.8	1.0	0.4	3.5	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	10.8	8.1	0.0	6.9	1.6	3.9	1.1	2.7	7.5	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	0.0	85.8	73.6	0.0	51.2	17.8	7.3	3.4	20.6	13.5	10.2
LnGrp LOS	D	A	F	E	A	D	B	A	A	C	B	B
Approach Vol, veh/h		401			459			1543			1602	
Approach Delay, s/veh		69.7			62.5			7.6			13.8	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	77.0	17.0	26.0	10.0	67.0	14.4	28.6
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	72.0	12.0	21.0	5.0	62.0	11.0	22.0
Max Q Clear Time (g_c+I1), s	16.3	14.0	21.4	6.0	42.3	9.4	17.3
Green Ext Time (p_c), s	13.1	0.0	0.0	0.0	12.1	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Network Totals

Number of Intersections	4
Total Delay (hr)	67
Stops (#)	6964
Average Speed (mph)	15
Total Travel Time (hr)	117
Distance Traveled (mi)	1731
Fuel Consumed (gal)	167
Fuel Economy (mpg)	10.4
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	325
Performance Index	86.8

Network Totals

Number of Intersections	4
Total Delay (hr)	63
Stops (#)	6599
Average Speed (mph)	16
Total Travel Time (hr)	114
Distance Traveled (mi)	1773
Fuel Consumed (gal)	162
Fuel Economy (mpg)	11.0
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	260
Performance Index	81.1

Network Totals

Number of Intersections	4
Total Delay (hr)	348
Stops (#)	10013
Average Speed (mph)	6
Total Travel Time (hr)	417
Distance Traveled (mi)	2398
Fuel Consumed (gal)	421
Fuel Economy (mpg)	5.7
Unserved Vehicles (#)	1287
Vehicles in dilemma zone (#)	303
Performance Index	375.8

Network Totals

Number of Intersections	4
Total Delay (hr)	228
Stops (#)	9244
Average Speed (mph)	8
Total Travel Time (hr)	298
Distance Traveled (mi)	2440
Fuel Consumed (gal)	329
Fuel Economy (mpg)	7.4
Unserved Vehicles (#)	639
Vehicles in dilemma zone (#)	284
Performance Index	253.9

Supportive Documentation

SECTION A7: PUBLIC INVOLVEMENT

PUBLIC MEETING
Gender Road Phase 5
September 3, 2019 5:30 pm

	Name	Address
1	Bill Sims	222 E. Hocking St. CW
2	Bob Clark	370 Old Meadows Ct. C.W.
3	Mike Walker	184 Kramer St CW
4	Lucas Haire	710 Pingree Dr. Worthington OH 43085
5	Matt Peples	261 Paderborn Pl. CW
6	Bruce Jarvis	42 E. Waterloo St. C.W., OH 43110
7	Mike Coleman	323 N. Sacul CW, OH 43110
8	Jill Amos	59 N. Trine St CW OH 43110
9	Will Bennett	216 Chaney Mill Way CW, OH 43110
10	[illegible]	27 E Columbus St, CW, 43110

City of Canal Winchester

Gender Rd. Improvements, Phase 5 **Public Information Meeting Notes**
September 3, 2019 **Prepared by: wes**

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1) Attendees signed in. A copy of the sign in sheet is attached to these notes.
2) Shane Spencer, PE provided opening comments and an overview of the project. Exhibits were displayed on the monitors and hard copies displayed on the table. The City will be seeking funding for the project through the Ohio Public Works Commission.
3) The project consists of two segments:
   a) Gender Rd. & Canal St. Intersection:
      i) Add northbound Right turn lane from Gender to Canal.
      ii) Convert the traffic signal from span wire to mast arm.
      iii) Separate the bike path from the pavement at the intersection to reduce bike/pedestrian - vehicle conflicts.
   b) Gender Rd. & Winchester Blvd. Intersection:
      i) Add northbound right turn lane from Gender to Winchester Blvd.
      ii) Modify the traffic signal operation to accommodate the new lane.
      iii) Separate the bike path from the pavement to reduce bike/pedestrian – vehicle conflicts.
      iv) Improve the level of service during both the am and pm peak times.
4) No additional R/W is needed for the project.
5) Template comment forms and letters of support were made available.
6) Information from this meeting and a copy of the OPWC application will be posted on the City website.
7) Questions were taken from attendees:

Q: The separation of the bike path from the roadway is a good safety improvement. Can the path be separated from the pavement for the entire length between Canal St. and Winchester Blvd.?

A: There is a gap in the proposed path work of a few hundred feet between the Canal St. intersection and the Winchester Blvd. intersection. The path could be separated from the pavement in this area as well. The cost would likely be 100% local funds for this section of the path.

Q: What would be the funding split for the project?

A: We are proposing that the funding be 25% grant and 75% loan.

CANAL WINCHESTER Established 1828
Department of Construction Services
36 S. High St. Canal Winchester, OH 43110
Office 614.834.5109 Fax 614.829.7734

Q: Have utility relocation costs been considered?

A: Yes, a cost of $30,000 for utility relocation has been estimated. The most significant utility impact would likely be with SCP. The potential conflict area is not with the roadway pavement, but would be with the bike path and grading. The SCP poles are in the R/W and would be relocated within the R/W if necessary.

Q: What is the anticipated timeline for the project?

A: The funding application will be submitted this month. The initial results are generally available in December 2019. If successful, funds would be available in July 2020. Design would be complete by the end of 2020 and the project bid and constructed in 2021.

Department of Construction Services
36 S. High St. Canal Winchester, OH 43110
Office 614.834.5109 Fax 614.829.7734

Canal Winchester
LOCAL SCHOOLS

100 Washington Street
Canal Winchester, Ohio 43110
p: (614) 837-4533 f: (614) 833-2165
James Sotlar, Superintendent
www.cwschools.org

September 5, 2019

Public Works Integrating Committee
District 3
Mid-Ohio Regional Planning Committee
111 Liberty St.
Columbus, Ohio 43215

Re: Gender Road Improvements, Phase V
City of Canal Winchester

Dear Esteemed Members of the Public Works Integrating Committee:

This letter signifies my support of the Gender Rd. Improvement, Phase V project, for which the City of Canal Winchester is seeking financial assistance from the Ohio Public Works Commission. This project includes critical improvements to the intersections of Gender Rd. /Canal St., and Gender Rd. /Winchester Blvd. intersections that will positively affect our facilities and operations. As the superintendent of the Canal Winchester Local School District, I am well aware of the congestion issues at these intersections and the safety concerns related to traffic congestion. These issues directly affect the operational aspects of the Elementary Schools Campus and bus garage directly to the south of these intersections.

I understand as part of the project additional turn lanes and optimization of the traffic signal will mitigate much of the congestion issues and improve safety in the area. These improvements are necessary from an operational standpoint as the majority of the busses that leave the Elementary Schools Campus ad travel north on Gender Rd., through these intersections. These improvements will reduce congestion and thus reduce travel times for our buses.

Once again, the Canal Winchester Local School District fully supports the efforts of the City of Canal Winchester to make necessary improvements proposed in the application. I trust the application will receive due consideration from the District Three Public Works Integrating Committee and will be selected for funding assistance based on its merits. If you have any questions or would like to discuss the matter further, please do not hesitate to contact me at 614-837-4533.

Sincerely,

James Sotlar

James Sotlar
Superintendent

OPUS
THE OPUS GROUP

September 9, 2019

Public Works Integrating Committee
District 3
Mid-Ohio Regional Planning Commission
111 Liberty Street
Columbus, Ohio 43215

Dear Esteemed Members of the Public Works Integrating Committee:

I understand the City of Canal Winchester is seeking financial assistance from the Ohio Public Works Commission for the Gender Road Improvements, Phase V project. Opus Development Company is prepared to make a major investment in speculative industrial buildings on Winchester Blvd. just west of the project area. Our company fully supports the improvements proposed for Gender Road and the benefits that this project will bring to the residents and the businesses that rely on this important corridor. These enhancements will improve the access and safety in the area and assist with our ability to bring economic development to this community.

If you should have any questions or would like more information, please do not hesitate to call me at (317) 816-5723.

Sincerely,

Douglas Swain
Vice President, General Manager

September 4, 2019

Tim Moore
X Church
6600 Biggerton Bend
Canal Winchester, OH 43130

Public Works Integrating Committee
District 3
Mid-Ohio Regional Planning Commission 111
Liberty Street
Columbus, Ohio 43215

Dear Esteemed Members of the Public Works Integrating Committee:

I understand the City of Canal Winchester is seeking financial assistance from the Ohio Public Works Commission for the Gender Road Improvements, Phase V project. As a community representative and non-profit business owner; I believe this project will greatly benefit this entire community. This improvement will significantly impact the businesses and residents of Canal Winchester in a way that will improve the quality of life here. I fully support the City's efforts in regard to this project and ask you to approve funding for the benefit of our community.

If you should have any questions or would like more information, please do not hesitate to call me at (614) 829-5800.

Sincerely,

Tim Moore

Tim Moore
Lead Pastor/CEO
X Church

Public Works Integrating Committee
District 3
Mid-Ohio Regional Planning Commission
111 Liberty Street
Columbus, Ohio 43215

Dear Esteemed Members of the Public Works Integrating Committee:

I understand that the City of Canal Winchester is seeking financial assistance from the Ohio Public Works Commission for the Gender Road Phase 5 project. As a business representative, I think this project will greatly benefit the businesses and residents of the area and make it an even better place to live and do business; as such, I fully support the City's efforts in regards to this project.

Business (print): Don Hartman, Inc.

Name (print): Elaine Hartman

Signature: Elaine Hartman Date: 9-3-2019

Business Address: 38 W. Waterloo St.
Canal Winchester OH 43110

Public Works Integrating Committee
District 3
Mid-Ohio Regional Planning Commission
111 Liberty Street
Columbus, Ohio 43215

Dear Esteemed Members of the Public Works Integrating Committee:

Please allow this correspondence to signify my support for the Gender Road Phase 5 project, for which the City of Canal Winchester is applying for funding. As a resident who travels this area often, I am aware of the safety issues and congestion issues in the project corridor. I feel that correcting these issues is a worthy project and one that will benefit the citizens of Canal Winchester and the surrounding areas.

Name (print): SCOTT CONNER

Signature: [signature] Date: 9.3.19

Street Address: 7247 MONARCH ST

CANAL WINCHESTER, OH 43110

City of Canal Winchester, Ohio

PUBLIC MEETING
September 3, 2019

Gender Road Phase 5 Project

COMMENT FORM

We want your input regarding the Gender Road Phase 5 Project. Please leave this form with us at the meeting or fax it to us at (614) 775-4806. In order to include your comments with our OPWC Application, we must receive them by September 4, 2019.

Name: Bryce Polsgrove

Address: 53 E. Hocking st

1 – Please indicate your use of the Gender Road corridor (check all that apply):

- ✓ Resident of the City
- __ Business owner
- ✓ Truck/freight hauler
- ✓ travel it for non-business
- ✓ Travel it for work

2 – In general, what is your reaction to the overall concept of improving the Gender Road Corridor? (Check one):

- ✓ I support it because : to improve truck flow
- __ I don't support it because : _____

3 – Do you live, work or own property that could be directly affected by any of the treatments presented at the meeting ? ___ yes ✓ no.

If yes, please describe: _____

_____

(more on back page)

4 – Do you have any specific issues about the road, sidewalks, and/or trees you wish to have addressed? ___ yes X no.

If yes, please describe: _____

_____

5- Do you plan to write a letter of support for this project? ___yes X no

6- Would you like to be contacted via e-mail in regards to any new or additional information, which may come up in the future? ___yes X no

_____e-mail address

7 – Additional comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Please remember, we must have your comments by September 4, 2019.

City of Canal Winchester, Ohio

PUBLIC MEETING
September 3, 2019

Gender Road Phase 5 Project

COMMENT FORM

We want your input regarding the Gender Road Phase 5 Project. Please leave this form with us at the meeting or fax it to us at (614) 775-4806. In order to include your comments with our OPWC Application, we must receive them by September 4, 2019.

Name: Rhett Young

Address: 3845 B.I.S Rd. Lancaster Ohio

1 – Please indicate your use of the Gender Road corridor (check all that apply):

__ Resident of the City __ Business owner __ Truck/freight hauler

__ travel it for non-business X Travel it for work

2 – In general, what is your reaction to the overall concept of improving the Gender Road Corridor? (Check one):

X I support it because : Better looking, Safer bike Path

__ I don't support it because : _____

3 – Do you live, work or own property that could be directly affected by any of the treatments presented at the meeting ? X yes ___ no.

If yes, please describe: How street will any Repairs

(more on back page)

4 – Do you have any specific issues about the road, sidewalks, and/or trees you wish to have addressed? ___ yes X no.

If yes, please describe: _____

_____

5- Do you plan to write a letter of support for this project? ___yes X no

6- Would you like to be contacted via e-mail in regards to any new or additional information, which may come up in the future? ___yes X no

_____e-mail address

7 – Additional comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Please remember, we must have your comments by September 4, 2019.

City of Canal Winchester, Ohio

PUBLIC MEETING
September 3, 2019

Gender Road Phase 5 Project

COMMENT FORM

We want your input regarding the Gender Road Phase 5 Project. Please leave this form with us at the meeting or fax it to us at (614) 775-4806. In order to include your comments with our OPWC Application, we must receive them by September 4, 2019.

Name: Shawn Starcher

Address: 6332 Rossmore Lane

1 – Please indicate your use of the Gender Road corridor (check all that apply):

✓ Resident of the City __ Business owner __ Truck/freight hauler

✓ travel it for non-business ✓ Travel it for work

2 – In general, what is your reaction to the overall concept of improving the Gender Road Corridor? (Check one):

✓ I support it because : I believe it alleviates traffic issues.

__ I don't support it because : _____

3 – Do you live, work or own property that could be directly affected by any of the treatments presented at the meeting ? ✓ yes ___ no.

If yes, please describe: I live and work in the area. I travel this area several times a day.

(more on back page)

4 – Do you have any specific issues about the road, sidewalks, and/or trees you wish to have addressed? ___ yes __X__no.

If yes, please describe: _____

_____

5- Do you plan to write a letter of support for this project? ___yes __X__no

6- Would you like to be contacted via e-mail in regards to any new or additional information, which may come up in the future? ___yes __X__no

_____e-mail address

7 – Additional comments: _____

_____

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_____

_____

Please remember, we must have your comments by September 4, 2019.

City of Canal Winchester, Ohio

PUBLIC MEETING
September 3, 2019

Gender Road Phase 5 Project

COMMENT FORM

We want your input regarding the Gender Road Phase 5 Project. Please leave this form with us at the meeting or fax it to us at (614) 775-4806. In order to include your comments with our OPWC Application, we must receive them by September 4, 2019.

Name: Travis Lynch

Address: 320 W. Waterloo St. Canal Winchester, OH 43110

1 – Please indicate your use of the Gender Road corridor (check all that apply):

√ Resident of the City __ Business owner __ Truck/freight hauler

√ travel it for non-business √ Travel it for work

2 – In general, what is your reaction to the overall concept of improving the Gender Road Corridor? (Check one):

√ I support it because : It would help improve traffic

__ I don't support it because : _____

3 – Do you live, work or own property that could be directly affected by any of the treatments presented at the meeting ? ___ yes √ no.

