Toledo Metropolitan Area Council of Governments

2021 Transportation Improvement Program
Application for:

Ohio Statewide Urban Congestion Mitigation/ Air Quality (CMAQ) Projects

Submitted to the Ohio Statewide Urban CMAQ Committee (OSUCC) through TMACOG

APPLICATIONS DUE
July 30, 2021

Projects can be submitted electronically to Lance Dasher at *dasher@tmacog.org*, or they can be mailed or delivered directly to the TMACOG office at 300 Martin Luther King Jr. Dr. Ste. 300 Toledo, OH 43604

Issued by:
Toledo Metropolitan Area Council of Governments
300 Dr Martin Luther King Jr. Drive
P. O. Box 9508
Toledo Ohio 43697-9508

May 2021

Application also available at www.tmacog.org

Application Forms and Instructions

This Application Form is to be filled out by the applicant. Supplemental information attached to the form should be as condensed as possible. For example, if a feasibility report has been prepared for the proposal, the applicant should excerpt and summarize rather than simply attaching the entire report.

Tips on the Application Process

Scrutinize the cost vs. benefit when applying for federal funds. The program requirements can be demanding, and what is originally thought of as a small, inexpensive project can spiral quickly into a complicated and expensive project. For example: a project once thought to have a total cost of $85,000 with no right-of-way acquisition became a $120,000 construction cost with an additional $220,000 required for right-of-way acquisition.

Federally funded projects are subjected to many requirements, including the National Environmental Policy Act, the Uniform Relocation Assistance and Acquisition Policies Act, and other ODOT regulations and standards. Most locally planned and funded projects are not subject to these requirements and may often be developed more quickly and at less expense than those that are federally funded. When developing a project schedule, keep in mind that the project will be subject to all of the ODOT Project Development Processes.

Before hiring a consultant, review the experience of the firm with federally funded projects. How many have they successfully advanced through the system? When, where, and what type of project(s)?

The Project Evaluation Criteria is the method under which the OSUCC reviews and ranks the individual applications. An Overall Project Cover Sheet, Milestones Activities, and a detailed explanation of the Scoring Criteria for the Ohio CMAQ Program are shown on the following pages, including Criteria, Measures and Scoring Description, and Frequently Asked Questions and Answers. Examples of Project Type Descriptions are listed within the OSUCC Program, Policies, and Procedures.

The application should also include the following:

- ✓ Complete and detailed description of the proposed project and its relation to the intermodal transportation system and any other phases of the project. Location maps, elevations, photographs included, as necessary, to fully illustrate the project.

- ✓ Complete and detailed breakdown of the proposed construction/implementation costs inflated to year of expenditure - **certified by a professional engineer** – including funding sources.

- ✓ Complete and detailed description of the project's characteristics and benefits and how it is included or justified in a local plan or program. Description of how the project will be coordinated with a neighboring jurisdiction if project ends at or crosses a corporation line.

- ✓ The anticipated month and year, when the project will be ready for construction. Include the present status of property ownership and plan preparation.

- ✓ A certified copy of a resolution from the applicant's governing body authorizing the submission and local prioritization of the application(s) for CMAQ funds and committing to share in the project cost.

- ✓ A copy of the Synchro or HCM report to demonstrate both the Build and No-Build conditions. The report should include the average daily traffic (ADT), the peak and off-peak average vehicle delay for both Build and No-Build conditions. These criteria should be based on the project. If it is an intersection project, then the delay times and ADT need to be for the intersection. The Build speed should also be included for roundabout applications.

Congestion Mitigation and Air Quality Program

Application for Ohio FY2025 – FY2027 CMAQ Funding

General Information		
Date: July 21, 2021		
Entity Name: The Office of the Lucas County Engineer		
Project Name: Monclova Road 3-Lane with Bike Lanes		
Contact Information		
Contact Name: Ronald L. Myers, P.E.		
Title: Traffic Operations Engineer		
Street Address: 1049 S. McCord Rd, Building A		
City: Holland	State: Ohio	Zip: 43528
Phone: 419-213-2860	Email: rmyers@co.lucas.oh.us	

MILESTONE ACTIVITY	EXPECTED DATE (month/year)
• Project Programmed with ODOT.	~~1/22~~
• Begin Planning Phase: The date that the planning scope of work is developed.	~~5/22~~
• Project Initiation Package: The date that the Project Initiation Package is approved by the District.	~~8/22~~
• Consultant Authorized to Begin Design.	~~12/22~~
• Purpose and Need Submittal: The date that the Draft Purpose and Need is submitted.	~~8/22~~
• Begin Environmental Clearance: The date when the scoping for an environmental consultant or scoping for an environmental study is initiated.	9/22
• Feasibility Study Submittal: The date when the Feasibility Study is received for review by the District from a consultant or local public agency.	9/22
• Preferred Alternative Approval: The date when a single Preferred Alternative is approved the preferred alternative may be established at scope development. If so, provide the scoping date. Otherwise, enter the appropriate approval date associated with the Feasibility Study or Alternative Evaluation Report.	1/23
• Preliminary Right-of-Way Plan Submittal: The date when Preliminary RW plans are received for review by the District from a consultant or local public agency.	8/23
• Right-of-Way Authorization: The date when authorization is given to a local public agency to begin acquisition activities.	11/23
• Stage 2 Design Plan Submittal	~~8/23~~
• Environmental Document Approval: The date when the responsible agency (FHWA or ODOT) approves the document or the District confirms the project is exempt from documentation.	10/23
• Stage 3 Design Plan Submittal	~~12/24~~
• Right-of-Way Acquisition Complete: Date on which the local public agency certifies the completion of RW acquisition activities. (Utilities/encroachments not included.)	10/25
• Final Plans and Bid Package Submittal to ODOT	11/25
• Award Contract: The date the local public agency approves a contract with a successful bidder.	1/26
• Begin Construction	4/26
• Project Completion	12/26
• For programs, purchases, studies, and other projects that do not have a construction phase, please provide a schedule for project development (including environmental approval) and funding. Provide an estimate of the date(s) that federal funds would need to be available. Give a summary of the schedule to be followed before the project is ready for funding and while it is being implemented. See also instructions for Item #48 above. Describe other relevant aspects of the project schedule. For example, is the funding schedule contingent upon other actions? Will the project need funding from other sources to proceed?	

PROJECT EVALUATION CRITERA

Criteria	Measure	Points
1. Project Type (Maximum Points =10)	Regional rideshare/vanpool programs	**10**
	Congestion Reduction, Traffic Flow Improvements & ITS	**10**
	Transit Vehicle Replacement	**8**
	Freight/Intermodal including diesel engine retrofits	**7**
	Public Education and Outreach	**6**
	Transit Service Upgrades	**5**
	Pedestrian/Bicycle	**4**
	Alternative Fuels and Vehicles- Non transit	**4**
	Employer-based Programs	**4**
	Travel Demand Management	**3**
	Modal Subsidies and Vouchers	**3**
	Transit Facility Upgrades	**2**
	Other TCM's and Misc	**2**

Project Type – CMAQ funds can be used on a variety of project types designed to address congestion mitigation and/or emissions reductions. A project will be awarded up to 10 points based on the type of project. (Refer to the Example of Project Types Descriptions.) Some projects may involve multiple project types. The score will be based on the primary project type. See below for example descriptions.

Narrative for Project Type, supporting documentation, and points.

The project will consist of widening Monclova Rd between Jerome Rd and I-475/Maumee City limits to provide a center two-way left turn lane with paved shoulders marked as bike lanes. The project also include the construction of sidewalk and replace old drainage tile along the road. The project will remove left turning vehicles, bicycles, and pedestrians from the Monclova Road through lanes. The project is shown in TMACOG's 2045 Plan Priority Projects #41 & #54.

Total points: (to be completed by MPO)

Criteria	Measure	Points
2. Cost Effectiveness (CE) (Maximum Points =20) * Sliding scale	High emissions reduced per dollar cost; Low dollar cost per kilogram reduced. Medium Low	20 * *

Cost Effectiveness is a measure of the project's ability to reduce emissions (HC, NO_x, and $PM_{2.5}$) per dollar invested ($ per kg). The OSUCC will apply standard methodologies to estimate the emissions reduction and award up to 20 points on a sliding scale relative to the applications received. The following formula will be used to estimate the cost effectiveness: CE $/kg= (CMAQ$ Request/Useful Life)/Annual Emissions Reduction

To be completed by MPO

Calculation and brief narrative for Cost Effectiveness, supporting documentation, and points.

