



**AGENDA
BLOOMINGTON TRANSPORTATION COMMISSION
REGULAR MEETING
TUESDAY, APRIL 20, 2021 4:00 P.M.
COUNCIL CHAMBERS, CITY HALL
109 EAST OLIVE STREET
BLOOMINGTON, ILLINOIS**

**THIS MEETING WILL BE HELD VIRTUALLY. LIVE STREAM AVAILABLE AT:
www.cityblm.org/live**

Prior to 15 minutes before the start of the meeting, 1) those persons wishing to provide public comment or testify at the meeting must register at www.cityblm.org/register, and/or 2) those persons wishing to provide written comment must email their comments to publiccomment@cityblm.org.

Members of the public may also attend the meeting at City Hall. Attendance will be limited to 10 people including staff and Board/Commission Members and will require compliance with City Hall COVID-19 protocols and social distancing. Participants and attendees are encouraged to attend remotely.

The rules for participation and attendance may be subject to change due to changes in law or to executive orders relating to the COVID-19 pandemic occurring after the publication of this agenda. Changes will be posted at www.cityblm.org/register.

- 1. CALL TO ORDER**
- 2. ROLL CALL**
- 3. PUBLIC COMMENT**
- 4. MINUTES:** Review and approve the minutes of the September 15, 2020 regular meeting of the Bloomington Transportation Commission and the February 10, 2021 Special Joint Meeting of the Bloomington Transportation Commission and Bloomington Planning Commission.
- 5. REGULAR AGENDA**
 - A. **TC-2021-01:** Pedestrian Street Crossing Treatment Policy – Review and approval
 - B. **Information:** April 2021 Citizen Comments/Complaints Summary (Review & Discussion)
- 6. OLD BUSINESS**
 - A. Any old items brought back by the Commission
- 7. NEW BUSINESS**
 - A. Any new items brought up by the Commission
- 8. COMMISSIONER COMMENTS**
- 9. ADJOURNMENT**

For further information contact:

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MINUTES

**PUBLISHED BY THE AUTHORITY OF THE PLANNING COMMISSION AND
TRANSPORTATION COMMISSION OF BLOOMINGTON, ILLINOIS**

JOINT SESSION MEETING

COUNCIL CHAMBERS

109 EAST OLIVE STREET

BLOOMINGTON, IL

WEDNESDAY, FEBRUARY 10, 2021 5:00 P.M.

THIS MEETING WILL BE HELD VIRTUALLY. LIVE STREAM AVAILABLE AT:

www.cityblm.org/live

Prior to 15 minutes before the start of the meeting, 1) those persons wishing to provide public comment or testify at the meeting must register at www.cityblm.org/register, and/or 2) those persons wishing to provide written comment must email their comments to publiccomment@cityblm.org.

Members of the public may also attend the meeting at City Hall. Attendance will be limited to 10 people including staff and Board/Commission members and will require compliance with City Hall COVID-19 protocols and social distancing. Participants and attendees are encouraged to attend remotely. The rules for participation and physical attendance may be subject to change due to changes in law or to executive orders relating to the COVID-19 pandemic occurring after the publication of this agenda. Changes will be posted at www.cityblm.org/register.

The joint session meeting of the Planning Commission and Transportation Commission convened in virtually via Zoom conferencing with City Planner Katie Simpson, Transportation Engineer Phil Allyn, Chairperson Reenie Bradley, and Chairperson Megan Headean in-person in City Hall's Council Chambers on Wednesday, February 10, 2021. The meeting was live streamed to the public at www.cityblm.org/live.

ROLL CALL PLANNING COMMISSION

Attendee Name	Title	Status
Ms. Megan Headean	Chair	Present
Mr. Tyson Mohr	Vice Chair	Present
Mr. Justin Boyd	Commissioner	Present
Mr. Thomas Krieger	Commissioner	Present
Ms. Megan McCann	Commissioner	Present

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MEETING MINUTES

PUBLISHED BY THE AUTHORITY OF THE PLANNING COMMISSION OF BLOOMINGTON, ILLINOIS

WEDNESDAY, FEBRUARY 10, 2021

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Mr. Mark Muehleck	Commissioner	Absent
Mr. David Stanczak	Commissioner	Present
Ms. Sheila Montney	Commissioner	Present
Mr. John Danenberger	Commissioner	Present
Mr. George Boyle	Assistant Corporate Counsel	Present
Mr. Craig McBeath	Information Systems Director	Present
Ms. Katie Simpson	City Planner	Present
Ms. Kimberly Smith	Assistant Economic & Community Development Director	Present
Ms. Caitlin Kelly	Assistant City Planner	Present

ROLL CALL TRANSPORTATION COMMISSION

Attendee Name	Title	Status
Ms. Reenie Bradley	Chair	Present
Mr. John Corey	Commissioner	Present
Mr. Ed Breitweiser	Commissioner	Present
Ms. Elicssha Sanders	Commissioner	Present
Mr. Adam Heenan	Commissioner	Absent
Ms. Rickielee Benecke	Commissioner	Present
Mr. David Stanczak	Commissioner	Present
Ms. Sheila Montney	Commissioner	Present
Mr. John Danenberger	Commissioner	Present
Mr. Phil Allyn	Transportation Engineer	Present
Mr. Craig Schnokweiler	City Engineer	Present
Mr. Kevin Kothe	Public Works Director	Present

ELECTION OF MEETING CHAIR

Mr. Boyd motioned for Ms. Headean to chair the meeting. Ms. Montney seconded. Roll call vote Planning Commission: Mr. Stanczak - Yes, Mr. Danenberger - Yes, Mr. Boyd - Yes, Mr. Krieger - Yes, Mr. Mohr - Yes, Ms. Montney - Yes, Ms. McCann - Yes, Ms. Headean - Yes. Roll call vote Transportation Commission: Ms. Bradley - Yes, Mr. Breitweiser - Yes, Mr. Corey - Inaudible, Ms. Benecke - Yes, Ms. Sanders - Yes. The motion carried (12-0-1).

PUBLIC COMMENT

This meeting is being held virtually via live stream. Public comment will be accepted up until 15 minutes before the start of the meeting. Written public comment must be emailed to publiccomment@cityblm.org and those wishing to speak live must register at <https://www.cityblm.org/register> prior to the meeting.

No public comment.

REGULAR AGENDA

Note, due to COVID-19 social distancing considerations, this meeting is held virtually. Those wishing to testify or comment remotely regarding a public hearing listed below must register at <https://www.cityblm.org/register> at least 15 minutes prior to the start of the meeting.

- A. Brief presentation by staff summarizing potential options provided by IDOT for reconstruction of the Empire Street (IL Route 9) and Veterans Parkway (I-55 Business Route) intersection followed by discussion with the Bloomington Planning and Transportation Commissions.

Chairperson Headean called for the presentation. Mr. Allyn outlined the proposal and mentioned that each variation includes a 10' sidewalk for bike and pedestrian accommodations.

Mr. Breitweiser explained that his position on the committee is as a pedestrian safety advocate. He stated that the diverging diamond is his preferred option from that perspective. Mr. Corey stated that his priorities are similar, but that he is uncertain about the diverging diamond option.

Mr. Mohr asked whether the 2009 traffic study could be summarized as to the cause of the crashes. Kevin Kothe, director of Public Works, stated that some of the short term mitigations have been implemented, like amending the signage, but that the long term recommendation involved a feasibility study for an alternative intersection configuration. Mr. Mohr asked if the accidents were caused by unfamiliarity with navigating the intersection. Mr. Kothe said this was partially true. Mr. Mohr indicated a hesitation with the diverging diamond due to its potential complexity and stated his belief that dedicated right turn lanes seem incongruent with pedestrian and bike safety.

