

WELCOME

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Northeast Ohio Areawide Coordinating Agency





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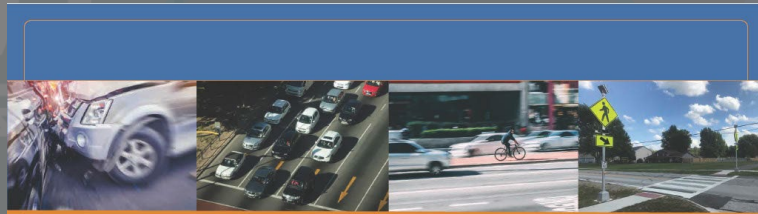


Andrew Stahlke
Manager – Transportation Engineering

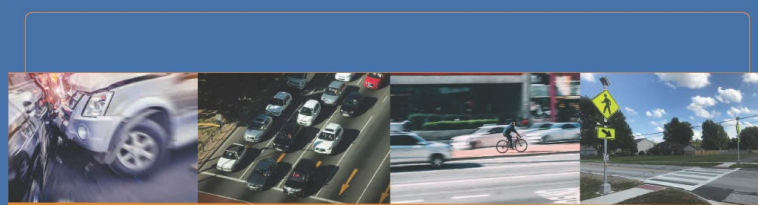


Ben Turin
Planner II – Transportation Engineering

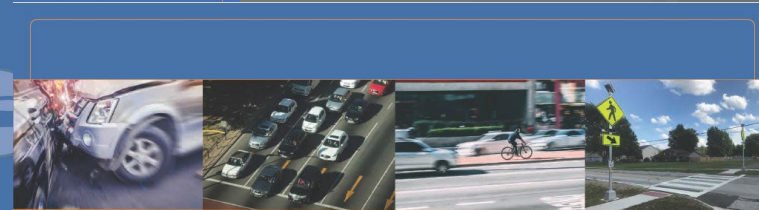
COMMUNITY SAFETY REPORTS



2022 Community Safety Report City of Avon



2022 Community Safety Report City of Brunswick



2022 Community Safety Report City of Cleveland



OVERVIEW

NOACA Safety Programs

How the reports complement other programs

How the reports can help you

Community Safety Report Contents

Part I: Background and Definitions

Part II: Selected Facilities and Inputs

Part III: Crash Frequency Results

Part IV: Prioritization

NOACA SAFETY PROGRAMS

Goal: Vision Zero – Zero Deaths or Serious Injuries

Current Regional Safety Programs:

SAVE Plan Implementation

Safe Routes to School (SRTS)

Regional Crash Monitoring

Road Safety Assessments

New Addition:

Systemic Safety Management
(Complement to current safety programs)

SYSTEMIC SAFETY MANAGEMENT

A proactive approach
based on AASHTO's
Highway Safety Manual



Reduce crash potential

Address dispersed crashes

Tackle limited crash histories

SYSTEMIC SAFETY MANAGEMENT



SAFETY REPORT PART I DEFINITIONS & METHOD

DEFINITIONS

Crash Frequency – annual number of crashes along a road segment or intersection

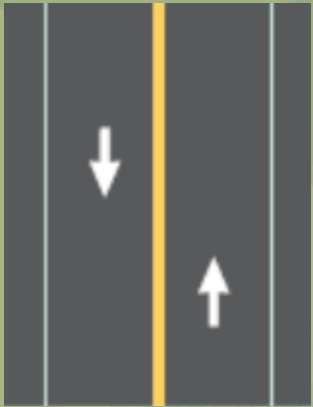
ADT – Average two-way Daily Traffic volume