Total points: (to be completed by MPO)

Criteria	Measure	Points
3. Other Benefits (Maximum Points =10)	*Score up to 2 points for each additional project benefit* Improved safety Fixed Route Transit Bicycle/Pedestrian Improved freight movement Benefits environmental justice population	 0 - 2 0 - 2 0 - 2 0 - 2 0 - 2

Other Benefits - Many projects have ancillary or additional benefits beyond the primary goals of the CMAQ program. This criterion allows for a range of points based on several categories including safety, fixed route transit service, bike/pedestrian, improved freight movement and benefits to environmental justice populations. Up to 2 points may be awarded for projects that demonstrate high positive impacts from any or all of the categories up to a maximum of 10 points

Narrative for Other Benefits, supporting documentation, and points.

The installation of paved shoulders with marked bike lanes will make the roadway safer and reduce congestion by separating the cyclists from the vehicular traffic. The installation of bike lanes will provide bicyclists a connection to the eastern end of the Wabash Cannonball Trail and bike facilities within and adjacent to Side Cut Metropark and Fallen Timbers Sites. The installation of sidewalks will make the roadway safer by separating the pedestrians from the vehicular and bicycle traffic. The addition of a two way left turn lane will improve safety and reduce congestion along the corridor by separating the left turning vehicles from though traffic.

Total points: (to be completed by MPO)		
Criteria	**Measure**	**Points**
4. Existing Modal Quality of Service (LOS) (Maximum Points =15)	Very Low Low Medium High	15 10 4 0

The Quality of Service (QOS) documents the existing modal service quality in the project area. A project may be awarded up to 15 points depending upon the current QOS. No points will be awarded to projects to improve modes currently operating at a high level. The applicant must provide documentation and data showing how the quality of service was determined.

a. For roadways the traditional level of service (LOS) will be the measure (F=very low, E=Low, D=medium).
b. For transit projects, the applicant is to provide information to assess the "quality of service." This should be appropriate to the need the transit project is fulfilling. For a transit vehicle replacement project, the % of fleet over useful life should be provided. For a project that would provide more frequent service, the load factor (peak or off peak as appropriate) of the impacted route should be used. For geographic or service hour expansion a more qualitative rational must be provide to assess the existing QOS.
c. Similarly, for bike or pedestrian projects, information is to be provided to demonstrate the poor quality of service being provided for users of those modes.

Please note: for transit, bike and pedestrian projects, lack of service or absence of a facility alone does not equate to poor level of service. Information must be provided that demonstrates there is demand for the service or facility that is not being met. The calculation of demand should relate to demand used in the cost effectiveness calculations.

What is the current and projected QOS? Please provide supporting documentation.

The existing (2017) PM Peak Hour has a Bicycle LOS E.
The opening day (2024) PM Peak Hour has a projected Bicycle LOS C.
The design year (2044) PM Peak Hour has a projected Bicycle LOS D.

See attached HCS reports.

Total points: (to be completed by MPO)

Criteria	Measure	Points
5. Positive Impact on QOS (Maximum Points =)	High impact Medium impact Low impact No impact	15 10 3 0

The **Positive Project Impact on Quality of Service** (QOS) assesses the impact the proposal will have on the existing situation, ranging from 0 to 15 points. Some examples of Positive Impacts for QOS for Roads, Transit, and Bicycle and Pedestrian, are shown below.

ROAD QOS IMPACTS

HIGH	MEDIUM	LOW
The project will improve the LOS from F to C	The project will improve the LOS from F to D or from E to C	The project will improve the LOS from F, E or D by one level or substantially reduce delay if resulting LOS remains F.

TRANSIT QOS IMPACTS[1]

HIGH	MEDIUM	LOW
Significantly increases service and reliability. Interconnect or fare coordination project, bus turnouts at major intersections, intermodal facility accommodating major transfers, reduces travel time. Fleet expansion will be considered high impact.	Increases service and reliability in a minor capacity, interconnect or fare coordination project, general bus turnouts, intermodal facility accommodating major transfers. Vehicle replacement will be considered a medium impact.	Increases passenger comfort or convenience, bike racks.

BICYCLE and PEDESTRIAN QOS IMPACTS[2]

HIGH	MEDIUM	LOW
Facility that will primarily serve commuters and/or school sites, sidewalks where none exist. Completes final pieces of a significant regional route.	Mixed use bicycle/pedestrian facility (recreation & commuter), usable sidewalk segments including upgrades and new installations and signage.	Public educational, promotional, and safety programs that promote and facilitate increased use of non-motorized modes of transportation.

FREIGHT QOS IMPACTS[3]

HIGH	MEDIUM	LOW
Facility or equipment that will improve the movement or processing of freight by 50% above existing conditions or other qualitative assessment	Facility or equipment that will improve the movement or processing of freight by 25% above existing conditions or other qualitative assessment	Facility or equipment that will improve the movement or processing of freight by 15% above existing conditions or other qualitative assessment

What is the Positive Impact on QOS? Please provide supporting documentation.

The proposed project will improve the Bicycle LOS from E (existing) to C (opening year) and D (design year).

Total points: (to be completed by MPO)

[1] Council of Fresno County Governments, January 2006 CMAQ Call for Projects
[2] Council of Fresno County Governments, January 2006 CMAQ Call for Projects
[3] Council of Fresno County Governments, January 2006 CMAQ Call for Projects

Criteria	Measure	Points
6. Status of Project (Maximum Points =10)	Construction plans complete	10
	Non construction activity ready for authorization	8
	ROW clear and complete	8
	Environmental document complete	6
	Environmental document underway	2

The Status of Project points reflect the existing status of the project. The closer a project is to the construction/implementation phase, the more points it will receive. Those that are early in the project development process with environmental studies underway will receive 2 points. Projects with completed environmental status earn 6 points; those with right-of-way cleared and complete will be awarded 8 points. Non construction projects that do not require right-of-way and are ready for authorization such as a bus purchase also earn 8 points. Projects with construction plans complete earn 10 points.

Narrative for Status of Project, supporting documentation, and points.

MSG (consultant) completed surveys and stage 2 plans in 2005. Environmental and ROW acquisition is not started. Project originally required to be built as part of an off-site impact mitigation for the development associated with The Shops At Fallen Timbers. City of Maumee released the requirement of the developer to build the project. Project was never built.

Total points: (to be completed by MPO)

Criteria	Measure	Points	Measure	Points
7. Non-Federal Match of Requested CMAQ Funds of the phase(s) cost (Maximum Points =10)	Above 40%	5	Greater than $2.0 M	5
	>35 to 40%	4	$1.0 M to $2.0 M	4
	>30 to 35%	3	>$500,000 to $1.0 M	3
	>25 to 30%	2	$150,000 to $500,000	2
	>20 to 25%	1	$50,000 to $150,000	1
	Up to 20%	0	$0 to $50,000	0

Non-CMAQ Funding – The criteria rewards applicants that leverage additional funding above the required rate for local participation. The standard match rate for federal CMAQ funds is 20 percent (although there are exceptions). The applicant can gain up to a maximum of 10 points through leveraging non CMAQ resources towards the CMAQ eligible project cost for the phase(s) requesting CMAQ funding. Up to 5 points awarded based on percent of funding non-CMAQ funding and up to 5 points for amount of non-CMAQ funding. The non-CMAQ funding can be local, private, state or other federal provided it is not federal funding controlled by the submitting MPO.

Phase Description	State Fiscal Year	CMAQ $ Request	CMAQ % Share	Other Federal $ Secured	Other Federal $ Source	Local $ Match	Local $ Match Source	Phase $ Totals
Preliminary Engineering			0%			50,000		$ 50,000
Detailed Design			0%			220,000		$ 220,000
Right of Way	2024		0%			200,000		$ 200,000
Construction	2026	$ 2,023,287	80%			505,822		$ 2,529,109
FUNDING TOTALS		$ 2,023,287	68%	$ 0		$ 975,822		$ 2,999,109

Narrative for Non-Federal Match, supporting documentation, and points.

Lucas County proposes to fund the preliminary engineering, detailed design, and the ROW with 100% local funds and a grant from the Ohio Public Works Commission (OPWC). Construction, including construction engineering (estimated at 6% of construction contract) is proposed to be 80% Federal CMAQ and 20% local.

Total points: (to be completed by MPO)

Criteria	Measure	Points
8. Regional Priority (Maximum Points =10) (determined by each MPO)	First Priority Project Second Priority Project Third Priority Project Fourth Priority Project All Other	10 7 4 2 0

Regional Priority – MPO's will be responsible for collecting, reviewing for completeness and ranking CMAQ applications from the eligible recipients in their regions. Top ranking projects from each region will receive 10 points, second highest receives 7 points, third highest receives 4 points, fourth highest receives 2 points. All others receive 0 points. Each MPO will develop their own approach to determining their regional priority. In cases where a project is in more than one MPO an average point score will be used.