Mr. Boyd asked whether the safety column in the chart refers only to vehicle safety. Mr. Allyn said he was not sure, but that pedestrian access was taken into account overall. Mr. Boyd asked whether the cost would be to the state or to the city. Mr. Allyn replied that the streets are state routes, but that parking and sidewalk access would fall to the city to pay for. Mr. Boyd asked whether including a sidewalk on the south side would be cost prohibitive, since it would aid in pedestrian crossings. Mr. Allyn wasn't sure. Mr. Boyd expressed a preference for the echelon and the diverging diamond.

Mr. Stanczak stated that most of the crashes at the intersection are rear end accidents, and that factors contributing to that sort of accident don't appear to be addressed by any of the options. He expressed a preference for the no build option.

Ms. Bradley expressed hesitation with the standard intersection as well as the throughabout. She indicated a preference for SPUI and stated that her concern with the

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diverging diamond relates to visitors unfamiliar with the community, but that she is open to other opinions on it.

Kevin Kothe, city engineer, stated that left side ramps are no longer preferred and put the center turn overpass and echelon at a disadvantage. He stated that SPUIs and diverging diamonds are emerging in popularity and seem effective and added that these are his preferred options.

Mr. Allyn stated that the unfamiliarity of some of the configurations is outweighed by the reduced severity of the crashes. Regarding rear end crashes, he mentioned that the diverging diamond and other options reduce the potential for rear ends because it separates traffic. Mr. Allyn also stated his belief that the implementation of the alternative is at least 10 years away.

Chairperson Headean expressed a preference for roundabouts and stated the Planning Commission's orientation toward increasing the walkability of the city.

Mr. Mohr stated that these roads used to be on the outskirts of town and are oriented toward vehicular access, making a pedestrian oriented approach difficult. He stated his belief that most of the crashes are caused by the speed of traffic, and that a balance needs to be struck between efficiency and deaths.

Ms. Bradley indicated that reducing the frequency and severity of crashes would be significant.

Mr. Boyd stated that he believes the diverging diamond look and throughabout look best aesthetically, and that separating Veteran's Parkway from Empire should encourage travelers on Empire to slow down. Mr. Boyd advocated for a pedestrian crossing in whichever option is chosen, as well as for green space.

Ms. Simpson asked whether the Commission has any opinions on the economic development aspect of each proposal. Mr. Mohr stated that the bigger the footprint of the intersection, the less useful it is from a financial standpoint. Ms. Simpson clarified that she was wondering about impacts of visibility for existing businesses and how that factors into other considerations.

Mr. Boyd expressed his belief that it is important, but that other considerations take priority as well as the fact that visibility is related more to signage than to infrastructure. Chairperson Headean stated that businesses shouldn't be impacted by the design of these alternatives. Mr. Mohr stated that efficiently moving vehicles should be the main economic consideration of the project.

Mr. Allyn mentioned that no parcels in their entirety would be lost. Ms. Bradley stated that Carmax may lose frontage, but that Pizza Ranch would not.

Ms. Benecke stated that walkability and pedestrian safety should be a consideration regardless of when the alternatives will be built. She expressed a preference for the SPUI and diverging diamond.

Mr. Krieger expressed a preference for the diverging diamond.

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Craig Shonkwiler, City Engineer, summarized the Commissions' preferred alternatives.

Ms. Sanders pointed out that the aerial images may drastically differ from how the alternatives look on the ground. She mentioned that adapting to new alternatives may be more difficult for some groups than others, and that all groups should be kept in mind when considering the logistics of the proposed alternatives.

Ms. Benecke added that, similarly, pedestrian access should also include those with disabilities.

OTHER BUSINESS

No items.

ADJOURNMENT

Mr. Boyd motioned to adjourn. Mr. Krieger seconded. All agreed. The meeting was adjourned at 6:22 PM.



**MINUTES
BLOOMINGTON TRANSPORTATION COMMISSION
TUESDAY, SEPTEMBER 15, 2020 4:00 P.M.
COUNCIL CHAMBERS, CITY HALL
109 EAST OLIVE STREET
BLOOMINGTON, ILLINOIS**

This meeting was conducted under Governor Pritzker's Executive Order 2020-07, Section 6 implemented in response to COVID-19, which suspended in-person attendance under the Open Meeting Act, 5 ILCS 120.

THIS MEETING WAS HELD VIRTUALLY. FOR THE FULL COMMENTS MADE AS THIS MEETING, PLEASE VIEW THE LIVE STREAM AVAILABLE AT:

www.cityblm.org/live

The Transportation Commission Regular meeting convened virtually via Zoom conferencing with City Traffic Engineer Philip Allyn (Staff Liaison); City Engineer Craig Shonkwiler, and Commission Chairperson Maureen Bradley in-person in City Hall's Council Chambers.

MEMBERS PRESENT: Ms. Rickielee Benecke, Ms. Maureen (Reenie) Bradley, Mr. Edward Breitweiser, Mr. John Corey (departed @ 5:46 pm), Ms. Elicsha Sanders

MEMBERS ABSENT: None

OTHERS PRESENT: Mr. George Boyle, City Attorney; AC Greg Scott, Police Dept.; Mr. Kevin Kothe, Director of Public Works; Mr. Craig Shonkwiler, City Engineer; and Mr. Philip Allyn, City Traffic Engineer.

1. CALL TO ORDER: Ms. Bradley called the meeting to order at 4:12 pm.

2. ROLL CALL: Mr. Allyn called the roll. With five members in attendance, a quorum was established.

3. PUBLIC COMMENT: None

4. MINUTES: Reviewed and approved the minutes of the February 18, 2020 regular meeting of the Bloomington Transportation Commission. Ms. Benecke motioned to approve the minutes. Mr. Corey seconded the motion. The Transportation Commission unanimously approved the motion 5-0 via roll call vote.

5. REGULAR AGENDA:

A. TC-2020-01: Election of Vice-Chairperson

Ms. Bradley nominated Mr. Breitweiser as Vice-Chairperson. Mr. Breitweiser agreed to the nomination. Ms. Bradley moved to elect Mr. Breitweiser as Vice-Chairperson, seconded by Mr. Corey. Mr. Breitweiser was elected Vice-Chairperson 4-0 via roll call vote (Breitweiser abstained).

B. TC-2020-02: Constitution Trail Southeast Extension Project: Lafayette to Hamilton

Mr. Allyn gave an overview of the background on this project to extend the Constitution Trail. Staff attempts to move forward with projects in our various City master plans when funding becomes available. In this case IDOT released Illinois Transportation Enhancement Project (ITEP) funding from the federal government. If selected for the grant, the City portion of costs will be either 20%, 10%, or 0% of the total cost depending on how the project scores compared to the other applicants.

Mr. Shonkwiler presented the details of the project including a walkthrough with photos of the area. The overall project will run from Lincoln Avenue to Hamilton Road. The ~1,200' between Lincoln to Lafayette will be constructed as a local project with a 10' wide asphalt path. Portions will be located on property to be acquired along the railroad. There will be a fence constructed along the railroad.

The portion between Lafayette and Hamilton will be included in the grant application. Between Lafayette and Bunn Street, a 10' wide path will run along the railroad down Easy Street, under Veterans Parkway and on to Bunn. It will continue south along Bunn Street to Hamilton. The exact location of the path will be determined during the Phase I study. The portion along Bunn will be upgraded to a path from the paved shoulder recommendation in the Bicycle Master Plan.

The intention is to apply for the grant by November 2, 2020. Staff is looking for an endorsement of the project from the Commission to support the application. This project is an opportunity to provide a connection past the Veterans Parkway barrier for pedestrians and bicyclists. This would be a transportation enhancement project, not a recreational project, so items such as benches and drinking fountains would not be included initially but could be added by the Parks Department at a later date.

