CITY OF
EAST GRAND RAPIDS

750 LAKESIDE DRIVE SE-EAST GRAND RAPIDS, MICHIGAN 49506

Traffic Control Order #74

Locations: Uncontrolled school crosswalks at: Lake Drive and Kenesaw Drive, Wealthy Street and Schoolhouse Condos (2006 Wealthy Street), and Hall Street and Anderson Drive.

Order: Modify existing W11-2/S1-1 school crosswalk signs and install Rectangular Rapids Flashing Beacon (RRFB) devices at the locations noted. Existing advance warning signs and pavement markings to remain.

Background: See Attached Memo, RRFB policy and associated pedestrian/vehicle studies.

Design/Installation and Timing Programing:

Design: *MMUTCD and MUTCD 4E.08.04/05*

F. At a mounting height of approximately 3.5 feet, but no more than 4 feet, above the sidewalk.

United States Access Board X02.5.1.2 Features

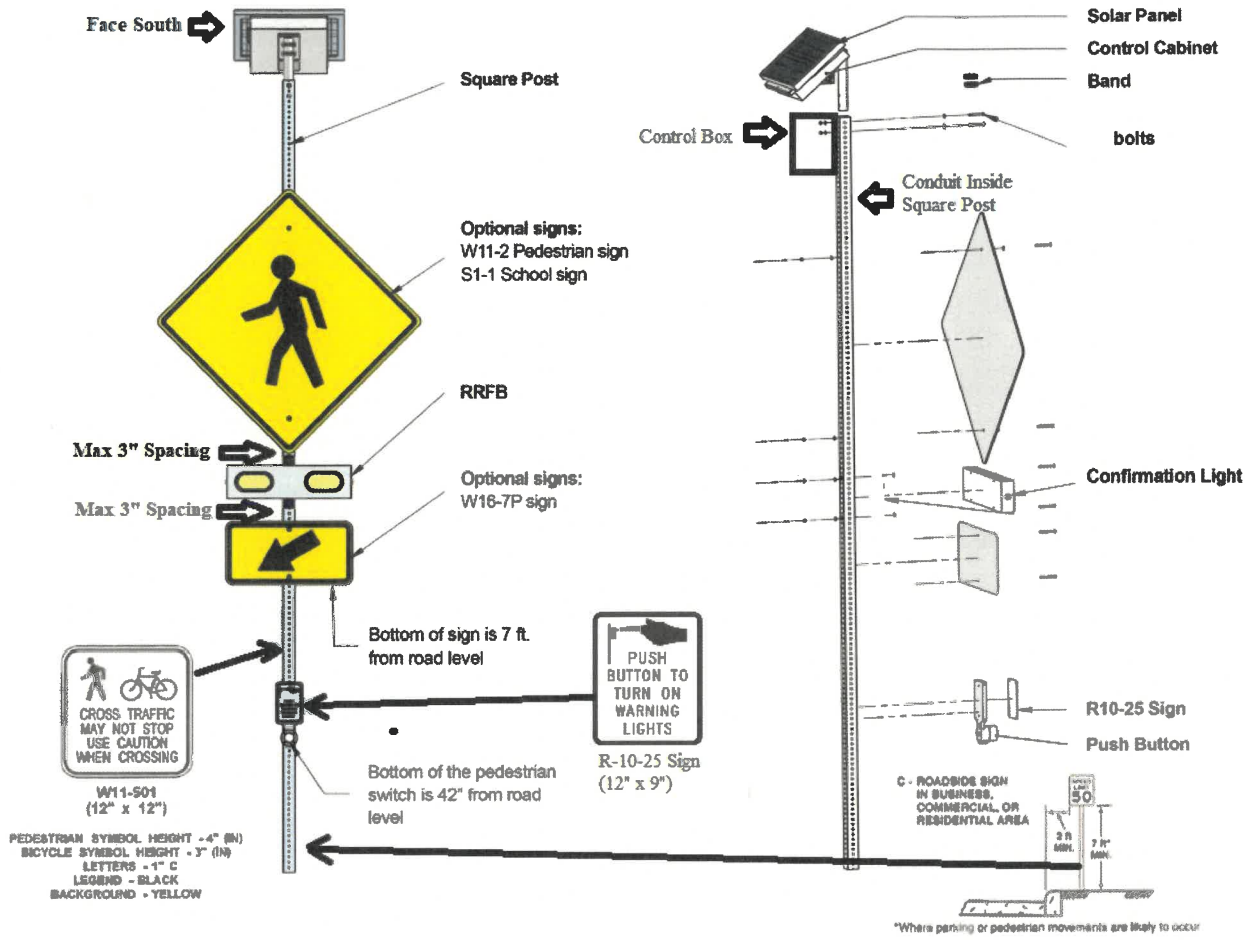
D. Mounting height. The centerline of the push button shall be mounted 42 inches (1070mm) above the clear ground space for approach.

Timing:

FHWA guidance on timing is to utilize MUTCD 4E.06. This is the same method for calculating crossing times for pedestrian signals at traffic signal locations. Utilizing 3.5 feet per second would require approximately 10 seconds as a minimum. Factoring in some time for perception, reaction, eye contact and to start walking the engineers recommended and set timing is for 20 seconds.

Signage Plan:

RRFB signage assembly and related signage requirements and locations below/next page.



Submitted by: _Doug La Fave, Department of Public Works
City Commission: Approved October 16, 2023.
Installation Completed: Modification and RRFB installed by the Department of Public Works on _____.

Distribution: City Clerk
Public Works
Public Safety

CITY OF
EAST GRAND RAPIDS

6

750 LAKESIDE DRIVE SE • EAST GRAND RAPIDS, MICHIGAN 49506
(616) 940-4817 www.eastgr.org

DOUG LA FAVE
DEPUTY CITY MANAGER

MEMORANDUM

TO: Honorable Mayor and City Commissioners
FROM: Doug La Fave, Deputy City Manager
DATE: October 10, 2023

RE: Consideration for Authorizing the Installation and Purchase of Rectangular Rapid Flashing Beacon (RRFB) Devices at Various Uncontrolled School Crosswalk Locations

Action Requested: Consideration to authorize the installation and purchase of RRFB devices for eligible uncontrolled school crosswalks at Lake Drive and Kenesaw Drive, Wealthy Street and Schoolhouse Condos (2006 Wealthy Street), and Hall Street and Anderson Drive in the amount of $21,378 plus 10% contingency and freight, from TAPCO, of Brown Deer, WI, via OMNIA Partners-Public Sector Pricing Partnership.

Background: At the August 7, 2023, City Commission Meeting, the City Commission approved a Policy and Guidelines for the installation of RRFB devices for uncontrolled crosswalk locations in the city. RRFBs are pedestrian-actuated conspicuity enhancements used in combination with a pedestrian, school, or trail crossing warning sign to improve safety at uncontrolled marked crosswalks. The device includes two rectangular-shaped yellow indications, each with a lighting array based light source, that flash with high frequency when activated.

RRFB devices have been available for some time for consideration, but due to patent related conflicts with rules and regulations pertaining to the Federal Highway Administration (FHWA) and State Department of Transportation Agencies (DOT), legal installation of devices was in question until interim approval was issued by the FHWA in 2018. The East Grand Rapids Department of Public Works has installed several RRFBs under pilot authorization from licensed traffic engineers at multiple locations throughout the city over the past four years since this interim authorization by FHWA. With the evolution of studies, developed standards and guidelines to provide for appropriate placement from the traffic engineering profession, the FHWA Manual on Uniform Traffic Control Devices (MUTCD) and associated State DOT Agencies manuals allow for installation with respect to specific criteria being met.

The Department of Public Works researched and recently purchased several commercial pedestrian/bike counters, which has enabled staff to conduct volume/count studies at uncontrolled crosswalks. With this capability, combined with existing equipment used for collecting speed and volume data for vehicles, staff has been able to conduct studies to determine appropriate locations for installation of RRFB devices throughout the community.