Narrative for Regional Priority, supporting documentation, and points.

Project is included in the 2045 plan as priority projects #41 & #54.

Total points: (to be completed by MPO)

Criteria	Measure	Points
9. Beginning in FY 2015 or Later: History of Project Delivery By Project Sponsor in the previous two years	 One project slipped past programmed year Two of more project slipped past programmed year One or more projects cancelled	 -5 -10 -10

History of Project Delivery – It is critical that projects that compete for and receive Ohio CMAQ dollars be delivered on time and within budget in order to fully realize the user benefits for Ohio citizens. Therefore, an applicant who has accepted CMAQ dollars in FY 2015 or later and allows the project to slip beyond the programmed year of obligation will be penalized 5 points on all subsequent applications for a period of two years. Applicants that allow two or more projects to slip will be penalized 10 points on subsequent applications for a period of two years. Project cancellation will also be cause for a 10 points reduction for a period of two years. Exceptions may be granted by the OSUCC for circumstances beyond the control of the applicant.

MAXIMUM POINTS 100	**Applicant total points for this project to be assessed by the MPO.**	

Frequently Asked Questions and Answers

1. **What is the purpose of the Ohio Statewide Urban Congestion Mitigation Air Quality Program?**
   In November 2012, the Director of the Ohio Department of Transportation (ODOT) announced the creation of an Ohio Statewide Urban Congestion Mitigation and Air Quality (CMAQ) Program. The intent of the program is to more quickly advance eligible projects that improve air quality, reduce congestion, and eliminate delay/improve safety, in addition to utilizing statewide CMAQ funding in the year funds are allocated.

2. **What is the CMAQ Program?**
   The CMAQ program was established by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, and continues under the current federal transportation bill Moving Ahead for Progress in the 21st Century (MAP-21); with an emphasis area on addressing PM2.5. The CMAQ Program provides a flexible funding source for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet (nonattainment areas) the National Ambient Air Quality Standards (NAAQS) for ozone, carbon monoxide, or particulate matter, and for areas that were out of compliance but have now met (maintenance areas) the NAAQS.

   Generally, projects eligible under the CMAQ program prior to enactment of MAP-21 remain eligible. All CMAQ projects must demonstrate three primary elements of eligibility: 1.) transportation identity as described within the programmatic parameters in the CMAQ Final Program Guidance Section VII – Project Eligibility Provisions – D. Eligible Projects and Programs; 2.) emissions reduction; and 3.) location in or benefitting a nonattainment or maintenance area.

3. **What is the Ohio Statewide Urban Congestion Mitigation Air Quality Committee (OSUCC)?**
   In January 2013, the Ohio Association of Regional Councils (OARC) Executive Directors established OSUCC, charging them with the task of developing protocols for managing the Congestion Mitigation Air Quality (CMAQ) Program. The CMAQ Program provides approximately $60 plus million annually; although this amount may vary for each application round, to Ohio's eight largest Metropolitan Planning Organizations (MPOs) with populations larger than 200,000.

4. **What MPOs sit on OSUCC?**
   The OSUCC consists of representatives from the following agencies:
   - Akron Metropolitan Area Transportation Study (AMATS)
   - Eastgate Regional Council of Governments (Eastgate)
   - Miami Valley Regional Planning Commission (MVRPC)
   - Mid-Ohio Regional Planning Commission (MORPC)
   - Northeast Ohio Areawide Coordinating Agency (NOACA)
   - Ohio-Kentucky-Indiana Regional Council of Governments (OKI)
   - Stark County Area Transportation Study (SCATS)
   - Toledo Metropolitan Area Council of Governments (TMACOG)

5. **What types of projects are eligible?**
   Non-capacity adding projects that can demonstrate an emissions reduction are generally eligible. For a complete listing of eligible projects, please visit the following link to review FHWA's Final CMAQ Program Guidance: https://www.fhwa.dot.gov/environMent/air_quality/cmaq/reference/cmaq_essentials/, specifically Eligibility Requirements and Eligible Activities.

6. **What types of project are not eligible?**
   Projects which add new capacity for single-occupancy vehicles are not eligible. Maintenance projects are not eligible.

7. **Can any entity submit a project for CMAQ funding consideration?**
   Applicants are limited to qualified government entities that are members of one of the large MPOs located within the metropolitan planning area. Projects located within the boundaries of a non-member jurisdiction are not eligible for Federal CMAQ funds unless the member jurisdiction applying for funds would be the owner or maintainer of the facility being constructed.

8. **Does an applicant submit projects directly to OSUCC since there are eight MPOs and when is the solicitation process?**
   The solicitation process for projects will consist of two parts.
   - First, each of the eight large MPO will solicit projects from their area. Each MPO shall conduct this part in whatever manner that best meets their local circumstances.
   - Second, each MPO will then provide the OSUCC the application form for each project from their area, including the MPO ranking, and the project scoring table.

   Following this solicitation the OSUCC will review the scoring provided by the MPO's. OSUCC may adjust project scores to ensure the scoring criterion was applied uniformly across all of the projects. This will lead to a listing of projects ranked by score.

9. **What is the schedule of activities for each CMAQ funding round?**
   - May of each year: Identify total amount by year of CMAQ funding to be available for new projects.
   - May – August: Each MPO solicits projects or otherwise identifies projects to be submitted to the OSUCC.
   - Early September: Projects submitted to OSUCC.
   - Early September – November: OSUCC review of projects and project scoring.
   - November: OSUCC identifies the recommended program of projects for funding.
   - December: Executive Directors approve projects for funding. All projects will follow the individual MPO public involvement policies in accordance with the standard STIP/TIP public involvement processes.

10. **Where can an applicant obtain a CMAQ application form?**
    Each MPO solicit projects from their respective area. Applicants should contact the respective MPO for their area.

Monclova Rd 3-Lane Widening with Bike Lanes

Attachment

3. The Board of Lucas County Commissioners Resolution No. 16-402 is attached.

5. Project EDA is estimated to be greater than an acre, therefore post construction BMP will be required per OEPA.

8. Paved shoulders will be constructed, marked and signed for bike lanes. The bike lanes will tie into and extend existing bike lanes at the intersection of Monclova Road and N. Jerome Road, which connect to the N. Jerome side path to the eastern end of the Wabash Cannonball Trail.

9. New sidewalks and curb ramps will be constructed within the project limits. Existing sidewalks will be utilized where possible.

14. The acquisition of right of way is anticipated from 11 parcels. The proposed work will meet the C2 environmental category per 04/16/2018 ODOT NEPA Assignment Categorical Exclusion Guidance.

16. Lucas County has approved permissive license fees.

23. 2 crashes from 2018 thru 2020 within the project limits.

    Crash Rate = (2) (1,000,000) / (7,200) (3) (365) = 0.25

24. 48 Hour Hose Count (6/12-14/2017)