Mr. Breitweiser provided positive feedback about the project. This is a key piece to connect the southern part of Bloomington to the central and northern parts of the City. He shared a concern with safety through this industrial area and asked that features such as adequate lighting be included.

As a recommendation separate from the project, Mr. Breitweiser mentioned that the entirety of Bunn Street from Oakland to Woodrig Road is a heavily used cyclist route and suggested looking at adding an on-road accommodation for bicycles such as bike lanes between Lincoln and the new path along Bunn.

Ms. Benecke stressed that there will be more than just cyclists using this path such as people going to a bus stop or people with various disabilities. This will be a good project to help make connections.

Mr. Shonkwiler mentioned that lighting will be applicable because it will help provide around the clock access and to be eligible for the grant, there cannot be time of day restrictions such as from dusk to dawn. He asked for suggestions in addition to lighting to help with safety in this area. Mr. Breitweiser suggested emergency call boxes and bike repair stations. Drinking fountains would help with dehydration and cleaning of potential wounds. Regular trail cleanup would be helpful given the industrial nature of the area and higher risk of debris on the trail. Informational signage relating to what to do in the case of an accident or danger. Ms. Bradley suggested directional signage could be helpful. Mr. Breitweiser suggested that with this path, there is increased likelihood of pedestrians around the railroad crossing on Bunn Street and suggested potentially pursuing upgraded crossing apparatus beyond the current lights such as gates.

Mr. Corey motioned to recommend that staff move forward with constructing the Constitution Trail Southeast Extension, Lafayette to Hamilton, contingent upon funding availability and submitting a 2020 ITEP Grant application for funding. Mr. Breitweiser seconded the motion. The Transportation Commission unanimously approved the motion 5-0 via roll call vote.

C. Information: September 2020 Citizen Comments/Complaints Summary

Ms. Bradley commented on the number of traffic calming requests and asked about the evaluation process. Mr. Allyn reviewed the policy, which is available on the City website, and the criteria for implementation.

6. OLD BUSINESS:

A. IDOT Route 9 Phase I Study

Mr. Allyn indicated that IDOT has notified the City that they are moving forward with the next stage on the Route 9 project. They are still finishing the Phase I study and will be moving into preparing construction drawings. They are looking at scheduling the second project open house in the near future.

B. Downtown Main Street Parking Configuration

Mr. Allyn indicated that with the addition of the outdoor dining areas as a result of COVID, staff is working to incorporate these areas in the future and determine if adjustments to the marking plans are needed.

7. NEW BUSINESS:

A. Other items:

Mr. Breitweiser asked about an article he saw regarding safety measures on Towanda Barnes at Baywood. Mr. Allyn indicated that there was a pedestrian hit by a car traveling at a high rate of speed while he was walking across Towanda Barnes. City staff has met with the County and is gathering data on the number of pedestrians in this area, when they are crossing, and what the vehicle speeds are on Towanda Barnes. Once we have all the data we need, we will work with the County on potential solutions.

Mr. Corey left the meeting at 5:46 pm.

Ms. Bradley provided additional information on the site details as well as feedback from the neighborhood.

Mr. Breitweiser stated that any investment in infrastructure that keeps people safe is worth making. This could be an opportunity to learn what people want to see to help them feel safe and could be helpful as we work with other agencies at locations that are not fully City controlled.

8. COMMISSIONER COMMENTS: None.

9. ADJOURNMENT: Ms. Benecke made a motion to adjourn. Ms. Sanders seconded the motion. The motion was approved unanimously 4-0 via roll call vote, and the meeting was adjourned at 5:53 pm.

Respectfully,

Philip Allyn
City Traffic Engineer

**CITY OF BLOOMINGTON
REPORT FOR THE TRANSPORTATION COMMISSION
APRIL 20, 2021**

CASE NUMBER:	SUBJECT:	ORIGINATING FROM:
TC-2021-01	City Pedestrian Street Crossing Treatment Policy	Philip Allyn, PE, PTOE City Traffic Engineer
REQUEST:	Item submitted for review and approval by the Transportation Commission.	

STAFF RECOMMENDATION: Approval
Staff requests approval of the proposed policy on pedestrian safety treatments at uncontrolled crossings.

1. ATTACHMENTS:

- a. **FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (July 2018)**
- b. **Proposed City modified Table 1: Application of pedestrian crash countermeasures by roadway feature.**

2. BACKGROUND AND SUPPLEMENTAL INFORMATION:

Uncontrolled pedestrian crossings occur where sidewalks or designated walkways intersect a roadway at a location where no traffic control (i.e. stop sign or traffic signal) is present. These common crossing types occur at intersections (where they may be marked or unmarked) and at non-intersection or midblock locations (where they must be marked as crossings). Overall, uncontrolled pedestrian crossing locations correspond to higher pedestrian crash rates, often due to inadequate pedestrian crossing accommodations.

To have a consistent, uniform practice for the installation of safety treatments at uncontrolled pedestrian crossing locations, Engineering staff worked to develop the policy presented herein for approval. The proposed policy is based largely on the Federal Highway Administration (FHWA) *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* as updated in July of 2018. This guide was chosen as a starting point since it provides a clear recommendation on which treatments are suitable based on the characteristics of the crossing rather than simply providing a description of possible treatments. In addition, the guide provides information for the evaluation of locations as well as tips on involving the public in the process. Additional resources such as those from the National Association of City Transportation Officials (NACTO), Institute of Transportation Engineers (ITE), American Association of State Highway and Transportation Officials (AASHTO) or other similar groups will still be referenced as applicable.

The FHWA guide treats all streets with an AADT under 9,000 the same. As this large volume range covers the majority of our City streets and recognizing that a 400 AADT street is different than a 7,000 AADT street, staff felt that additional subdivision of the lower volume streets would be beneficial. As such the biggest change to the FHWA guide relates to the splitting of this range into columns for AADT between 1,500 and 3,000 and between 3,000 and 9,000. In addition, streets with AADT less than 1,500 are addressed as a site-specific evaluation since treatments in these locations are often controlled more by features other than speed and traffic volume such as the presence of a school or park, or sight obstructions.

The proposed City Table 1 to be used in place of the FHWA guide Table 1 is attached. Note that changes to the table are highlighted blue for ease of comparison.

3. STAFF RECOMMENDATION:

Staff recommends approval of the proposed policy on pedestrian safety treatments at uncontrolled crossings.

Respectfully submitted,

Philip Allyn, PE, PTOE
City Traffic Engineer



U.S. Department of Transportation
Federal Highway Administration



Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations



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U.S. Department of Transportation
Federal Highway Administration



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Technical Report Documentation Page