Initial studies have been completed at several midblock school crosswalk locations with three locations eligible for installation consideration per the Policy and Guidelines for the Installation of

RRFBs. The three locations noted are Lake Drive and Kenesaw Drive, Wealthy Street and Schoolhouse Condos (2006 Wealthy Street), and Hall Street and Anderson Drive.

Included with materials is the Policy and Guidelines for the Installation of RRFBs and associated flow chart and pedestrian and vehicle data for each location.

The Major Streets budget has sufficient funds for this purchase. Information related to contract purchasing pricing from OMNIA Partners, which is similar to MiDeal and Sourcewell contract/bid pricing is included with materials as well.

The Department of Public Works has posts and associated signs that are already in place and will complete the RRFB installations for locations if approved.

REVIEWED & APPROVED FOR SUBMISSION:

Shea Charles
City Manager

CITY OF
EAST GRAND RAPIDS

750 LAKESIDE DRIVE SE, EAST GRAND RAPIDS, MICHIGAN 49506

Policy and Guidelines for the Installation of Rectangular Rapid Flashing Beacons

A. Purpose and Objective

Objectives of Rectangular Rapid Flashing Beacons (RRFBs) installations are:

- To increase the visibility and awareness of pedestrians and bicyclists wishing to cross a street.
- To supplement the standard pedestrian crossing signs to increase drivers' awareness and yielding patterns/behaviors.

B. Conditions for Use/Placement

RRFBs may be considered for use if the conditions for pedestrian crossing pavement markings are met and where the following conditions exist:

- The pedestrian volume is less than 400 pedestrians per hour and greater than 20 pedestrians at any one hour.
- The traffic volume is higher than 1,500 vehicles per day (150 vehicles per hour) and less than 3,000 vehicles per hour.
- For roadways with speed limits of 35-miles-per-hour (mph) and less, the decision chart below (Figure 1) may be used in selecting a good candidate for RRFB installation.

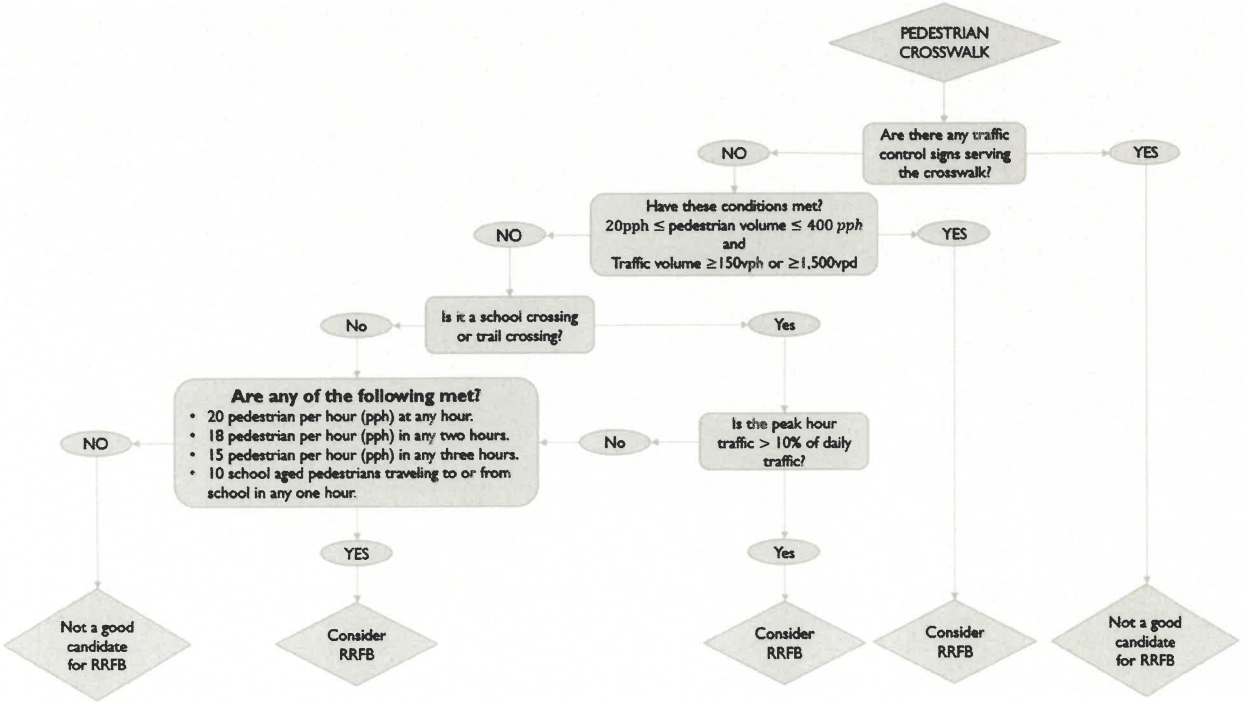


Figure 1: Decision matrix to follow when choosing a good candidate for RRFB installation.
Note: Each young and elderly pedestrian should be counted twice (i.e. 2X) towards pedestrian volume calculations.

C. Technical Requirements:
The City of East Grand Rapids (City) must agree to comply with the detailed technical conditions for RRFB provided in the Federal Highway Administration (FHWA): MUTCD Interim Approval for Optional use of Pedestrian – Actuated Rectangular Rapid Flashing Beacon at Uncontrolled Marked Crosswalks (1A-21), dated March 2018. Appendix A is the copy of the FHWA (1A-21) memorandum. In summary, the following should be observed when installing RRFBs:

- RRFBs should be installed in the median rather than the far side of the roadway if there is a pedestrian refuge or other type of median.
- Solar-power panels may be used to eliminate the need for a power source.
- Reserve the use of RRFBs for locations with significant pedestrian safety issues, as over-use of RRFB treatments may diminish their effectiveness.
- RRFBs should never be used without a pedestrian, school, or trail crossing warning sign.
- RRFBs should never be used for crosswalks across approaches controlled by YIELD signs, STOP signs, traffic control signals, or pedestrian hybrid beacons, except for the approach or egress from a roundabout.
- For installation details, see the most recent guidelines by Michigan Department of Transportation (MDOT). Attached are the current installation details from MDOT, dated 2013 (Appendix A).

