



CITY OF EAST GRAND RAPIDS

750 LAKESIDE DRIVE SE-EAST GRAND RAPIDS, MICHIGAN 49506

Traffic Control Order #78

Locations: Uncontrolled crosswalk at:

- Breton Road and Argentina Drive

Order: Add W11-2/W16-7P crosswalk signs (doubled) and install Rectangular Rapids Flashing Beacon (RRFB) devices at the location noted. Install W11-2/W16-7P signs for advance warning approximately 100-125 feet of the crosswalk (on lot line or out of direct frontal view of homes). Southbound OM3-R relocate to new assembly post. Install R10-15L sign below eastbound stop sign at Breton and Argentina. Pavement markings to remain as continental.

Background: The Department Works is studying uncontrolled crosswalk locations to review appropriate signage and placement of traffic control devices to enhance pedestrian safety throughout the community. Please see installation location/layout, RRFB Policy, and associated study.

Installation and Timing Programing:

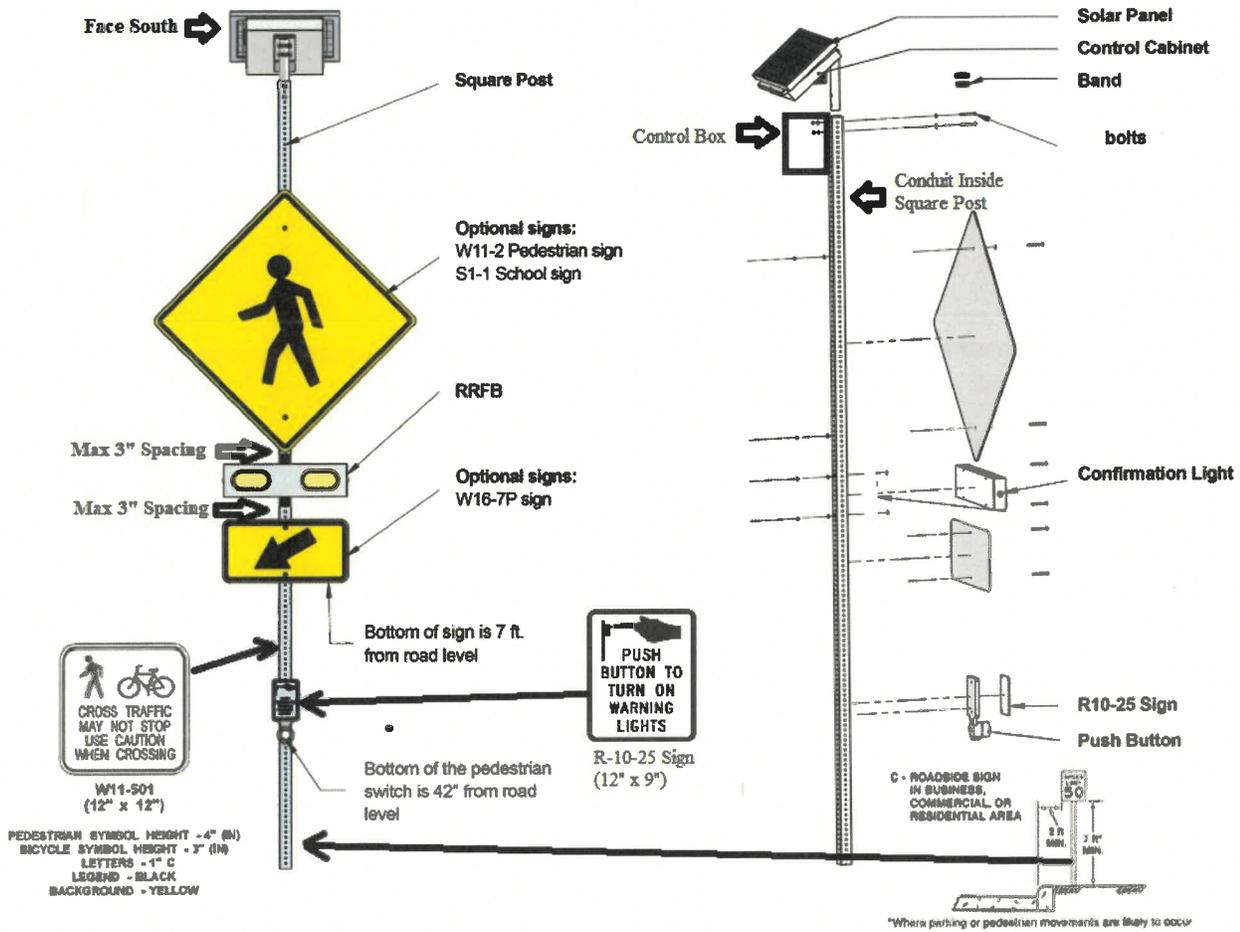
Timing:

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 on following pages.