    AADT = 7200 vpd

    ADU = (7,200) * (1.4/1000) = 10.08

25. Data from 48 Hour Hose Count (6/12-14/2017)

    5.5% + 0.7% = 6.2%

CONCEPTUAL CONSTRUCTION COST ESTIMATE

PROJECT: MONCLOVA ROAD 3 LANE WIDENING WITH BIKE LANES; N. JEROME ROAD TO I-475/US23

COMPLETION YEAR: FY 2024 PROJECT LENGTH: 0.57

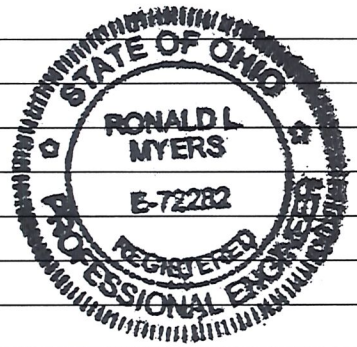
REF. NO.	ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	ESTIMATED COST
1	201	CLEARING AND GRUBBING	1	LS	$ 2,500.00	$2,500.00
2	202	PIPE REMOVED, 24" AND UNDER	1,386	FT	$ 12.00	$16,632.00
3	202	PIPE REMOVED, OVER 24"	2,259	FT	$ 20.00	$45,180.00
4	202	MANHOLE REMOVED	1	EA	$ 600.00	$600.00
5	202	CATCH BASIN REMOVED	15	EA	$ 400.00	$6,000.00
6	203	EXCAVATION	6,355	CY	$ 40.00	$254,200.00
7	203	EMBANKMENT, AS PER PLAN	500	CY	$ 50.00	$25,000.00
8	204	SUBGRADE COMPACTION, AS PER PLAN	12,710	SY	$ 1.50	$19,065.00
9	302	ASPHALT CONCRETE BASE	1,896	CY	$ 165.00	$312,840.00
10	304	AGGREGATE BASE	2,825	CY	$ 50.00	$141,250.00
11	407	NON-TRACKING TACK COAT	1593	GAL	$ 5.00	$7,965.00
12	441	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	790	CY	$ 165.00	$130,350.00
13	441	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448)	474	CY	$ 190.00	$90,060.00
14	605	6" UNCLASSIFIED PIPE UNDERDRAINS	4,800	FT	$ 10.00	$48,000.00
15	608	4" CONCRETE WALK	15,449	SF	$ 5.00	$77,245.00
16	608	6" CONCRETE WALK	1,052	SF	$ 5.00	$5,260.00
17	608	CURB RAMP, AS PER PLAN	100	SF	$ 12.00	$1,200.00
18	609	COMBINATION CURB AND GUTTER, TYPE 2	4,800	FT	$ 18.00	$86,400.00
19	611	12" CONDUIT, TYPE B	386	FT	$ 75.00	$28,950.00
20	611	42" CONDUIT, TYPE B	580	FT	$ 225.00	$130,500.00
21	611	42" CONDUIT, TYPE C	1,798	FT	$ 200.00	$359,600.00
22	611	CATCH BASIN, NO. 2-2B	10	EA	$ 2,500.00	$25,000.00
23	611	CATCH BASIN, TYPE A-1	12	EA	$ 2,500.00	$30,000.00
24	611	MANHOLE NO. 3	15	EA	$ 3,500.00	$52,500.00
25	611	MANHOLE ADJUSTED TO GRADE	11	EA	$ 1,000.00	$11,000.00
26	614	MAINTAINING TRAFFIC	1	LS	$ 15,000.00	$15,000.00
27	621	RPM	53	EA	$ 60.00	$3,180.00
28	621	RAISED PAVEMENT MARKER REMOVED	38	EA	$ 20.00	$760.00

CONCEPTUAL CONSTRUCTION COST ESTIMATE

PROJECT: MONCLOVA ROAD 3 LANE WIDENING WITH BIKE LANES; N. JEROME ROAD TO I-475/US23

COMPLETION YEAR: FY 2024 PROJECT LENGTH: 0.57

REF. NO.	ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	ESTIMATED COST
29	623	CONSTRUCTION LAYOUT STAKES	1	LS	$ 20,000.00	$20,000.00
30	624	MOBILIZATION	1	LS	$ 40,000.00	$40,000.00
31	630	REMOVAL, STORAGE, OR REERECTION OF SIGNS AND SUPPORTS	1	LS	$ 1,000.00	$1,000.00
32	638	FIRE HYDRANT EXTENDED AND ADJUSTED TO GRADE	5	EA	$ 2,500.00	$12,500.00
33	638	VALVE BOX ADJUSTED TO GRADE	4	EA	$ 750.00	$3,000.00
34	644	EDGE LINE, 4"	0.91	MI	$ 3,500.00	$3,185.00
35	644	CENTER LINE	0.91	MI	$ 7,000.00	$6,370.00
36	644	RAILROAD SYMBOL MARKING	1	EA	$ 500.00	$500.00
37	644	LANE ARROW	8	EA	$ 110.00	$880.00
38	644	BIKE LANE SYMBOL MARKING	7	EA	$ 175.00	$1,225.00
39	653	TOPSOIL	1242	CY	$ 50.00	$62,100.00
40	659	SEEDING AND MULCHING	11,192	SY	$ 1.50	$16,788.00
41	659	REPAIR SEEDING AND MULCHING	560	SY	$ 1.50	$840.00
42	659	COMMERCIAL FERTILIZER	1.00	TON	$ 650.00	$650.00
43	659	WATER	61	M. GAL	$ 5.00	$305.00
44	832	EROSION CONTROL	7,500	EA	$ 1.00	$7,500.00
		The useful life of this project is 20 years with only routine maintenance needed to attain or exceed this life.				
		SUBTOTAL($2021):				**$2,103,080.00**
		SUBTOTAL($2024):				**$2,299,190.00**
		10% CONTINGENCY:				**$229,919.00**
		GRAND TOTAL:				**$2,529,109.00**



Prepared by: Lucas County Engineer's Office

7/22/21

Michael Melnyk, E.I. Date:
Engineer Intern

7/21/21

Ronald L. Myers, P.E. (E-72282) Date:
Traffic Operations Engineer

CY 2021-2025 Business Plan Inflation Calculator:

Not sure if you have the latest calculator? Click here.

Last Modified: 2/1/2021

Today's Date:
July 21, 2021

Please Enter Values in the Yellow Areas Only:

Estimation Start Date:
Less than or Equal to Today's Date
(mm/dd/yyyy)

7/21/2021
Start Date:

Enter Construction Mid-Point Date:
(cannot exceed 07/21/2046)
(mm/dd/yyyy)

7/30/2024
Construction Mid-Point Date:

Present-Day Estimated Cost:

$2,103,080.00
Estimated Dollar Amount:

Estimate Start Date to Construction Mid-Point Date: 36 Months

Inflation - Start to Mid-Point of Construction:

	(compounded growth rate)	Inflated Dollar Amount:
Business Plan	9.3%	$2,299,189.56

Estimator's Name:

County - Route - Section: Monclova Road 0.57 west of Maumee City Limits to Maumee City Limits

PID:

Estimator's Notes: 3 Lane Widening with Bike Lanes

On the Move

2045 Transportation Plan • Update 2020

July 2020

Toledo Metropolitan Area Council of Governments

www.tmacog.org

Rank	Project Description	Estimated Construction Year	Estimated Project Cost in Millions	Primary Mode
28	Safe Routes to School - Toledo: Complete facilities outlined in approved Toledo Public Schools travel plan.	2025-2030	$5.6	Non-motorized
29	Eliminate rail/highway conflicts on Matzinger Rd. at the Ann Arbor and CSX rail crossings - possible grade separation.	2030-2040	$34.8	Road
30	Widen US 20 (Central Ave.) from Centennial Rd. to west of Crissey Rd. (increase to 5 lanes).	2040	$18.3	Road
31	Riverside Trail: Construct a multi-use path from Cullen Park south along Summit St., to Water St., along the riverfront to Owens Corning Pkwy, to bike lanes on Ottawa St. and Emerald Ave. and connect to the committed sidepath along the Anthony Wayne Trail.	2025-2030	$2.1	Non-motorized
32	Re-establish Toledo to Detroit passenger rail service.	2025-2035	$220.9	Rail
33	New Maumee River passenger and freight rail bridge at the Middle Grounds.	2030-2040	$348.3	Rail
34	Riverside Trail East: Construct a path from Hollywood Casino north along the Maumee River to Miami St. at Oakdale Ave.; continue north along Miami St. International Park.	2025-2030	$1.2	Non-motorized
35	Overland Trail: Construct a sidepath from Expressway Dr. and Stickney Ave. to Manhattan Ave. to existing facilities on Summit St.	2025-2030	$7.5	Non-motorized
36	Cherry-University Trail: Construct a sidepath along Dorr St. from Douglas Rd. to 17th St. where the trail would turn north into bike lanes to Franklin Ave. and continue as bike lanes until Cherry St. where it would turn northwest into a sidepath to meet the Overland Trail.	2025-2030	$1.3	Non-motorized
37	Upgrade the interchange at I-75 and Cygnet Rd. in Cygnet.	2030-2035	$28.5	Road
38	Construct Chessie Circle Trail Bridge over the Maumee River.	2025-2030	$8.9	Non-motorized
39	Support added mechanisms for transit expansion within Wood County.	2025-2030	$4.3	Transit
40	Secor Rd. Improvements from Bancroft St. to Central Ave. (lane widening, access management)	2026-2035	$16.7	Road
41	Maumee City Bicycle Network: Provide a group of facilities to create a bicycle network connecting to and through the City of Maumee.	2030-2035	$1.4	Non-motorized
42	Safe Routes to School: Complete facilities outlined in approved school travel plans (excluding Toledo Public Schools, listed as separate project).	2025-2030	$2.7	Non-motorized
43	Build Sylvania Ave. / Herr Rd. roundabout, includes sidewalks, a sidepath and accommodation for bikes.	2035	$1.6	Road
44	Implement a transit connection between Toledo and Bowling Green.	2030-2035	$5.7	Transit
45	Erie Township and Overland Trail Connector: Provide a bike facility from Stickney Ave. at Manhattan Ave., north to Benore Rd. to Dixie Hwy.	2025-2030	$0.6	Non-motorized
46	Build Crissey Rd./Angola Rd. (E) roundabout, includes sidewalk and accommodation for bikes	2035-2030	$1.7	Road
47	Find a solution to blocked rail crossing at SR 235/SR 18 and CSX railroad in Hoytville - possible grade separation or highway bypass.	2025-2035	$21.4	Road
48	Woodville Rd. corridor safety improvements from Wheeling St. to Williston Rd. (SR 579). Project includes signal upgrades, and roundabout at SR51 & Lemoyne Rd., sidewalk improvements, and a road diet on SR 579.	2025-2030	$5.2	Non-motorized
49	Greenhouse Trail: Construct a bike facility from the University/ Parks Trail at Reynolds Rd. to Elmer Dr., then south through Toledo Botanical Gardens to Bancroft St.; via various streets to a path through Keil Farm; then via various streets to existing sidepath to Eastgate and Cass Rd. facilities to Turnpike.	2025-2030	$2.3	Non-motorized
50	Trilby-Washington Trail: Construct a bike facility on Sylvania Ave. from Talmadge Rd. to Harvest Ln., then bike lanes north to McGregor Ln., then east via various streets to Jackman Park, to the Chessie Circle Trail, and through various streets to Lagrange St. to the Overland Trail.	2025-2030	$6.1	Non-motorized