If yes, please describe: _____

_____

(more on back page)

4 – Do you have any specific issues about the road, sidewalks, and/or trees you wish to have addressed? ___ yes √ no.

If yes, please describe: _____

_____

5- Do you plan to write a letter of support for this project? ___yes √ no

6- Would you like to be contacted via e-mail in regards to any new or additional information, which may come up in the future? √ yes ___no

hynch@canalwinchesterohio.gov e-mail address

7 – Additional comments: The bike path further off the road could improve safety for pedestrians.

_____

_____

_____

_____

_____

_____

_____

Please remember, we must have your comments by September 4, 2019.

City of Canal Winchester, Ohio

PUBLIC MEETING
September 3, 2019

Gender Road Phase 5 Project

COMMENT FORM

We want your input regarding the Gender Road Phase 5 Project. Please leave this form with us at the meeting or fax it to us at (614) 775-4806. In order to include your comments with our OPWC Application, we must receive them by September 4, 2019.

Name: Shannon Thomas

Address: 9485 Johnstown Utica Rd Johnstown OH 43031

1 – Please indicate your use of the Gender Road corridor (check all that apply):

__ Resident of the City __ Business owner __ Truck/freight hauler

✓ travel it for non-business ✓ Travel it for work

2 – In general, what is your reaction to the overall concept of improving the Gender Road Corridor? (Check one):

✓ I support it because : Better traffic flow

__ I don't support it because : _____

3 – Do you live, work or own property that could be directly affected by any of the treatments presented at the meeting ? ___ yes ✓ no.

If yes, please describe: _____

_____

(more on back page)

4 – Do you have any specific issues about the road, sidewalks, and/or trees you wish to have addressed? ___ yes ✓ no.

If yes, please describe: _____

_____

5- Do you plan to write a letter of support for this project? ___yes ✓ no

6- Would you like to be contacted via e-mail in regards to any new or additional information, which may come up in the future? ___yes ✓ no

_____e-mail address

7 – Additional comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Please remember, we must have your comments by September 4, 2019.

City of Canal Winchester, Ohio

PUBLIC MEETING
September 3, 2019

Gender Road Phase 5 Project

COMMENT FORM

We want your input regarding the Gender Road Phase 5 Project. Please leave this form with us at the meeting or fax it to us at (614) 775-4806. In order to include your comments with our OPWC Application, we must receive them by September 4, 2019.

Name: Trey Hartman

Address: 6947 Pearce lane Canal Winchester OH 43110

1 – Please indicate your use of the Gender Road corridor (check all that apply):

✓ Resident of the City __ Business owner __ Truck/freight hauler

✓ travel it for non-business ✓ Travel it for work

2 – In general, what is your reaction to the overall concept of improving the Gender Road Corridor? (Check one):

✓ I support it because : it makes the roads in Canal look better and easier on traffic

__ I don't support it because : _____

3 – Do you live, work or own property that could be directly affected by any of the treatments presented at the meeting ? ~~__~~ yes ✓ no.

If yes, please describe: ~~The [illegible] on the [illegible] side of my house~~

(more on back page)

4 – Do you have any specific issues about the road, sidewalks, and/or trees you wish to have addressed? ___ yes ✓ no.

If yes, please describe: _____

_____

5- Do you plan to write a letter of support for this project? ✓ yes ___no

6- Would you like to be contacted via e-mail in regards to any new or additional information, which may come up in the future? ✓ yes ___no

treyhartman614@yahoo.com e-mail address

7 – Additional comments: _____

_____

_____

_____

_____

_____

_____

_____

Please remember, we must have your comments by September 4, 2019.

Supportive Documentation

SECTION A8: RECOGNIZED NEED

RESOLUTION NO. 19-020

A RESOLUTION TO ADOPT THE FIVE-YEAR CAPITAL IMPROVEMENTS PLAN/MAINTENANCE OF EFFORT FOR THE CALENDAR YEARS 2020-2024 FOR THE CITY OF CANAL WINCHESTER, OHIO

WHEREAS, the Director of Public Service maintains a five-year Capital Improvements Plan and Maintenance of Effort which it updates annually; and,

WHEREAS, the City's five-year Capital Improvements Plan and Maintenance of Effort provides a guide for the maintenance and improvements of public works infrastructure within the City.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF CANAL WINCHESTER, STATE OF OHIO:

Section 1. That the Council of the City of Canal Winchester, Ohio hereby adopts the five-year Capital Improvement Plan/Maintenance of effort for the calendar years 2020-2024 as similarly attached and incorporated herein.

Section 2. That this resolution shall take effect and be in force from and after its passage.

DATE PASSED 9-3-19

PRESIDENT OF COUNCIL

ATTEST

CLERK OF COUNCIL
Acting Clerk

MAYOR

DATE APPROVED 9-4-19

APPROVED AS TO FORM:

LEGAL COUNSEL

I hereby certify that the ordinance as set forth above was published for a period of not less than fifteen days after passage by the Council, by posting a copy thereof in not less than three (3) public places in the municipal corporation, as determined by Council and as set forth in the Canal Winchester Charter.

Clerk of Council
Acting Clerk

Ohio Public Works Commission
Capital Improvements Plan
Summary Form

City of Canal Winchester	**04911332**	**Franklin**	**08/28/19**
Subdivision	**Code**	**County**	**Date**

Prepared by: Matthew C. Peoples 614-834-5100 mpeoples@canalwinchesterohio.gov

Infrastructure Component	Replacement Cost	Repair Cost	Total Units	Units/Physical Condition					
				Excellent	Good	Fair	Poor	Critical	Unknown
Roads	$63,708,000	$6,370,800	Center Line Miles 42.47	7.249	26.009	7.495	1.719		
Bridges	$4,500,000	$1,125,000	Number of Bridges 9		8	1			
Culverts	$1,600,000	$400,000	Number of Culverts 8		4	2	2		
Water Supply	$15,000,000	$3,750,000	Number of Facilities 6		Plant, Tower-3, Wells-5	Wells-1			
Water Distribution	$24,719,400	$6,179,850	Linear Feet (Thousands) 247.194	64.279	118.073	55.275	9.567		
Wastewater Systems	$35,000,000	$8,750,000	Number of Facilities 12	LS - 5	LS - 6 Plant -1				
Wastewater Collection	$33,507,800	$8,376,950	Linear Feet (Thousands) 335.078	180.289	104.040	27.549	23.200		
Stormwater Collection	$21,359,200	$5,339,800	Linear Feet (Thousands) 213.592	105.907	78.988	16.562	12.135		
Solid Waste Disposal			Capacity (Tons per Day)						
Totals	$199,394,400	$40,292,400							

Subdivision Socio-Economic Characteristics

Current		2010 Census Information			
Population	8,828	**Population**	7,101	**% LMI**	
Total Households	3,238	**Total Households**	2,893	**% Poverty**	1.8%
% Unemployment	3.9%	**MHI**	$74,403	**% Unemploy**	8.0%

Ohio Public Works Commission
Five Year Capital Improvements Plan/Maintenance of Effort

Subdivision Name: City of Canal Winchester

8/28/2019

	Project Name/Description	Funding Code	Status (A)ctive (C)omplete	Total Cost	Two Year Effort		Five Year Plan				
					2018	2019	2020	2021	2022	2023	2024
					Funded		Planned				
1	Dietz/Thrush Bikepath Rehabilitation	LO	C	$30,000	X						
2	Buckner Ct. Rehabilitation	LO	C	$45,000	X						
3	N. Gender LS Odor Control	LO	C	$50,000	X						
4	Rec & Baby Pool Paintings	LO	C	$50,000	X						
5	Canal Pointe Manhole Linings Phase 1	LO	C	$75,000	X						
6	Ashbrook Mains Phase 1	LO	C	$140,000	X						
7	High St. Rehabilitation Phase II	LO	C	$145,000	X						
8	Ashbrook Cul-de-sacs - Phase 1 & 2	LO	C	$175,000	X						
9	Westchester Trunk Main/Manhole Rehabilitations	LO	C	$275,000	X						
10	Towing Path Parking Lot	LO	C	$75,000	X						
11	Greengate Blvd Waterline	LO/PR/TIF	C	$1,000,000	X						
12	Gender Road Improvements - Phase IV	LO/OPWC/MTFD	C	$2,423,406	X	X					
13	WRF Screener Building Roof Replacement	LO	C	$25,000		X					
14	Canal Pointe Manhole Linings - Phase 2	LO	C	$75,000		X					
15	Fox Hill/Macintosh Bikepath Extension	LO	C	$45,000		X					
16	Ashbrook Cul-de-sacs - Phase 3	LO	C	$50,000		X					
17	Canal & Prentiss Rehabilitations	LO	C	$150,000		X					
18	Westchester Section 3 Cul-de-Sacs	LO	C	$75,000		X					
19	E. Waterloo Rehabilitation & Sewer Improvements	LO	C	$225,000		X					
20	Comp Pool Painting	LO	A	$20,000		X					
21	Westchester Park Improvements	LO/ODNR/PR	A	$350,000		X					
22	Miscellaneous Pavement Repairs	LO	A	$50,000	X	X	X	X	X	X	X
23	Sidewalk Repairs/Replacements	LO	A	$25,000	X	X	X	X	X	X	X
24	AMI Metering	LO	A	$450,000	X	X	X	X			
25	Gender Rd. Urban Paving Program	LO/ODOT/TIF	A	$975,000	X	X	X				
26	WTP Rehabilitations/Improvements	LO	A	$225,000		X	X	X			
27	Gender Road Improvements - Phase V	LO/OPWC/TIF	A	$1,200,000		X	X	X			
28	McGill Park Development - Phase I	LO/PR/GRANTS	A	$2,500,000		X	X	X			
29	McGill Park Trail Connector	LO/PR/GRANTS	A	$950,000		X	X	X			
30	W. Waterloo Rehabilitation Phase II (Walmart -Cemetery)	LO	A	$200,000			X				
31	Fairfield St. Rehab/Reconstruction	LO	A	$90,000			X				
32	Ashbrook Mains Group 2	LO	A	$225,000			X				
33	Westchester Section 3 Mains	LO	A	$250,000			X				
34	Tussing Ditch Path	LO/PR	A	$150,000			X				
35	Pool Parking Lot Expansion	LO	A	$250,000			X				
36	Towing Path Parking Lot Entry Feature	LO	A	$25,000			X				
37	WRF Generator Replacement	LO	A	$350,000			X				
38	Sludge Press Rehab & Expansion	LO	A	$125,000			X				
39	Gender Road Improvements - Phase VI	LO/OPWC/ODOT/TIF	A	$1,500,000			X	X	X		
40	W. Waterloo Rehabilitation Phase III (Cemetery-Lehman)	LO	A	$150,000				X			

	Project Name/Description	Funding Code	Status (A)ctive (C)omplete	Total Cost	Two Year Effort		Five Year Plan				
					2018	2019	2020	2021	2022	2023	2024
					Funded		Planned				
41	Groveport Rd. Path Trailhead Park	LO	A	$100,000				X			
42	Dietz/Burgstresser Bridge Rehabilitation	LO	A	$100,000				X			
43	Trine St. Rehabilitation Phase I	LO	A	$150,000				X			
44	Dietz Rd Rehabilitation Phase II	LO	A	$150,000				X			
45	Bowen Rd. Culvert	LO/PR	A	$250,000				X			
46	Emmas Meadow Storm	LO/PR	A	$250,000				X			
47	Municipal Building Construction	LO	A	$6,000,000				X	X		
48	Walnut Creek Park Drainage Improvements	LO	A	$75,000				X	X		
49	Groveport-MetroParks Path Connection	LO/ODNR/MP	A	$500,000				X	X		
50	High St. Soundwall	ODOT	A	$1,000,000				X	X		
51	Groveport/Dye/Manor Waterline Replacement	LO/OPWC/EPA/TIF	A	$750,000					X	X	X
52	Groveport Rd. Improvements	LO/OPWC	A	$2,000,000					X	X	X
53	Old W. Waterloo Rehabilitation	LO	A	$100,000					X		
54	Pfeifer Dr. Rehabilitation	LO	A	$150,000					X		
55	Winchester Village Section II Rehabilitation	LO	A	$250,000					X		
56	Hill Rd./Kings Crossing Roundabout	LO/PR/FC/TIF/ODOT	A	$2,600,000					X		
57	Busey Rd. Widening	LO/VT/PICK	A	$1,000,000						X	
58	Howe Pond Pier	LO	A	$75,000						X	
59	WTP Garage Reconstruction	LO	A	$100,000						X	
60	Westchester Section 4 Rehabilitations	LO	A	$200,000						X	
61	Historical Complex Improvements	LO/GRANT	A	$250,000						X	
62	Historical Complex Improvements	LO/GRANT	A	$250,000						X	
63	Gender Rd. Path Extension	LO	A	$300,000						X	
64	Dove Parkway Extension	LO/PR	A	$1,000,000						X	
65	Winchester Boulevard Extension	LO/TIF/ODOT	A	$15,500,000						X	
66	WRF Upgrades for PO4 Removal	LO	A	$500,000						X	
67	Amanda Northern Rehabilitation	LO	A	$50,000						X	
68	Gender Road Improvements, Phase VII	LO/OPWC/ ODOT	A	$1,500,000						X	X
69	WRF Headworks Replacement	LO/WPCLF	A	$5,000,000							X
70	WTP SCADA Upgrades	LO	A	$75,000							X
71	Washington St. Path	LO	A	$100,000							X
72	Columbus St. Pervious Pavement	LO	A	$100,000							X
73	Trine St. Rehabilitation Phase II	LO	A	$150,000							X
74	W. Waterloo Rehabilitation Phase IV	LO	A	$200,000							X
75	Downtown Paver/Streetscape Rehabilitation	LO	A	$200,000							X
76	Busey-Winchester Pike Connector	LO/PR	A	$1,000,000							X
77	High Street Overpass	LO/PR/ODOT	A	$20,000,000							X

CANAL WINCHESTER
Established 1828

March 1, 2019

Mr. Dirk B. Gross, P.E.
District Transportation Engineer
ODOT District 6
400 E. William Street
Delaware, OH 43015

Subject: Systematic Signal Timing & Phasing Program Request
Gender Road and Winchester Boulevard

Dear Mr. Gross,

The City of Canal Winchester in collaboration with the City of Columbus is requesting the consideration to be included in the State's Systematic Signal Timing & Phasing Program (SSTPP) for the Gender Road corridor (between Dietz Drive and Lehman Road) and for the Winchester Boulevard corridor (between Prentiss School Drive and Waterloo Street). There are ten and three traffic signals for the Gender Road corridor and Winchester Boulevard corridor, respectively. Eight of the signals along Gender Road along with the three signals along Winchester Boulevard are owned and operated by the City of Canal Winchester. The remaining two signals along Gender Road are owned and operated by the City of Columbus.

The attached documents are submitted in support of the application. The traffic crash data for the 2015 through 2017 calendar years has been evaluated and reveals a high frequency of rear end collisions.

The Gender Road corridor has seen substantial growth and development in the last decade. As such the corridor has received funding for four phases of infrastructure improvements from the Ohio Public Works Commission between 2009 and 2016. Now that the construction of the fourth phase of the improvements is substantially complete, the City is seeking funding from the SSTPP in order to assure that the signal timing and phasing is optimized for the current infrastructure and traffic volumes in this important corridor.