D. Installation Consideration for Reviewed Locations:

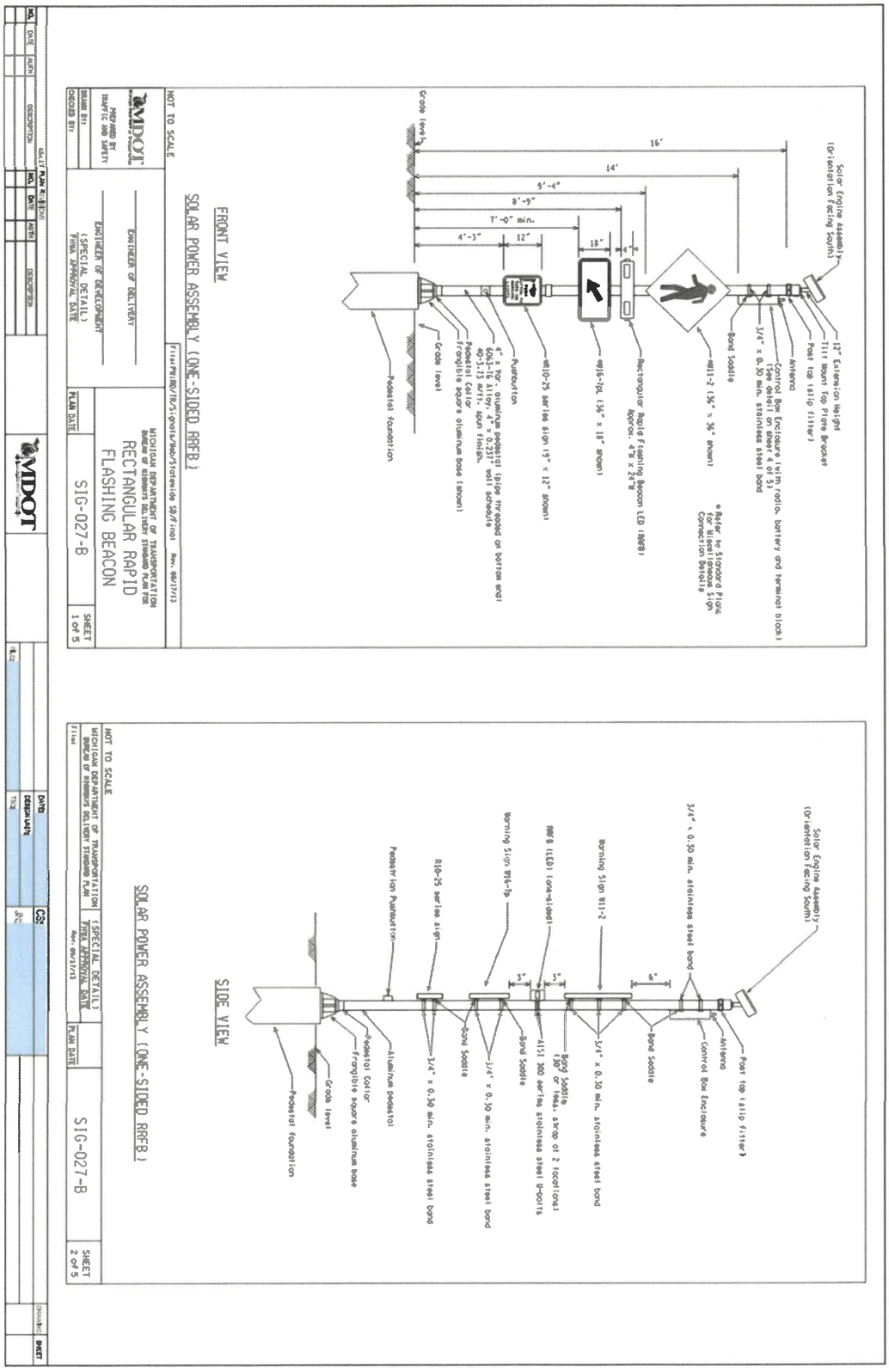
- If criteria are not met, installation consideration will be considered concluded.
- If criteria are met, City Staff will provide associated location, study, and fiscal impact to the City Commission for formal approval. If approved by the City Commission a Traffic Control Order will be issued when installation has concluded.

E. Permanent Removal of rectangular rapid flashing beacons:

- Subject to ongoing approval, standards, and design by the MMUTCD.
- Subject to rescinding of the interim approval by FHWA.
- Subject to functionality of the RSFS and budget constraints.
- Subject to future studies and associated pedestrian and vehicle volumes.

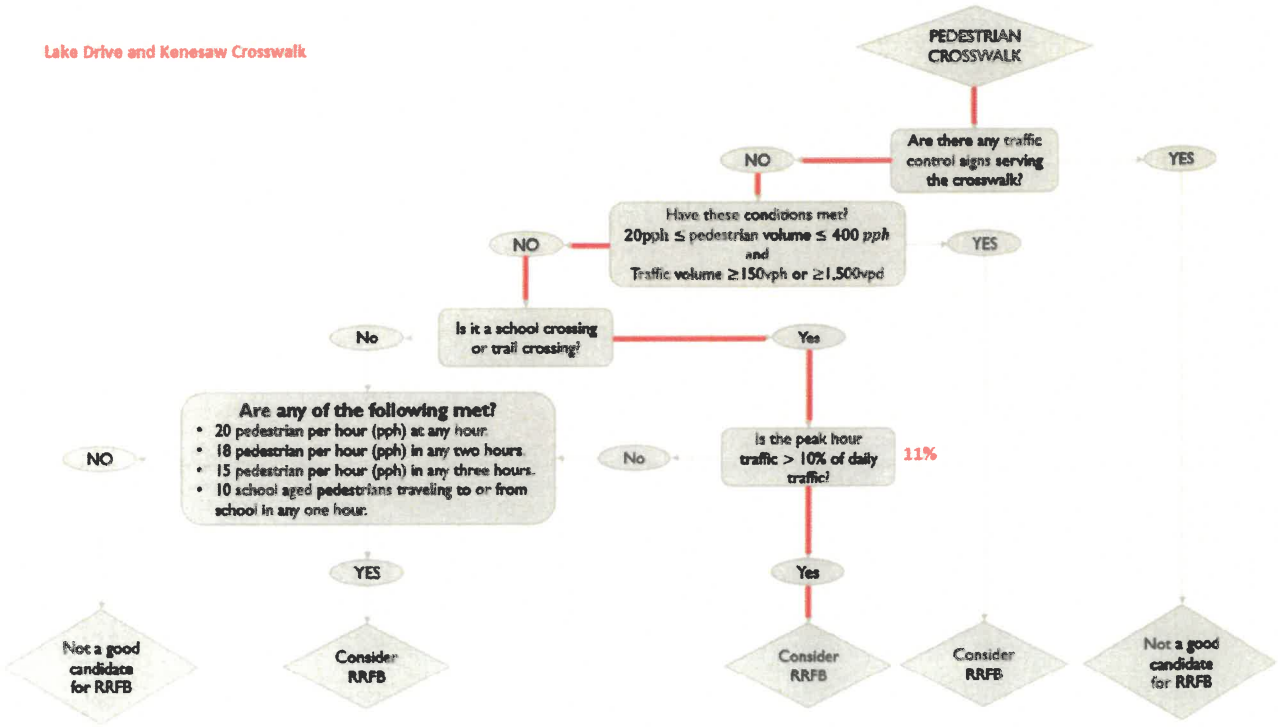
Effective Date Approved by the City Commission: August 7, 2023

Appendix A



Appendix A: Rectangular Rapid Flashing Beacon installation details.

Lake Drive and Kenesaw Crosswalk



City of East Grand Rapids, Michigan

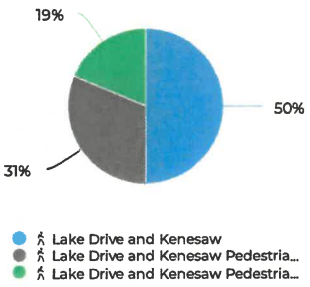
Brian Bigorowski
10/05/2023

Lake Drive and Kenesaw

May 22, 2023 → May 24, 2023

Location

Distribution by Direction



Daily Avg.

01/01/2023 → 10/04/2023

Daily Average

315

Compared to 01/02/2022 → 10/05/2022

01/01/2023 → 10/04/2023

Peak Day

420

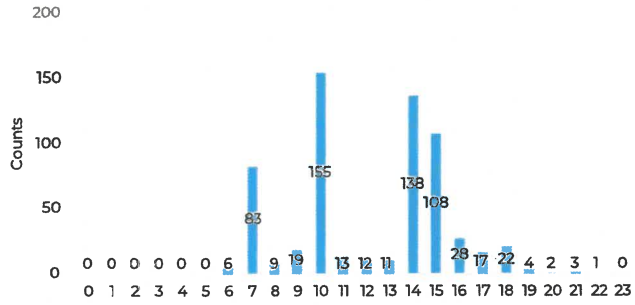
Monday
May 22, 2023

Lake Drive and Kenesaw

May 22, 2023 → May 24, 2023

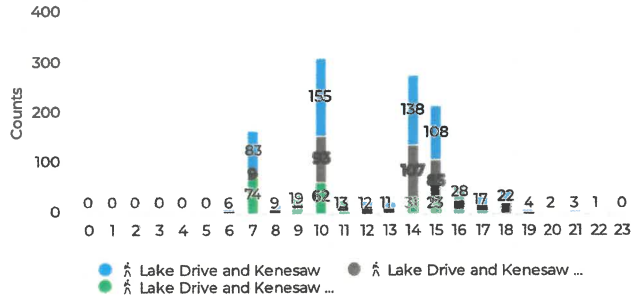
Hourly Profile

05/22/2023 → 05/23/2024



Hourly Profile

05/22/2023 → 05/23/2023



Lake Drive and Kenesaw

May 22, 2023 → May 24, 2023

Total Per Hour

05/22/2023 → 05/22/2023

Time	Lake Drive and Kenesaw
May 22, 2023 9:00 AM	
May 22, 2023 10:00 AM	147
May 22, 2023 11:00 AM	8
May 22, 2023 12:00 PM	9
May 22, 2023 1:00 PM	4
May 22, 2023 2:00 PM	67
May 22, 2023 3:00 PM	108
May 22, 2023 4:00 PM	28
May 22, 2023 5:00 PM	17
May 22, 2023 6:00 PM	22
May 22, 2023 7:00 PM	4
May 22, 2023 8:00 PM	2
May 22, 2023 9:00 PM	3
May 22, 2023 10:00 PM	1
May 22, 2023 11:00 PM	0
May 23, 2023 12:00 AM	0
May 23, 2023 1:00 AM	0
May 23, 2023 2:00 AM	0