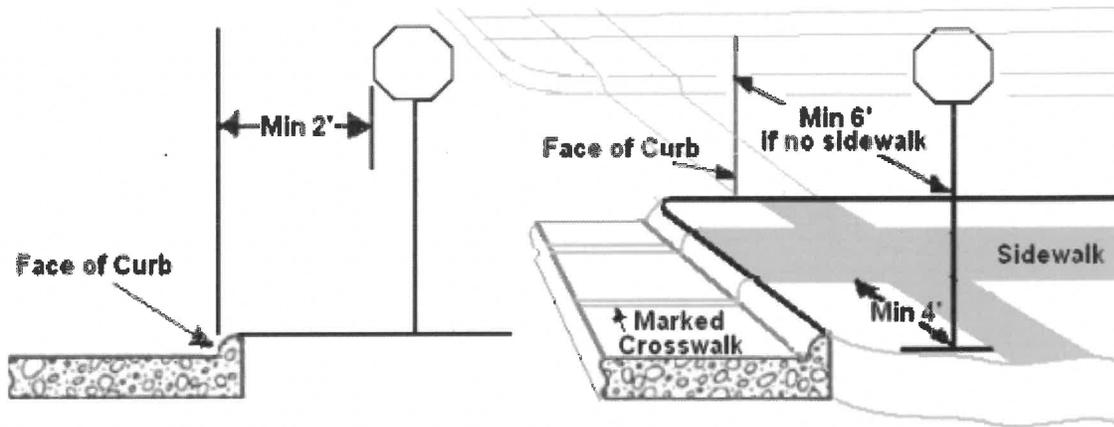
Assembly:



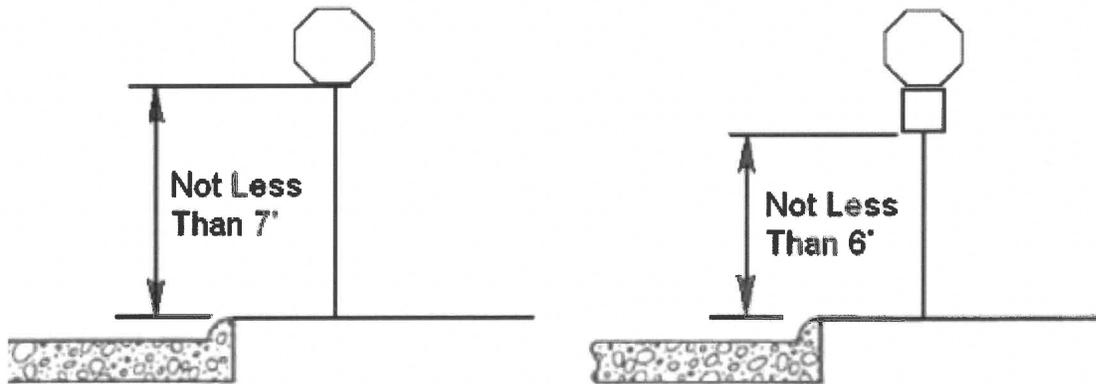
**When removing existing post, take existing OM3-R sign and install it to the new RRFB post and associated assembly at 4-foot height from the bottom of the sign. **



Lateral and Longitudinal Placement In Urban Areas

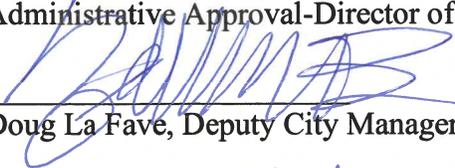


Sign Mounting Heights





Administrative Approval-Director of Public Works Per RRFB Policy 2-3-2025:


Doug La Fave, Deputy City Manager-Director of Public Works

Date Authorized: 2/21/2025

Installation Completed: Modification and RRFB installed by the Department of Public Works:

- Breton Road and Argentina Drive

Department of Public Works Completion Signature: _____

Date Completed: _____

Distribution: City Clerk
Public Works
Public Safety



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.
- To enhance designated uncontrolled midblock crosswalk locations.