Given the proximity and observed traffic interaction between the portions of Gender Road within the City of Canal Winchester's corporation limits with the signalized intersections of Gender Road at Winchester Pike and Lehman Road (under jurisdiction of the City of Columbus) we have coordinated with the City of Columbus and received confirmation of their willingness to include those two intersections within the scope of this study. With a majority of the study area being within the City of Canal Winchester, we envision the City of Canal Winchester to be the lead local agency on this inter-jurisdictional effort.

We appreciate your consideration of this request. Please do not hesitate to contact me at mpeoples@canalwinchesterohio.gov or (614) 384-5111 if you have any questions regarding this request.

Sincerely,

Matthew Peoples
Director of Public Service
City of Canal Winchester

Systematic Signal Timing & Phasing Program

Funding Request – Gender Road (SR 674) and Winchester Bouelvard

The City of Canal Winchester, located in southeast Franklin County, has experienced rapid growth in the last 20 years with the population growing 58% between 2000 and 2010, with an additional 16% estimated growth from 2010 to 2017. The additional traffic due to population growth and development along the Gender Road corridor has necessitated the expansion of Gender Road. The corridor includes the interchange with US33, which is one of two interchanges that service Canal Winchester. The corridor has attracted substantial commercial development in the last 20 years, including a multitude of commercial developments at the interchange with US33, and recently, the BrewDog facility and the MacIntosh Skilled Nursing Facility.

The City has taken a proactive approach by improving the corridor incrementally beginning in 2009 through the present over four previous phases of construction. Funding was received from the Ohio Public Works Commission for the previous aforementioned phases of construction beginning in 2009 and concluding in 2016. The construction of the fourth phase of the Gender Road improvements is now substantially complete and is expected to be fully operational in the near term. The City is now looking to maximize their infrastructure investment by assuring that the signal timing and phasing is optimized for the current 2019 infrastructure and traffic volumes. With the ultimate goals being to reduce congestion and improve travel time. The City has reviewed and evaluated the traffic crash data for the Gender Road Corridor (between Dietz Drive and Lehman Road) as depicted in Figure 1, and for the Winchester Boulevard corridor (between Prentiss School Drive and Waterloo Street) as depicted in Figure 2.

On the south end of the study corridor (at Dietz Drive), Gender Road includes one through lane in each direction and dedicated left hand turn lanes for northbound and southbound traffic. The roadway widens incrementally to the north, reaching two through lanes and a left turn lane for northbound traffic, and two through lanes, two left turn lanes, and one right turn lane for southbound traffic at its widest at the intersection with Winchester Boulevard.

Winchester Boulevard at the intersection with Gender Road includes one through lane, 2 left turn lane, and one through lane for eastbound traffic, and one left turn lane, one right turn lane, and one through lane for westbound traffic.

There are a total of 10 signals on Gender Road in the study area and a total of 3 signals on Winchester Boulevard in the study area. Please note that the Gender Road / Winchester Boulevard signal is included in the totals of both corridors, therefore a total of 12 signalized intersections are included in the study area. Table 1 summarizes the signalized intersections in the requested study area.

Table 1 – Summary of Signalized Intersections

Corridor	Cross Street	Maintaining Agency
Gender Road	Dietz Drive	City of Canal Winchester
Gender Road	Fox Hill Drive	City of Canal Winchester
Gender Road	Groveport Road	City of Canal Winchester
Gender Road	Walnut Street	City of Canal Winchester
Gender Road	Canal Street	City of Canal Winchester
Gender Road	Winchester Boulevard	City of Canal Winchester
Gender Road	US33 Eastbound	City of Canal Winchester
Gender Road	US33 Westbound	City of Canal Winchester
Gender Road	Winchester Pike	City of Columbus
Gender Road	Lehman Road	City of Columbus
Winchester Boulevard	Prentiss School Drive	City of Canal Winchester
Winchester Boulevard	Gender Road	City of Canal Winchester
Winchester Boulevard	Waterloo Street	City of Canal Winchester

Figure 1 – Gender Road Corridor

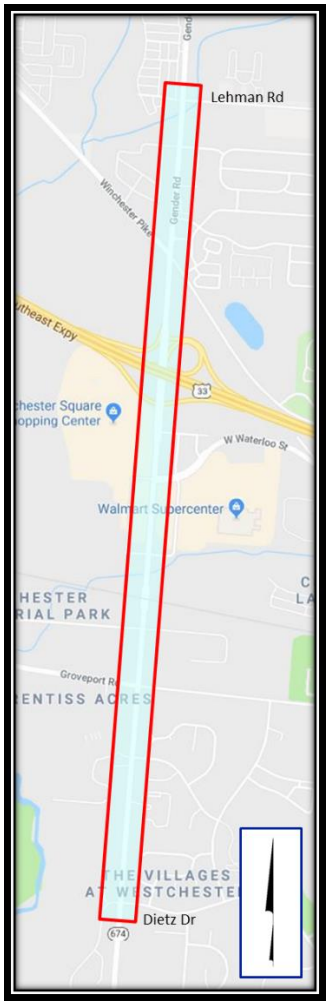
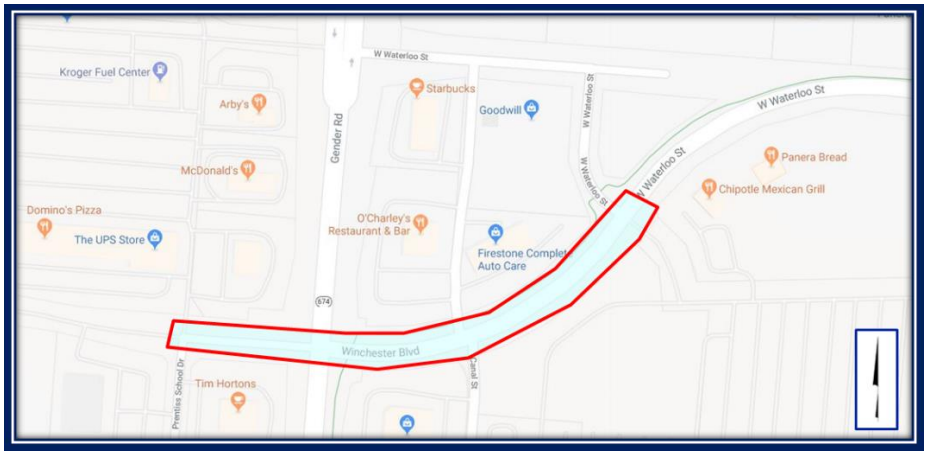


Figure 2 – Winchester Boulevard Corridor



Crash data for the two corridors for years 2015-2017 was retrieved from state GIS crash database.

For the Gender Road corridor, there were 337 crashes between 2015 and 2017. The crash summary by type as shown in Table 2 indicates that rear-end crash consist of 58.5% for all the crashes. Detailed information relative to the crash data is attached hereto.

Table 2 - Crash Summary for Gender Road Corridor

TYPE_OF_CRASH	Number	%
Rear End	**197**	58.5%
Left Turn	**38**	11.3%
Angle	**30**	8.9%
Sideswipe - Passing	**19**	5.6%
Fixed Object	**15**	4.5%
Right Turn	**13**	3.9%
Backing	**8**	2.4%
Head On	**6**	1.8%
Parked Vehicle	**3**	0.9%
Pedestrian	**2**	0.6%
Animal	**2**	0.6%
Overturning	**1**	0.3%
Sideswipe - Meeting	**1**	0.3%
Pedalcycles	**1**	0.3%
Other Non-Collision	**1**	0.3%
Grand Total	**337**	**100.0%**

For the Winchester Boulevard corridor, there were 57 crashes between 2015 and 2017. Table 3 shows the summary of crash type. Almost half of the crashes are rear-end type. Detailed information relative to the crash data is attached hereto.

Table 3 - Crash Summary for Winchester Boulevard Corridor

TYPE_OF_CRASH	Number	%
Rear End	**24**	42.1%
Left Turn	**13**	22.8%
Sideswipe - Passing	**8**	14.0%
Angle	**5**	8.8%
Right Turn	**3**	5.3%
Backing	**3**	5.3%
Fixed Object	**1**	1.8%
Grand Total	**57**	**100.0%**

In conclusion, there was a high frequency of rear-end type crashes in the two corridors between 2015 and 2017. The second most frequent type of crash was left hand turn conflicts in the 2015 through 2017 time period. Optimizing the timing of the existing signals is an effective countermeasure to reduce rear-end crashes and improve safety by effectively coordinate signals for the two corridors.

Gender Road between Dietz Dr and Lehman Rd, 2015-2017

	Number
Total	**337**

CRASH_SEVERITY	Number	%
Injury Crash	**78**	23.1%
Property Damage Crash	**259**	76.9%
Grand Total	**337**	**100.0%**

TRAFFIC_CRASH_YEAR	Number	%
2015	**96**	28.5%
2016	**130**	38.6%
2017	**111**	32.9%
Grand Total	**337**	**100.0%**

DAY_OF_WEEK	Number	%
Friday	**80**	23.7%
Thursday	**54**	16.0%
Tuesday	**50**	14.8%
Monday	**47**	13.9%
Wednesday	**44**	13.1%
Saturday	**34**	10.1%
Sunday	**28**	8.3%
Grand Total	**337**	**100.0%**

HOUR_OF_DAY	Number	%
00	**1**	0.3%
01	**3**	0.9%
02	**4**	1.2%
03	**1**	0.3%
04	**3**	0.9%
05	**4**	1.2%
06	**13**	3.9%
07	**27**	8.0%
08	**14**	4.2%
09	**8**	2.4%
10	**12**	3.6%
11	**16**	4.7%
12	**24**	7.1%
13	**22**	6.5%
14	**31**	9.2%
15	**26**	7.7%
16	**18**	5.3%
17	**29**	8.6%
18	**29**	8.6%
19	**21**	6.2%
20	**13**	3.9%
21	**11**	3.3%
22	**2**	0.6%
23	**5**	1.5%
Grand Total	**337**	**100.0%**

TYPE_OF_CRASH	Number	%
Rear End	**197**	58.5%
Left Turn	**38**	11.3%
Angle	**30**	8.9%
Sideswipe - Passing	**19**	5.6%
Fixed Object	**15**	4.5%
Right Turn	**13**	3.9%
Backing	**8**	2.4%
Head On	**6**	1.8%
Parked Vehicle	**3**	0.9%
Pedestrian	**2**	0.6%
Animal	**2**	0.6%
Overturning	**1**	0.3%
Sideswipe - Meeting	**1**	0.3%
Pedalcycles	**1**	0.3%
Other Non-Collision	**1**	0.3%
Grand Total	**337**	**100.0%**

Gender Road between Dietz Dr and Lehman Rd, 2015-2017

WEATHER_CONDITION	Number	%
Clear	208	61.7%
Cloudy	89	26.4%
Rain	30	8.9%
Snow	6	1.8%
Other/Unknown	3	0.9%
Severe Crosswinds	1	0.3%
Grand Total	337	100.0%

ROAD_CONDITION	Number	%
Dry	272	80.7%
Wet	53	15.7%
Ice	5	1.5%
Other	4	1.2%
Snow	3	0.9%
Grand Total	337	100.0%

LIGHT_CONDITION	Number	%
Daylight	232	68.8%
Dark - Lighted Roadway	45	13.4%
Dark - Roadway Not Lighted	28	8.3%
Dawn	18	5.3%
Dusk	11	3.3%
Unknown	3	0.9%
Grand Total	337	100.0%

NUMBER_OF_VEHICLES	Number	%
1	19	5.6%
2	287	85.2%
3	27	8.0%
4	4	1.2%
Grand Total	337	100.0%

LOCATION	Number	%
Four-Way Intersection	128	38.0%
Not An Intersection	125	37.1%
T-Intersection	61	18.1%
Off Ramp	10	3.0%
On Ramp	4	1.2%
Driveway/Alley Access	4	1.2%
Railroad Grade Crossing	2	0.6%
Y-Intersection	2	0.6%
Unknown	1	0.3%
Grand Total	337	100.0%

CRASH_MONTH_NBR	Number	%
1	27	8.0%
2	30	8.9%
3	25	7.4%
4	32	9.5%
5	38	11.3%
6	22	6.5%
7	20	5.9%
8	28	8.3%
9	27	8.0%
10	30	8.9%
11	31	9.2%
12	27	8.0%
Grand Total	337	100.0%

ROAD_CONTOUR	Number	%
Straight Level	268	79.5%
Straight Grade	56	16.6%
Curve Level	8	2.4%
Curve Grade	4	1.2%
Unknown	1	0.3%
Grand Total	337	100.0%

SPECIAL_AREA	Number	%
(blank)	337	100.0%
Grand Total	337	100.0%

ANIMAL_TYPE	Number	%
(blank)	337	100.0%
Grand Total	337	100.0%

Gender Road between Dietz Dr and Lehman Rd, 2015-2017

ACTION1	Number	%
Straight Ahead	207	61.4%
Making Left Turn	50	14.8%
Making Right Turn	22	6.5%
Slowing Or Stopped In Traffic	18	5.3%
Changing Lanes	10	3.0%
Backing	8	2.4%
Unknown	5	1.5%
Other Motorist Action	3	0.9%
Overtaking/Passing	3	0.9%
Entering Traffic Lane	3	0.9%
Making U-Turn	3	0.9%
Negotiating A Curve	2	0.6%
Entering Or Crossing Specified Location	1	0.3%
Leaving Traffic Lane	1	0.3%
Walking, Running, Jogging, Playing, Cycling	1	0.3%
Grand Total	**337**	**100.0%**

CONTRIBUTING_FACTOR1	Number	%
Followed To Closely/ACDA	187	55.5%
Failure To Yield	46	13.6%
Failure To Control	31	9.2%
Improper Turn	13	3.9%
Improper Lane Change/Passing/Offroad	12	3.6%
None-Motorist	9	2.7%
Ran Red Light	8	2.4%
Improper Backing	7	2.1%
Unknown	7	2.1%
Other Improper Action	7	2.1%
Left Of Center	3	0.9%
Operating Vehicle In Negligent Manner	2	0.6%
Improper Crossing	1	0.3%
Vision Obstruction	1	0.3%
Swerving To Avoid	1	0.3%
Failure To Obey Signs/Signals/Officer	1	0.3%
Ran Stop Sign	1	0.3%
Grand Total	**337**	**100.0%**

	Number	%
Total	**337**	**100.0%**

TRAFFIC_CONTROL1	Number	%
Traffic Signal	187	55.5%
No Controls	77	22.8%
Stop Sign	34	10.1%
Pavement Markings	34	10.1%
Traffic Flashers	2	0.6%
Walk/Do Not Walk	1	0.3%
Railroad Crossbucks	1	0.3%
School Zone	1	0.3%
Grand Total	**337**	**100.0%**

DRIVER_ALCOHOL1	Number	%
No	325	96.4%
Yes	12	3.6%
Grand Total	**337**	**100.0%**

DRIVER_DRUGS1	Number	%
No	333	98.8%
Yes	4	1.2%
Grand Total	**337**	**100.0%**

Gender Road between Dietz Dr and Lehman Rd, 2015-2017

DIRECTION_FROM1	Number	%
North	**105**	31.2%
South	**92**	27.3%
East	**76**	22.6%
West	**54**	16.0%
Unknown	**3**	0.9%
Northeast	**3**	0.9%
Northwest	**3**	0.9%
Southwest	**1**	0.3%
Grand Total	**337**	**100.0%**