Table 4.2: 2045 Plan Priority Projects

Rank	Project Description	Estimated Construction Year	Estimated Project Cost in Millions	Primary Mode
51	Bowling Green City Bicycle Network: Provide a group of facilities to create a bicycle network in the city and connecting to surrounding Wood County communities.	2030-2035	$2.4	Non-motorized
52	Oregon Trail: Construct a path/sidepath to connect Craig St. Bridge path and Seaman Rd., to connect Cities of Toledo and Oregon.	2025-2030	$0.6	Non-motorized
53	Construct a pedestrian bridge over Douglas Rd. (Chessie Circle Trail and Marwood Ave. to University of Toledo).	2025-2030	$5.8	Non-motorized
54	Widen Monclova Rd. to three lanes with bike lanes east of N. Jerome Rd to I-475.	2025-2030	$2.9	Road
55	Build Providence-Neapolis-Swanton Rd. / Archbold-Whitehouse Rd. roundabout, includes sidewalks and accommodation for bikes	2030	$1.5	Road
56	Albon Rd. and Monclova Rd. intersection roundabout, includes paved shoulders for bikes on the approaches and new sidewalks for peds within the roundabout.	2035-2040	$1.7	Road
57	Buckeye Basin Trail: Construct a facility to provide connection to Uptown District with a trail starting at f Woodruff/Franklin Ave., then following the existing Greenbelt Pkwy. trail to the Overland Trail via Buckeye St.	2030-2035	$0.2	Non-motorized
58	Intersection Improvements at Flower Hospital Driveway (Harroun Rd). Potential light or roundabout.	2025-2030	$1.6	Road
59	University/Parks Trail Extension North: Construct a multi-use rail-with-trail or rail-to-trail (right-of-way acquisition needed) adjacent to Memorial Hwy. starting at U/P Trail, north to Sterns Rd. in Monroe County.	2026-2030	$2.7	Non-motorized
60	Build Monclova Rd./Waterville-Monclova Rd. roundabout, includes sidewalks and accommodation for bikes.	2025	$1.1	Road
61	Collingwood, Monroe St. to I-75 – Reconstruct Collingwood Blvd. with roundabout at Monroe St. Realign local street access to Toledo Museum of Art and enhance gateway area.	2025-2030	$5.9	Road
62	Bancroft St. and Crissey Rd. roundabout, includes paved shoulders for bikes on the approaches and new sidewalks for pedestrian within the roundabout.	2040-2045	$1.9	Road
63	Crissey Rd. and Dorr St., two roundabouts, includes paved shoulders for bikes on the approaches and new sidewalks for pedestrian within the roundabout.	2035-2045	$3.3	Road
64	Widen Lime City Rd. in the City of Rossford (SR 65-Buck Rd.); and widen in Wood County (I-75 to SR 795).	2025-2030	$2.7	Road
65	Monclova Rd., roundabout at Coder Rd., and widen to Monclova Rd. to three lanes from Coder Rd. to Waterside; includes paved shoulders for bikes, and elimination of gaps in sidewalks for pedestrians.	2040-2045	$3.8	Road
66	Find a solution to blocked CSX rail crossings in North Baltimore - possible grade separation/pedestrian bridge/advance warning signals.	2030-2040	$29.0	Road
67	Build Weckerly Rd. / Stitt Rd. roundabout, includes sidewalks and accommodation for bikes.	2030	$1.5	Road
68	Secor Rd. reconstruction & widening & intersection improvements, Ohio state line to Summerfield Rd.	2025-2030	$3.0	Road
69	Angola-Scott Park Trail: Construct a facility to provide connection to UT Scott Park campus, starting at Angola Rd. on Reynolds Rd. north to South Ave., continuing on Arco Dr. north to Hill Ave., then east to campus.	2026-2030	$0.5	Non-motorized
70	Replacement of the two existing intersections (Shepler Ave. and Providence St.) that are located only 200' apart along SR 64 with a new five leg roundabout.	2025-2030	$2.0	Road
71	Holland Sylvania corridor improvements from Central Ave. to Harroun Rd. Includes access management and intersection improvements.	2030	$8.8	Road
72	Complete the Oregon bike network.	2030-2035	$1.9	Non-motorized
73	Build Frankfort Rd./Crissey Rd. roundabout, includes sidewalks and accommodation for bikes.	2040-2045	$1.9	Road