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.
- For additional consideration as determined by a licensed traffic engineer in accordance with criteria and guidelines from MDOT, MMUTCD, FHWA, NACTO, or AASHTO as updated.

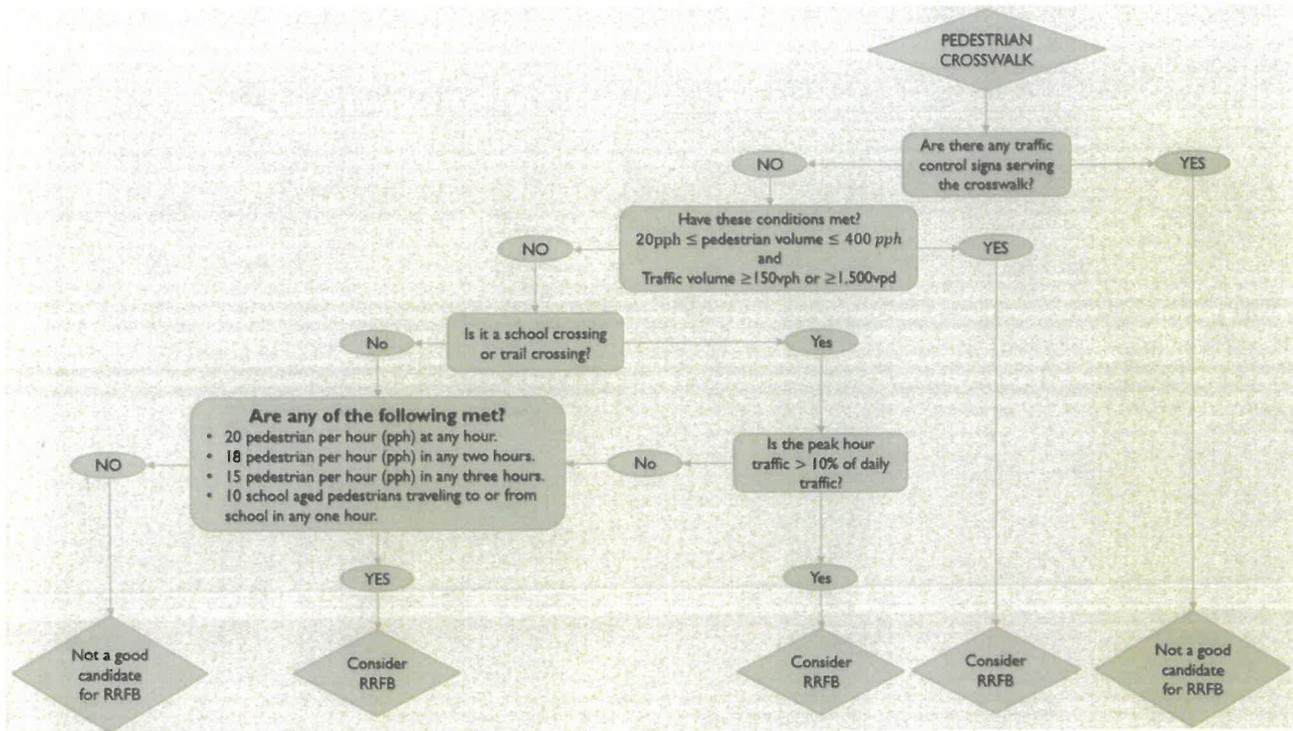


Figure 1: Decision matrix to follow when choosing a good candidate for RRFB installation.
 Note: Each young and elderly pedestrian should be counted twice (i.e. 2X) towards pedestrian volume calculations.

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): Manual on Uniform Traffic Control Devices (MUTCD), Chapter 4L, 11th Edition

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 or crosswalks across free-flow turn lanes separated by a channelizing island.
- 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 Director of Public Works or the City Commission for formal approval. If approved by the Director of Public Works or 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 meeting City of East Grand Rapids RRFB Policy and Guidelines.