1. REPORT NO. FHWA-SA-17-072	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.	
4. TITLE AND SUBTITLE Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations		5. REPORT DATE January 2018 (July 2018, Updated)	
		6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Lauren Blackburn (VHB), Charles Zegeer (HSRC), and Kristen Brookshire (HSRC)		8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME & ADDRESS VHB 8300 Boone Boulevard, Suite 300 Vienna, VA 22182 The University of North Carolina at Chapel Hill Highway Safety Research Center (HSRC) 104 Airport Drive, Suite 2200 Chapel Hill, NC 27599-1350		10. WORK UNIT NO.	
		11. CONTRACT OR GRANT NO. DTFH61-16-D-00005	
12. SPONSORING AGENCY NAME AND ADDRESS Federal Highway Administration Office of Safety 1200 New Jersey Ave., SE Washington, DC 20590		13. TYPE OF REPORT AND PERIOD	
		14. SPONSORING AGENCY CODE FHWA	
15. SUPPLEMENTARY NOTES The Task Order Contracting Officer's Representative (TOCOR) for this task was Rebecca Crowe.			
16. ABSTRACT This guide assists State or local transportation or traffic safety departments that are considering developing a policy or guide to support the installation of countermeasures at uncontrolled pedestrian crossing locations. This document provides guidance to agencies, including best practices for each step involved in selecting countermeasures. By focusing on uncontrolled crossing locations, agencies can address a significant national safety problem and improve quality of life for pedestrians of all ages and abilities. Agencies may use this guide to develop a customized policy or to supplement existing local decision-making guidelines. The January 2018 version of this guide was updated to include the Rectangular Rapid-Flashing Beacon (RRFB). FHWA issued a new Interim Approval (IA-21) for the optional use of RRFBs in March 2018.			
17. KEY WORDS pedestrian crash countermeasures, uncontrolled crossings, midblock crossings, Pedestrian Hybrid Beacon, Road Diet, crosswalk visibility enhancements, pedestrian refuge island, raised crosswalk, Rectangular Rapid-Flashing Beacon		18. DISTRIBUTION STATEMENT No restrictions.	
19. SECURITY CLASSIF. (OF THIS REPORT) Unclassified	20. SECURITY CLASSIF. (OF THIS PAGE) Unclassified	21. NO. OF PAGES 38	22. PRICE

What is the *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*?

State or local transportation or traffic safety departments should consider developing a policy or guide to support the installation of countermeasures at uncontrolled pedestrian crossing locations. This document provides guidance to agencies, including best practices for each step involved in selecting countermeasures. [Agencies may use this guide to develop a customized policy or to supplement existing local decision-making guidelines.](#)

This document was produced by the Federal Highway Administration (FHWA) as part of the Safe Transportation for Every Pedestrian (STEP) program. STEP is part of the fourth round of Every Day Counts. STEP's purpose is to help transportation agencies address crashes by promoting countermeasures with known safety benefits at uncontrolled crossing locations.

Uncontrolled pedestrian crossing locations occur where sidewalks or designated walkways intersect a roadway at a location where no traffic control (i.e. traffic signal or STOP sign) is present. These common crossing types occur at intersections (where they may be marked or unmarked) and at non-intersection or midblock locations (where they must be marked as crossings). Overall, uncontrolled pedestrian crossing locations correspond to higher pedestrian crash rates, often due to inadequate pedestrian crossing accommodations.

By focusing on uncontrolled crossing locations, local and State agencies can address a significant national safety problem and improve quality of life for pedestrians of all ages and abilities. STEP promotes the following six effective and lower-cost countermeasures that communities can deploy based on their specific needs:

- » Crosswalk visibility enhancements (i.e., high-visibility crosswalk markings, parking restriction on crosswalk approach, improved lighting, advance Yield Here To [Stop Here For] Pedestrians sign and yield [stop] line, In-Street Pedestrian Crossing sign, and curb extension).
- » Raised crosswalk.
- » Pedestrian refuge island.
- » Pedestrian Hybrid Beacon (PHB).
- » Road Diet.
- » Rectangular Rapid-Flashing Beacon (RRFB).

These countermeasures and their safety benefits are described further in this guide. The guide also includes best practices for identifying locations and installing countermeasures at uncontrolled pedestrian crossing locations.

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List of Abbreviations

AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	average daily traffic
CMF	crash modification factor
CRF	crash reduction factor
EDC	Every Day Counts
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
GHSA	Governors Highway Safety Association
GIS	geographic information system
HSIP	Highway Safety Improvement Program
HSP	Highway Safety Plan
MUTCD	Manual on Uniform Traffic Control Devices
NHTSA	National Highway Traffic Safety Administration
PHB	Pedestrian Hybrid Beacon
RRFB	Rectangular Rapid-Flashing Beacon
RSA	Road Safety Audit
SHSP	Strategic Highway Safety Plan
STBG	Surface Transportation Block Grant
STEP	Safe Transportation for Every Pedestrian
TZD	Toward Zero Deaths
VZ	Vision Zero

Introduction

Pedestrians are among the most vulnerable road users, accounting for approximately 16 percent of all roadway fatalities nationally in 2016, per the Fatality Analysis Reporting System (FARS).¹ Pedestrians are especially vulnerable at non-intersection locations, where 72 percent of pedestrian fatalities occur.¹

This guide addresses safety issues at **uncontrolled pedestrian crossing locations**, which occur where sidewalks or designated walkways intersect a roadway at a location where no traffic control (i.e., traffic signal or STOP sign) is present. These common crossing types occur at intersections (where they may be marked or unmarked) and at non-intersection or midblock locations (where they must be marked as crossings). Overall, uncontrolled pedestrian crossing locations correspond to higher pedestrian crash rates than controlled locations, often due to inadequate pedestrian crossing accommodations.

How to Use this Guide

The guide includes steps to assist an agency in selecting appropriate countermeasures to help improve pedestrian safety, as illustrated in Figure 1. An agency that has an established process for identifying priority locations for pedestrian safety improvements should review the guidance in Steps 3 through 6. This information is most important for selecting pedestrian crossing countermeasures. An agency that is at the beginning stages of identifying priority locations should consult each of the steps described in this guide.

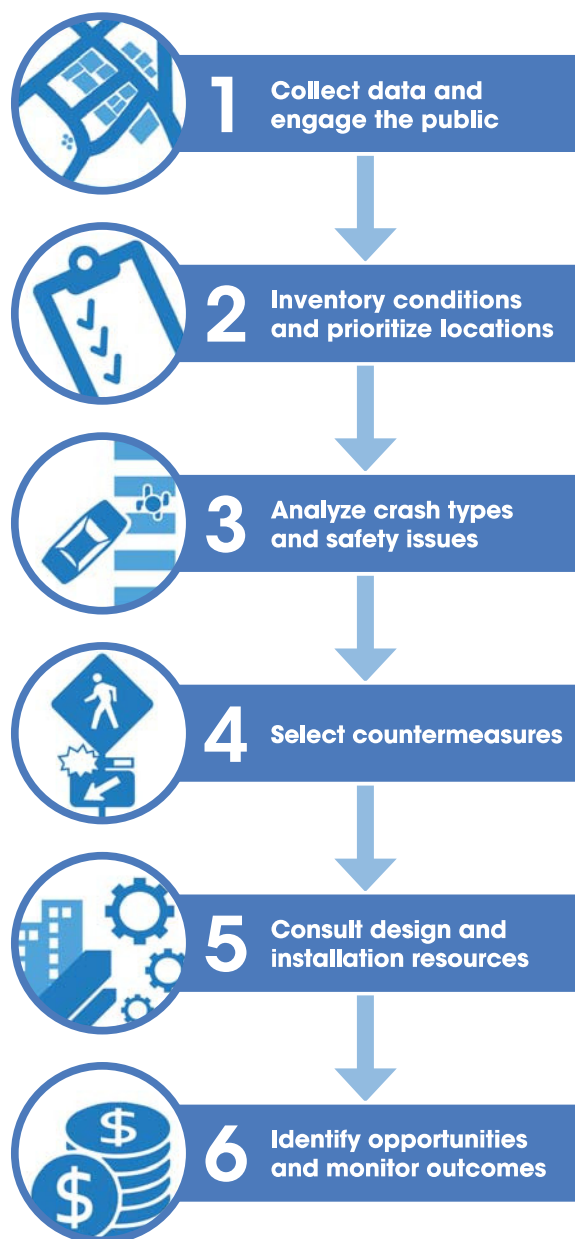


Figure 1. Process diagram for selecting countermeasures at uncontrolled pedestrian crossing locations.