DIRECTION_TO1	Number	%
South	**105**	31.2%
North	**90**	26.7%
West	**60**	17.8%
East	**58**	17.2%
Southeast	**7**	2.1%
Northwest	**6**	1.8%
Northeast	**5**	1.5%
Unknown	**5**	1.5%
Southwest	**1**	0.3%
Grand Total	**337**	**100.0%**

POSTED_SPEED1	Number	%
35	**203**	60.2%
25	**34**	10.1%
50	**24**	7.1%
45	**22**	6.5%
	18	5.3%
60	**17**	5.0%
15	**8**	2.4%
55	**6**	1.8%
10	**2**	0.6%
20	**1**	0.3%
5	**1**	0.3%
24	**1**	0.3%
Grand Total	**337**	**100.0%**

ESTIMATED_SPEED1	Number	%
5	**1**	100.0%
Grand Total	**1**	**100.0%**

VEHICLE_TYPE1	Number	%
Mid Size	**82**	24.3%
Full Size	**76**	22.6%
Sport Utility Vehicle	**70**	20.8%
Compact	**34**	10.1%
Pickup	**30**	8.9%
Unknown Or Hit/Skip	**14**	4.2%
Minivan	**9**	2.7%
Van	**7**	2.1%
Sub-Compact	**4**	1.2%
Tractor/Semi-Trailer	**3**	0.9%
Single Unit Truck Or Van 2 Axle, 6 Tires	**2**	0.6%
Bus (16+ Seats, Inc Driver)	**1**	0.3%
Motorcycle	**1**	0.3%
Truck/Tractor (Bobtail)	**1**	0.3%
Motorized Bicycle	**1**	0.3%
Pedestrian/Skater	**1**	0.3%
Bicycle/Pedalcyclist	**1**	0.3%
Grand Total	**337**	**100.0%**

VEHICLE_TYPE2	Number	%
Sport Utility Vehicle	**91**	27.0%
Full Size	**68**	20.2%
Mid Size	**64**	19.0%
Compact	**31**	9.2%
Pickup	**27**	8.0%
	19	5.6%
Minivan	**13**	3.9%
Van	**7**	2.1%
Single Unit Truck Or Van 2 Axle, 6 Tires	**3**	0.9%
Motorcycle	**3**	0.9%
Sub-Compact	**3**	0.9%
Unknown Or Hit/Skip	**2**	0.6%
Single Unit Truck/Trailer	**1**	0.3%
Other Passenger Vehicle	**1**	0.3%
Other Med/Heavy Vehicle	**1**	0.3%
Pedestrian/Skater	**1**	0.3%
Bus/Van (9-15 Seats Inc Driver)	**1**	0.3%
Bus (16+ Seats, Inc Driver)	**1**	0.3%
Grand Total	**337**	**100.0%**

Gender Road between Dietz Dr and Lehman Rd, 2015-2017

ACTION2	Number	%
Slowing Or Stopped In Traffic	153	45.4%
Straight Ahead	127	37.7%
Making Left Turn	19	5.6%
	19	5.6%
Making Right Turn	12	3.6%
Parked	4	1.2%
Walking, Running, Jogging, Playing, Cycling	1	0.3%
Unknown	1	0.3%
Changing Lanes	1	0.3%
Grand Total	**337**	**100.0%**

CONTRIBUTING_FACTOR2	Number	%
None-Motorist	300	89.0%
	19	5.6%
Unknown	6	1.8%
Followed To Closely/ACDA	5	1.5%
Other Improper Action	2	0.6%
None Non-Motorist	1	0.3%
Stopped Or Parked Illegally	1	0.3%
Ran Stop Sign	1	0.3%
Improper Turn	1	0.3%
Load Shifting/Falling/Spilling	1	0.3%
Grand Total	**337**	**100.0%**

DIRECTION_FROM2	Number	%
South	108	32.0%
North	94	27.9%
East	58	17.2%
West	52	15.4%
	19	5.6%
Southeast	4	1.2%
Northwest	2	0.6%
Grand Total	**337**	**100.0%**

DIRECTION_TO2	Number	%
North	106	31.5%
South	91	27.0%
East	51	15.1%
West	50	14.8%
	19	5.6%
Northwest	8	2.4%
Northeast	5	1.5%
Southeast	4	1.2%
Unknown	2	0.6%
Southwest	1	0.3%
Grand Total	**337**	**100.0%**

DRIVER_ALCOHOL2	Number	%
(blank)	337	100.0%
Grand Total	**337**	**100.0%**

DRIVER_DRUGS2	Number	%
(blank)	337	100.0%
Grand Total	**337**	**100.0%**

Gender Road between Dietz Dr and Lehman Rd, 2015-2017

SEVERITY	CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR	Property Damage Crash	Injury Crash
2015	74	22
2016	97	33
2017	88	23
Grand Total	**259**	**78**

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2015	0	2
2016	0	0
2017	0	1
Grand Total	**0**	**3**

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2015	2	12	18
2016	0	15	37
2017	1	9	24
Grand Total	**3**	**36**	**79**

Winchester Blvd from Prentiss School Road to Waterloo St, 2015-2017

	Number
Total	**57**

CRASH_SEVERITY	Number	%
Injury Crash	**11**	19.3%
Property Damage Crash	**46**	80.7%
Grand Total	**57**	**100.0%**

TRAFFIC_CRASH_YEAR	Number	%
2015	**16**	28.1%
2016	**20**	35.1%
2017	**21**	36.8%
Grand Total	**57**	**100.0%**

DAY_OF_WEEK	Number	%
Friday	**15**	26.3%
Tuesday	**12**	21.1%
Wednesday	**8**	14.0%
Saturday	**7**	12.3%
Sunday	**6**	10.5%
Monday	**6**	10.5%
Thursday	**3**	5.3%
Grand Total	**57**	**100.0%**

HOUR_OF_DAY	Number	%
01	**1**	1.8%
05	**1**	1.8%
06	**2**	3.5%
07	**4**	7.0%
08	**5**	8.8%
09	**3**	5.3%
11	**3**	5.3%
12	**5**	8.8%
13	**3**	5.3%
14	**9**	15.8%
15	**3**	5.3%
16	**2**	3.5%
17	**4**	7.0%
18	**5**	8.8%
19	**3**	5.3%
20	**2**	3.5%
21	**1**	1.8%
23	**1**	1.8%
Grand Total	**57**	**100.0%**

TYPE_OF_CRASH	Number	%
Rear End	**24**	42.1%
Left Turn	**13**	22.8%
Sideswipe - Passing	**8**	14.0%
Angle	**5**	8.8%
Right Turn	**3**	5.3%
Backing	**3**	5.3%
Fixed Object	**1**	1.8%
Grand Total	**57**	**100.0%**

Winchester Blvd from Prentiss School Road to Waterloo St, 2015-2017

WEATHER_CONDITION	Number	%
Clear	36	63.2%
Cloudy	13	22.8%
Rain	6	10.5%
Snow	1	1.8%
Other/Unknown	1	1.8%
Grand Total	**57**	**100.0%**

ROAD_CONDITION	Number	%
Dry	44	77.2%
Wet	10	17.5%
Other	2	3.5%
Ice	1	1.8%
Grand Total	**57**	**100.0%**

LIGHT_CONDITION	Number	%
Daylight	43	75.4%
Dark - Lighted Roadway	8	14.0%
Dark - Roadway Not Lighted	4	7.0%
Dawn	2	3.5%
Grand Total	**57**	**100.0%**

NUMBER_OF_VEHICLES	Number	%
1	1	1.8%
2	55	96.5%
3	1	1.8%
Grand Total	**57**	**100.0%**

LOCATION	Number	%
Four-Way Intersection	36	63.2%
Not An Intersection	15	26.3%
T-Intersection	4	7.0%
Shared-Use Paths Or Trails	1	1.8%
Y-Intersection	1	1.8%
Grand Total	**57**	**100.0%**

CRASH_MONTH_NBR	Number	%
1	5	8.8%
2	7	12.3%
3	4	7.0%
4	7	12.3%
5	5	8.8%
6	2	3.5%
7	1	1.8%
8	5	8.8%
9	5	8.8%
10	9	15.8%
11	6	10.5%
12	1	1.8%
Grand Total	**57**	**100.0%**

ROAD_CONTOUR	Number	%
Straight Level	51	89.5%
Straight Grade	4	7.0%
Curve Level	2	3.5%
Grand Total	**57**	**100.0%**

SPECIAL_AREA	Number	%
(blank)	57	100.0%
Grand Total	**57**	**100.0%**

ANIMAL_TYPE	Number	%
(blank)	57	100.0%
Grand Total	**57**	**100.0%**

Winchester Blvd from Prentiss School Road to Waterloo St, 2015-2017

ACTION1	Number	%
Straight Ahead	29	50.9%
Making Left Turn	14	24.6%
Making Right Turn	6	10.5%
Changing Lanes	3	5.3%
Backing	3	5.3%
Slowing Or Stopped In Traffic	1	1.8%
Other Motorist Action	1	1.8%
Grand Total	**57**	**100.0%**

CONTRIBUTING_FACTOR1	Number	%
Followed To Closely/ACDA	23	40.4%
Failure To Yield	15	26.3%
Improper Turn	4	7.0%
Failure To Control	4	7.0%
Improper Lane Change/Passing/Offroad	4	7.0%
Improper Backing	3	5.3%
Unknown	2	3.5%
Ran Stop Sign	1	1.8%
Left Of Center	1	1.8%
Grand Total	**57**	**100.0%**

	Number	%
Total	**57**	**100.0%**

TRAFFIC_CONTROL1	Number	%
Traffic Signal	42	73.7%
Stop Sign	6	10.5%
Pavement Markings	5	8.8%
No Controls	4	7.0%
Grand Total	**57**	**100.0%**

DRIVER_ALCOHOL1	Number	%
No	56	98.2%
Yes	1	1.8%
Grand Total	**57**	**100.0%**

DRIVER_DRUGS1	Number	%
No	57	100.0%
Grand Total	**57**	**100.0%**

Winchester Blvd from Prentiss School Road to Waterloo St, 2015-2017

DIRECTION_FROM1	Number	%
North	21	36.8%
South	13	22.8%
West	12	21.1%
East	9	15.8%
Unknown	2	3.5%
Grand Total	57	100.0%

DIRECTION_TO1	Number	%
East	15	26.3%
North	14	24.6%
South	13	22.8%
West	8	14.0%
Unknown	4	7.0%
Northeast	2	3.5%
Southeast	1	1.8%
Grand Total	57	100.0%

POSTED_SPEED1	Number	%
35	33	57.9%
25	15	26.3%
15	4	7.0%
50	2	3.5%
5	1	1.8%
	1	1.8%
45	1	1.8%
Grand Total	57	100.0%

ESTIMATED_SPEED1	Number	%
5	13	22.8%
15	10	17.5%
10	10	17.5%
20	5	8.8%
25	4	7.0%
3	4	7.0%
35	3	5.3%
0	2	3.5%
1	2	3.5%
30	2	3.5%
45	1	1.8%
6	1	1.8%
Grand Total	57	100.0%

VEHICLE_TYPE1	Number	%
Mid Size	11	19.3%
Sport Utility Vehicle	11	19.3%
Full Size	10	17.5%
Compact	6	10.5%
Pickup	5	8.8%
Minivan	4	7.0%
Unknown Or Hit/Skip	3	5.3%
Van	3	5.3%
Sub-Compact	2	3.5%
Motorized Bicycle	1	1.8%
Single Unit Truck Or Van 2 Axle, 6 Tires	1	1.8%
Grand Total	57	100.0%

VEHICLE_TYPE2	Number	%
Sport Utility Vehicle	18	31.6%
Full Size	13	22.8%
Mid Size	10	17.5%
Compact	9	15.8%
Pickup	2	3.5%
Sub-Compact	1	1.8%
Van	1	1.8%
Minivan	1	1.8%
Other Passenger Vehicle	1	1.8%
	1	1.8%
Grand Total	57	100.0%

Winchester Blvd from Prentiss School Road to Waterloo St, 2015-2017

ACTION2	Number	%
Straight Ahead	28	49.1%
Slowing Or Stopped In Traffic	21	36.8%
Making Left Turn	5	8.8%
Making Right Turn	2	3.5%
	1	1.8%
Grand Total	**57**	**100.0%**

CONTRIBUTING_FACTOR2	Number	%
None-Motorist	52	91.2%
Unknown	3	5.3%
	1	1.8%
Improper Turn	1	1.8%
Grand Total	**57**	**100.0%**

DIRECTION_FROM2	Number	%
North	21	36.8%
South	18	31.6%
West	10	17.5%
East	7	12.3%
	1	1.8%
Grand Total	**57**	**100.0%**

DIRECTION_TO2	Number	%
North	18	31.6%
South	15	26.3%
East	13	22.8%
West	6	10.5%
Northeast	2	3.5%
Northwest	1	1.8%
Unknown	1	1.8%
	1	1.8%
Grand Total	**57**	**100.0%**

DRIVER_ALCOHOL2	Number	%
(blank)	57	100.0%
Grand Total	**57**	**100.0%**

DRIVER_DRUGS2	Number	%
(blank)	57	100.0%
Grand Total	**57**	**100.0%**

Winchester Blvd from Prentiss School Road to Waterloo St, 2015-2017

SEVERITY	CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR	Property Damage Crash	Injury Crash
2015	13	3
2016	17	3
2017	16	5
Grand Total	**46**	**11**

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2015	0	0
2016	0	0
2017	0	0
Grand Total	**0**	**0**

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2015	0	1	4
2016	0	5	1
2017	0	0	6
Grand Total	**0**	**6**	**11**

Meininger, Erik

From: Spencer, Shane
Sent: Monday, September 9, 2019 11:31 AM
To: Meininger, Erik
Subject: FW: Gender Road Retiming
Attachments: Canal Winchester_ODOT Signal Timing Scope.docx; Canal Winchester_ODOT Signal Timing Kickoff Meeting Document.docx

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From: Jeremy.Thompson@dot.ohio.gov <Jeremy.Thompson@dot.ohio.gov>
Sent: Wednesday, March 20, 2019 11:50 AM
To: Spencer, Shane <sspencer@emht.com>; mpeoples@canalwinchesterohio.gov; McGaughey, Matthew B. <mbmcgaughey@columbus.gov>; wsims@canalwinchesterohio.gov
Cc: Dirk.Gross@dot.ohio.gov; Brian.Davidson@dot.ohio.gov
Subject: Gender Road Retiming

All,

We've looked over the formal request for the retiming of the Gender Road corridor and are ready to proceed. Our new round of funding for the programmatic should be ready to go here in the next few weeks, so I'd like to get a jump on getting the initial information so we can get started immediately after that happens. Attached are the scope and kickoff documents that will need to be completed for this project. Please let me know if you have any questions or need any guidance. Since there are two municipalities involved, the kickoff document can be done in coordination, or can just be completed separately and I can combine them later.