VMT – Vehicle Miles Traveled



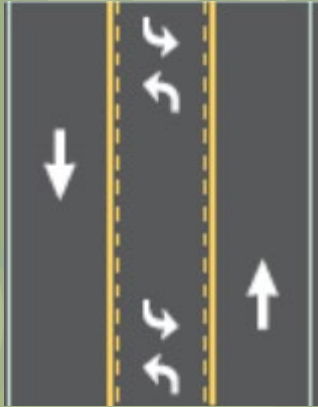
ROADWAY SEGMENT TYPES

2U



Two-Lane
Undivided
Arterial

3T



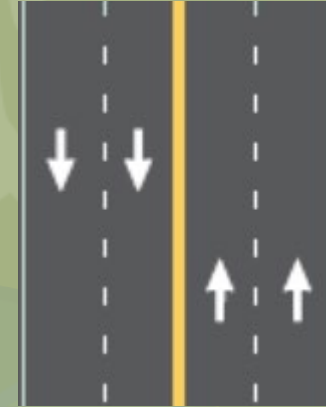
Three-Lane
Arterial

4D



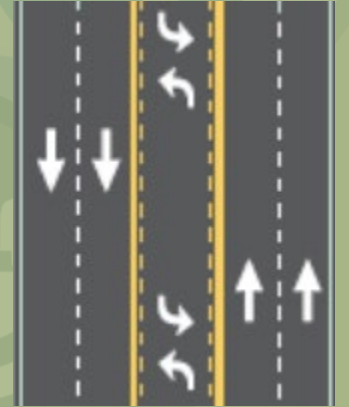
Four-Lane
Divided
Arterial

4U



Four-Lane
Undivided
Arterial

5T



Five-Lane
Arterial

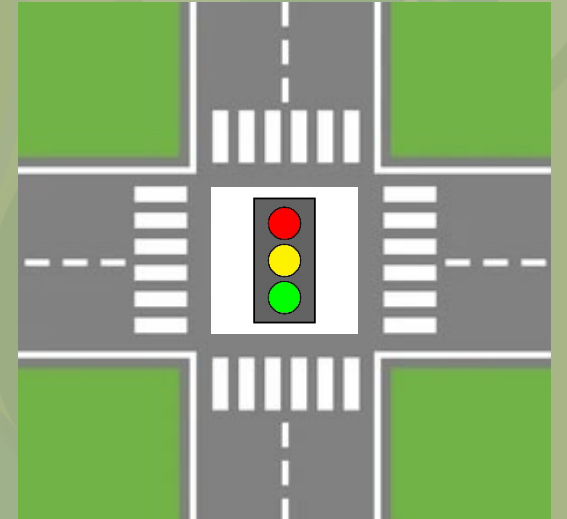
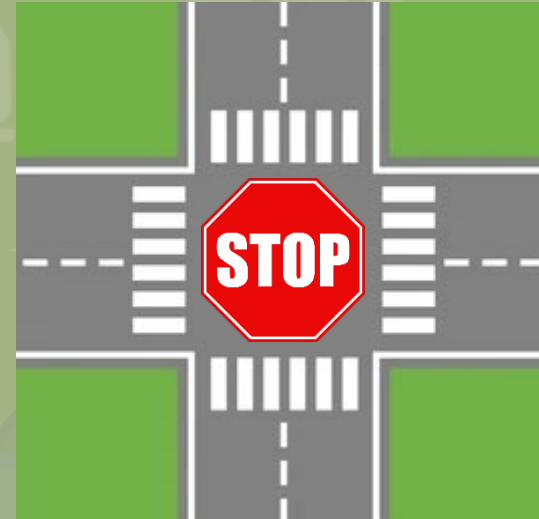
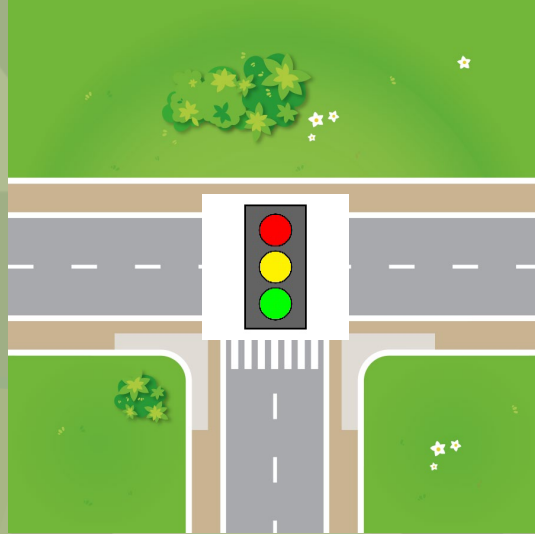
INTERSECTION TYPES