Effective Date Approved by the City Commission: February 3, 2025



City of East Grand Rapids, Michigan

Brian Bigorowski
09/10/2024



Breton and Argentina

September 3, 2024 → September 10, 2024

Hourly Total

📅 09/03/2024 → 09/10/2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 3, 2024 12:00 AM			
Sep 3, 2024 1:00 AM			
Sep 3, 2024 2:00 AM			
Sep 3, 2024 3:00 AM			
Sep 3, 2024 4:00 AM			
Sep 3, 2024 5:00 AM			
Sep 3, 2024 6:00 AM			
Sep 3, 2024 7:00 AM			
Sep 3, 2024 8:00 AM			
Sep 3, 2024 9:00 AM	30	8	22
Sep 3, 2024 10:00 AM	4	4	0
Sep 3, 2024 11:00 AM	12	8	4
Sep 3, 2024 12:00 PM	5	5	0
Sep 3, 2024 1:00 PM	8	6	2
Sep 3, 2024 2:00 PM	7	3	4
Sep 3, 2024 3:00 PM	33	13	20
Sep 3, 2024 4:00 PM	6	1	5

Breton and Argentina

September 3, 2024 – September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 3, 2024 5:00 PM	6	4	2
Sep 3, 2024 6:00 PM	11	8	3
Sep 3, 2024 7:00 PM	6	2	4
Sep 3, 2024 8:00 PM	4	2	2
Sep 3, 2024 9:00 PM	0	0	0
Sep 3, 2024 10:00 PM	1	1	0
Sep 3, 2024 11:00 PM	1	0	1
Sep 4, 2024 12:00 AM	0	0	0
Sep 4, 2024 1:00 AM	0	0	0
Sep 4, 2024 2:00 AM	1	0	1
Sep 4, 2024 3:00 AM	0	0	0
Sep 4, 2024 4:00 AM	0	0	0
Sep 4, 2024 5:00 AM	1	1	0
Sep 4, 2024 6:00 AM	4	2	2
Sep 4, 2024 7:00 AM	29	26	3
Sep 4, 2024 8:00 AM	9	6	3
Sep 4, 2024 9:00 AM	10	4	6
Sep 4, 2024 10:00 AM	2	2	0
Sep 4, 2024 11:00 AM	6	3	3

Breton and Argentina

September 3, 2024 – September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 4, 2024 12:00 PM	6	3	3
Sep 4, 2024 1:00 PM	5	3	2
Sep 4, 2024 2:00 PM	2	2	0
Sep 4, 2024 3:00 PM	35	21	14
Sep 4, 2024 4:00 PM	4	2	2
Sep 4, 2024 5:00 PM	7	1	6
Sep 4, 2024 6:00 PM	7	4	3
Sep 4, 2024 7:00 PM	8	6	2
Sep 4, 2024 8:00 PM	2	2	0
Sep 4, 2024 9:00 PM	2	1	1
Sep 4, 2024 10:00 PM	1	1	0
Sep 4, 2024 11:00 PM	0	0	0
Sep 5, 2024 12:00 AM	0	0	0
Sep 5, 2024 1:00 AM	0	0	0
Sep 5, 2024 2:00 AM	0	0	0
Sep 5, 2024 3:00 AM	0	0	0
Sep 5, 2024 4:00 AM	0	0	0
Sep 5, 2024 5:00 AM	1	1	0
Sep 5, 2024 6:00 AM	4	4	0

Breton and Argentina

September 3, 2024 – September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 5, 2024 7:00 AM	33	29	4
Sep 5, 2024 8:00 AM	8	5	3
Sep 5, 2024 9:00 AM	14	4	10
Sep 5, 2024 10:00 AM	4	2	2
Sep 5, 2024 11:00 AM	5	3	2
Sep 5, 2024 12:00 PM	4	2	2
Sep 5, 2024 1:00 PM	6	3	3
Sep 5, 2024 2:00 PM	5	3	2
Sep 5, 2024 3:00 PM	40	21	19
Sep 5, 2024 4:00 PM	14	11	3
Sep 5, 2024 5:00 PM	4	1	3
Sep 5, 2024 6:00 PM	6	4	2
Sep 5, 2024 7:00 PM	5	3	2
Sep 5, 2024 8:00 PM	3	2	1
Sep 5, 2024 9:00 PM	4	2	2
Sep 5, 2024 10:00 PM	0	0	0
Sep 5, 2024 11:00 PM	0	0	0
Sep 6, 2024 12:00 AM	0	0	0
Sep 6, 2024 1:00 AM	0	0	0