¹NHSTA, "FARS Data Query: 2016 Data." *Fatality Analysis Reporting System (FARS) Encyclopedia*. (2017). <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>

Following the process in the guide results in possible countermeasure options based on road conditions, crash causes, and pedestrian safety issues. The guide provides two reference tables to help identify countermeasure options. Table 1 identifies countermeasures by roadway conditions such as vehicle speed limit, annual average daily traffic (AADT), and number of travel lanes. Table 2 helps further pinpoint the most appropriate countermeasures by common safety concerns such as failure to yield or excessive vehicle speeds. The guide does not include specific recommendations for countermeasures based on all criteria in design and reference manuals, such as actual speeds and pedestrian volumes. The agency should reference the Manual on Uniform Traffic Control Devices (MUTCD), American Association of State Highway and Transportation Officials (AASHTO) design guidelines, and State and local practices when selecting one or more specific countermeasures. The guide is followed by appendices including reference material for a local agency resolution and a summary of research cited for crash modification factors (CMFs).

The agency should note additional considerations for the application of this guide, such as costs to design, install, and maintain the treatments. The agency should apply engineering judgment and conduct field investigations to confirm data and observe driver and pedestrian behaviors when selecting countermeasures.

Building a safe and connected pedestrian network requires consideration of topics beyond what is included in this guide. This guide does not include methods for prioritizing sidewalk improvements, but agencies should consider giving special attention to connecting the pedestrian network with sidewalks, walkways, paved shoulders, and trails and paths. The [ActiveTrans Priority Tool](#) was created through the National Cooperative Highway Research Program and can provide agencies with automated resources to prioritize pedestrian and bicycle improvements.

Pedestrian crossings in or near school zones are not specifically addressed in this guide, as these crossings may be subject to other guidance or other considerations. Agencies may refer to the ["Safe Routes to School Briefing Sheets: School Area Traffic Control"](#) produced by the Institute of Transportation Engineers (ITE) for guidance on improving pedestrian crossings near schools.

This guide does not describe pedestrian crossing requirements per the Americans with Disabilities Act (ADA), although ADA requirements should be addressed as part of any pedestrian crossing improvements project. For more information about ADA accessibility requirements, the agency should consult the [US Access Board's](#) 1991 ADA Accessibility Guidelines (ADAAG), the 2010 Standards for Accessible Design, and the 2011 Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (proposed PROWAG).

1

Collect Data and Engage the Public



GUIDING PRINCIPLES

This section describes optional methods for describing existing pedestrian safety trends and engaging stakeholders. The following are important considerations for this step in the process of selecting countermeasures:

- » Review existing plans for safety statistics and locations previously identified for safety improvements.
- » Develop a resolution or policy statement in support of improving pedestrian safety at uncontrolled crossing locations.
- » If a formal process is preferred, initiate a Pedestrian Safety Action Plan to engage the community and identify priority locations.
- » If a less formal process is preferred, document public comments previously received or conduct a walkability audit to identify locations generally considered as less safe for pedestrians crossing.

Collect Pedestrian Crash and Safety Data

Crash reports completed by law enforcement agencies may include information about driver and pedestrian actions, as well as environmental conditions when and where the crash occurred. These data are helpful to understand safety issues in the area. Crash data may be geocoded and mapped. The agency can collect crash maps, request crash reports (as needed), and contact public health officials for other pedestrian injury data.

Review Existing Traffic Safety Plans

The Strategic Highway Safety Plan (SHSP) is a statewide-coordinated, data-driven safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. States are required to update the SHSP at least once every five years. The SHSP may include an emphasis area and strategies for improving pedestrian safety. The agency should review the SHSP for pedestrian crash statistics and strategies for pedestrian safety improvements.

The SHSP informs the State's Highway Safety Improvement Program (HSIP). The HSIP is a program of highway safety improvement

projects, activities, plans and reports. HSIP projects are selected through a data-driven approach and can include pedestrian crash countermeasures and intersection improvements. Some States set aside HSIP funding for pedestrian safety improvements, while other States use a common scoring process to consider safety projects for all travel modes. The agency should identify and understand pedestrian safety projects in the current HSIP, and consider how pedestrian safety projects are identified for potential funding and implementation. The Safety Performance Management Measures Final Rule (23 CFR 490) establishes requirements that support the HSIP, including a measure for the number of non-motorized fatalities and non-motorized serious injuries. This performance measure includes both pedestrians and bicyclists.

The State's Highway Safety Plan (HSP) must also be coordinated with the SHSP. The HSP is an annual strategy submitted by the State's Governor's Highway Safety Office to the National Highway Traffic Safety Administration (NHTSA). The HSP focuses on countermeasures that address driver and non-motorized behavior, and it provides an investment plan for activities such as law enforcement operations and public education programs. The HSP includes performance measures established by NHTSA and the Governors Highway Safety Association (GHSA), including one for pedestrian fatalities. Pedestrian safety initiatives are eligible for funding through the HSP. The agency should research pedestrian safety programs recommended in the HSP and consider how pedestrian crossing treatments can support the performance standards described in the HSP.

Evaluate Pedestrian Accommodation and Traffic Safety Policies

The agency may have a policy or guidance for how pedestrian improvements are incorporated into other roadway projects, such as a Complete Streets policy. The policy explains the process for integrating sidewalks and crossing treatments into routine street maintenance activities and large-scale highway projects. The agency should examine the linkages between Complete Streets and pedestrian safety and consider improvements to the process to better integrate pedestrian crossing improvements into roadway projects.

The agency may have adopted a policy for eliminating traffic-related fatalities, such as a Vision Zero or Toward Zero Deaths initiative. The programs focus on eliminating or significantly reducing traffic fatalities and prioritize strategies for the most vulnerable roadway users, such as pedestrians. These programs may summarize how all agency departments can improve pedestrian and traffic safety, and may include metrics that establish the need for safety at uncontrolled pedestrian crossings.

Review Pedestrian Master Plans for Proposed Projects

Another approach to identify pedestrian issues is to review existing local or regional plans, particularly those with a focus on pedestrians, for potential locations for safety projects and to identify needed countermeasures. A State or local pedestrian master plan may include recommendations for pedestrian safety projects, identified infrastructure deficiencies, and/or documentation

about safety concerns. This step leverages prior analyses and helps to identify countermeasures that the agency is already considering.

Initiate a Pedestrian Safety Action Plan (PSAP)

Agency leaders and community stakeholders can begin a formal process to identify priority locations and key strategies for improving pedestrian safety. The agency may initiate a PSAP to increase community awareness and support for improving pedestrian safety. A PSAP considers the input of stakeholders from multiple disciplines and uses data analysis to identify potential locations for safety improvement.

Document Informal Public Comments

The agency can identify locations of significance within a jurisdiction by collecting concerns and requests from community partners. Agencies should set up a process for receiving, tracking, and responding to input from residents and

visitors. Many local governments respond with traffic calming request applications or online forms for residents with concerns about pedestrian safety on high-speed arterials or collector streets. Agencies may also consider forming a committee or work group devoted to considering pedestrian safety and mobility, such as a pedestrian advisory committee. This type of group can collect input from stakeholders and present their concerns to agency staff or decision-makers.

Conduct a Walkability Audit

Community leaders and neighbors can conduct a walkability audit at priority locations or corridors to identify deficiencies in the pedestrian network at a small area or neighborhood scale. This is an informal method for engaging stakeholders and raising awareness about pedestrian safety. Leaders can organize an event and ask participants to follow a simple checklist to assess neighborhood streets. Figure 2 shows an excerpt from a sample "walkability checklist" that agencies may use to conduct a walkability audit.