3ST

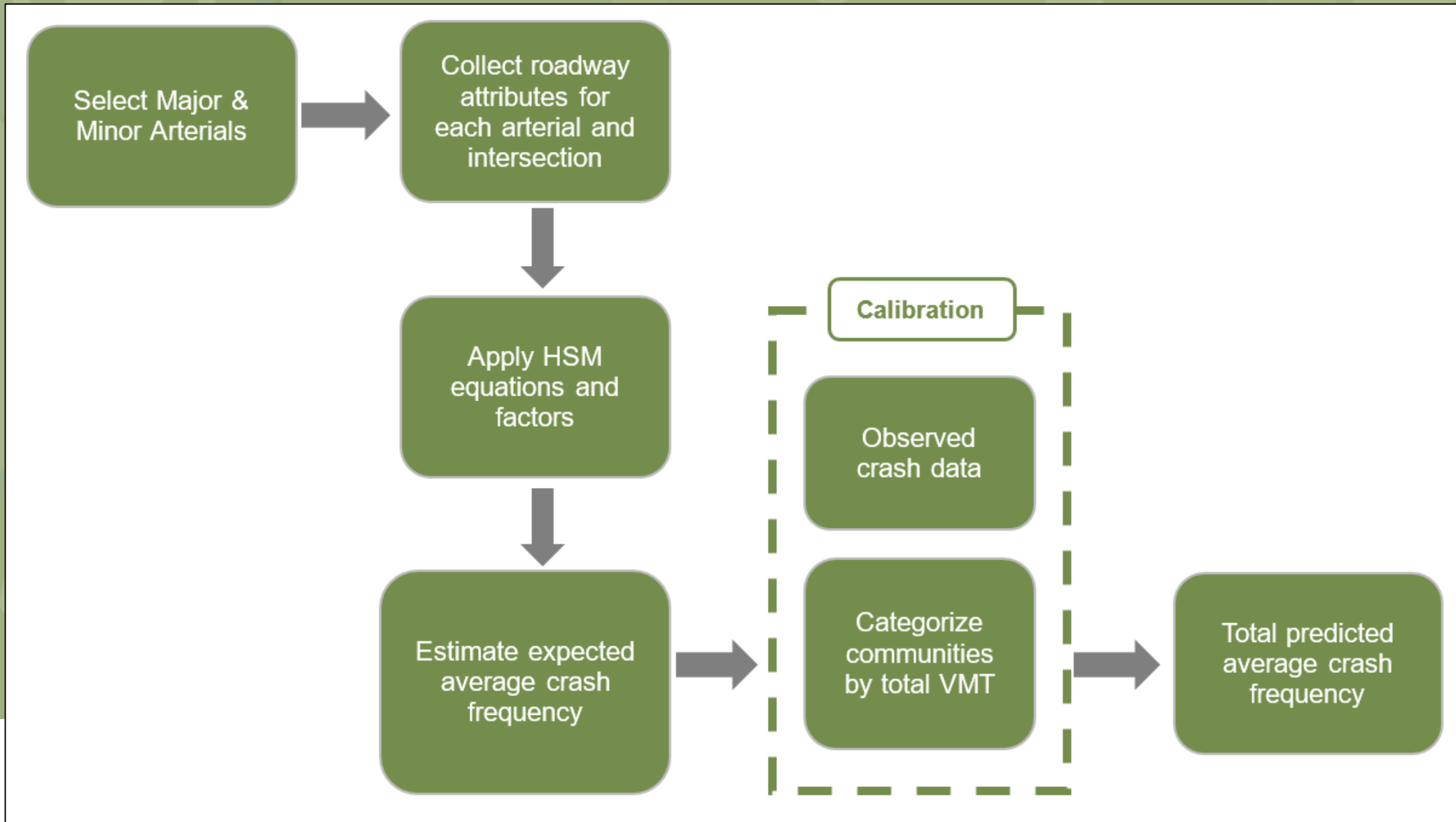
3SG

4ST

4SG



CRASH FREQUENCY PREDICTION PROCESS



CRASH FREQUENCY PREDICTION EQUATION

Total Estimated
Crash
Frequency

Calibration
Factor

$$N_{predictedrs} = C_r \times (N_{br} + N_{pedr} + N_{biker})$$

Motorized
Vehicle Crash
Frequency

Bicycle Crash
Frequency

Pedestrian
Crash
Frequency

SAFETY REPORT PART II SELECTED ARTERIALS & INTERSECTIONS

ARTERIAL SEGMENT INPUTS

City of East Cleveland

ROAD NAME	FROM	TO	SEGMENT TYPE	LENGTH (MILES)	NUMBER OF DRIVEWAYS	ADT	AVERAGE RECORDED CRASHES (2018 & 2019)
EDDY RD	EUCLID AVE (US-6)	EAST CLEVELAND NCL	2U	0.54	40	3,187	22.00
LEE RD	FOREST HILLS BLVD	EUCLID AVE (US-6)	4U	0.82	20	5,838	8.00
NOBLE RD	NELA VIEW RD	0.18 MI E OF E 152ND ST	4U	0.93	50	14,773	31.00
SUPERIOR RD	EUCLID AVE (US-20)	HILLCREST RD	4D	0.86	10	10,368	12.50