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 6, 2024 2:00 AM	0	0	0
Sep 6, 2024 3:00 AM	0	0	0
Sep 6, 2024 4:00 AM	0	0	0
Sep 6, 2024 5:00 AM	0	0	0
Sep 6, 2024 6:00 AM	2	1	1
Sep 6, 2024 7:00 AM	33	28	5
Sep 6, 2024 8:00 AM	8	6	2
Sep 6, 2024 9:00 AM	11	9	2
Sep 6, 2024 10:00 AM	13	4	9
Sep 6, 2024 11:00 AM	5	3	2
Sep 6, 2024 12:00 PM	4	3	1
Sep 6, 2024 1:00 PM	4	2	2
Sep 6, 2024 2:00 PM	7	3	4
Sep 6, 2024 3:00 PM	34	13	21
Sep 6, 2024 4:00 PM	13	7	6
Sep 6, 2024 5:00 PM	10	4	6
Sep 6, 2024 6:00 PM	18	9	9
Sep 6, 2024 7:00 PM	6	2	4
Sep 6, 2024 8:00 PM	3	2	1

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 6, 2024 9:00 PM	6	2	4
Sep 6, 2024 10:00 PM	1	1	0
Sep 6, 2024 11:00 PM	0	0	0
Sep 7, 2024 12:00 AM	2	0	2
Sep 7, 2024 1:00 AM	1	0	1
Sep 7, 2024 2:00 AM	0	0	0
Sep 7, 2024 3:00 AM	0	0	0
Sep 7, 2024 4:00 AM	0	0	0
Sep 7, 2024 5:00 AM	0	0	0
Sep 7, 2024 6:00 AM	2	1	1
Sep 7, 2024 7:00 AM	5	4	1
Sep 7, 2024 8:00 AM	6	2	4
Sep 7, 2024 9:00 AM	9	7	2
Sep 7, 2024 10:00 AM	6	5	1
Sep 7, 2024 11:00 AM	4	0	4
Sep 7, 2024 12:00 PM	9	4	5
Sep 7, 2024 1:00 PM	6	3	3
Sep 7, 2024 2:00 PM	6	2	4
Sep 7, 2024 3:00 PM	6	3	3

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 7, 2024 4:00 PM	7	2	5
Sep 7, 2024 5:00 PM	7	5	2
Sep 7, 2024 6:00 PM	4	2	2
Sep 7, 2024 7:00 PM	4	2	2
Sep 7, 2024 8:00 PM	4	3	1
Sep 7, 2024 9:00 PM	1	1	0
Sep 7, 2024 10:00 PM	0	0	0
Sep 7, 2024 11:00 PM	0	0	0
Sep 8, 2024 12:00 AM	0	0	0
Sep 8, 2024 1:00 AM	0	0	0
Sep 8, 2024 2:00 AM	0	0	0
Sep 8, 2024 3:00 AM	0	0	0
Sep 8, 2024 4:00 AM	0	0	0
Sep 8, 2024 5:00 AM	0	0	0
Sep 8, 2024 6:00 AM	0	0	0
Sep 8, 2024 7:00 AM	1	1	0
Sep 8, 2024 8:00 AM	2	1	1
Sep 8, 2024 9:00 AM	6	3	3
Sep 8, 2024 10:00 AM	3	3	0

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 8, 2024 11:00 AM	0	0	0
Sep 8, 2024 12:00 PM	7	3	4
Sep 8, 2024 1:00 PM	7	3	4
Sep 8, 2024 2:00 PM	4	3	1
Sep 8, 2024 3:00 PM	7	2	5
Sep 8, 2024 4:00 PM	8	3	5
Sep 8, 2024 5:00 PM	2	2	0
Sep 8, 2024 6:00 PM	6	5	1
Sep 8, 2024 7:00 PM	0	0	0
Sep 8, 2024 8:00 PM	6	4	2
Sep 8, 2024 9:00 PM	0	0	0
Sep 8, 2024 10:00 PM	0	0	0
Sep 8, 2024 11:00 PM	0	0	0
Sep 9, 2024 12:00 AM	0	0	0
Sep 9, 2024 1:00 AM	0	0	0
Sep 9, 2024 2:00 AM	0	0	0
Sep 9, 2024 3:00 AM	0	0	0
Sep 9, 2024 4:00 AM	0	0	0
Sep 9, 2024 5:00 AM	1	1	0