Lake Drive and Kenesaw

May 22, 2023 → May 24, 2023

Time	Lake Drive and Kenesaw
May 23, 2023 3:00 AM	0
May 23, 2023 4:00 AM	0
May 23, 2023 5:00 AM	0
May 23, 2023 6:00 AM	6
May 23, 2023 7:00 AM	83
May 23, 2023 8:00 AM	9
May 23, 2023 9:00 AM	19
May 23, 2023 10:00 AM	8
May 23, 2023 11:00 AM	5
May 23, 2023 12:00 PM	3
May 23, 2023 1:00 PM	7
May 23, 2023 2:00 PM	71
May 23, 2023 3:00 PM	
Total	631

MS2

Traffic Count Database System (TCDS)

Home | Login | Locate | Locate All | Email This

Auto-Locate OFF

Last Year | All Dirs

Record 14 of 26 Goto Record

Location ID	817	MPO ID	1
Type	SPOT	HPMS ID	
On NHS	No	On HPMS	No
LRS ID		LRS Loc Pt.	
SF Group	01	Route Type	
AF Group		Route	
GF Group		Active	Yes
Class Dist Grp		Category	
Sees Clas Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	.	Milepost	
Located On	Lake Drive		
Loc On Alias			
NORTH OF	Hall		
More Detail			

STATION DATA

Directions: 2-WAY | EB | WB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2019	6,067				5,748 (95%)	319 (5%)	
2016	6,184	659	11	62	5,836 (91%)	548 (9%)	
2013	6,711	654	10	58	5,865 (87%)	846 (13%)	
2010	6,247						
2007	9,248						

> | >> 1-5 of 6

Travel Demand Model

Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

	Date	Int	Total
	Wed 3/20/2019	15	6,067
	Tue 10/4/2016	15	6,184
	Wed 9/11/2013	60	6,711

VOLUME TREND

Year	Annual Growth
2019	-1%
2016	-3%
2013	2%
2010	-12%
2007	5%

AADT Calculation

AADT = VOL x SF x AF

AADT = Annual Average Daily Traffic
VOL = 24-hour volume count
SF = applicable month/day combination seasonal factor
AF = applicable axle-correction factor

See Help for additional info

AADT Codes

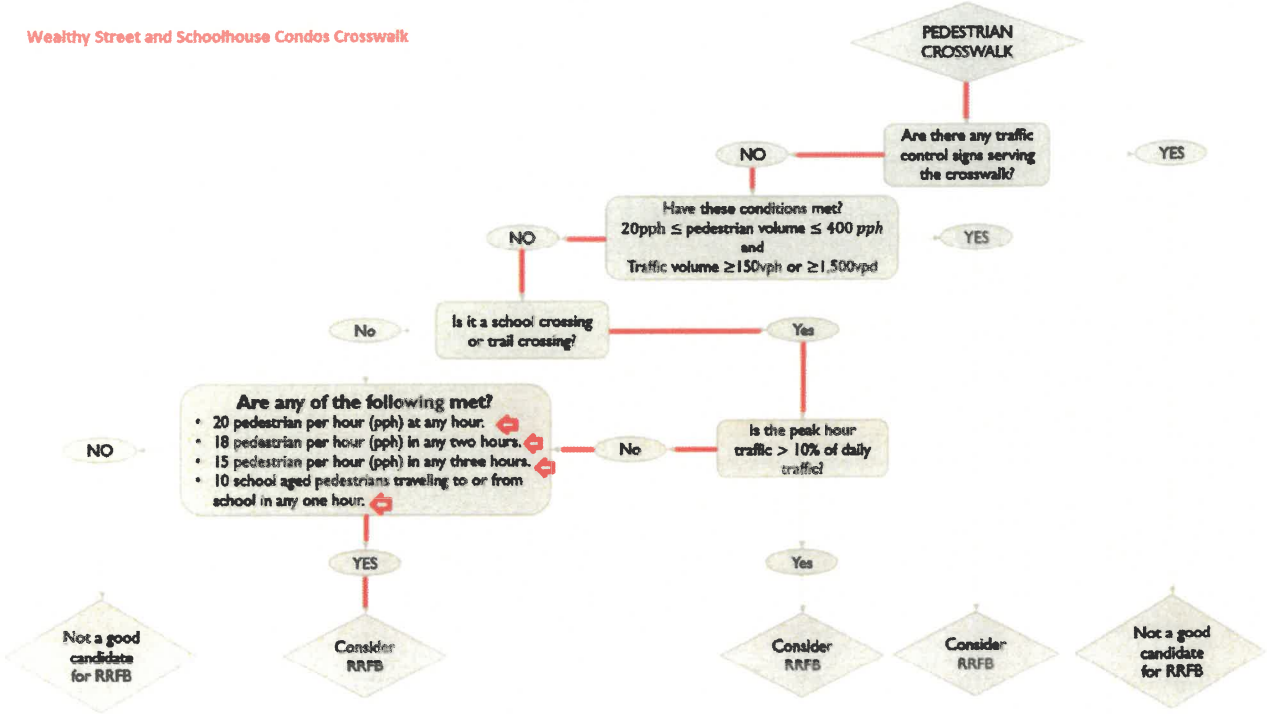
(0) ADT (not seasonally adjusted)
(1) Actual
(2) Estimate
(3) Grown
(4) Calculated from Partial Counts
(5) Unknown Source
(6) HPMS network estimation
(7) Combined from child AADT's
(8) Modified by Ramp Balancing
(9) Carried forward from most recent of prev 6 years
(10) Calculated from Seasonal Class Factors
(11) Calculated from Class Distribution Factors
(12) Doubled from single direction
(13) HPMS Estimation Routine Default Value
(14) Grown from Prior Year HPMS Network
(15) Derived from Esal Distribution Chart
(16) Derived from Class Distribution And Length Based Combo Trucks
(17) Adjusted by average of individual class AADTs of Class Distribution group
(18) Class Distribution Skipped
(19) Calculated from Virtual Station Source AADTs
(20) Calculated from Partial Manual Class Counts
(21) Previous year chosen from Clustering
(22) Disaggregated from non-FHWA schema
(23) AADT synchronized with other stations on the segment

How Volume Trend is Calculated

1. **Take the AADT values for each year.**
2. **If the Location has no AADT values, use the average of all 24hr volume counts that are not marked as abnormal for that year.**
3. **Display the Compound Annual Growth Rate (CAGR) for each year (and span of years if missing both AADT and 24hr volumes).**
4. **Note: Trend may be inaccurate if a year is not over yet or contains incomplete data.**

$$CAGR = \left(\frac{\text{Ending Value}}{\text{Beginning Value}}\right)^{\left(\frac{1}{\#\text{ of years}}\right)} - 1$$