Figure 4.3: TMACOG 2045 Plan Update 2020 - Priority Projects

TMACOG 2045 Plan Update 2020 - Priority Projects

Toledo Metropolitan Area Council of Governments

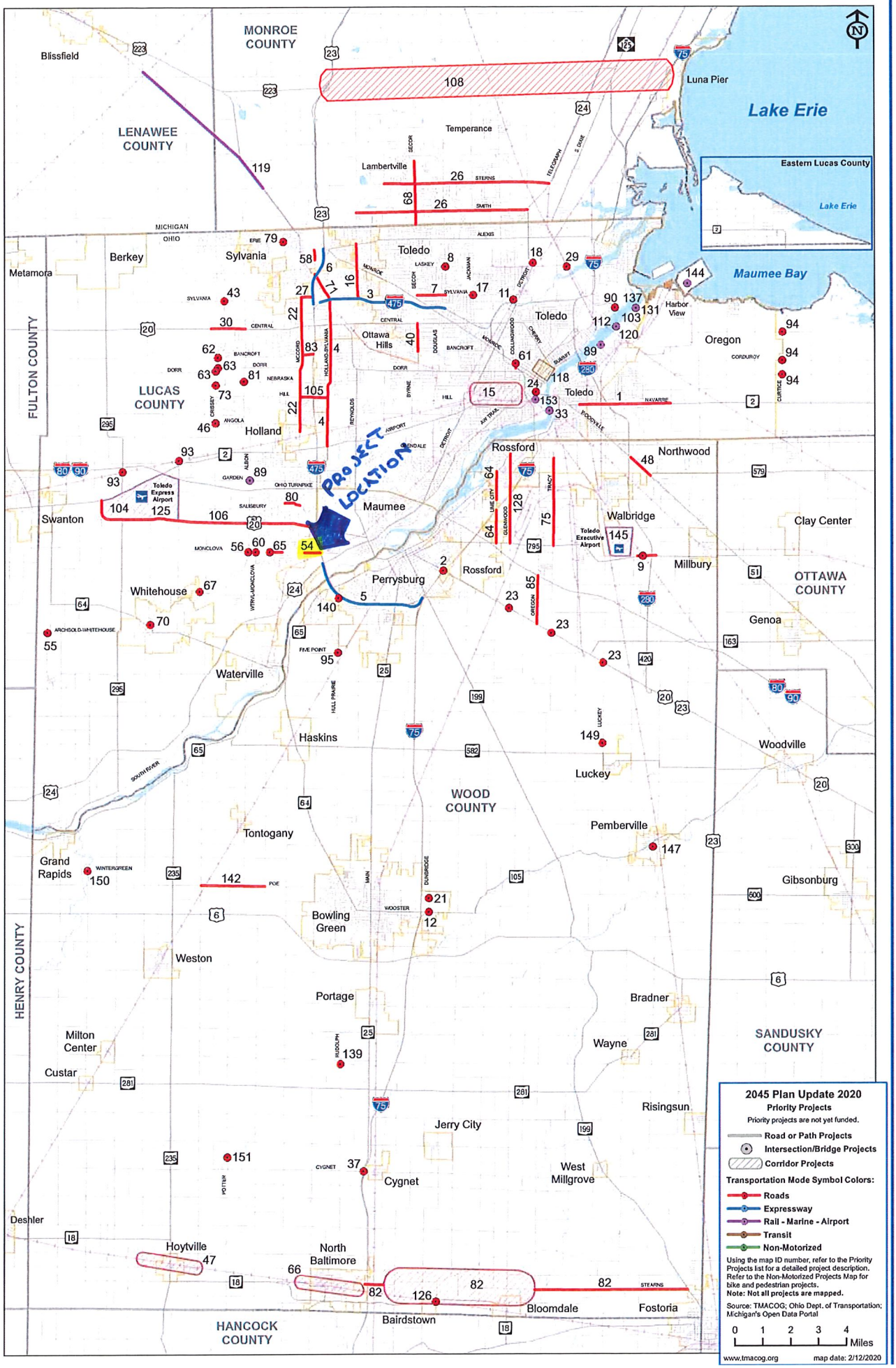
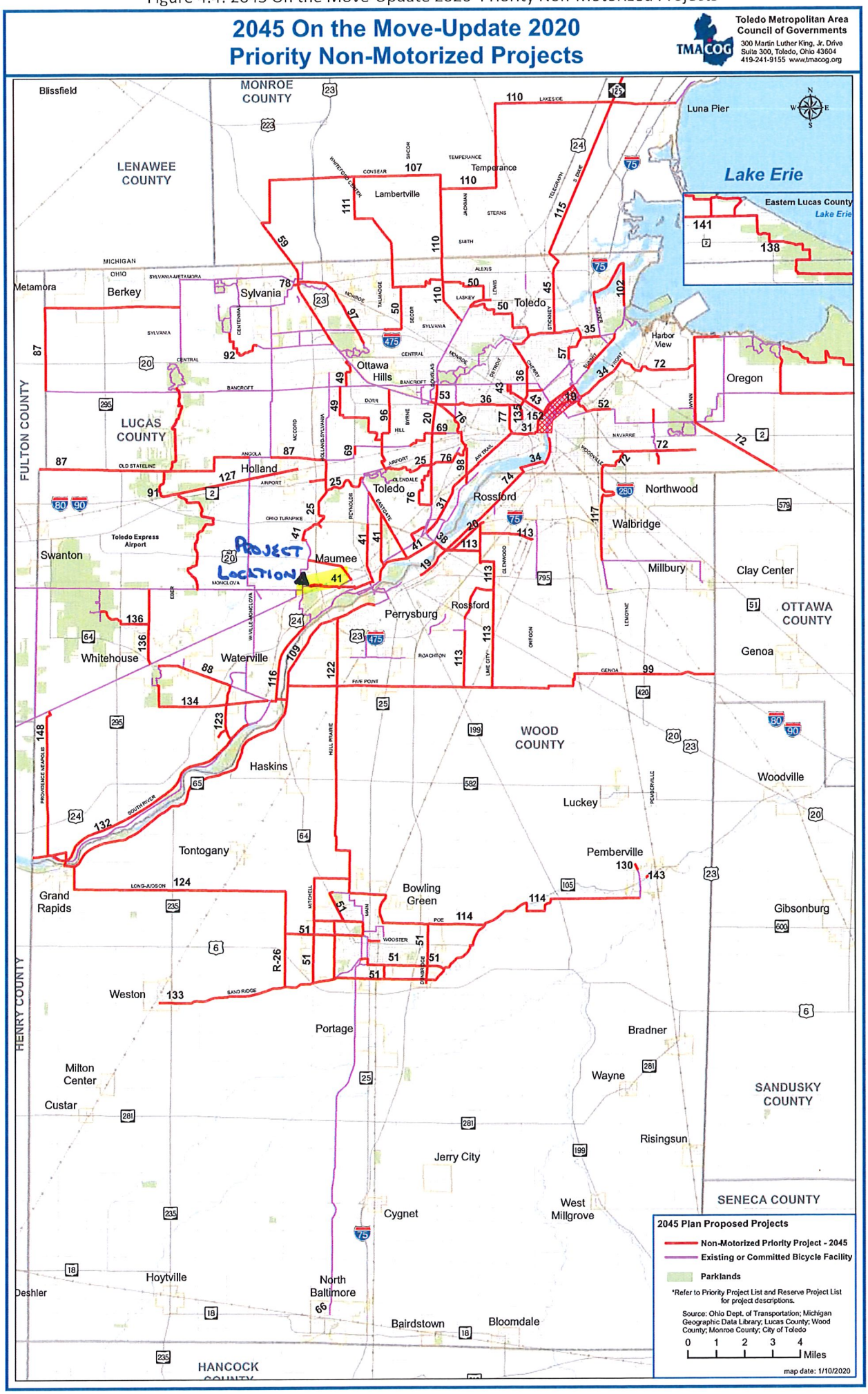
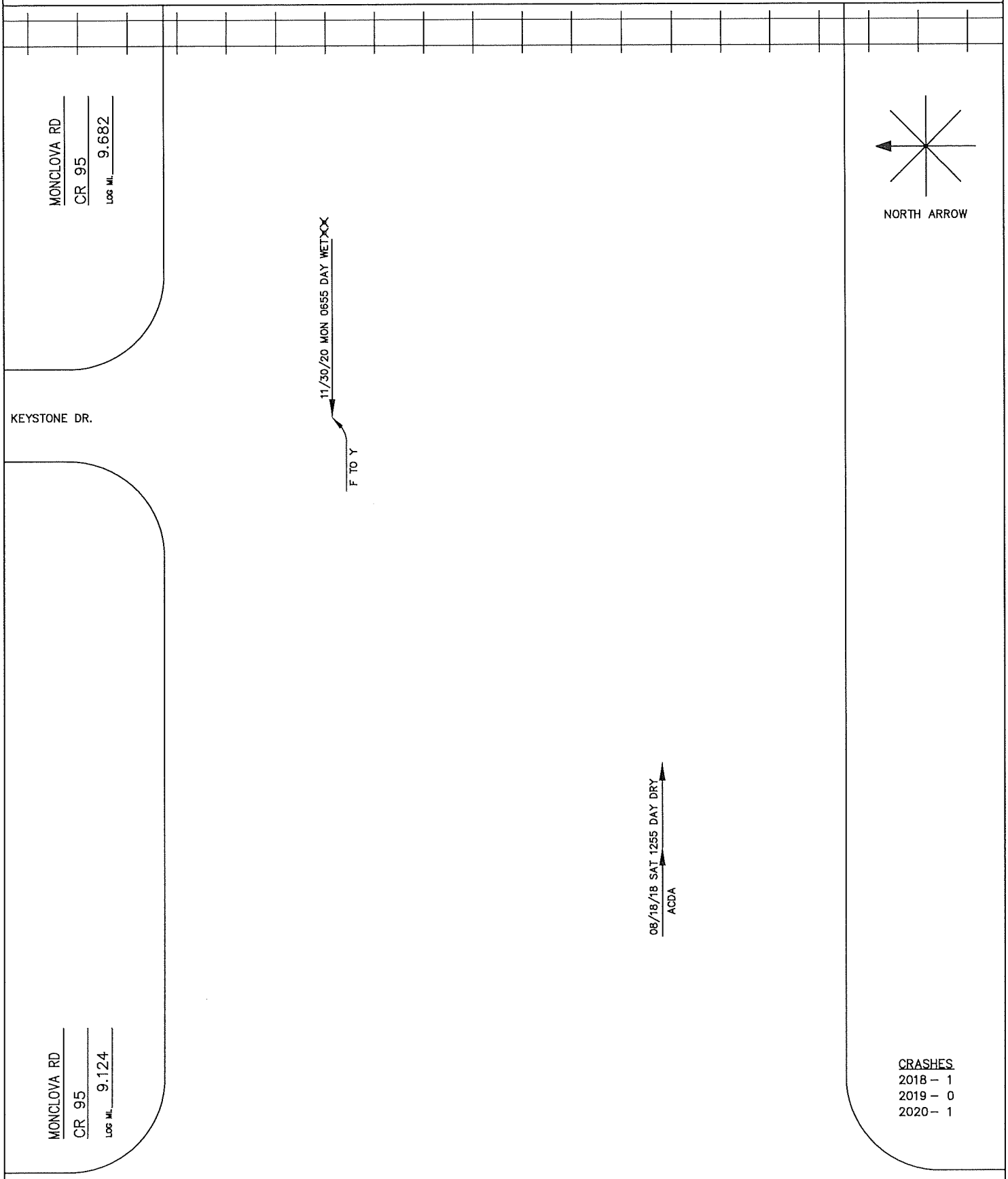