Location of walk		Rating Scale:	
		1 2 3 4 5 6 awful many some good very good excellent problems problems	
1. Did you have room to walk?			
☐ Yes	☐ Some problems:		
	☐ Sidewalks or paths started and stopped		
	☐ Sidewalks were broken or cracked		
	☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.		
	☐ No sidewalks, paths, or shoulders		
	☐ Too much traffic		
	☐ Something else _____		
Rating: (circle one) 1 2 3 4 5 6	Locations of problems: _____		
4. Was it easy to follow safety rules?			
Could you and your child...			
☐ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?	
☐ Yes	☐ No	Stop and look left, right and then left again before crossing streets?	
☐ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?	
☐ Yes	☐ No	Cross with the light?	
Rating: (circle one) 1 2 3 4 5 6	Locations of problems: _____		

Figure 2. Excerpt from "Walkability Checklist."

Source: Pedestrian and Bicycle Information Center. Created in collaboration with FHWA, NHTSA, National Center for Safe Routes to School, and United States Environmental Protection Agency.

RESOURCES

NHTSA Pedestrian Safety Information

NHTSA publishes annual reports summarizing the latest pedestrian fatality statistics. These statistics are based on FARS and the reports describe pedestrian fatality trends per different socioeconomic groups and for each State.

Smart Growth America – National Complete Streets Coalition

Smart Growth America, a non-governmental advocacy organization, supports the National Complete Streets Coalition. This organization provides resources to support the development and implementation of Complete Streets policies. These policies encourage pedestrian mobility and safety by promoting street design that accommodates controlled and uncontrolled crossings. For example, the [Massachusetts Department of Transportation Complete Streets program](#) assists local governments developing Complete Streets policies and implementation plans.

FHWA State SHSP Resources

The FHWA Office of Safety posts a link to each State's current SHSP. This website also lists noteworthy practices. Many SHSP plans provide an emphasis on pedestrians and contain goals for reducing traffic fatalities and injuries.

The [Ohio DOT 2015 SHSP](#) has a pedestrian emphasis area that seeks to reduce fatalities and serious injuries through six strategies that include data collection, institutionalizing pedestrian accommodations, implementing proven countermeasures, and promoting law enforcement.

FHWA HSIP Resources

The HSIP includes the projects selected for implementation, an evaluation of past projects, and an annual status report. Projects can include pedestrian safety improvement programs and projects. For example, the [2016 Oregon HSIP Annual Report](#) details how the its All Roads Transportation Safety Program sets aside funding to address systemic pedestrian crash locations.

State HSP Documents

NHTSA posts the States' current HSP outlining non-infrastructure strategies for improving roadway safety. A State HSP is likely to contain a pedestrian fatality and injury reduction goal, an associated performance measure, and describe non-infrastructure initiatives like enforcement and education programs. For example, [Colorado DOT's 2017 HSP](#) (called the 2017 Integrated Safety Plan) supports the Denver Police Department's "Decoy Pedestrian Program" to enforce driver yielding compliance at high-crash pedestrian crossings.

Vision Zero Network

This collaborative website posts case studies and tracks cities who are implementing Vision Zero plans or goals. The Vision Zero Network website also notes best practices by agencies who are working to eliminate traffic fatalities and serious injuries. Vision Zero goals are accompanied by policies, strategies, and target dates. For example, [Columbia, Missouri's Vision Zero Action Plan](#) contains an outreach campaign to educate pedestrians and drivers on new and potentially confusing infrastructure improvements like pedestrian hybrid beacons and enhanced pedestrian crosswalks.

[FHWA How to Develop a Pedestrian and Bicycle Safety Action Plan \(2017\)](#)

This document explains the process of developing pedestrian and bicycle safety action plans. The sources of data required for these plans may include police reports, roadway and intersection conditions, field visits of crash sites. For example, [New Jersey's PSAP](#) identified how its infrastructure prioritization programs could be revised to recognize locations with systemic pedestrian crash risk.

[FHWA Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts \(2016\)](#)

This resource focuses on flexibility and options for the design of pedestrian and bicycle networks designed to minimize crash conflicts, including case studies to illustrate various design treatments.

[Walkability Checklist](#)

This tool can be used by community leaders during a walkability audit to evaluate pedestrian infrastructure and traffic behavior.

2

Inventory Conditions and Prioritize Locations



GUIDING PRINCIPLES

This section describes how the agency can document field conditions (such as roadway characteristics) necessary for prioritizing locations and selecting countermeasures. The following are important considerations for this step:

- » Create a worksheet or checklist of roadway characteristics to record in the field (see Figure 3).
- » Document pedestrian volumes and driver behavior, especially where pedestrians are frequently expected such as at bus stop locations and near schools.
- » Classify pedestrian crossings as either uncontrolled or controlled locations.
- » Analyze data and create maps to show priority locations for pedestrian improvements.

Inventory Roadway Characteristics

The process of collecting roadway characteristics includes compiling geospatial data to create base maps for each of the priority sites. Roadway conditions are key criteria for selecting countermeasures. The agency may document and map the following roadway characteristics for priority sites (see Glossary for more information):

- » Center turn lanes, medians, or refuge islands.
 - » Intersection turn lanes.
 - » Vehicle queue lengths at intersections.
 - » Width of roadway, from curb to curb.
 - » Traffic volumes (AADT or ADT).
 - » Large truck traffic volumes or large trucks as a percentage of total traffic.
 - » On-street parking, alignment, and marked or signed restrictions.
- » Speeds, including posted speed limits and actual speeds (i.e., 85th percentile speeds).
 - » Number of travel lanes for each approach.

Source: City of Boulder, Pedestrian Crossing Treatment Installation Guidelines (2011).

Inventory Pedestrian Crossings and Observed Traffic Behavior

The agency can also document pedestrian crossing conditions. Agency staff can visit the sites and record the following crossing site features:

- » Crosswalk markings, presence, and types.
- » Crosswalk distance (in feet) and crossing phase duration (in seconds).
- » Signage, such as advance, crosswalk, and in-street.
- » Traffic control devices and signals, such as pedestrian crossing signal, pedestrian signal detector, STOP sign, RRFB, and PHB.
- » Signal phasing and restrictions, such as Leading Pedestrian Interval, split or concurrent phasing type, and turn restrictions.
- » Vertical elements, such as refuge island or raised crosswalk.
- » Horizontal elements, such as curb extensions, narrowed curb radii, Road Diet, or lane reconfiguration.
- » Accessibility features, such as curb ramps, truncated domes, and accessible signal push buttons.
- » Lighting and visibility enhancements, such as overhead lighting.
- » Pedestrian volumes, including transit boarding volumes from nearby stops.
- » Pedestrian crossing behaviors near important activity centers such as transit stops, schools, and in downtown districts.
- » Driver behaviors at crosswalks and intersections.
- » Sight distance and visual clearance of crossing.

Classify Pedestrian Crossings as Controlled or Uncontrolled

In addition to collecting inventory information about the priority sites, it is important that the agency categorize each crossing as either controlled or uncontrolled. Uncontrolled pedestrian crossing locations occur where sidewalks or designated walkways intersect a roadway at a location where no traffic control (i.e., traffic signal or STOP sign) is present. These common crossing types occur at intersections (where they may be marked or unmarked) and at non-intersection or midblock locations (where they must be marked as crossings). This guide describes countermeasures applicable to uncontrolled crossings. Some of these countermeasures can also be used for controlled crossings, and the agency should consult other guidance for specific implementation criteria at those sites.

Screen the Network for High-Crash or High-Risk Locations

By following a data-driven approach, the agency can readily explain and defend how it selected priority sites for improvement. An agency can study, or screen, the safety conditions for the road network within its jurisdiction. The screening process uses geo-coded pedestrian crash data and other information to identify different types of locations. Network screening may take the form of spot safety or systemic safety analysis. Spot safety analysis is based on crash history at individual locations and identified high-crash locations. The systemic approach analyzes crash history on an aggregate basis to identify roadways that have high-crash experience, as well as high-risk characteristics at other sites before crashes occur, so countermeasures can be selected to address these characteristics.