Wealthy Street and Schoolhouse Condos Crosswalk



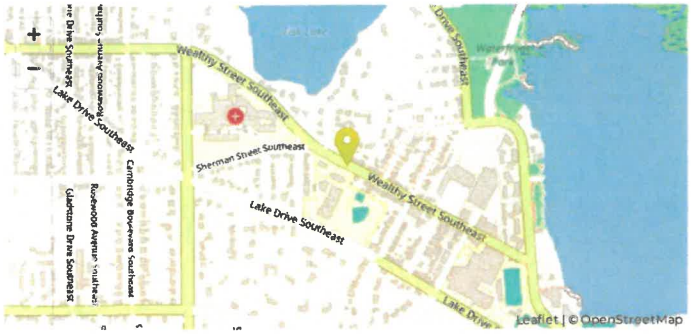
City of East Grand Rapids, Michigan

Brian Bigorowski
10/05/2023

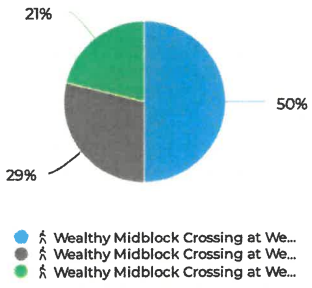
Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Location



Distribution by Direction



Daily Avg.

09/26/2023 → 10/04/2023

Daily Average

474

09/26/2023 → 10/05/2023

Peak Day

Monday
Oct 2, 2023

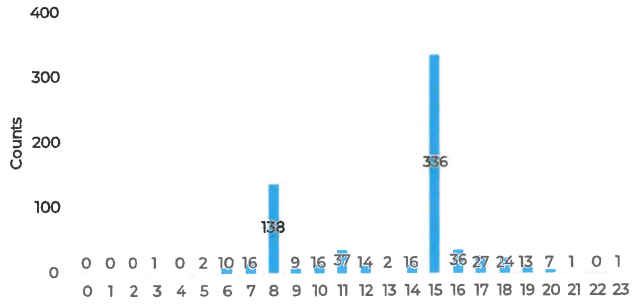
706

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

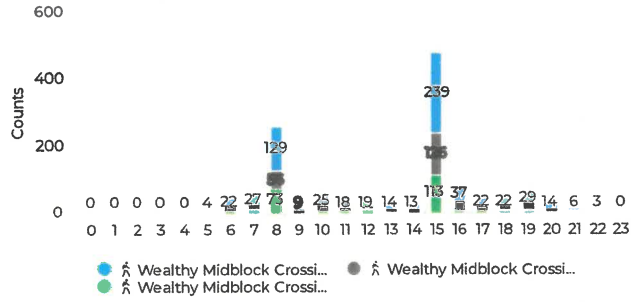
Hourly Profile

10/02/2023 → 10/02/2023



Hourly Profile

10/03/2023 → 10/03/2023



Total Per Hour

09/26/2023 → 10/03/2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Sep 26, 2023 3:00 PM	146
Sep 26, 2023 4:00 PM	24
Sep 26, 2023 5:00 PM	10
Sep 26, 2023 6:00 PM	5
Sep 26, 2023 7:00 PM	9
Sep 26, 2023 8:00 PM	6
Sep 26, 2023 9:00 PM	1
Sep 26, 2023 10:00 PM	2
Sep 26, 2023 11:00 PM	0
Sep 27, 2023 12:00 AM	0
Sep 27, 2023 1:00 AM	0
Sep 27, 2023 2:00 AM	0
Sep 27, 2023 3:00 AM	0
Sep 27, 2023 4:00 AM	0
Sep 27, 2023 5:00 AM	2
Sep 27, 2023 6:00 AM	6
Sep 27, 2023 7:00 AM	24
Sep 27, 2023 8:00 AM	92

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Sep 27, 2023 9:00 AM	11
Sep 27, 2023 10:00 AM	10
Sep 27, 2023 11:00 AM	5
Sep 27, 2023 12:00 PM	15
Sep 27, 2023 1:00 PM	8
Sep 27, 2023 2:00 PM	6
Sep 27, 2023 3:00 PM	145
Sep 27, 2023 4:00 PM	36
Sep 27, 2023 5:00 PM	9
Sep 27, 2023 6:00 PM	17
Sep 27, 2023 7:00 PM	10
Sep 27, 2023 8:00 PM	8
Sep 27, 2023 9:00 PM	4
Sep 27, 2023 10:00 PM	0
Sep 27, 2023 11:00 PM	0
Sep 28, 2023 12:00 AM	0
Sep 28, 2023 1:00 AM	0
Sep 28, 2023 2:00 AM	0
Sep 28, 2023 3:00 AM	0

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Sep 28, 2023 4:00 AM	0
Sep 28, 2023 5:00 AM	2
Sep 28, 2023 6:00 AM	16
Sep 28, 2023 7:00 AM	19
Sep 28, 2023 8:00 AM	99
Sep 28, 2023 9:00 AM	6
Sep 28, 2023 10:00 AM	10
Sep 28, 2023 11:00 AM	9
Sep 28, 2023 12:00 PM	15
Sep 28, 2023 1:00 PM	2
Sep 28, 2023 2:00 PM	9
Sep 28, 2023 3:00 PM	178
Sep 28, 2023 4:00 PM	36
Sep 28, 2023 5:00 PM	25
Sep 28, 2023 6:00 PM	23
Sep 28, 2023 7:00 PM	21
Sep 28, 2023 8:00 PM	7
Sep 28, 2023 9:00 PM	4
Sep 28, 2023 10:00 PM	1

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Sep 28, 2023 11:00 PM	0
Sep 29, 2023 12:00 AM	0
Sep 29, 2023 1:00 AM	0
Sep 29, 2023 2:00 AM	0
Sep 29, 2023 3:00 AM	0
Sep 29, 2023 4:00 AM	0
Sep 29, 2023 5:00 AM	2
Sep 29, 2023 6:00 AM	6
Sep 29, 2023 7:00 AM	15
Sep 29, 2023 8:00 AM	105
Sep 29, 2023 9:00 AM	13
Sep 29, 2023 10:00 AM	9
Sep 29, 2023 11:00 AM	8
Sep 29, 2023 12:00 PM	4
Sep 29, 2023 1:00 PM	13
Sep 29, 2023 2:00 PM	7
Sep 29, 2023 3:00 PM	219
Sep 29, 2023 4:00 PM	40
Sep 29, 2023 5:00 PM	53

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Sep 29, 2023 6:00 PM	53
Sep 29, 2023 7:00 PM	30
Sep 29, 2023 8:00 PM	30
Sep 29, 2023 9:00 PM	40
Sep 29, 2023 10:00 PM	1
Sep 29, 2023 11:00 PM	0
Oct 2, 2023 12:00 AM	0
Oct 2, 2023 1:00 AM	0
Oct 2, 2023 2:00 AM	0
Oct 2, 2023 3:00 AM	1
Oct 2, 2023 4:00 AM	0
Oct 2, 2023 5:00 AM	2
Oct 2, 2023 6:00 AM	10
Oct 2, 2023 7:00 AM	16
Oct 2, 2023 8:00 AM	138
Oct 2, 2023 9:00 AM	9
Oct 2, 2023 10:00 AM	16
Oct 2, 2023 11:00 AM	37
Oct 2, 2023 12:00 PM	14

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Oct 2, 2023 1:00 PM	2
Oct 2, 2023 2:00 PM	16
Oct 2, 2023 3:00 PM	336
Oct 2, 2023 4:00 PM	36
Oct 2, 2023 5:00 PM	27
Oct 2, 2023 6:00 PM	24
Oct 2, 2023 7:00 PM	13
Oct 2, 2023 8:00 PM	7
Oct 2, 2023 9:00 PM	1
Oct 2, 2023 10:00 PM	0
Oct 2, 2023 11:00 PM	1
Oct 3, 2023 12:00 AM	0
Oct 3, 2023 1:00 AM	0
Oct 3, 2023 2:00 AM	0
Oct 3, 2023 3:00 AM	0
Oct 3, 2023 4:00 AM	0
Oct 3, 2023 5:00 AM	4
Oct 3, 2023 6:00 AM	22
Oct 3, 2023 7:00 AM	27