Figure 4.4: 2045 On the Move-Update 2020 Priority Non-Motorized Projects



COLLISION DIAGRAM

TOTAL ACC. 2



LOCATION: MONCLOVA RD FROM N JEROME RD TO CITY OF MAUMEE LIMITS
PERIOD: 3 YEARS FROM: 01–01–2018 TO: 12–31–2020
PREPARED BY: JENNA R. STAUCH CHECKED BY: EGL DATE: 07/16/21

LUCAS COUNTY ENGINEER
1049 S. MCCORD RD
HOLLAND, OH 43528

SYMBOLS	INJURY TYPE (ONE EACH)
MOVING VEHICLE	○ POSSIBLE INJURY
BACKING VEHICLE	X NON–INCAPACITATING
SECONDARY MOTION	• INCAPACITATING
	⊙ FATAL

Date: May 10, 2016 **Resolution No. 16-402**

Title: Approval of the Complete Streets Policy

Department/Agency: Lucas County Engineer's Office

Contact: Ronald L. Myers, PE, Traffic Operations Engineer

Summary/Background: A "Complete Street" is one which is designed to be a transportation corridor and public space to accommodate the users including pedestrians, bicyclists, public transit users and motorists alike. Complete streets shall endeavor to offer safe, unimpeded travel for all users.

The goal of the Lucas County Engineer is to plan, design and construct transportation and infrastructure improvements throughout the County in a manner which produces safe access to and active use by walkers and those on bicycles as well as accommodating those in public and privately owned vehicles. The Engineer's Office already evaluates "Complete Street" design elements for major infrastructure projects with this multi-purpose approach to maximize the value of project investment.

Example Design Elements include:

- Paved shoulders and / or bicycle lanes adjacent to a roadway;
- Sidewalks & multi-use paths within the rights-of-way;
- Pedestrian crossing signals which include audible crossing signals for the visually impaired;
- Easy access to public transit facilities and lines;
- Sidewalks;
- Street amenities including benches, lighting, landscaping, etc.;
- Appropriate pedestrian signage and/or way finding enhancements.

Major infrastructure projects will contemplate long range transportation plans, community-wide goals, neighborhood contextual matters, site specific opportunities and physical constraints to ensure that all potential users' needs are considered. It is recognized that some projects, corridors or streets may be able to accommodate more or fewer complete street elements than others for a variety of reasons. Nevertheless; where practical and economically feasible the Engineer's Office will strive to incorporate complete streets elements and principles into its major public transportation and infrastructure projects.

Budget Impact: License Plate Fees and Gas Taxes ~ 2040-2920-517110

Statutory Authority/ORC: *Ohio Revised Code* Section 5555.02

Commissioner Gerken offered the following resolution:

WHEREAS, in consideration of the above, NOW, THEREFORE BE IT RESOLVED by the Board of County Commissioners, Lucas County, Ohio, that:

LOCATION: : MONCLOVA ROAD
FROM/TO: : NORTH JEROME TO CITY OF MAUMEE LIMITS
NOTES: : AB = EB

Site: 009519

Seven Day Volume, per Channel (Volume factor 0.500)

Channel 2

Interval Start	Mon 6/12/2017	Tue 6/13/2017	Wed 6/14/2017	Thu 6/15/2017	Fri 6/16/2017	Sat 6/17/2017	Sun 6/18/2017	Mon - Fri Average	7 Day Average
12:00 AM	-	30	42	-	-	-	-	36.0	36.0
1:00 AM	-	18	10	-	-	-	-	14.0	14.0
2:00 AM	-	14	13	-	-	-	-	13.5	13.5
3:00 AM	-	21	24	-	-	-	-	22.5	22.5
4:00 AM	-	36	38	-	-	-	-	37.0	37.0
5:00 AM	-	118	116	-	-	-	-	117.0	117.0
6:00 AM	-	331	353	-	-	-	-	342.0	342.0
7:00 AM	-	590	606	-	-	-	-	598.0	598.0
8:00 AM	-	528	544	-	-	-	-	536.0	536.0
9:00 AM	-	433	490	-	-	-	-	461.5	461.5
10:00 AM	368	424	-	-	-	-	-	396.0	396.0
11:00 AM	461	442	-	-	-	-	-	451.5	451.5
12:00 PM	508	538	-	-	-	-	-	523.0	523.0
1:00 PM	432	530	-	-	-	-	-	481.0	481.0
2:00 PM	493	518	-	-	-	-	-	505.5	505.5
3:00 PM	548	572	-	-	-	-	-	560.0	560.0
4:00 PM	612	602	-	-	-	-	-	607.0	607.0
5:00 PM	594	635	-	-	-	-	-	614.5	614.5
6:00 PM	420	458	-	-	-	-	-	439.0	439.0
7:00 PM	297	352	-	-	-	-	-	324.5	324.5
8:00 PM	249	240	-	-	-	-	-	244.5	244.5
9:00 PM	154	180	-	-	-	-	-	167.0	167.0
10:00 PM	109	92	-	-	-	-	-	100.5	100.5
11:00 PM	57	68	-	-	-	-	-	62.5	62.5
Totals	5302	7770	2236	0	0	0	0	7654.0	7654.0

Peak Hours

12:00 AM - 12:00 PM	11:00 AM	7:00 AM	7:00 AM	-	-	-	-	7:00 AM	7:00 AM
Volume	461	590	606	-	-	-	-	598.0	598.0
12:00 PM - 12:00 AM	4:00 PM	5:00 PM	-	-	-	-	-	5:00 PM	5:00 PM
Volume	612	635	-	-	-	-	-	614.5	614.5

TRAFFIC COUNTS

LUCAS COUNTY ENGINEERS OFFICE

RAW A.D.T.	7650
RAW PK. HR.	610
ADJ. A.D.T.	7200
LAT., LONG:	N 41° 33' 31", W 83° 44' 57"

LOCATION: Monclova Road in N. Jerome to City of Maumee

URBAN / RURAL		NO.	COUNTER NUMBER	T.M.A.C.O.G. NUMBER
Major	0.941	95	23	CL-0187

The Lucas County Engineer's Office
Traffic Department
419-213-2860

LOCATION: : MONCLOVA ROAD
FROM/TO: : NORTH JEROME TO CITY OF MAUMEE LIMITS
NOTES: : AB = EB

Site: 009519
Monday, 6/12/2017 10:00 AM -
Wednesday, 6/14/2017 10:00 AM

Classification Grand Totals

Hourly Averages

Combined

Interval Start	Total	Passenger Vehicles	Single Trucks	Trucks & Trailers	Tailgating
12:00 AM	35.0	33.0	2.0	0.0	0.0
1:00 AM	14.0	13.0	1.0	0.0	0.0
2:00 AM	13.5	10.0	3.5	0.0	0.0
3:00 AM	21.0	12.5	7.5	1.0	0.0
4:00 AM	36.5	27.0	9.0	0.5	0.0
5:00 AM	116.5	101.0	15.5	0.0	0.0
6:00 AM	332.5	303.5	27.5	1.5	0.0
7:00 AM	572.0	542.5	23.5	6.0	0.0
8:00 AM	514.0	489.5	19.0	5.5	0.0
9:00 AM	441.5	403.5	33.0	5.0	0.0
10:00 AM	380.5	349.0	26.5	5.0	0.0
11:00 AM	434.0	401.5	29.0	3.5	0.0
12:00 PM	500.0	462.0	33.0	5.0	0.0
1:00 PM	465.0	435.5	26.0	3.5	0.0
2:00 PM	488.0	449.5	35.0	3.5	0.0
3:00 PM	539.5	510.5	25.5	3.5	0.0
4:00 PM	581.5	548.0	30.0	3.5	0.0
5:00 PM	597.0	573.5	23.0	0.5	0.0
6:00 PM	430.0	413.5	15.5	1.0	0.0
7:00 PM	317.5	309.5	7.0	1.0	0.0
8:00 PM	241.0	235.5	4.5	0.5	0.5
9:00 PM	164.0	157.0	7.0	0.0	0.0
10:00 PM	100.0	95.5	4.5	0.0	0.0
11:00 PM	62.0	61.0	1.0	0.0	0.0
Daily Average	7396.5	6937.0	409.0	50.0	0.5