US 20 (EUCLID AVE)	EAST CLEVELAND SCL	SUPERIOR AVE (US-6)	4U	0.62	15	13,502	20.50
US 6 (SUPERIOR AVE)	SUPERIOR RD	IVANHOE RD/ BELVOIR BLVD	4U	2.02	30	17,538	73.00
US 6 (SUPERIOR AVE)	E 125TH ST	EUCLID AVE (US-20)	4U	0.44	20	15,811	26.50

INTERSECTION INPUTS

City of East Cleveland

MAJOR ROAD	MINOR ROAD	INTERSECTION TYPE	ADT OF MAJOR ROAD	ADT OF MINOR ROAD
LEE RD	US 20 (EUCLID AVE)	3SG	5,839	17,539
US 20 (EUCLID AVE)	EDDY RD	3SG	17,539	3,188
US 20 (EUCLID AVE)	NOBLE RD	4SG	17,539	14,774
US 20 (EUCLID AVE)	SUPERIOR RD	4SG	17,539	19,749

Notes & Assumptions

Arterial segments match 2020 Pavement Reports

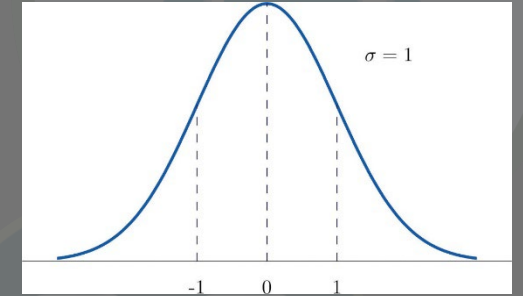
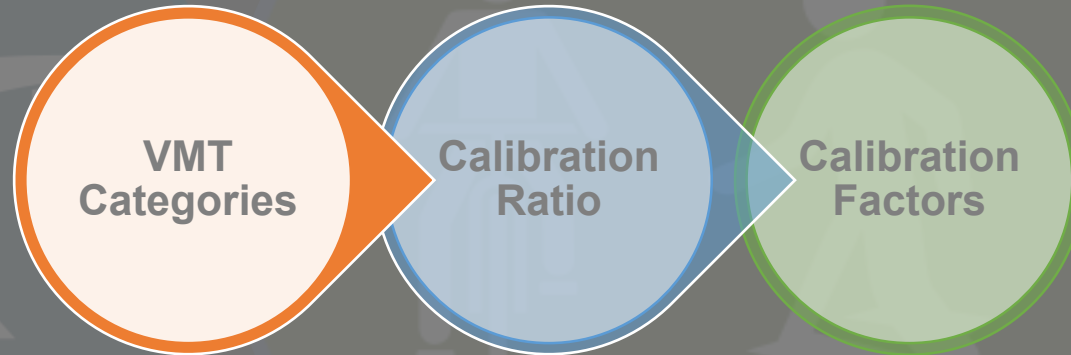
ADT from NOACA travel forecasting model

Driveway counts from Google satellite imagery

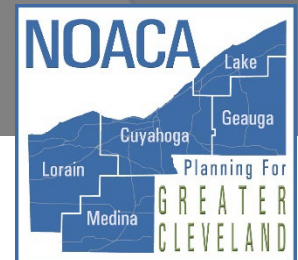
Only arterials and their intersections considered