Analyze “Hot Spots” or Crash Cluster Locations

Spot safety analysis involves mapping the individual locations of crashes over a time period, preferably at least 5 years for pedestrian crash data. Mapping these crashes on a geographic information system (GIS) helps to visually reveal clusters, or “hot spots,” of pedestrian crashes. Similarly, using the spot analysis approach may also reveal corridors or areas where pedestrian crashes tend to cluster. Grouping the clusters of crashes identified in the spot location process can show areas of potential pedestrian improvements. These areas may be corridors, roadways that share roadway design features, and/or areas of a similar land use. Figure 4 shows a map of pedestrian crash locations in an area.

Develop a Systemic Analysis Approach

Many areas may have low pedestrian crash rates, but still have a high risk for pedestrian crashes. The agency can identify these sites based on roadway characteristics combined with land use features of the area. The agency may select countermeasures to address these high-risk factors before pedestrian crashes occur.

The systemic analysis can cover different geographies; an agency may choose to analyze for an area of interest or the entire jurisdiction. Systemic analysis considers factors such as inadequate roadway design and traffic control devices, lighting conditions, vehicle speeds, and nearby pedestrian destinations. Combinations of these factors help identify countermeasures to address and prevent pedestrian crashes.

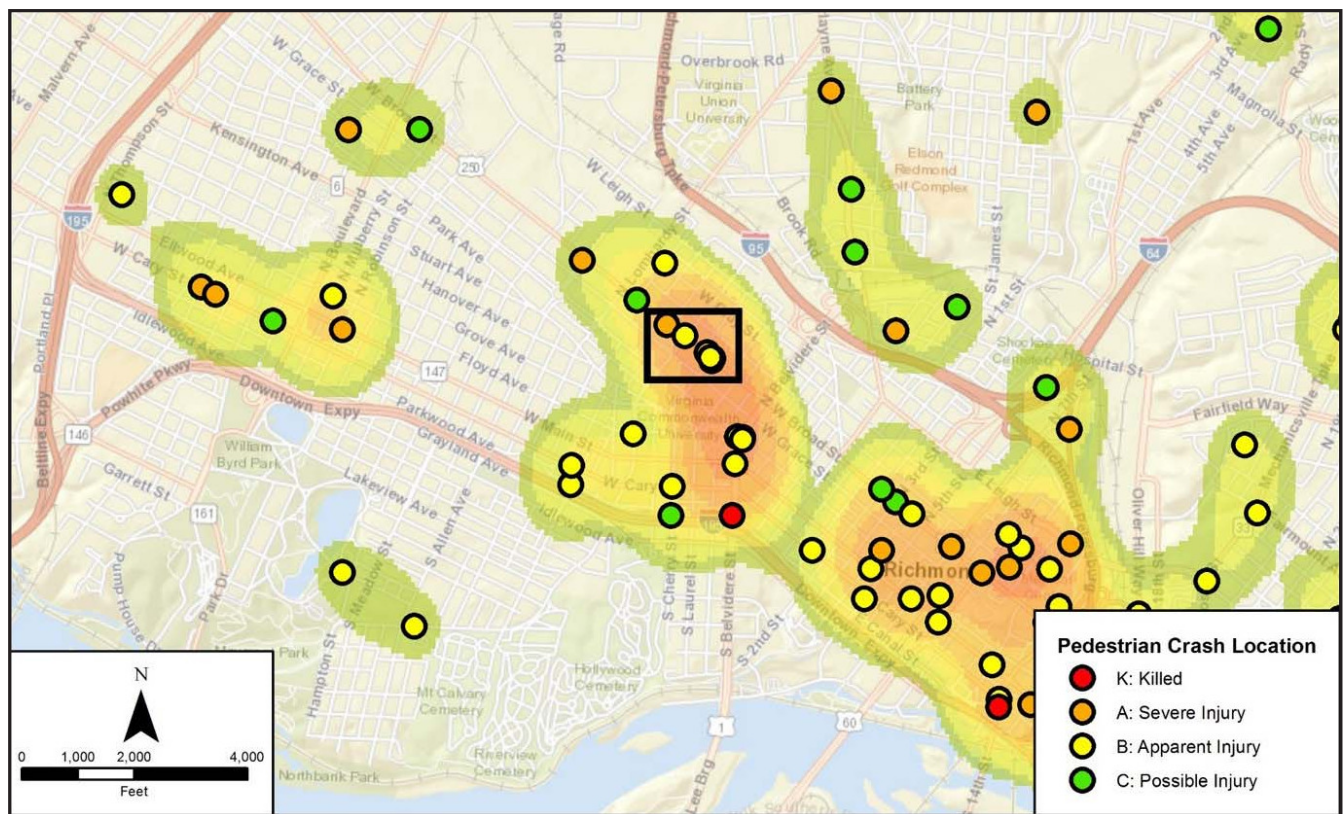
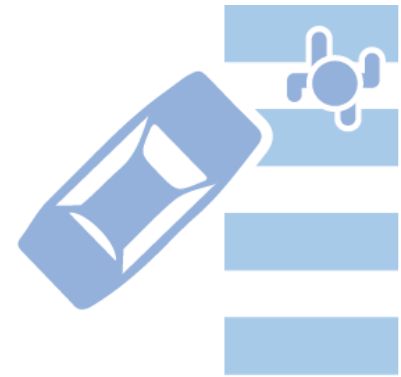


Figure 4. Crash cluster analysis map: Richmond, VA.

Source: Virginia Department of Transportation (2017).

3

Analyze Crash Types and Safety Issues



GUIDING PRINCIPLES

This section describes methods for summarizing pedestrian crash types and observed traffic safety issues. This information is important for selecting countermeasures. The following are important considerations for this step:

- » Diagram crashes according to information included on crash reports (see Figure 5 for a sample diagram).
- » Review the crash types described by the Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE).
- » Conduct a pedestrian Road Safety Audit (RSA) to formally engage representatives from various departments and interest groups.
- » Lead an informal site visit to engage stakeholders and describe conditions observed in the field.

Diagram Crash Reports

Crash diagrams are created to graphically illustrate crash data associated with a given site. Each crash is plotted on a schematic of the site at the approximate location where the crash occurred. Icons are used to represent crash types so that patterns are identifiable. Spatial analysis tools like GIS can also enhance the analysis. Crash diagrams are sometimes plotted on aerial imagery and cross referenced with a tabular listing of the associated crash data so that agency staff can easily access key information. Crash diagrams are useful when there are many crashes associated with a site. An agency may not have sufficient pedestrian crash history to reveal crash patterns, but the absence of crash

data does not necessarily mean a safety problem does not exist. In these cases, an agency should consider systemic analysis.

Identify Crash Factors

Whether an agency is assembling the crash diagrams or simply conducting an exercise to identify potential factors for pedestrian crashes in their jurisdiction, these factors can be considered:

- » Vehicle speed.
- » Compliance with regulations and traffic devices.
- » Pedestrian crossing behaviors.
- » Built environment or area type.

- » Intersection presence and types of traffic control devices.
- » Pedestrian crossing distance.
- » Time of day/day of week/seasonal factors.
- » Alcohol involvement by pedestrians or drivers.
- » Demographics.
- » Special populations, such as school-aged children, older adults, and persons with disabilities.
- » Presence of transit stops.

Conduct a Road Safety Audit (RSA)

An RSA is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. An RSA considers all users of the roadway and human factors and generates a formal report and response upon its conclusion. The agency can use the field conditions inventory and crash type summary during the RSA process. RSAs typically produce multiple planning-level countermeasure recommendations for the study corridor or area.