Study Grand Totals

	Total	Passenger Vehicles	Single Trucks	Trucks & Trailers	Tailgating
Combined	14793	13874	818	100	1
		93.8 %	5.5 %	0.7 %	0.0 %
EB	7638	7082	498	57	1
		92.7 %	6.5 %	0.7 %	0.0 %
WB	7155	6792	320	43	0
		94.9 %	4.5 %	0.6 %	0.0 %

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	ATP
Agency/Co.	LCEO
Date Performed	7/31/2019
Analysis Time Period	5-6pm
Highway	Monclova Rd
From/To	Jerome Rd to I 475
Jurisdiction	Lucas County
Analysis Year	2024
Description	Two Lane Road LOS

Input Data

Highway class	Class 3		Peak hour factor, PHF	1.00	
Shoulder width	5.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 403 veh/h
Opposing direction volume, Vo 244 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.3		1.5	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.982		0.971	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	410	pc/h	251	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	1.3	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	50.2	mi/h
Adjustment for no-passing zones, fnp	3.7	mi/h
Average travel speed, ATSd	41.4	mi/h
Percent Free Flow Speed, PFFS	82.5	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	403 pc/h	245 pc/h

Base percent time-spent-following,(note-4)	BPTSFd	40.2	%
Adjustment for no-passing zones, fnp		49.8	
Percent time-spent-following, PTSFd		71.2	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	50	veh-mi
Peak-hour vehicle-miles of travel, VMT60	202	veh-mi
Peak 15-min total travel time, TT15	1.2	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	41.4	mi/h
Percent time-spent-following, PTSFd (from above)	71.2	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	5
Flow rate in outside lane, vOL	403.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.48
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

HCS7: Two-Lane Highways Release 7.1

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	ATP
Agency/Co.	LCEO
Date Performed	7/31/2019
Analysis Time Period	5-6pm
Highway	Monclova Rd
From/To	Jerome Rd to I 475
Jurisdiction	Lucas County
Analysis Year	2044
Description	Two Lane Road LOS

Input Data

Highway class	Class 3		Peak hour factor, PHF	1.00	
Shoulder width	5.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd	599	veh/h
Opposing direction volume, Vo	362	veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.1		1.3	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.994		0.982	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	603	pc/h	369	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	1.3	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	50.2	mi/h
Adjustment for no-passing zones, fnp	2.9	mi/h
Average travel speed, ATSd	39.8	mi/h
Percent Free Flow Speed, PFFS	79.2	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.0	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	1.000	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	599 pc/h	364 pc/h
Base percent time-spent-following,(note-4) BPTSFd	55.7 %	
Adjustment for no-passing zones, fnp	36.2	
Percent time-spent-following, PTSFd	78.2 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	75	veh-mi
Peak-hour vehicle-miles of travel, VMT60	300	veh-mi
Peak 15-min total travel time, TT15	1.9	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	39.8	mi/h
Percent time-spent-following, PTSFd (from above)	78.2	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	599.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.19
Bicycle LOS	D

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	ATP
Agency/Co.	LCEO
Date Performed	7/31/2019
Analysis Time Period	5-6pm
Highway	Monclova Rd
From/To	Jerome Rd to I 475
Jurisdiction	Lucas County
Analysis Year	2017
Description	Two Lane Road LOS

Input Data

Highway class	Class 3		Peak hour factor, PHF	1.00	
Shoulder width	3.0	ft	% Trucks and buses	6	%
Lane width	11.7	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	65	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 351 veh/h
Opposing direction volume, Vo 212 veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.3	1.5
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.982	0.971
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	357 pc/h	218 pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	-	mi/h
Observed total demand,(note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width,(note-3) fLS	3.0	mi/h
Adj. for access point density,(note-3) fA	3.5	mi/h
Free-flow speed, FFSd	48.5	mi/h
Adjustment for no-passing zones, fnp	3.3	mi/h
Average travel speed, ATSd	40.7	mi/h
Percent Free Flow Speed, PFFS	84.0	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.1		1.1	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.994		0.994	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	353	pc/h	213	pc/h
Base percent time-spent-following,(note-4) BPTSFd	35.9	%		
Adjustment for no-passing zones, fnp	50.2			
Percent time-spent-following, PTSFd	67.2	%		

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	44	veh-mi
Peak-hour vehicle-miles of travel, VMT60	176	veh-mi
Peak 15-min total travel time, TT15	1.1	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	40.7	mi/h
Percent time-spent-following, PTSFd (from above)	67.2	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	4
Flow rate in outside lane, vOL	351.0
Effective width of outside lane, We	14.70
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.91
Bicycle LOS	E

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	ATP
Agency/Co.	LCEO
Date Performed	7/31/2019
Analysis Time Period	10-11AM
Highway	Monclova Rd
From/To	Jerome Rd to I 475
Jurisdiction	Lucas County
Analysis Year	2024
Description	Two Lane Road LOS

Input Data

Highway class	Class 3		Peak hour factor, PHF	1.00	
Shoulder width	5.0	ft	% Trucks and buses	6	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 175 veh/h
Opposing direction volume, Vo 237 veh/h

Average Travel Speed

Direction	Analysis (d)		Opposing (o)	
PCE for trucks, ET	1.6		1.5	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor, (note-5) fHV	0.965		0.971	
Grade adj. factor, (note-1) fg	1.00		1.00	
Directional flow rate, (note-2) vi	181	pc/h	244	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	1.3	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	50.2	mi/h
Adjustment for no-passing zones, fnp	3.7	mi/h
Average travel speed, ATSd	43.2	mi/h
Percent Free Flow Speed, PFFS	86.0	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.994	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	176 pc/h	238 pc/h
Base percent time-spent-following,(note-4) BPTSFd	20.8 %	
Adjustment for no-passing zones, fnp	58.4	
Percent time-spent-following, PTSFd	45.6 %	

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	22	veh-mi
Peak-hour vehicle-miles of travel, VMT60	88	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	43.2	mi/h
Percent time-spent-following, PTSFd (from above)	45.6	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	5
Flow rate in outside lane, vOL	175.0
Effective width of outside lane, We	22.00
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	3.06
Bicycle LOS	C

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	ATP
Agency/Co.	LCEO
Date Performed	7/31/2019
Analysis Time Period	10-11AM
Highway	Monclova Rd
From/To	Jerome Rd to I 475
Jurisdiction	Lucas County
Analysis Year	2024
Description	Two Lane Road LOS

Input Data

Highway class	Class 3		Peak hour factor, PHF	1.00	
Shoulder width	3.0	ft	% Trucks and buses	6	%
Lane width	11.7	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	65	%
Up/down	-	%	Access point density	14	/mi

Analysis direction volume, Vd 175 veh/h
Opposing direction volume, Vo 237 veh/h

Average Travel Speed

Direction	Analysis (d)	Opposing (o)
PCE for trucks, ET	1.6	1.5
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor, (note-5) fHV	0.965	0.971
Grade adj. factor, (note-1) fg	1.00	1.00
Directional flow rate, (note-2) vi	181 pc/h	244 pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	55.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	3.0	mi/h
Adj. for access point density, (note-3) fA	3.5	mi/h
Free-flow speed, FFSd	48.5	mi/h
Adjustment for no-passing zones, fnp	3.1	mi/h
Average travel speed, ATSd	42.1	mi/h
Percent Free Flow Speed, PFFS	86.7	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.1	1.1
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.994	0.994
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	176 pc/h	238 pc/h

Base percent time-spent-following,(note-4)	BPTSFd	20.8	%
Adjustment for no-passing zones, fnp		55.6	
Percent time-spent-following, PTSFd		44.4	%

Level of Service and Other Performance Measures

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.53	
Peak 15-min vehicle-miles of travel, VMT15	22	veh-mi
Peak-hour vehicle-miles of travel, VMT60	88	veh-mi
Peak 15-min total travel time, TT15	0.5	veh-h
Capacity from ATS, CdATS	1700	veh/h
Capacity from PTSF, CdPTSF	1700	veh/h
Directional Capacity	1700	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	42.1	mi/h
Percent time-spent-following, PTSFd (from above)	44.4	
Level of service, LOSd (from above)	B	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	55
Percent of segment with occupied on-highway parking	0
Pavement rating, P	4
Flow rate in outside lane, vOL	175.0
Effective width of outside lane, We	14.70
Effective speed factor, St	4.79
Bicycle LOS Score, BLOS	4.56
Bicycle LOS	E

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.