Thanks,

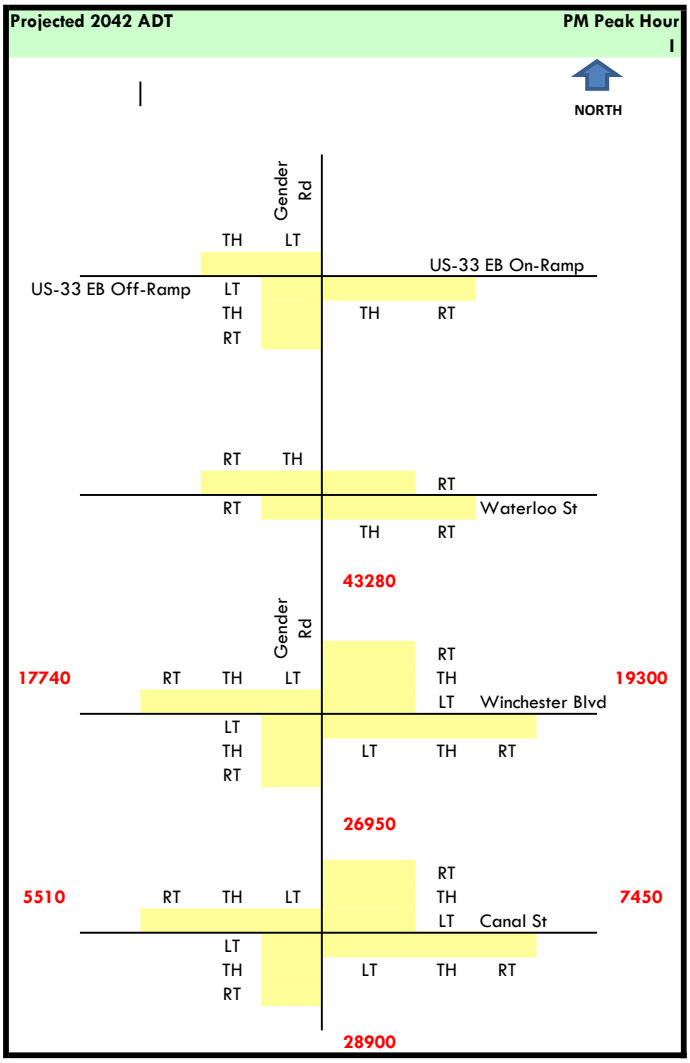
Jeremy L. Thompson
Traffic Engineer
Office of Traffic Operations
1606 W. Broad Street MS: 5160, Columbus, Ohio 43223
(p) 614.752.6968 (m) 614.981.0917
transportation.ohio.gov

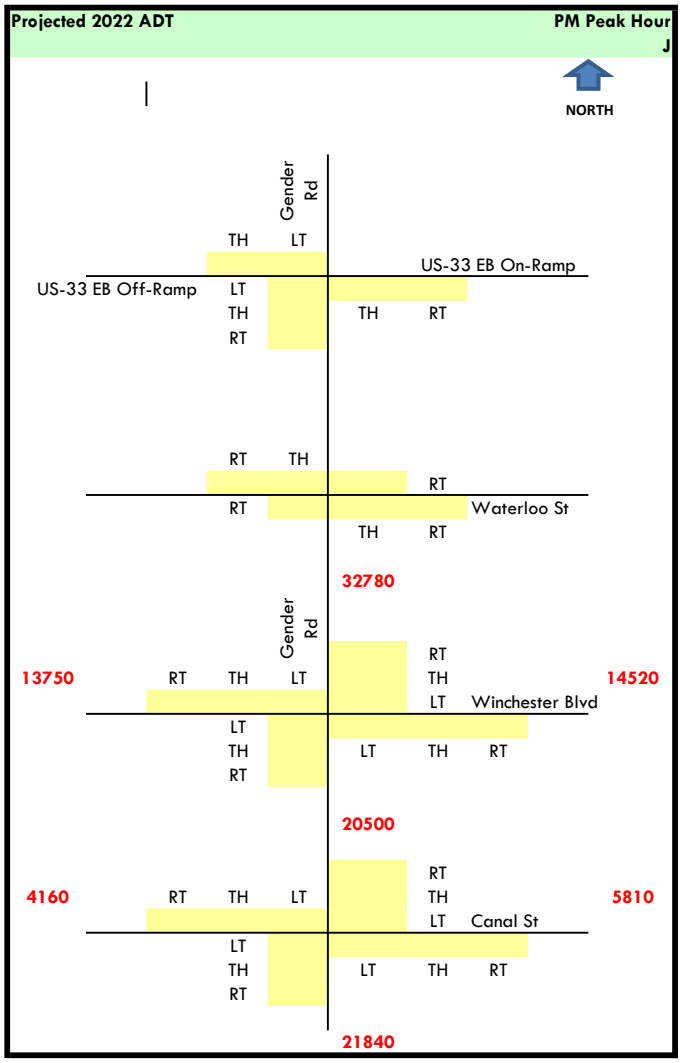
See the Traffic Analysis in the attachments for A6

Supportive Documentation

SECTION A9: SERVICE TO THE DISTRICT

Development Name
Traffic Impact Study
Traffic Volume Calculations





See the Traffic Analysis in the attachments for A6

Supportive Documentation

SECTION A10: SPECIAL CONDITIONS OR IMPORTANT COMMUNITY FACILITIES

FARES
single trip options

REGULAR

STANDARD & FREQUENT	$2.00
RUSH HOUR (EXPRESS)	$2.75
With ADA Card	Free
Transfer	Free*
Trip Ticket (STANDARD & FREQUENT)	$2.00
2-Trip Ticket (STANDARD & FREQUENT)	$4.00

*Free transfer available upon request, valid for two hours.

REDUCED

Discount** with Senior, Key ID, AND children 48" tall and over through 12 years of age	$1.00
Children under 48" tall, limit three with adult family member	Free

PASSES
unlimited trip options

DAYPASS

STANDARD & FREQUENT *purchase on board*	$4.50
Discount** *purchase in advance* with Senior, Key ID, AND children 48" tall and over through 12 years of age	$2.25
31-DAY *purchase in advance*	
STANDARD & FREQUENT	$62.00
RUSH HOUR (EXPRESS)	$85.00
Discount** with Senior, Key ID, AND children 48" tall and over through 12 years of age	$31.00
7-DAY PASS *purchase in advance*	
STANDARD & FREQUENT	$25.00

**For more information on discounts visit cota.com/fares

Additional $0.75 required to ride Rush Hour buses when paying with Standard fare media, including transfers. Senior, Key and ADA ID cardholders do not pay upcharge for Rush Hour lines.

OPERATORS CARRY NO CASH. Fares are subject to change.

INFORMATION
CALL (614) 228-1776 ■ **VISIT** www.cota.com

25 BRICE

HOW TO RIDE
with COTA

KNOW YOUR
- **Line number**
- **Departure time and location**
- **Destination**

ARRIVE EARLY
- Arrive at your bus stop five minutes before your bus is scheduled to leave. Check the sign above the front windshield for the line number and destination.

HAVE FARE READY
- Pay your fare at the farebox when you board. If you will transfer, ask the bus operator for a transfer pass before you pay your fare. Transfers are free and valid for two hours from the time of issue. Transfers can only be used to continue your trip in one direction.

SIGNAL TO STOP
- When the bus is approaching your stop, push the yellow strip or pull the cord located by the window near your seat to ring the stop signal. When the bus stops, exit through the rear door.

GET YOUR BUS IN GEAR
be prepared

Keep you and your bus on time.
Always be sure to:
- Arrive at your stop five minutes early.
- Be visible–step outside of the shelter if you are in one and remain close to the bus stop sign.
- While you are waiting, prepare your fare. Have fare ready when you board the bus.
- Motion to the operator as your bus approaches.

STROLLERS
ride buses too

COTA is happy to accommodate strollers when the bus operator feels there is plenty of space to keep everyone safe.
- Strollers and carts cannot block aisles or doorways.
- Your operator will instruct you where to position your stroller or cart depending on how many passengers are riding the bus.
- Be sure to remember that seats in the front of the bus are for those with disabilities.

25
BRICE
STANDARD

SERVING
local destinations
- Canal Winchester Park & Ride
- Winchester Square Shopping Center
- Gender Rd Towne Centre
- Reynoldsburg Park & Ride
- Mt Carmel East Hospital
- Gahanna Park & Ride
- Easton Town Center
- Easton Transit Center

EFFECTIVE AS OF SEPT. 2, 2019

COTA.com

HOW TO USE
the schedule

NORTH ← DIRECTION OF THE LINE

Intersection/ Landmark	Intersection/ Landmark	Intersection/ Landmark	Intersection/ Landmark
A	B	C	D
6:05	6:15	6:25	6:35
9:05	**9:15**	**9:25**	**9:35**

← STOP INTERSECTION OR LANDMARK

← TIMEPOINT

← DEPARTURE TIME
PM times shown in **BOLD**

SERVICE TYPE
frequency legend

STANDARD
- Operates throughout the day
- Departure times are generally 15-30 minutes apart

FREQUENT
- Operates throughout the day
- Departure times are every 15 minutes or better

RUSH HOUR
- Operates Monday - Friday between 6:30 AM to 9:00 AM and 3:00 PM to 6:00 PM

BUS LINES
by service area

Lines 1-19	Run through Downtown Columbus
Lines 20-29	Run in the North & South Direction
Lines 30-39	Run in the East & West Direction
Lines 40-49	Serve Northeast Columbus
Lines 50-59	Serve Southeast Columbus
Lines 60-69	Serve Southwest Columbus
Lines 70-79	Serve Northwest Columbus

NORTH *Monday-Friday*

Canal Winchester Park & Ride	Gender Rd & Upperridge Dr	Park Crescent Dr & Alshire Rd	Brice Rd & Livingston Ave	E Main St & McNaughten Rd	Taylor Station Rd & E Broad St	Science Blvd & Tech Center Dr	Hamilton Rd & Rocky Fork Blvd	Stygler Rd & Agler Rd	Easton Transit Center (Bay 4)
L	I	H	G	F	E	D	C	B	A
5:53	6:01	6:08	6:14	6:18	6:25	6:30	6:37	6:43	6:53
6:51	6:59	7:07	7:13	7:18	7:25	7:30	7:37	7:47	7:57
7:51	7:58	8:06	8:13	8:18	8:25	8:30	8:37	8:46	8:56
8:51	8:58	9:06	9:13	9:18	9:25	9:30	9:37	9:44	9:54
9:51	9:58	10:06	10:13	10:19	10:25	10:30	10:37	10:44	10:56
10:52	10:59	11:06	11:13	11:19	11:25	11:30	11:37	11:44	11:54
11:52	11:59	**12:06**	**12:13**	**12:19**	**12:25**	**12:30**	**12:36**	**12:43**	**12:53**
12:52	**12:59**	**1:06**	**1:13**	**1:19**	**1:25**	**1:30**	**1:36**	**1:43**	**1:54**
1:52	**1:59**	**2:06**	**2:13**	**2:19**	**2:25**	**2:30**	**2:36**	**2:43**	**2:54**
2:48	**2:55**	**3:03**	**3:11**	**3:17**	**3:25**	**3:31**	**3:39**	**3:47**	**3:59**
3:48	**3:55**	**4:03**	**4:11**	**4:17**	**4:25**	**4:31**	**4:41**	**4:50**	**5:02**
4:49	**4:56**	**5:04**	**5:11**	**5:17**	**5:25**	**5:32**	**5:39**	**5:48**	**6:00**
5:50	**5:57**	**6:05**	**6:12**	**6:18**	**6:25**	**6:30**	**6:37**	**6:44**	**6:54**
6:54	**7:00**	**7:07**	**7:14**	**7:19**	**7:25**	**7:30**	**7:36**	**7:43**	**7:53**
7:57	**8:03**	**8:09**	**8:15**	**8:19**	**8:25**	**8:30**	**8:36**	**8:42**	**8:52**

NORTH *Saturday*

Canal Winchester Park & Ride	Gender Rd & Upperridge Dr	Park Crescent Dr & Alshire Rd	Brice Rd & Livingston Ave	E Main St & McNaughten Rd	Taylor Station Rd & E Broad St	Science Blvd & Tech Center Dr	Hamilton Rd & Rocky Fork Blvd	Stygler Rd & Agler Rd	Easton Transit Center (Bay 4)
L	I	H	G	F	E	D	C	B	A
5:53	5:59	6:07	6:14	6:19	6:25	6:31	6:37	6:42	6:53
6:52	6:59	7:07	7:14	7:19	7:25	7:31	7:38	7:43	7:54
7:51	7:58	8:06	8:13	8:19	8:25	8:31	8:38	8:43	8:54
8:51	8:58	9:06	9:13	9:19	9:25	9:31	9:37	9:42	9:53
9:53	10:00	10:07	10:14	10:19	10:25	10:31	10:39	10:45	10:56
10:53	11:00	11:07	11:14	11:19	11:25	11:31	11:38	11:44	11:55
11:52	11:59	**12:07**	**12:14**	**12:19**	**12:25**	**12:31**	**12:38**	**12:44**	**12:55**
12:50	**12:57**	**1:05**	**1:13**	**1:19**	**1:25**	**1:31**	**1:38**	**1:44**	**1:55**
1:50	**1:56**	**2:04**	**2:12**	**2:19**	**2:25**	**2:31**	**2:39**	**2:45**	**2:56**
2:51	**2:57**	**3:05**	**3:14**	**3:19**	**3:25**	**3:31**	**3:37**	**3:43**	**3:54**
3:49	**3:56**	**4:04**	**4:13**	**4:18**	**4:25**	**4:31**	**4:37**	**4:43**	**4:54**
4:49	**4:56**	**5:05**	**5:14**	**5:19**	**5:25**	**5:31**	**5:37**	**5:42**	**5:53**
5:51	**5:58**	**6:07**	**6:14**	**6:19**	**6:25**	**6:31**	**6:37**	**6:42**	**6:53**
6:52	**6:59**	**7:07**	**7:14**	**7:19**	**7:25**	**7:31**	**7:37**	**7:42**	**7:53**
7:53	**8:00**	**8:08**	**8:15**	**8:19**	**8:25**	**8:31**	**8:36**	**8:41**	**8:52**

NORTH *Sunday*

Canal Winchester Park & Ride	Gender Rd & Upperridge Dr	Park Crescent Dr & Alshire Rd	Brice Rd & Livingston Ave	E Main St & McNaughten Rd	Taylor Station Rd & E Broad St	Science Blvd & Tech Center Dr	Hamilton Rd & Rocky Fork Blvd	Stygler Rd & Agler Rd	Easton Transit Center (Bay 4)
L	I	H	G	F	E	D	C	B	A
5:54	6:01	6:09	6:15	6:19	6:25	6:31	6:37	6:42	6:53
6:53	7:00	7:08	7:14	7:18	7:25	7:31	7:37	7:42	7:53
7:54	8:01	8:09	8:15	8:19	8:25	8:31	8:39	8:44	8:55
8:54	9:01	9:09	9:15	9:19	9:25	9:31	9:39	9:45	9:56
9:53	10:00	10:08	10:15	10:19	10:25	10:31	10:39	10:45	10:56
10:53	11:00	11:08	11:15	11:19	11:25	11:31	11:37	11:43	11:54
11:51	11:58	**12:06**	**12:14**	**12:18**	**12:25**	**12:31**	**12:37**	**12:43**	**12:54**
12:54	**1:00**	**1:08**	**1:15**	**1:19**	**1:25**	**1:31**	**1:37**	**1:42**	**1:53**
1:54	**2:00**	**2:08**	**2:15**	**2:19**	**2:25**	**2:31**	**2:37**	**2:42**	**2:53**
2:52	**2:58**	**3:06**	**3:13**	**3:19**	**3:25**	**3:31**	**3:37**	**3:42**	**3:53**
3:54	**4:00**	**4:08**	**4:14**	**4:19**	**4:25**	**4:31**	**4:39**	**4:44**	**4:55**
4:54	**5:00**	**5:08**	**5:14**	**5:19**	**5:25**	**5:31**	**5:38**	**5:43**	**5:54**
5:53	**5:59**	**6:07**	**6:14**	**6:19**	**6:25**	**6:31**	**6:38**	**6:43**	**6:54**
6:54	**7:00**	**7:08**	**7:14**	**7:20**	**7:25**	**7:31**	**7:38**	**7:43**	**7:54**
7:54	**8:00**	**8:08**	**8:14**	**8:20**	**8:25**	**8:30**	**8:36**	**8:41**	**8:52**