Pedestrian activity assumed to be low for all intersections

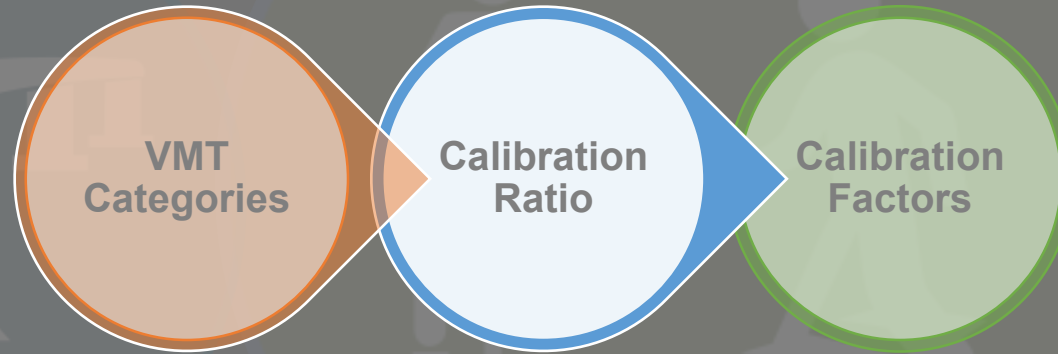
CALIBRATION FACTOR



DAILY ARTERIAL VMT RANGE	JURISDICTIONS INCLUDED
< 15,000	Chagrin Falls, Woodmere
15,000-25,000	Brooklyn Heights, Hunting Valley, Newburgh Heights, Orange
25,000-50,000	Bay Village, Cuyahoga Heights, Highland Heights, Highland Hills, Mayfield, Moreland Hills, North Randall, Olmsted Falls, University Heights, Walton Hills
50,000-150,000	Bedford, Bedford Heights, Berea, Brecksville, Broadview Heights, Brook Park, Brooklyn, East Cleveland, Fairview Park, Lyndhurst, Maple Heights, Mayfield Heights, Oakwood, Parma Heights, Pepper Pike, Richmond Heights, Rocky River, Seven Hills, South Euclid, Valley View
150,000-225,000	Beachwood, Euclid, Garfield Heights, Independence, Lakewood, Middleburg Heights, North Olmsted, North Royalton, Solon, Warrensville Heights
225,000-300,000	Cleveland Heights, Shaker Heights, Strongsville, Westlake
> 300,000	Cleveland, Parma