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 9, 2024 6:00 AM	3	2	1
Sep 9, 2024 7:00 AM	25	23	2
Sep 9, 2024 8:00 AM	10	5	5
Sep 9, 2024 9:00 AM	7	4	3
Sep 9, 2024 10:00 AM	4	3	1
Sep 9, 2024 11:00 AM	5	2	3
Sep 9, 2024 12:00 PM	7	5	2
Sep 9, 2024 1:00 PM	11	4	7
Sep 9, 2024 2:00 PM	5	2	3
Sep 9, 2024 3:00 PM	44	25	19
Sep 9, 2024 4:00 PM	7	4	3
Sep 9, 2024 5:00 PM	12	8	4
Sep 9, 2024 6:00 PM	16	7	9
Sep 9, 2024 7:00 PM	10	5	5
Sep 9, 2024 8:00 PM	7	1	6
Sep 9, 2024 9:00 PM	0	0	0
Sep 9, 2024 10:00 PM	1	1	0
Sep 9, 2024 11:00 PM	0	0	0
Sep 10, 2024 12:00 AM	0	0	0

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 10, 2024 1:00 AM	0	0	0
Sep 10, 2024 2:00 AM	0	0	0
Sep 10, 2024 3:00 AM	0	0	0
Sep 10, 2024 4:00 AM	0	0	0
Sep 10, 2024 5:00 AM	2	1	1
Sep 10, 2024 6:00 AM	2	1	1
Sep 10, 2024 7:00 AM	34	32	2
Sep 10, 2024 8:00 AM	5	3	2
Sep 10, 2024 9:00 AM			
Sep 10, 2024 10:00 AM			
Sep 10, 2024 11:00 AM			
Sep 10, 2024 12:00 PM			
Sep 10, 2024 1:00 PM			
Sep 10, 2024 2:00 PM			
Sep 10, 2024 3:00 PM			
Sep 10, 2024 4:00 PM			
Sep 10, 2024 5:00 PM			
Sep 10, 2024 6:00 PM			
Sep 10, 2024 7:00 PM			

Breton and Argentina

September 3, 2024 → September 10, 2024

Time	Breton and Argentina	Breton and Argentina Breton and Argentina Pedestrian IN	Breton and Argentina Breton and Argentina Pedestrian OUT
Sep 10, 2024 8:00 PM			
Sep 10, 2024 9:00 PM			
Sep 10, 2024 10:00 PM			
Sep 10, 2024 11:00 PM			
Total	979	572	407