SOUTH *Monday-Friday*

Easton Transit Center (Bay 4)	N Stygler Rd & Agler Rd	N Hamilton Rd & Rocky Fork Blvd	Science Blvd & Tech Center Dr	E Broad St & Taylor Station Rd	E Main St & McNaughten Rd	Brice Rd & Livingston Ave	Park Crescent & Alshire Rd	Gender Rd & Refugee Rd	Gender Rd & Winchester Pike	6340 Prentiss School Dr	Canal Winchester Park & Ride
A	B	C	D	E	F	G	H	I	J	K	L
5:19	5:28	5:34	5:39	5:45	5:50	5:53	5:59	6:04	6:12	6:15	6:18
6:17	6:27	6:33	6:39	6:45	6:50	6:54	7:01	7:07	7:14	7:17	7:20
7:15	7:27	7:33	7:39	7:45	7:50	7:54	8:01	8:07	8:13	8:16	8:20
8:14	8:26	8:33	8:39	8:45	8:50	8:54	9:00	9:06	9:12	9:15	9:19
9:15	9:26	9:33	9:39	9:45	9:50	9:54	10:00	10:06	10:12	10:15	10:19
10:15	10:26	10:33	10:39	10:45	10:50	10:54	11:00	11:06	11:12	11:15	11:19
11:15	11:26	11:33	11:39	11:45	11:50	11:54	**12:00**	**12:06**	**12:12**	**12:15**	**12:19**
12:14	**12:26**	**12:33**	**12:39**	**12:45**	**12:50**	**12:55**	**1:01**	**1:07**	**1:13**	**1:16**	**1:20**
1:14	**1:26**	**1:33**	**1:39**	**1:45**	**1:50**	**1:55**	**2:02**	**2:08**	**2:14**	**2:17**	**2:21**
2:14	**2:26**	**2:33**	**2:39**	**2:45**	**2:50**	**2:56**	**3:04**	**3:10**	**3:16**	**3:19**	**3:23**
3:14	**3:26**	**3:33**	**3:39**	**3:45**	**3:53**	**3:59**	**4:07**	**4:14**	**4:22**	**4:25**	**4:29**
4:09	**4:21**	**4:29**	**4:36**	**4:45**	**4:52**	**4:59**	**5:07**	**5:14**	**5:21**	**5:25**	**5:29**
5:09	**5:24**	**5:32**	**5:38**	**5:45**	**5:51**	**5:57**	**6:05**	**6:11**	**6:18**	**6:21**	**6:25**
6:14	**6:27**	**6:34**	**6:39**	**6:45**	**6:50**	**6:54**	**7:01**	**7:06**	**7:12**	**7:15**	**7:18**
7:16	**7:27**	**7:34**	**7:39**	**7:45**	**7:50**	**7:54**	**8:00**	**8:05**	**8:11**	**8:14**	**8:17**

PM times shown in **BOLD**

SOUTH *Saturday*

Easton Transit Center (Bay 4)	N Stygler Rd & Agler Rd	N Hamilton Rd & Rocky Fork Blvd	Science Blvd & Tech Center Dr	E Broad St & Taylor Station Rd	E Main St & McNaughten Rd	Brice Rd & Livingston Ave	Park Crescent & Alshire Rd	Gender Rd & Refugee Rd	Gender Rd & Winchester Pike	6340 Prentiss School Dr	Canal Winchester Park & Ride
A	B	C	D	E	F	G	H	I	J	K	L
5:19	5:29	5:34	5:40	5:45	5:50	5:54	6:00	6:06	6:12	6:15	6:19
6:19	6:29	6:34	6:40	6:45	6:50	6:54	7:00	7:06	7:12	7:15	7:19
7:18	7:28	7:34	7:40	7:45	7:50	7:54	8:00	8:06	8:12	8:15	8:19
8:18	8:28	8:34	8:40	8:45	8:50	8:54	9:01	9:07	9:13	9:16	9:20
9:16	9:27	9:33	9:39	9:45	9:50	9:54	10:01	10:08	10:14	10:17	10:21
10:17	10:27	10:33	10:39	10:45	10:50	10:55	11:02	11:09	11:16	11:19	11:23
11:18	11:28	11:34	11:40	11:45	11:50	11:55	**12:02**	**12:09**	**12:16**	**12:19**	**12:23**
12:18	**12:28**	**12:34**	**12:40**	**12:45**	**12:50**	**12:55**	**1:02**	**1:08**	**1:15**	**1:18**	**1:22**
1:17	**1:27**	**1:33**	**1:40**	**1:45**	**1:50**	**1:56**	**2:04**	**2:10**	**2:16**	**2:19**	**2:23**
2:15	**2:26**	**2:32**	**2:39**	**2:45**	**2:50**	**2:56**	**3:04**	**3:10**	**3:16**	**3:19**	**3:23**
3:15	**3:26**	**3:32**	**3:39**	**3:45**	**3:50**	**3:55**	**4:02**	**4:08**	**4:14**	**4:17**	**4:21**
4:15	**4:26**	**4:32**	**4:39**	**4:45**	**4:51**	**4:56**	**5:03**	**5:09**	**5:15**	**5:18**	**5:22**
5:15	**5:26**	**5:32**	**5:39**	**5:45**	**5:51**	**5:56**	**6:03**	**6:09**	**6:15**	**6:18**	**6:22**
6:15	**6:26**	**6:32**	**6:38**	**6:45**	**6:51**	**6:56**	**7:03**	**7:09**	**7:15**	**7:18**	**7:22**
7:17	**7:28**	**7:33**	**7:39**	**7:45**	**7:51**	**7:56**	**8:03**	**8:10**	**8:16**	**8:19**	**8:23**

SOUTH *Sunday*

Easton Transit Center (Bay 4)	N Stygler Rd & Agler Rd	N Hamilton Rd & Rocky Fork Blvd	Science Blvd & Tech Center Dr	E Broad St & Taylor Station Rd	E Main St & McNaughten Rd	Brice Rd & Livingston Ave	Park Crescent & Alshire Rd	Gender Rd & Refugee Rd	Gender Rd & Winchester Pike	6340 Prentiss School Dr	Canal Winchester Park & Ride
A	B	C	D	E	F	G	H	I	J	K	L
5:19	5:29	5:34	5:40	5:45	5:50	5:53	5:59	6:05	6:11	6:14	6:18
6:19	6:29	6:34	6:40	6:45	6:50	6:53	6:59	7:05	7:11	7:14	7:18
7:18	7:29	7:34	7:40	7:45	7:50	7:54	8:00	8:06	8:13	8:16	8:20
8:17	8:27	8:33	8:39	8:45	8:50	8:54	9:01	9:07	9:14	9:17	9:21
9:18	9:28	9:34	9:40	9:45	9:50	9:54	10:02	10:08	10:14	10:17	10:21
10:17	10:27	10:34	10:40	10:45	10:50	10:54	11:01	11:07	11:13	11:16	11:20
11:17	11:27	11:34	11:40	11:45	11:50	11:54	**12:01**	**12:07**	**12:13**	**12:16**	**12:20**
12:18	**12:28**	**12:34**	**12:40**	**12:45**	**12:51**	**12:55**	**1:02**	**1:08**	**1:14**	**1:17**	**1:21**
1:18	**1:28**	**1:34**	**1:40**	**1:45**	**1:50**	**1:54**	**2:00**	**2:07**	**2:13**	**2:16**	**2:20**
2:18	**2:28**	**2:34**	**2:40**	**2:45**	**2:50**	**2:54**	**3:00**	**3:06**	**3:12**	**3:15**	**3:19**
3:17	**3:28**	**3:34**	**3:40**	**3:45**	**3:50**	**3:54**	**4:00**	**4:06**	**4:12**	**4:15**	**4:19**
4:16	**4:27**	**4:34**	**4:40**	**4:45**	**4:50**	**4:54**	**5:01**	**5:07**	**5:13**	**5:16**	**5:20**
5:18	**5:28**	**5:34**	**5:40**	**5:45**	**5:50**	**5:54**	**6:01**	**6:08**	**6:14**	**6:17**	**6:21**
6:19	**6:29**	**6:34**	**6:40**	**6:45**	**6:50**	**6:54**	**7:01**	**7:07**	**7:13**	**7:16**	**7:20**
7:19	**7:29**	**7:34**	**7:40**	**7:45**	**7:50**	**7:54**	**8:01**	**8:07**	**8:13**	**8:16**	**8:20**

COTA
travel reminders

- Sunday schedules are operated on the following holidays:
  - New Year's Day
  - Memorial Day
  - Independence Day
  - Labor Day
  - Thanksgiving Day
  - Christmas Day

- Be at your bus stop five minutes early.
- All buses are wheelchair accessible.
- Information is available in accessible formats upon request.
- Free parking is available at any COTA Park & Ride location.
- Service changes occur the first Monday of January, May and September.

SIGN UP
for rider alerts

Visit cota.com/alerts to sign up for text and email alerts of service changes, closed stops and more. Choose a particular line or get updates for all of COTA. Daily alerts are sent out first thing in the morning at 5 a.m.

VIEW REAL-TIME
bus locations

Use the Trip Planner at Cota.com or download Transit App.

Supportive Documentation

SECTION A11: OTHER INFORMATION

N/A

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The Columbus Dispatch

Time names BrewDog's Canal Winchester hotel among greatest places on Earth

By Patrick Cooley
Posted Aug 27, 2019 at 11:57 AM
Updated Aug 28, 2019 at 6:45 AM

BrewDog's DogHouse Hotel in Canal Winchester recently was named one of the best places to visit by a prominent national publication.

Time magazine included the hotel in the "To Stay" section of it's annual list of the 100 greatest places on Earth.

Time generated its list by polling editors, correspondents and industry experts, according to the magazine's website. Each location was evaluated based on factors "including quality, originality, sustainability, innovation and influence," the site says.

Beer lovers who stay at the hotel are never wont for something to drink, as each room features beer taps and coolers filled with cans of beer. One of those coolers is within arm's reach of the shower, so hotel guests can enjoy a cold one while they wash up.

The hotel rooms are situated alongside the company's massive Gender Road brewery and taproom, which also serves as the Scottish company's U.S. headquarters.

The hotel officially opened for business in August 2018.

Some of the rooms offer a bird's eye view of the brewery floor where BrewDog employees concoct the company's products.

The hotel boasts 32 rooms that wrap around BrewDog's largest U.S. taproom. The space includes a pond and a dog park.

The magazine's list of places to stay also includes architectural wonders such as the InterContinental Shanghai Wonderland, a hotel built into the side of an abandoned quarry; massive cruise ships such as the Norwegian Joy, which boasts its own go-kart track and laser tag arena; and camping destinations such as the AutoCamp in Yosemite, California.

pcooley@dispatch.com

@PatrickACooley

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From the Newsroom: The Columbus Dispatch

Goosebumps Author R.L. Stine joins the show

00:00 / 20:39

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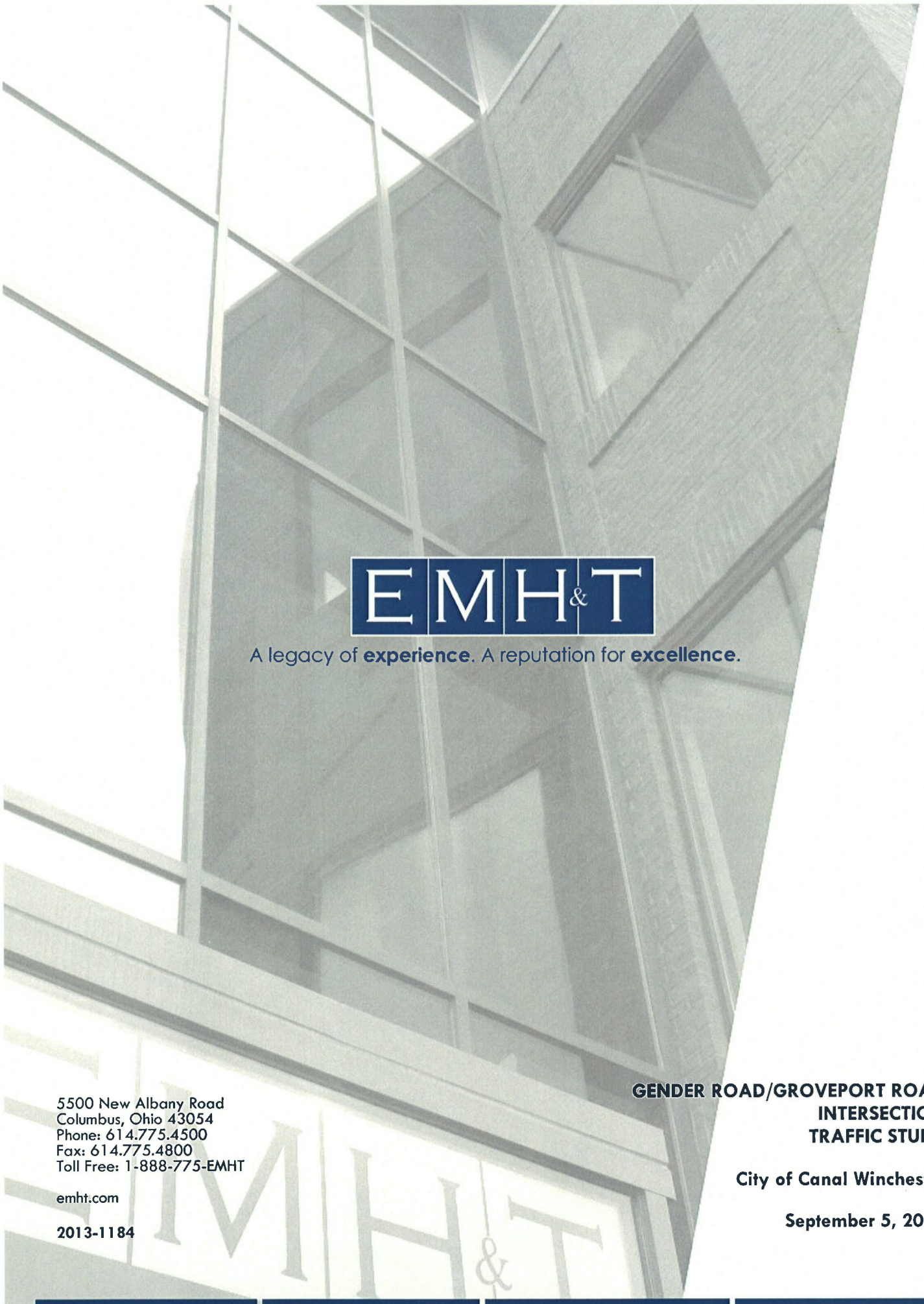
"Life in the 614" is the weekly lifestyle podcast of the features department at the Columbus Dispatch, provid

	Goosebumps Author R.L. Stine joins the show	20:39
	Columbus Dispatch features editor Ryan Smith and Nancy Gilson Braverman speak with sp	Aug 29
	**How to become a social media influencer in Columbus**	17:53
	Katey Haines and Megumi Robinson talk about the phenomenon and its impact.	Aug 22
	**The mission behind the inaugural WonderBus Music & Arts Festival**	12:26
	The creators of Cleveland's LaureLive music fest will bring another purpose-driven event t	Aug 14
	**The genius of James Thurber comes to the Columbus Museum of Art**	21:30
	Author and exhibit curator Michael Rosen talks about the upcoming show featuring the arti	Aug 8
	**A sneak peek at Festival Latino from its director and the 'Salsa King'**	15:20



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2013-1184

GENDER ROAD/GROVEPORT ROAD INTERSECTION TRAFFIC STUDY

City of Canal Winchester

September 5, 2013

Engineers | Surveyors | Planners | Scientists

Traffic Study

For

Gender Road/Groveport Road Intersection

Canal Winchester, Ohio

Prepared For:
City of Canal Winchester
36 South High Street
Canal Winchester, OH 43110

Prepared By:
EMH&T
5500 New Albany Road
Columbus, Ohio 43054
Phone: 614-775-4500
Fax: 614-775-4800

September 5, 2013

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FIGURES

APPENDICES

1.0 INTRODUCTION

Evans, Mechwart, Hambleton & Tilton, Inc. (EMH&T) was commissioned by City of Canal Winchester to conduct a traffic study for the Gender Road/Groveport Road intersection. The subject intersection is located in City of Canal Winchester as shown in **Figure 1**. This study consists of Opening Day (2014) and Design Year (2034) analysis.