CALIBRATION FACTOR

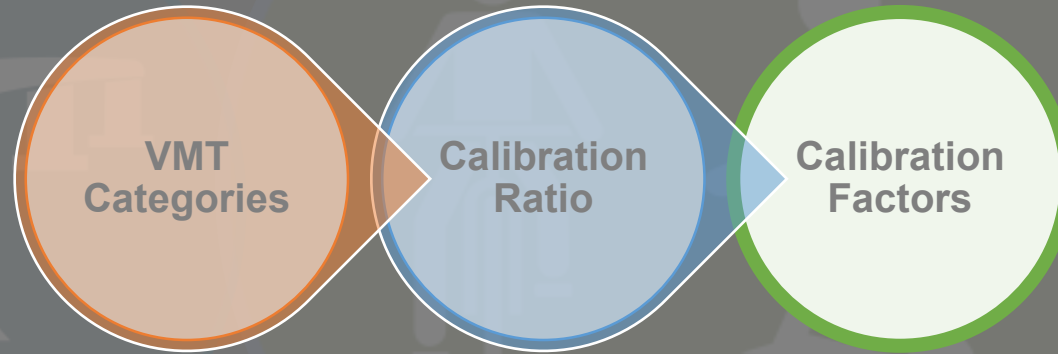


Recorded Crashes

Predicted Crash Frequency

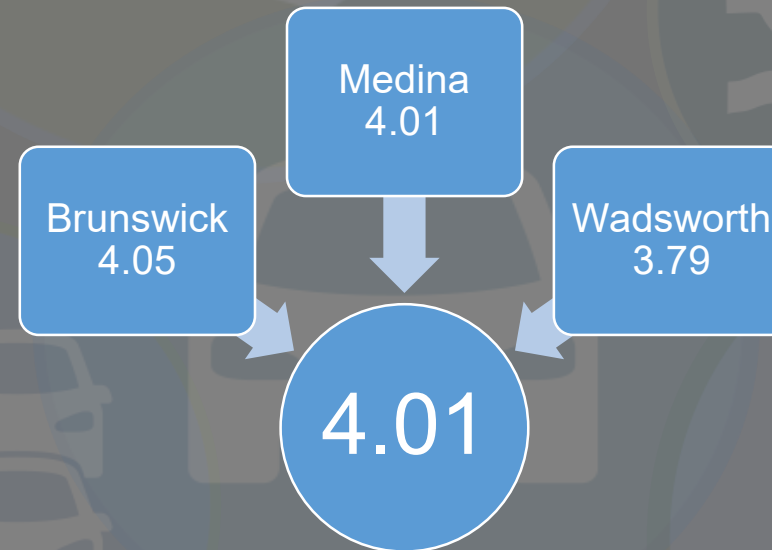
for each jurisdiction

CALIBRATION FACTOR



Medina County Example

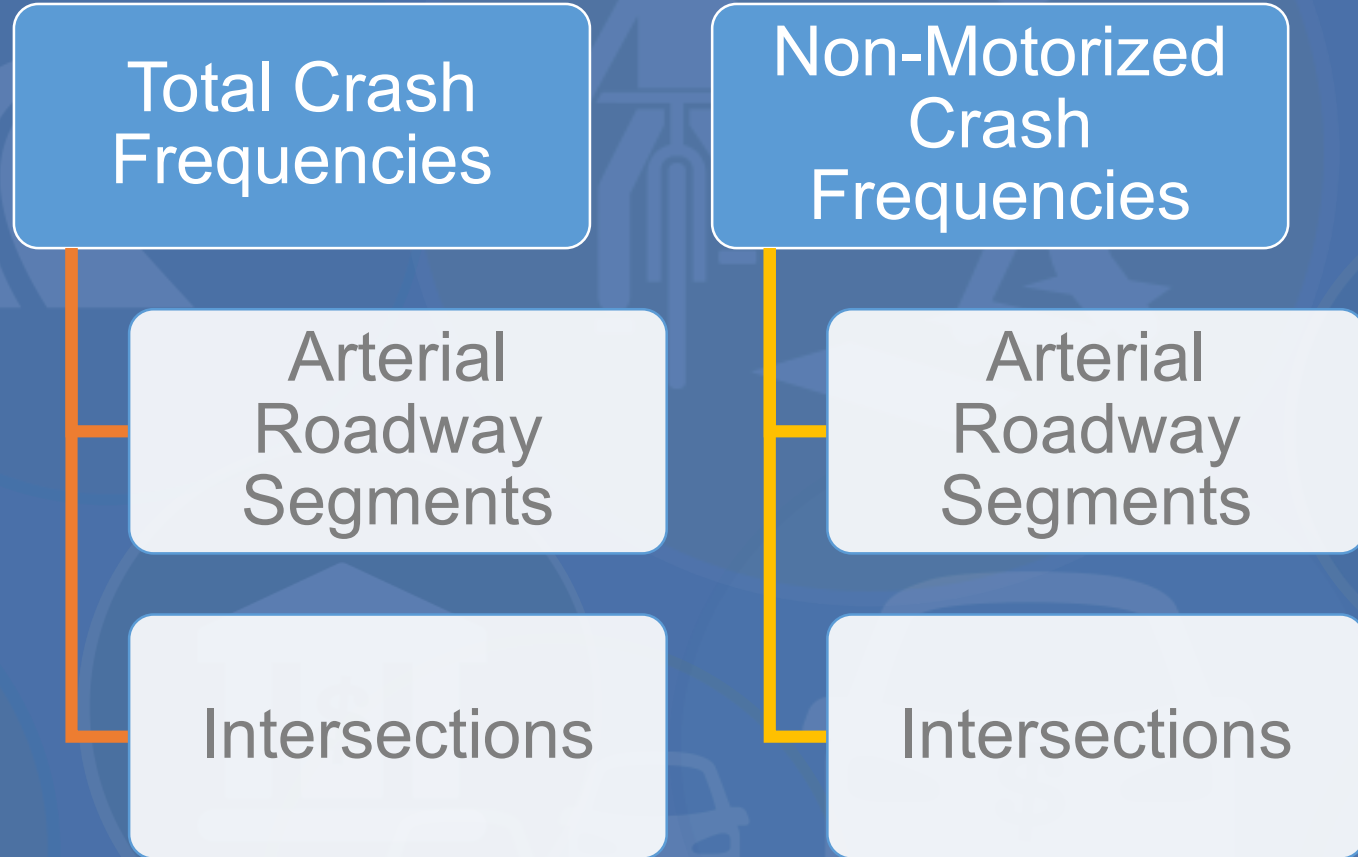
Median ratio selected
as calibration factor
for each VMT Category