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Oct 3, 2023 8:00 AM	129
Oct 3, 2023 9:00 AM	9
Oct 3, 2023 10:00 AM	25
Oct 3, 2023 11:00 AM	18
Oct 3, 2023 12:00 PM	19
Oct 3, 2023 1:00 PM	14
Oct 3, 2023 2:00 PM	13
Oct 3, 2023 3:00 PM	239
Oct 3, 2023 4:00 PM	37
Oct 3, 2023 5:00 PM	22
Oct 3, 2023 6:00 PM	22
Oct 3, 2023 7:00 PM	29
Oct 3, 2023 8:00 PM	14
Oct 3, 2023 9:00 PM	6
Oct 3, 2023 10:00 PM	3
Oct 3, 2023 11:00 PM	0
Oct 4, 2023 12:00 AM	0
Oct 4, 2023 1:00 AM	0
Oct 4, 2023 2:00 AM	0

Wealthy Midblock Crossing at Wealthy Elementary

September 26, 2023 → October 4, 2023

Time	Wealthy Midblock Crossing at Wealthy Elementary
Oct 4, 2023 3:00 AM	0
Oct 4, 2023 4:00 AM	0
Oct 4, 2023 5:00 AM	4
Oct 4, 2023 6:00 AM	9
Oct 4, 2023 7:00 AM	17
Oct 4, 2023 8:00 AM	139
Oct 4, 2023 9:00 AM	12
Oct 4, 2023 10:00 AM	
Oct 4, 2023 11:00 AM	
Total	3,280

MS2

Traffic Count Database System (TCDS)

Home | Login | Locate | Locate All | Email This

Auto-Locate OFF

Record 25 of 26 Goto Record go

Location ID	828	MPO ID	1
Type	SPOT	HPMS ID	
On NHS		On HPMS	
LRS ID		LRS Loc Pt	
SF Group	01	Route Type	
AF Group		Route	
GF Group		Active	Yes
Class Dist Grp		Category	
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	-	Milepost	
Located On	Wealthy Street		
Loc On Alias			
East of	Plymouth		

More Detail

STATION DATA

Directions: 2-WAY | EB | WB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2020	4,402						
2016	7,373	654	9	52			
2013	6,235	512	8	56	5,760 (92%)	475 (8%)	
2010	5,624						
2007	8,054						

> | >>| 1-5 of 6

Travel Demand Model

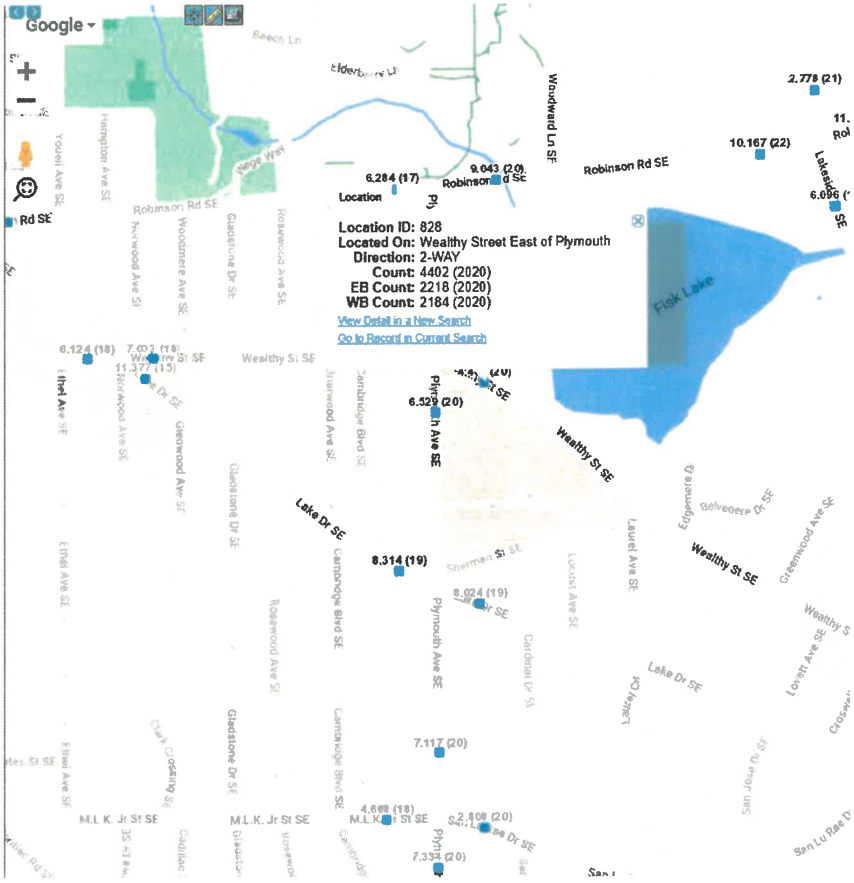
Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

Date	Int	Total
Wed 7/15/2020	15	4,402
Wed 10/26/2016	15	7,373
Tue 10/1/2013	60	6,235

VOLUME TREND

Year	Annual Growth
2020	-12%
2016	6%
2013	3%
2010	-11%
2007	2%



AADT Calculation

AADT = VOL x SF x AF

AADT = Annual Average Daily Traffic
VOL = 24-hour volume count
SF = applicable month/day combination seasonal factor
AF = applicable axle-correction factor

See Help for additional info

AADT Codes

(0) ADT (not seasonally adjusted)
(1) Actual
(2) Estimate
(3) Grown
(4) Calculated from Partial Counts
(5) Unknown Source
(6) HPMS network estimation
(7) Combined from child AADT's
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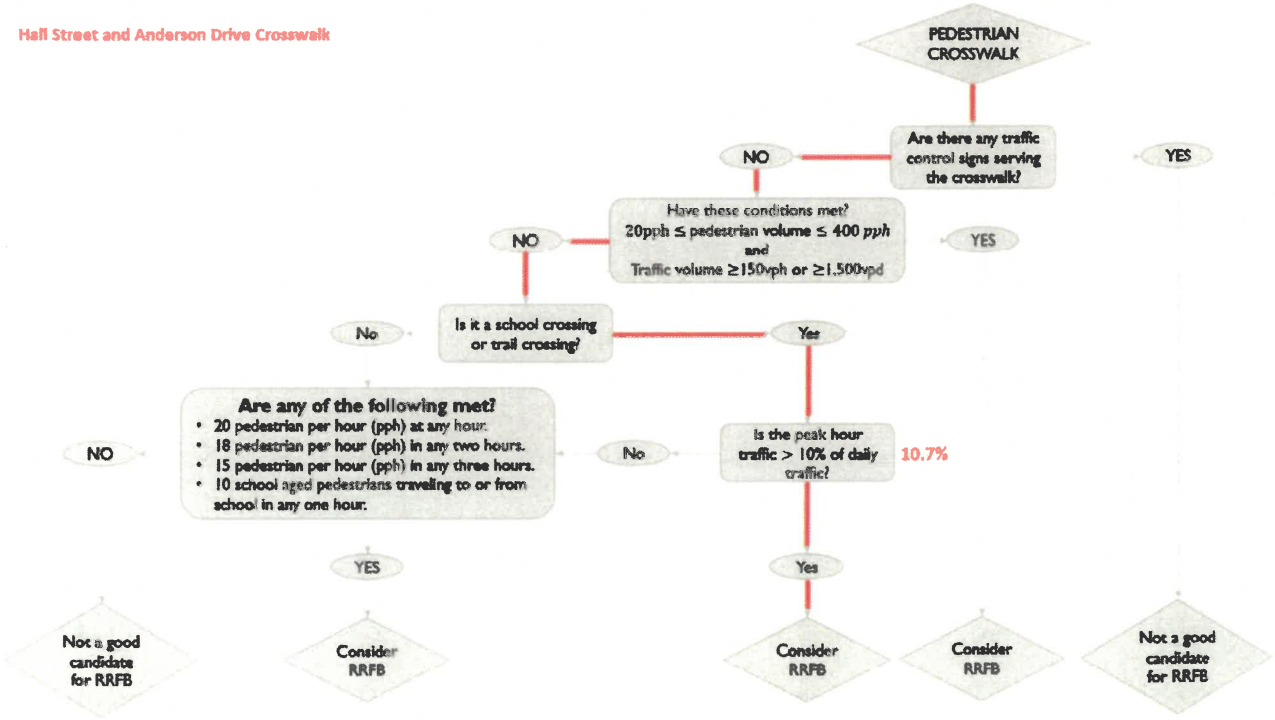
How Volume Trend is Calculated