FIGURE 1
Location Map

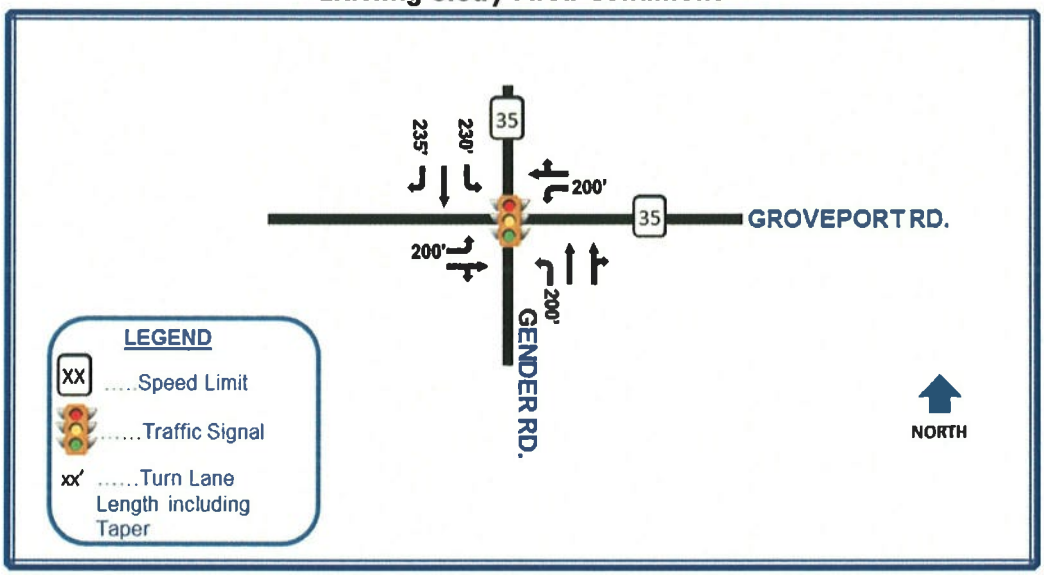
2.0 EXISTING STUDY AREA CONDITIONS

A schematic representation of existing study area conditions has been documented in **Figure 2** and described below in further detail.

Gender Road north of Groveport Road is a five-lane, north/south roadway with a posted speed limit of 35 miles per hour. One southbound through lane terminates as a right turn lane at Groveport Road and only one lane continues through the intersection. Gender Road south of Groveport Road is a two-lane, north/south roadway with a posted speed limit of 35 miles per hour. A northbound left turn lane and second through lane are developed on the approach to

Groveport Road. Groveport Road is a two-lane, east/west roadway with a posted speed limit of 35 miles per hour. Gender Road intersects Groveport Road under traffic signal control and left turn lanes are available on Groveport Road on both approaches to the intersection.

FIGURE 2
Existing Study Area Conditions



3.0 DATA COLLECTION

Manual turning movement counts were conducted by EMH&T personnel at the subject intersection on Thursday, August 1, 2013 from 4 PM to 6 PM. This count data was compared to 2010 counts from obtained from the Mid-Ohio Regional Planning Commission (MORPC). The 2013 count volume is approximately 8% lower than the count volume in 2010. However, the population of Canal Winchester increased by 4% between 2010 and 2012 and there are school facilities south of the intersection that were not in session during the 2013 count. Therefore, the 2010 count was used in this study and appropriate growth factors were applied to obtain future volume projections as described below.

Traffic count data sheets have been included in **Appendix A.**

4.0 TRAFFIC VOLUME PROJECTIONS

For this study, two sets of future traffic volumes were projected and they are year 2014 for opening day and year 2034 for design year as shown in **Figure 3** and **Figure 4,** respectively. Volumes used in the determination of a traffic growth rate were 2010 ADT (MORPC) and 2030 ADT (Canal Winchester Transportation Thoroughfare Plan, 2009). Annual compound growth rates of 1.3% on Gender Road and 3.6% on Groveport Road west of Gender Road were applied to counted traffic to determine opening day and design year volumes. Projections for Groveport Road east of Gender Road showed negative or no growth from 2010 to 2030 but we

conservatively assumed a positive 0.5% compound annual growth rate for this approach. Detailed traffic volume calculations have been included in **Appendix B.**

FIGURE 3
Year 2014 Traffic Volumes

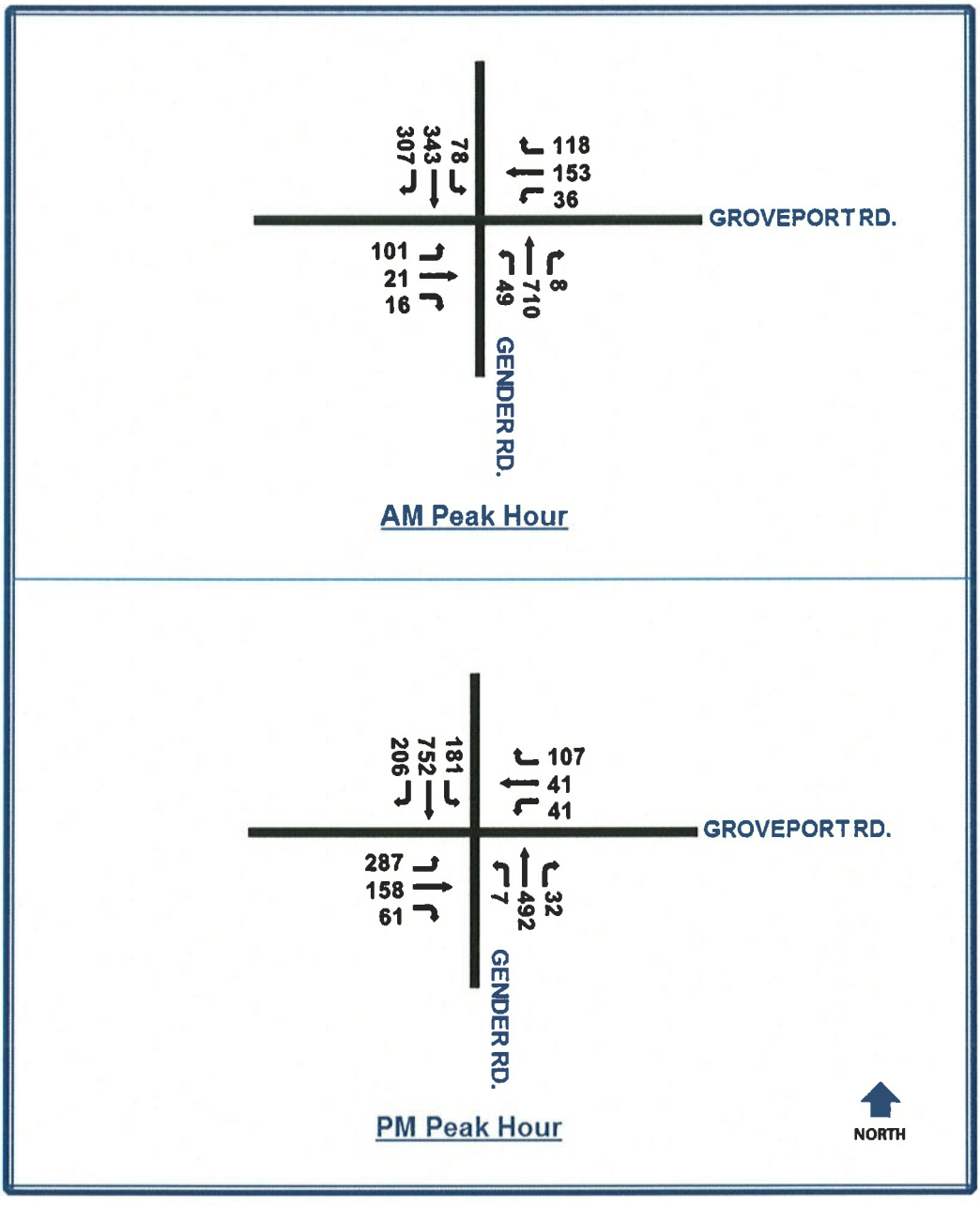
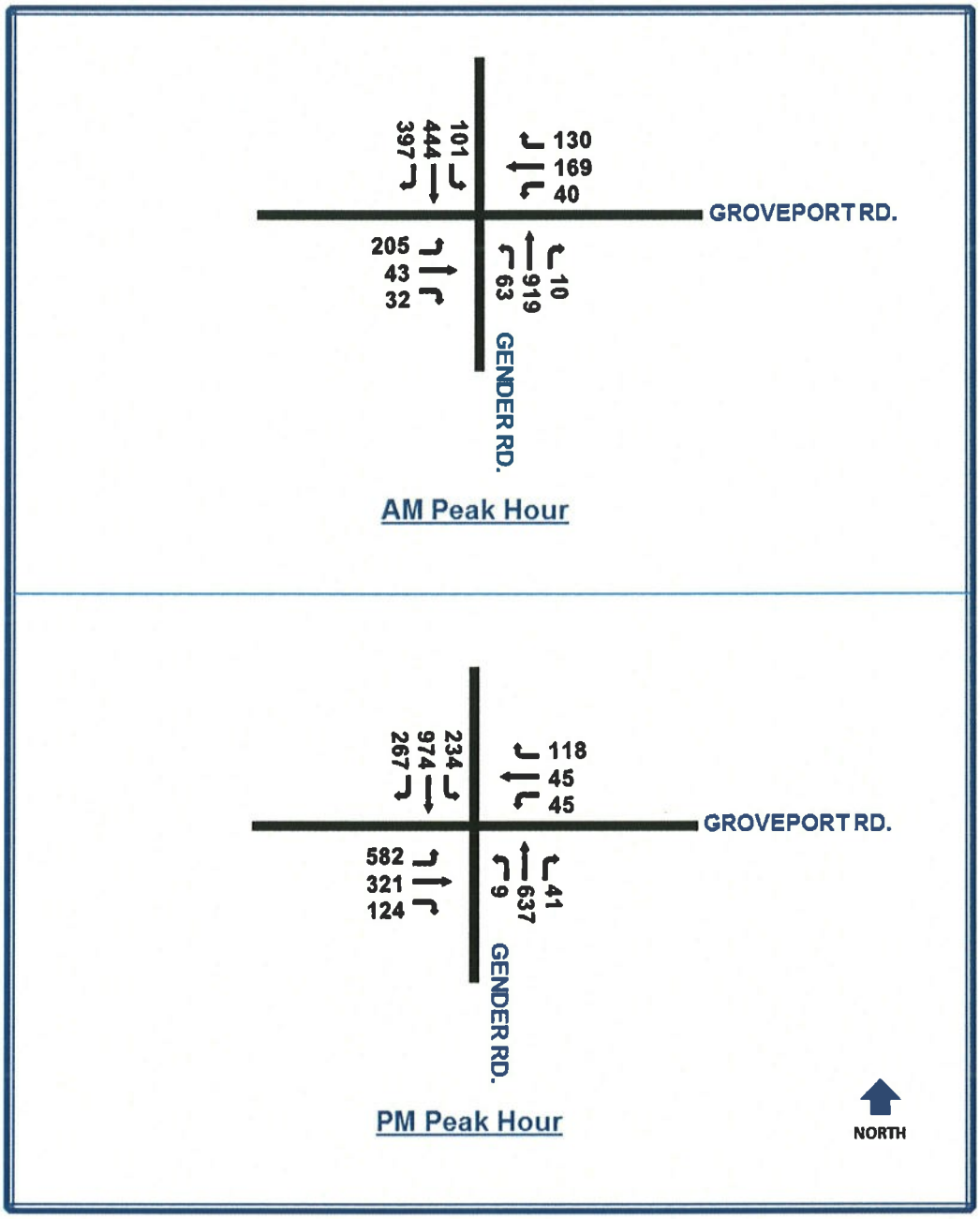


FIGURE 4
Year 2034 Traffic Volumes



5.0 TRAFFIC ANALYSES

5.1 Capacity Analyses

Synchro 8 was used to evaluate operational characteristics of the intersection based on future projected traffic volume conditions. Intersections are graded using a level of service designation. Levels of Service (LOS) are expressed in terms of letter grades with LOS A representing the highest quality traffic flow and minimal delay, and LOS F representing poor traffic operations and significant delay. The analysis results have been summarized for different alternatives as presented in **Table 1.** Detailed capacity analysis reports are provided in **Appendix C.**

The intersection will operate at LOS B and LOS C during AM and PM peak hours in year 2014. All movements will operate at LOS D or better. No geometric improvement is recommended.

The intersection will operate at LOS F without any improvement during PM peak hour in the design year 2034. This intersection can be improved to LOS C (during AM peak hour) and LOS D (during PM peak hour) with the alternate improvements shown in **Figure 5.** Alternate A limits improvements to the southbound approach while avoiding widening on other intersection approaches. But Gender Road would have to be improved to add a second receiving lane south of the intersection extending to a logical terminus to the south. While Alternate A produces acceptable LOS on the eastbound approach without improvements, a disproportionate amount of signal green time is required to accommodate the projected eastbound left turn volume (582 vehicles) in a single lane. Alternate B also adds a second southbound through lane similar to Aternate A, but does not require widening for a southbound right turn lane. Instead, the eastbound approach would be improved to provide dual left turn lanes and a dedicated right turn lane providing for more balanced signal operation.

