

2024-2026 Congestion Mitigation and Air Quality Project Application

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If you need assistance, please contact Brandon Kovnat, SWMPC Associate Planner.

Email kovnatb@swmpc.org or call (269) 925-1137 x 1524

Section 1. Applicant Information

Applicant Name	Van Buren County Road Commission		
Contact Name	Barry Anttila	Title	Highway Engineer
Phone Number	269-674-8011	Email	barryanttila@vbcrc.org
Sponsor (If applicable)			
Engineer/Consultant (If applicable)			
Phone Number		Email	

Section 2. Project Information & Costs

Project Name: Red Arrow Hwy at CR 652s / 24 th St Traffic Signal				
City/Village/ Township: Antwerp Twp		County: Van Buren		
Project Location <i>(short description of where the project is located)</i>	The intersection of Red Arrow Hwy and CR 652 south / 24 th St.			
Which Emissions form is being used? (list the form name not the MDOT form number)	Intersection Improvements			
Work Description <i>(Short description of work being performed. Please provide enough information for eligibility to be determined)</i>	Upgrade traffic signal with new detection and timing plan.			
Describe how the project will reduce congestion and/or emissions	Optimize the signals phase to minimize wait time for traveling public.			
Project Cost <i>Only include CMAQ eligible expenses</i>	\$ 55,000	Proposed Year of Funding	2025	
Minimum Local Match – 20% of eligible costs	\$11,000			
Can you supply additional match beyond the minimum required 20% If so how much?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Amount \$22,000			
Emissions Benefit (from Emissions form)	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Nitrogen Oxide (NO _x)	Particulate Matter (PM 2.5)

Section 3. Performance measures

<p>Besides emissions reductions what other performance measures will the project contribute to? <i>(select all that apply)</i></p> <p><input type="checkbox"/> Safety</p> <p><input type="checkbox"/> Pavement Condition</p> <p><input type="checkbox"/> System Reliability</p> <p><input type="checkbox"/> Pedestrian/Bicycle Connectivity</p> <p><input type="checkbox"/> Transit State of Good Repair</p>	<p>If you checked any of the Performance Measures please indicate how the project will improve them:</p>
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Section 4. Additional Questions

Question	Y/N	If Yes, Provide Brief Explanation of How the project will meet these Criteria
Will the project be ready for obligation by July 1 of the year in which it's programmed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Will this project use multiple funding sources/be combined with another Non-CMAQ project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Is the project being carried out by a sponsored agency, or is a private entity providing funding, materials, or services in support of this project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does the project require Right of Way (ROW) acquisition or an easement?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, attach a signed letter from that agency granting permission to implement all or part of this project in their right-of-way.

Section 5. Estimated Project Schedule

Activity	Estimated Date
Resolution of Support for Local Match Submitted to SWMPC	February 2024
Project Application Submitted to MOT	June 2024
Grade Inspection Package Submitted to MDOT	August 2024
Grade Inspection Meeting Scheduled	September 2024
Final Plan and Estimate to MDOT	October 2024
Right of Way (ROW) certified	n/a
Rail Road Permits	n/a
Environmental Mitigation	n/a
Project Obligated	January 2025
Project Letting	March 2025
Construction Start	June 2025
Project Completion	August 2025

Enter NA for any activity that doesn't apply to the project.

Intersection Improvements

This calculator will estimate the emission reductions resulting from improving traffic signals at a four-way intersection

Navigator

- Intersection Improvements**
- Traffic Signal Synchronization
- Roundabouts

INPUT

EXISTING CONDITIONS

Evaluation Year	2021
Area Type	Urban
Business District	No
Total peak hours per day(AM+PM)	4
Existing Intersection Is	Signalized

Use the table below to estimate delay (HCM 2010, Exhibit 21-1)

Level of Service Reference Table

LOS	Delay (s/veh)	
	Unsignalized Intersection	Signalized Intersections
A	0 - 10	0 - 10
B	>10 - 15	>10 - 20
C	>15 - 25	>20 - 35
D	>25 - 35	>35 - 55
E	>35 - 50	>55 - 80
F*	>50	>80

*LOS F typically indicates that traffic demand has exceeded capacity

	Roadway 1	Roadway 2	
Average Annual Daily Traffic volume (AADT) (both directions)	9,771	9,529	veh/day
Peak-hour Volume (both directions)	321	287	veh/hr
Number of Lanes (one direction)	1	1	
Truck Percentage	3%	3%	
Existing Delay per Vehicle	34	62	sec/veh
Existing Left-turn Phase	Yes	Yes	
Existing Right-turn Phase	No	No	

PROPOSED CONDITIONS

Cycle Length seconds

	Roadway 1	Roadway 2
Number of Left-Turn Lanes to Add (one direction)	0	0
Left-turn Phase	Yes	Yes
Right-turn Phase	No	No
Ratio of Green Time per Cycle Time	0.47	0.26

OUTPUT

PERFORMANCE

	PEAK-HOUR		OFF-PEAK		
	Roadway 1	Roadway 2	Roadway 1	Roadway 2	
Existing Capacity (both directions)	1,572	870	1,572	870	veh/hr
Proposed Capacity (both directions)	1,572	870	1,572	870	veh/hr
Volume (both directions)	321	287	424	419	veh/hr
Delay Reduction per vehicle	19.2	33.5	-3.3	-26.1	sec/veh

	Roadway 1	Roadway 2	
Roadway Intersection Delay Reduction per day	-0.8	-50.0	hours
Total Intersection Delay Reduction per day	-50.8		hours

EMISSION REDUCTIONS

Pollutant	Peak Hours Kilograms/day	Off-Peak Hours Kilograms/day	Daily Total Kilograms/day
Carbon Monoxide (CO)	0.078	0.000	0.078
Particulate Matter <2.5 µm (PM _{2.5})	0.002	0.000	0.002
Particulate Matter <10 µm (PM ₁₀)	0.002	0.000	0.002
Nitrogen Oxide (NOx)	0.025	0.000	0.024
Volatile Organic Compounds (VOC)	0.008	0.000	0.008
Carbon Dioxide Equivalent (CO ₂ e)	56.429	-0.220	56.210
Total Energy Consumption (MMBTU)	0.743	-0.003	0.740