SAFETY REPORT PART III

CRASH FREQUENCY PREDICTION RESULTS

CRASH FREQUENCY RESULTS



ARTERIAL SEGMENTS

ROAD NAME	FROM	TO	LENGTH (MI)	ESTIMATED AVERAGE ANNUAL CRASH FREQUENCY
LAKEBREEZE RD	SHEFFIELD NCL	US-6 (LAKE RD)	0.74	0.49
SR 301 (ABBE RD N)	SHEFFIELD LAKE SCL	LAKE RD (US-6)	0.65	2.51
US 6 (LAKE RD)	E OF ROOT RD	E OF ERIEVIEW BLVD	3.50	30.86

ROAD NAME	LENGTH (MI)	ESTIMATED AVERAGE ANNUAL NONMOTORIZED CRASH FREQUENCY
LAKEBREEZE RD	0.74	0.00
SR 301 (ABBE RD N)	0.65	0.02
US 6 (LAKE RD)	3.50	0.28

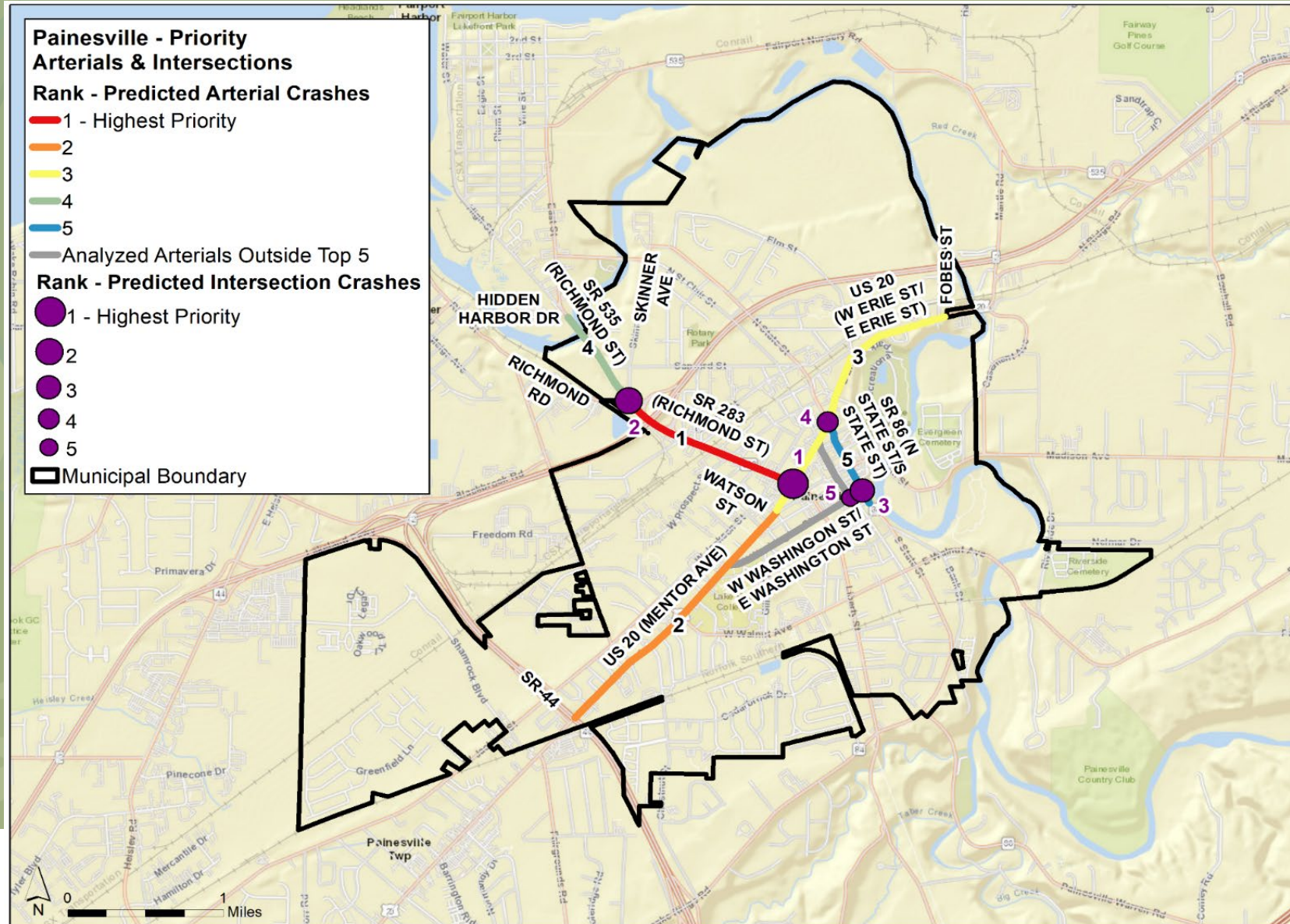
INTERSECTIONS

MAJOR ROAD	MINOR ROAD	ESTIMATED AVERAGE ANNUAL CRASH FREQUENCY
LAKEBREEZE RD	US 6 (LAKE RD)	0.47
SR 301 (ABBE RD N)	US 6 (LAKE RD)	3.38

MAJOR ROAD	MINOR ROAD	ESTIMATED AVERAGE ANNUAL NONMOTORIZED CRASH FREQUENCY
LAKEBREEZE RD	US 6 (LAKE RD)	0.17
SR 301 (ABBE RD N)	US 6 (LAKE RD)	0.15

SAFETY REPORT PART IV PRIORITIZATION

PRIORITY RANKINGS




COUNTERMEASURE EXAMPLE

#1 Priority Intersection in Painesville



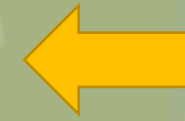
Appendix C of the
Community Safety Reports

SAFETY COUNTERMEASURE		DESCRIPTION	CRASH REDUCTION RATE
	Backplates with Reflective Borders	Yellow reflective borders around traffic signals increase visibility at all times of the day and in various conditions	15%

IMPROVEMENT EXAMPLE



#1 Priority Road Segment
in Painesville



	<p>Walkways</p>	<p>Spaces for people walking or using wheelchairs:</p> <ul style="list-style-type: none"> • Sidewalks • Shared-use paths • Pedestrian Walkways separated from roadways 	<p>65-89%</p>