5.2 Turn Lane Length Calculations

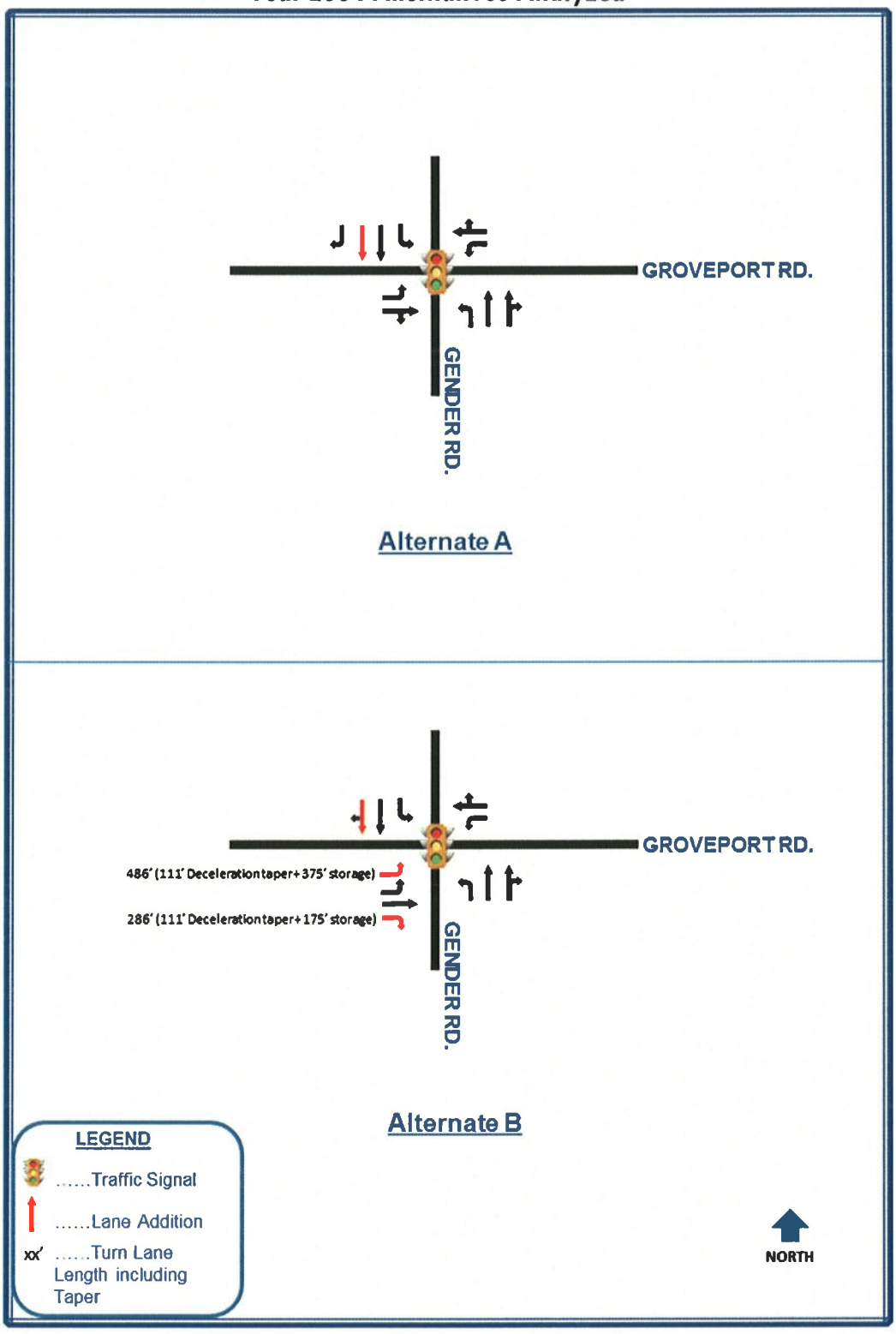
Turn lane lengths were calculated for Design Year 2034 based on procedures outlined in the Ohio Department of Transportation Location and Design Manual, Volume 1 (ODOT L&D Manual). The calculated eastbound dual left turn lane is 486 feet (taper included) and eastbound right turn lane is 286 feet (taper included). Detailed analyses are provided in **Appendix D.**

TABLE 1
Capacity Analysis Results

Time Period	Year	Scenario	Eastbound				Westbound				Northbound				Southbound				TOTAL
			LT	TH	RT	APPROACH	LT	TH	RT	APPROACH	LT	TH	RT	APPROACH	LT	TH	RT	APPROACH	
AM Peak Hour	2014	Existing Lane	C/22.9	C/24.3	C/24.3	C/23.3	C/22.8	D/35.3	D/35.3	C/33.8	B/12.3	A/8.4	A/8.4	A/8.7	B/11.7	B/11.6	A/8.9	B/10.5	B/14.4
	2034	Existing Lane	C/21.3	B/20.0	B/20.0	C/20.9	B/19.4	C/30.7	C/30.7	C/29.4	B/16.5	C/32.3	C/32.4	C/31.3	B/17.7	C/29.7	B/16.6	C/22.9	C/26.8
		Alternate A	C/21.3	B/20.0	B/20.0	C/20.9	B/19.4	C/30.7	C/30.7	C/29.4	B/14.7	C/32.3	C/32.4	C/31.2	B/17.7	B/14.9	D/36.4	C/24.3	C/27.3
		Alternate B	B/18.0	B/19.9	B/19.8	B/18.5	B/18.8	C/30.0	C/30.0	C/28.7	B/15.8	C/28.0	C/28.0	C/27.2	B/16.4	C/26.6	C/32.2	C/27.9	C/26.7
PM Peak Hour	2014	Existing Lane	C/34.3	C/32.9	C/32.9	C/33.7	C/31.7	D/42.3	D/42.3	D/40.0	C/21.9	A/5.7	A/5.7	A/5.9	B/11.3	D/53.7	B/13.5	D/39.7	C/30.8
	2034	Existing Lane	F/175.1	D/53.4	D/53.4	F/122.4	D/42.4	E/75.1	E/75.1	E/68.1	C/29.0	B/10.4	B/10.5	B/10.7	C/21.4	F/180.3	A/9.9	F/124.2	F/97.2
		Alternate A	D/53.0	C/28.0	C/28.0	D/42.1	C/34.3	D/48.6	D/48.6	D/45.5	C/28.7	C/34.0	C/34.3	C/34.1	D/48.9	D/51.0	B/11.2	D/43.4	D/41.3
		Alternate B	D/54.2	C/34.0	C/27.3	D/44.6	D/35.7	D/50.2	D/50.2	D/47.1	C/25.4	B/14.1	B/14.2	B/14.3	B/17.9	D/53.0	D/54.8	D/48.2	D/40.2

X/X = Level of Service / Average Delay per Vehicle

FIGURE 5
Year 2034 Alternatives Analyzed



6.0 CRASH ANALYSIS

Crash data for 2010, 2011, and 2012 was collected from the Ohio Department of Public Safety. There were 9 crashes for the three year period comprised of 3 crashes each year. One of the crashes produced an injury, none were fatal, and the rest resulted in property damage only. The most common type of crash at the intersection was rear-end with three of those occurring on the southbound approach and two occurring on other approaches. No pattern or frequency of crashes was identified that requires mitigation beyond the recommendations in this report. A copy of the crash reports, summary tables, and graphs is provided in **Appendix E.**

7.0 CONCLUSION AND RECOMMENDATIONS

The Gender Road/Groveport Road intersection supports existing traffic volumes and near term growth at an acceptable LOS C. Traffic volumes are significant, particularly the eastbound left turn of 249 vehicles and southbound through volume of 714 vehicles, both in single lanes during the afternoon peak hour. As the area continues to grow, congestion will increase so that by the design year, the intersection will experience poor, peak-hour LOS if no improvements are provided. Both alternates A and B will provide acceptable LOS by adding capacity to the southbound and, the case of Alternate B, eastbound approaches.

Alternate A limits the scope of improvements to the southbound direction only. But a more significant improvement to Gender Road is required under Alternate A to add a southbound right turn lane in addition to the southbound through lane. Adding a southbound through lane for Alternate A or B requires the addition of a second receiving lane south of the intersection extending to a logical terminus to the south.

Alternate B adds a second southbound through lane similar to Aternate A, but does not require widening for a southbound right turn lane. Instead, the eastbound approach would be improved to provide dual left turn lanes and a dedicated right turn lane. This alternate better accommodates the heavy left turn movement from eastbound to northbound with more balanced signal operation compared to Alternate A.

Alternate B is recommended as the ultimate, long-term solution. Current intersection operations provide reasonable levels of service and the City therefore has time to program improvements and stage construction as funding is identified. Widening the eastbound approach to provide for dual left turn lanes and a dedicated right turn lane is recommended as a first priority. This is the intersection approach where the highest rate of growth is expected based on the City's Thoroughfare Plan. Improvements to add a second southbound through lane require adequate capacity extended to points south. This additional through lane can be broken out as a separate improvement and funded as a second priority if desired.

Supportive Documentation

SECTION A12: ABILITY & EFFORT TO FINANCE THE PROJECT

N/A

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Supportive Documentation

SECTION A13: SPECIAL TAX OR FEE

PARTIAL COPY
Full TIF agreement can be provided upon request

EXECUTION COPY

TAX INCREMENT FINANCING AGREEMENT

This Tax Increment Financing Agreement (this "Agreement"), made and entered into as of this 14th day of October, 2008, by and between the VILLAGE OF CANAL WINCHESTER, OHIO (the "Village"), a municipal corporation organized and existing under the Constitution and the laws of the State of Ohio and its Charter, and GREENFIELD DEVELOPMENT COMPANY, an Ohio non-profit corporation (the "Developer").

W I T N E S S E T H:

WHEREAS, on December 17, 2007, this Council passed Ordinance No. 73-07, establishing a TIF area on certain parcels of real property depicted in Exhibit A attached hereto ("the "Original TIF Area"); and

WHEREAS, on August 18, 2008, this Council passed Ordinance No. 45-08, amending Ordinance No. 73-07 to include certain additional parcels of real property depicted in Exhibit A attached hereto (with each current or future parcel of such real property, together with each current or future parcel comprising the Original TIF Area, referred to herein individually as a "Parcel" and collectively as the "Parcels") to the Original TIF Area established by that Ordinance No. 73-07; and

WHEREAS, in order to successfully develop the Parcels, it is necessary to construct or to cause to be constructed certain public infrastructure improvements as described in Exhibit B attached hereto (the "Public Infrastructure Improvements"), which Public Infrastructure Improvements the Village and the Developer agree will directly benefit the Parcels; and

WHEREAS, the Village, by its Ordinances No. 73-07 and No. 45-08 (together, the "Ordinance"), has declared that one hundred percent (100%) of the increase in the assessed value of each Parcel subsequent to the date set forth in the Ordinance (such increase hereinafter referred to as the "Improvement," as further defined in Ohio Revised Code Section 5709.40 and the Ordinance) is a public purpose and is exempt from taxation for a period commencing with the first tax year that begins after the date set forth in the Ordinance and in which an Improvement due to the construction of a new structure on that Parcel first appears on the tax list and duplicate of real and public utility property for such Parcel and ending on the earlier of (a) thirty (30) years after such commencement or (b) the date on which the Village can no longer require service payments in lieu of taxes, all in accordance with the requirements of Ohio Revised Code Sections 5709.40, 5709.42 and 5709.43 and the Ordinance (the "TIF Exemption"); and

WHEREAS, subject to any tax exemption under Ohio Revised Code Sections 3735.65 through 3735.70 or 5709.61 through 5709.69, the Village has determined that it is necessary and appropriate and in the best interest of the Village to provide for the current owner and any future owners of each Parcel (with the Developer and each such future owner referred to herein individually as an "Owner" and collectively as the "Owners") to make annual service payments in lieu of taxes with respect to any Improvement allocable thereto (collectively for all Parcels, the "Service Payments") to the Fairfield County Treasurer (the "County Treasurer"), which Service Payments will be (i) used to pay costs of construction of the Public Infrastructure Improvements, plus interest thereon, and (ii) distributed to the Canal Winchester Local School District (the "School

06-18-07
O-06-07D
Sponsor: McPaine

ORDINANCE NO. 42-07

AN ORDIANCE TO AMEND THE STORMWATER MANAGEMENT CODE ADOPTED BY ORDINANCE NO. 28-05 TO ESTABLISH CUSTOMER CHARGES AND CREDIT MECHANISMS

WHEREAS, in order to maintain an appropriate level of compliance with the National Pollutant Discharge Elimination System's (NPDES) Phase II Stormwater Regulations, it is the recommendation of the Director of Public Works that the Stormwater Management Code be amended to establish justifiable and quantifiable rates and credit mechanisms that are based on individual parcels' impervious area, and

WHEREAS, the Director of Public Works in cooperation with the Village Engineer has established customer charges and credit mechanisms to provide revenue to the Stormwater Utility to fund ongoing compliance and capital projects to comply with the Phase II regulations.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE VILLAGE OF CANAL WINCHESTER, STATE OF OHIO:

SECTION 1: That the Stormwater Management Code (Chapter 941 of the Codified Ordinances)Plan for the Village of Canal Winchester, Ohio, adopted by Ordinance # 28-05 be and hereby is amended to read as set forth on the revised version of Chapter 941as attached hereto asin Exhibit A and incorporated herein by reference, establishing the customer charges and credit mechanisms to provide revenue for the stormwater utility fund.

SECTION 2: That this ordinance shall take effect and be in full force from and after the earliest period allowable by law.

DATE PASSED July 16 2007

PRESIDENT OF COUNCIL

ATTEST Marisa K Osborn
CLERK OF COUNCIL

MAYOR

DATE APPROVED 7-17-07

APPROVED AS TO FORM:

LEGAL COUNSEL

I hereby certify that the ordinance as set forth above was published for a period of not less than fifteen days after passage by the Council, by posting a copy thereof in not less than three (3) public places in the municipal corporation, as determined by Council and as set forth in the Canal Winchester Charter.

Clerk of Council/Finance Director

PARTIAL COPY
Full SWM code can be provided upon request, or can be viewed from Village Codified ordinances at http://www.canalwinchesterohio.gov/government/vord.aspx -- Chapter 941

CHAPTER 941: STORMWATER MANAGEMENT CODE

Supportive Documentation

SECTION A15: JOINT FINANCIAL PARTNERSHIPS

N/A

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Supportive Documentation

SECTION S5: USEFUL LIFE

Design Service Capacity & Useful Life Worksheet

All applications to the District 3 Public Works Integrating Committee must include this or a similar work sheet.

Applicant City of Canal Winchester Project: Gender Road Improvements Phase V

	(a)	(b)	(c)	(d)	(e)	(f)
√	**Major Infrastructure Component***	**Cost ($1,000)**	**Portion Repair or Replacement (%)**	**Repair/ Replace Product (b) x (c)**	**Individual Useful Life (years)**	**Useful Life Product (b) x (e)**
√	Full-depth road construction with drainage	298.62	100	298.62	25	7,465.52
	Full-depth road construction without drainage					
√	Less than full-depth replacement with drainage	44.53	100	44.53	15	667.88
	Less than full-depth replacement without drainage					
√	Electrical traffic control & lighting	385.12	100	385.12	12	4,621.40
	Bridge					
√	Storm Sewers	132.67	100	132.67	40	5,306.70
	Sanitary Sewers					
	Water lines					
	Pumps, lift stations, equipment					
√	Sidewalks	18.06	100	18.06	25	451.57
√	Bike facility (lane, path, etc.)	42.81	100	42.81	15	642.11
	Total	921.80		921.80		19,155.18

* Major Infrastructure Components should correspond to the subtotaled elements in the engineer's detailed estimate.

(g) Portion Repair/Replacement: Σ (d)/ Σ (b) = **100.00 %**

(h) Portion New or Expansion: 100% - Σ (d)/ Σ (b) = **0 %**

(i) Weighted Useful Life: Σ (f)/ Σ (b) = **20.78 years**