1. **Take the AADT values for each year.**
2. **If the Location has no AADT values, use the average of all 24hr volume counts that are not marked as abnormal for that year.**
3. **Display the Compound Annual Growth Rate (CAGR) for each year (and span of years if missing both AADT and 24hr volumes).**
4. **Note: Trend may be inaccurate if a year is not over yet or contains incomplete data.**

$$CAGR = \left(\frac{\text{Ending Value}}{\text{Beginning Value}}\right)^{\left(\frac{1}{\#\text{ of years}}\right)} - 1$$

Hall Street and Anderson Drive Crosswalk



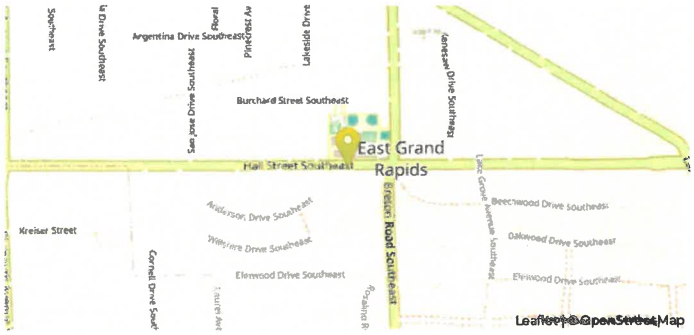
City of East Grand Rapids, Michigan

Brian Bigorowski
10/05/2023

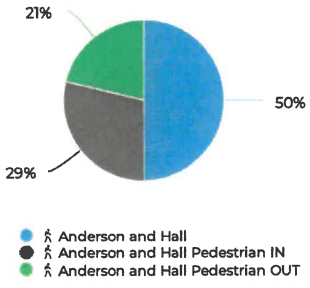
Anderson and Hall

May 25, 2023 → May 30, 2023

Location



Distribution by Direction



Daily Avg.

05/01/2023 → 05/31/2023

Daily Average

211

05/01/2023 → 05/31/2023

Peak Day

367

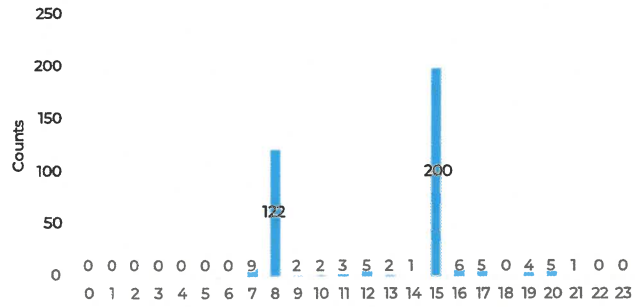
Friday
May 26, 2023

Anderson and Hall

May 25, 2023 → May 30, 2023

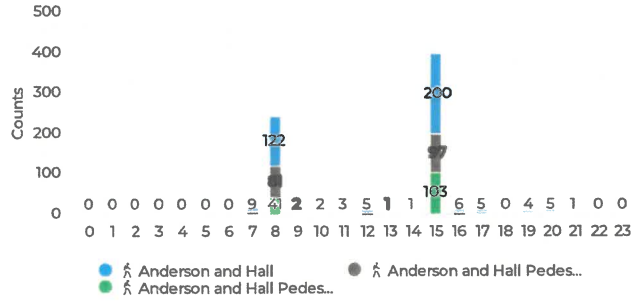
Hourly Profile

05/26/2023 → 05/26/2023



Hourly Profile

05/26/2023 → 05/26/2023



Anderson and Hall

May 25, 2023 → May 30, 2023

Total Per Hour

05/26/2023 → 05/29/2023

Time	Anderson and Hall
May 26, 2023 6:00 AM	0
May 26, 2023 7:00 AM	9
May 26, 2023 8:00 AM	122
May 26, 2023 9:00 AM	2
May 26, 2023 10:00 AM	2
May 26, 2023 11:00 AM	3
May 26, 2023 12:00 PM	5
May 26, 2023 1:00 PM	2
May 26, 2023 2:00 PM	1
May 26, 2023 3:00 PM	200
May 26, 2023 4:00 PM	6
May 26, 2023 5:00 PM	5
May 26, 2023 6:00 PM	0
May 26, 2023 7:00 PM	4
May 26, 2023 8:00 PM	5
May 26, 2023 9:00 PM	1
May 26, 2023 10:00 PM	0
May 26, 2023 11:00 PM	0

Anderson and Hall

May 25, 2023 → May 30, 2023

Time	Anderson and Hall
May 29, 2023 12:00 AM	0
May 29, 2023 1:00 AM	0
May 29, 2023 2:00 AM	0
May 29, 2023 3:00 AM	0
May 29, 2023 4:00 AM	0
May 29, 2023 5:00 AM	0
May 29, 2023 6:00 AM	0
May 29, 2023 7:00 AM	3
May 29, 2023 8:00 AM	4
May 29, 2023 9:00 AM	4
May 29, 2023 10:00 AM	3
May 29, 2023 11:00 AM	0
May 29, 2023 12:00 PM	6
May 29, 2023 1:00 PM	0
May 29, 2023 2:00 PM	0
May 29, 2023 3:00 PM	1
May 29, 2023 4:00 PM	9
May 29, 2023 5:00 PM	0
May 29, 2023 6:00 PM	0

Anderson and Hall

May 25, 2023 → May 30, 2023

Time	Anderson and Hall
May 29, 2023 7:00 PM	5
May 29, 2023 8:00 PM	0
May 29, 2023 9:00 PM	1
May 29, 2023 10:00 PM	0
May 29, 2023 11:00 PM	0
May 30, 2023 12:00 AM	0
May 30, 2023 1:00 AM	0
May 30, 2023 2:00 AM	0
May 30, 2023 3:00 AM	0
May 30, 2023 4:00 AM	0
May 30, 2023 5:00 AM	0
May 30, 2023 6:00 AM	2
May 30, 2023 7:00 AM	10
May 30, 2023 8:00 AM	119
May 30, 2023 9:00 AM	3
May 30, 2023 10:00 AM	4
May 30, 2023 11:00 AM	7
May 30, 2023 12:00 PM	1
May 30, 2023 1:00 PM	2

Anderson and Hall

May 25, 2023 → May 30, 2023

Time	Anderson and Hall
May 30, 2023 2:00 PM	1
May 30, 2023 3:00 PM	137
May 30, 2023 4:00 PM	35
May 30, 2023 5:00 PM	
May 30, 2023 6:00 PM	
May 30, 2023 7:00 PM	
Total	724

MS2

Traffic Count Database System (TCDS)

Home | Login | Locate | Locate All | Email This

Auto-Locate OFF

List View | All DIRs

Record 11 of 26 Goto Record go

Location ID	814	MPO ID	1
Type	SPOT	HPMS ID	
On NHS	No	On HPMS	No
LRS ID		LRS Loc Pt.	
SF Group	01	Route Type	
AF Group		Route	
GF Group		Active	Yes
Class Dist Grp		Category	
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	-	Milepost	
Located On	Hall Street		
Loc On Alias			
WEST OF	Breton		

More Detail

STATION DATA

Directions: 2-WAY EB WB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2020	3,510						
2016	2,436	279	11	54	1,385 (57%)	1,051 (43%)	
2013	4,501	417	9	50	3,899 (87%)	602 (13%)	
2009	3,851						
2005	7,504						

1-5 of 9

Travel Demand Model

Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT

Date	Int	Total
Wed 8/12/2020	15	3,510
Wed 9/21/2016	15	2,436
Tue 9/3/2013	60	4,501

VOLUME TREND

Year	Annual Growth
2020	10%
2016	-19%
2013	4%
2009	-15%
2005	-20%
2002	178%
2001	6%
1997	-3%

AADT Calculation

AADT = VOL x SF x AF

AADT = Annual Average Daily Traffic
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Doug LaFave

From: Aaron Guilbault
Sent: Tuesday, October 10, 2023 4:36 PM
To: Doug LaFave
Subject: TAPCO - 30W TOP SOLAR RRFB

Doug,

Keeping costs exactly the same as previously and utilizing our OMNIA contract - #2020-200. Here is your quote. Quote on letterhead to follow once ready.