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	<p>Road Safety Audits (RSAs)</p>	<p>An RSA is conducted by a cross-discipline or cross-departmental team independent from a particular roadway project to examine all factors across all road users and compile them into a report. A response is required from the roadway owner before project work can proceed.</p>	<p>10-60%</p>
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RECORDED CRASHES AND ESTIMATED CRASH FREQUENCY

SELECTED ARTERIALS AND INTERSECTIONS IN THE CITY OF PAINESVILLE	
TOTAL RECORDED AVERAGE ANNUAL CRASH DATA	TOTAL ESTIMATED AVERAGE ANNUAL CRASH FREQUENCY
120.00	77.82

Recorded > Estimated



Roadway conditions not captured or human factors

Recorded < Estimated



Safety countermeasures not captured in calculation

APPENDICES

A Uncalibrated Crash Frequencies

B Highway Safety Manual Excerpts

C FHWA Proven Safety Countermeasures

PDF VERSIONS AVAILABLE AT

<https://www.noaca.org/community-assistance-center/planning-assistance/community-safety-reports/>



DISCUSSION

- **Technical Assistance**
 - **Contact NOACA for in-depth safety analysis**
safety@mpo.noaca.org



- **Refine reports in future years**
 - **Your feedback is invaluable**

NORTHEAST OHIO



AREAWIDE
COORDINATING
AGENCY

NOACA: Planning For Greater Cleveland

NOACA will **STRENGTHEN** regional cohesion, **PRESERVE** existing infrastructure, and **BUILD** a sustainable multimodal transportation system to **SUPPORT** economic development and **ENHANCE** quality of life in Northeast Ohio.