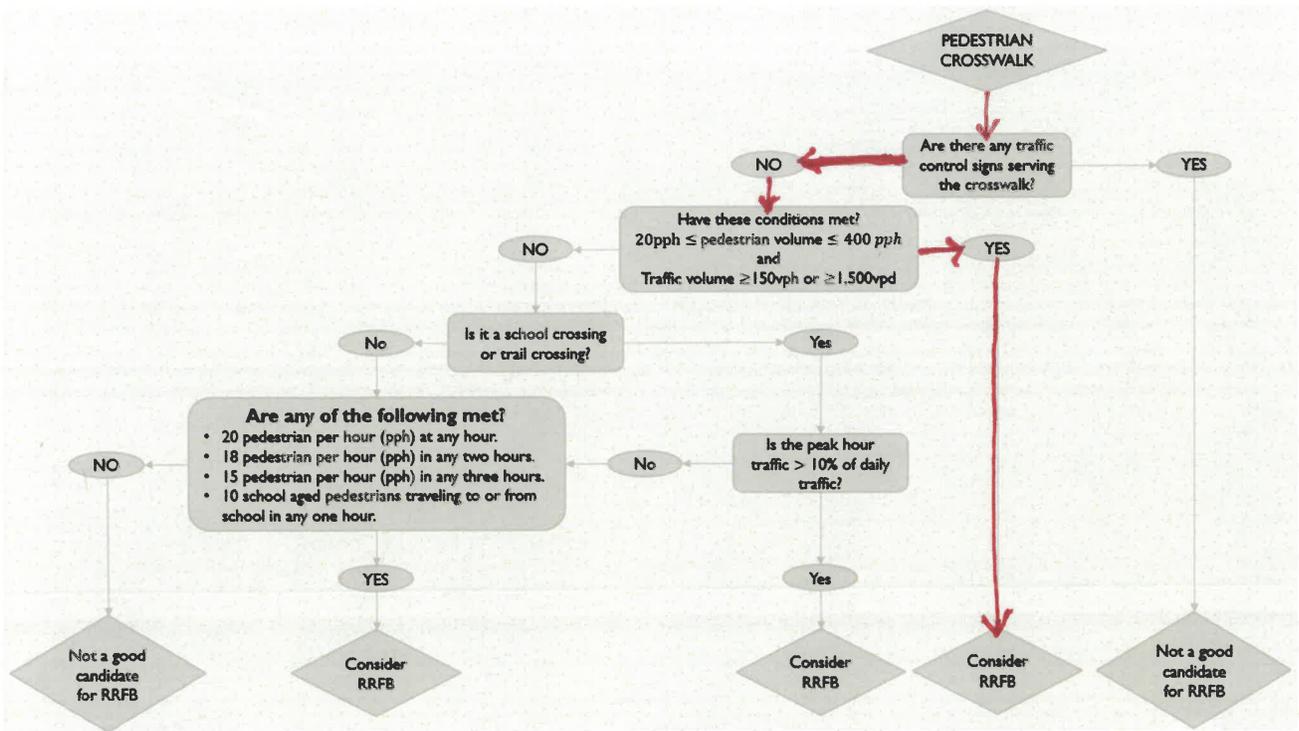


Figure 1: Decision matrix to follow when choosing a good candidate for RRFB installation.
 Note: Each young and elderly pedestrian should be counted twice (i.e. 2X) towards pedestrian volume calculations.

Verification per study / Policy
D.L. 2/21/25



Safety Benefits:

RRFBs can reduce crashes up to:

47%

for pedestrian crashes.⁴

RRFBs can increase motorist yielding rates up to:

98%

(varies by speed limit, number of lanes, crossing distance, and time of day).³



RRFBs used at a trail crossing.
Source: LJB

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/proven-safety-countermeasures> and https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/techSheet_RRFB_2018.pdf.

Rectangular Rapid Flashing Beacons (RRFB)

A marked crosswalk or pedestrian warning sign can improve safety for pedestrians crossing the road, but at times may not be sufficient for drivers to visibly locate crossing locations and yield to pedestrians. To enhance pedestrian conspicuity and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular-shaped yellow indications, each with a light-emitting diode (LED)-array-based light source.¹ RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers.

Transportation agencies should refer to the *Manual on Uniform Traffic Control Devices (MUTCD)* for information on the application of RRFBs.¹

Applications

The RRFB is applicable to many types of pedestrian crossings but is particularly effective at multilane crossings with speed limits less than 40 miles per hour.² Research suggests RRFBs can result in motorist yielding rates as high as 98 percent at marked crosswalks, but varies depending on the location, posted speed limit, pedestrian crossing distance, one- versus two-way road, and the number of travel lanes.³ RRFBs can also accompany school or trail crossing warning signs.

RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow plaque pointing at the crossing.¹ The flashing pattern can be activated with pushbuttons or passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.

Considerations

Agencies should:²

- Install RRFBs in the median rather than the far-side of the roadway if there is a pedestrian refuge or other type of median.
- Use solar-power panels 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.

Agencies shall not:²

- Use RRFBs without the presence of a pedestrian, school or trail crossing warning sign.
- Use RRFBs 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.

1 Manual on Uniform Traffic Control Devices (MUTCD), Chapter 4L. FHWA, (2023).

2 "Rectangular Rapid Flash Beacon" In PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System. FHWA, (2013).

3 Fitzpatrick et al. "Will You Stop for Me? Roadway Design and Traffic Control Device Influences on Drivers Yielding to Pedestrians in a Crosswalk with a Rectangular Rapid-Flashing Beacon." Report No. TTI-CTS-0010. Texas A&M Transportation Institute, (2016).

4 (CMF ID: 9024) NCHRP Research Report 841 Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. (2017).