3 total Xings

- PN# 138089 – Qty 12 – $550/ea – Light bars
- PN# 500145 – Qty 6 - $1,800/ea – Solar Controller Cabinets
- PN# 101620 – Qty 6 - $220/ea – Polar Bulldog PB's
- PN# 137480 – Qty 6 – $443/ea – Batteries

No Poles, No signs, mounting hardware and brackets included. Freight not included. Lead time is about 4-6 weeks ARO.

Total - $21,378.

Aaron Guilbault
Senior Account Executive
Office:
Cell:
aaron@tapconet.com
Visit us at TAPCOnet.com

TAPCO
Safe travels.
TOP WORK PLACES 2023 JOURNAL SENTINEL

Take a look at our new Resource Center for case studies, webinars and other great information.

Click here EVENTS AND CONFERENCES to see what shows and events we will be attending in the future.

TAPCO
Safe travels.

OMNIA PARTNERS

OMNIA Partners Government Purchasing Alliance Contract Provides Traffic Control Products & Solutions at Best Value Pricing

TAPCO holds an active OMNIA Partners, Public Sector (formerly U.S. Communities contract #2013-100) through Barron County, Wisconsin that provides traffic and parking solutions to all registered agencies.

What is OMNIA Partners, Public Sector?

OMNIA Partners, Public Sector is the nation's largest and most experienced cooperative purchasing organization dedicated to public sector procurement. Their immense purchasing power have produced a comprehensive portfolio of cooperative contracts and partnerships, making OMNIA Partners, Public Sector the most valued and trusted resource for organizations nationwide.

Why OMNIA Partners, Public Sector?

Through the economies of scale created by OMNIA Partners, Public Sector, our participants now have access to an extensive portfolio of competitively solicited and publicly awarded agreements. The lead agency contracting process continues to be the foundation on which we are founded. OMNIA Partners, Public Sector offers value and resources to state and local government, higher education, K-12 education and non-profits.

Purchases made through contract #2013-100:

- Have reduced administrative and time costs related to the bid solicitation process
- Feature free freight and exclusive discounted pricing on more than 18,500 TAPCO products
- Sponsored by more than 90 state and regional organizations
- Public purchasing professional oversight
- Approved products and pricing

Generally, the following agencies are eligible:

- Counties, Cities, Towns and Villages
- State Agencies
- Public Schools (K-12, Colleges and Universities)
- Nonprofit Organizations (including private K-12 Schools)

To enroll or order: contact your TAPCO representative

Phone: (855) 437-5535

Email: OMNIAPartners@tapconet.com

URL: https://www.omniapartners.com/publicsector/contracts/supplier-contracts/tapco

Click Here to Visit TAPCO and OMNIA Partners Page

TAPCO OMNIA Partners Contract Facts & Benefits

Master agreement is held by a lead public agency with OMNIA Partners. →	OMNIA Partners program meets state statutes for both the competitive solicitation and public agency consent.
Master agreement is competitively solicited and open solicitations are advertised in national publications. →	Nothing precludes vendors from bidding on a OMNIA Partners' program contract.
Master agreement is awarded by the soliciting public agency with the support of other advisory board members. →	Advisory board oversight ensures master agreement is compliance with regional and national requirements and the solicitations remain transparent and objective.
OMNIA Partners is the only cooperative purchasing program founded and sponsored by NACo, NLC, ASBO and USCM. →	These four national public organizations offer support for the program and recognize the value of the most favorable public agency pricing on high-quality products and services.
TAPCO's master agreement was nationally solicited and competitively awarded by Barron County, WI based on respondents to the public solicitation. →	The number, variety and quality of respondents affirms the solicitation package was unbiased and comprehensive.
The master agreement was awarded based on TAPCO being the lowest bidder on three pricing scenarios. →	The master agreement ensures compliance with state procurement requirements to best overall supplier government pricing.
TAPCO provides traffic control products and related products and solutions. →	TAPCO saves the public agency time, resources, and money at every step while providing one point of contact for the entire project.

TAPCO
Safe travels.

OMNIA PARTNERS

TAPCO Products & Solutions for State, Local and Educational Organizations

Intelligent Warning Systems

- Radar Driver Feedback Signs
- BlinkerBeacon™
- BlinkerSign®
- Rectangular Rapid Flashing Beacon

Parking & ITS Solutions

- Prefabricated Shelters
- Network, Traffic Management
- Hydraulic Slide and Swing Gate Operators
- Phone Entry Systems and Access Keypads
- Parking Gate Operators and Accessories
- Valet Stations
- Cloud-based Parking Management
- Clearance Tubes and Gate Arm Guards
- Traffic Spike Systems
- Message Display Boards
- Solar Cellular Communication

Industrial Products

- Industrial Sweepers
- Barricades
- Standard Guardrail
- Dock Bumpers and Lights
- Wheel Chocks and Cable Protectors
- Structural Protectors and Guards
- Warning Whips and Accessories
- Location Marking and Floor Signage
- Portable Work Lights
- Mats and Mirrors
- Emergency Washing Stations

Work Zone Products & Safety Apparel

- High Visibility Vest and Apparel
- Eye and Ear Protection, First Aid
- Emergency Response Gear
- Cones and Barrier Webbing
- Flags and Barricade Tape
- Channelizers and Barricades
- Cushions, Barriers and Attenuators
- Roll-up/Rigid Sign Stands and Signs
- Traffic Paddles
- LED Light Bars and Beacons
- Message, Radar Feedback Boards

Delineators, Traffic Items and Markers

- Surface Mount and Portable Delineators
- Modular Delineator and Sign Systems
- Ground Mount Delineators and Drivers
- Hydrants
- Vehicle Stops, Parking Barriers and Posts
- Snow and Utility Markers
- Speed Humps, Tables, and Bumps
- Bollards and Bollard Covers
- Reflective and Pavement Markings
- Pavement , Chalk and Aerosol Stripers
- Pavement and Turf Paint

Signs & Digital Signmaking Products

- MUTCD, Federal and Government Signs
- Retail Signage
- Street Name Signs
- Sign Hardware and Blanks
- Reflective Sheeting and Tape
- Films and Overlays
- Sign Making Accessories
- Retroreflectometers
- Sign Design Software
- Cutting Plotters and Imaging Scanners
- Silkscreening Equipment

Post, Poles, and Anchors

- Posts and Poles
- V-Loc® Breakaway Post Anchors
- Pole/Post Packages
- Decorative Post Coverings
- Pole/Post Bases

Streetscape, Parks and Recreation

- Decorative Poles and Bases
- Custom Signs andSign Frames
- Decorative Fencing and Mailboxes
- Recycled Park Benches and Tables
- Luminaires
- Receptacles
- Bicycle Parking Racks and Signage
- Drinking Fountains
- Information Displays
- Flags

1017-00003 (04/03/19)