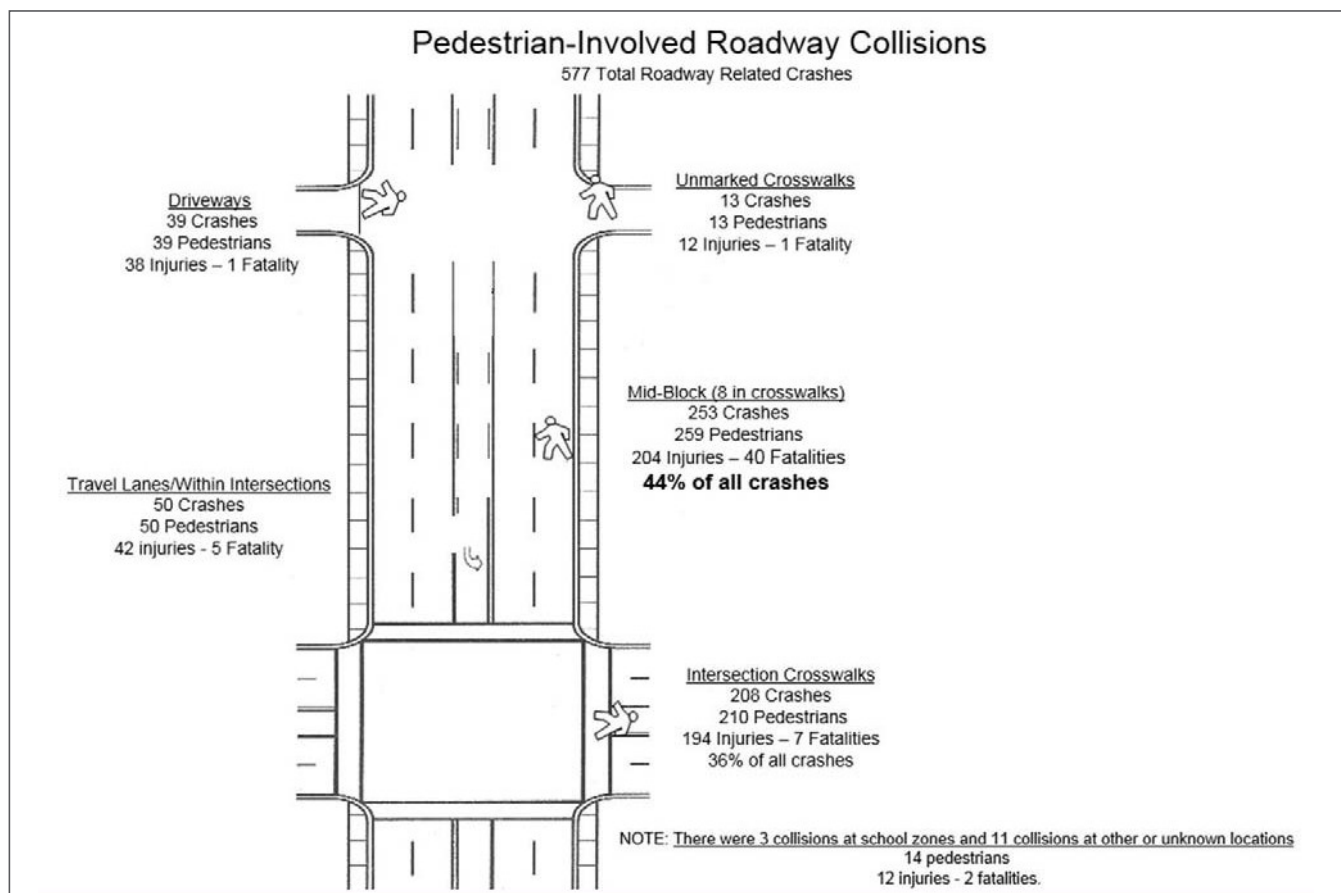


Figure 5. Pedestrian collision summary.

Source: City of Phoenix, AZ. 2015 Pedestrian Collision Summary (2015).

Like traditional RSAs, pedestrian RSAs are performed by a multidisciplinary team of experts or agency representatives, use structured prompt lists, and consider the surrounding socioeconomic and land use context. The materials for a pedestrian RSA provide more detail on pedestrian safety issues and examine elements such as signage, obstructions, signals, bus stop locations, drainage, and lighting. These tools can help identify possible deficiencies in the pedestrian network and potential locations for further investigation.

Lead an Informal Site Visit

An alternative to a formal RSA is an on-site evaluation of pedestrian conditions including representatives from multiple agency departments and stakeholder interest groups. An informal on-site evaluation can collect information about pedestrian crossings and traffic operations at the neighborhood or area-wide scale. Law enforcement, public health, community groups, neighborhood residents, street or transportation departments, planning, emergency response, schools, and public transportation agencies can be involved in the process. The findings from this informal evaluation should be documented and shared with participants.

RESOURCES

[FHWA Model Road Safety Audit Policy](#) (2014)

This resource outlines the steps typically taken to conduct an RSA and the roles of the stakeholders. Identifying safety issues is an element of the RSA that is accompanied by suggestions on how to enhance the specific road's safety.

[Pedestrian RSA Guidelines and Prompt Lists](#) (2007)

This resource complements practices for RSAs with additional guidance and a field manual for a pedestrian-focused RSA. An RSA team will use the knowledge of a diverse team, analysis of crash data, and a site visit to identify pedestrian safety issues.

[Pedestrian RSA Case Studies](#) (2009)

This website provides links to several examples of RSAs focused on identifying pedestrian safety risks and improvement strategies. For example, the City of Tucson, Arizona conducted an RSA of roadways with PHBs to improve the countermeasures' visibility and usability.

[PEDSAFE: Pedestrian Crash Typing](#)

PEDSAFE provides definitions for 12 key pedestrian crash types identified by the software package, the Pedestrian and Bicycle Crash Analysis Tool (PBCAT). PBCAT is still used by many agencies but may not be compatible with some current operating systems.

4

Select Countermeasure(s)



GUIDING PRINCIPLES

This section can help the agency select countermeasures based on information previously collected and assessed. The agency can use the following resources to select countermeasures:

- » First, reference Table 1 to compare roadway and vehicle speed characteristics to countermeasure options.
- » Then, reference Table 2 to compare crash types and other observed safety issues to countermeasure options.
- » Review Appendix B for more information about countermeasure CRFs and CMFs.

Application of Countermeasures by Roadway Feature

Table 1 includes a comprehensive matrix and list of STEP pedestrian crash countermeasures suggested for application at uncontrolled crossing locations per roadway and traffic features. The countermeasures are assigned to specific matrix cells based on safety research, best practices, and established national guidelines. When a pedestrian crossing is established, the agency should review the countermeasure options in the cells before selecting the optimal group of crossing treatments. The agency should consider the previously obtained characteristics such as pedestrian volume, operational speeds, land use context, and other site features when selecting countermeasures.

The agency should also reference the MUTCD and other national, State, and local guidelines when making the final selection of countermeasures.

For example, the agency may evaluate a 5-lane road with no raised median, an AADT of 12,000, and a 35 mph posted speed limit. The matrix recommends the agency strongly consider high-visibility crosswalks, adequate lighting, and parking restrictions on the approaches. In addition, the agency should strongly consider adding advance Yield Here To (Stop Here For) Pedestrians signs and yield (stop) lines, pedestrian refuge islands, and PHBs. Other candidate treatments include implementing a Road Diet along the corridor and adding curb extensions.

Table 1 provides initial countermeasure options for various roadway conditions. Each matrix cell indicates possibilities that may be appropriate for designated pedestrian crossings. Not all of the countermeasures listed in the matrix cell should necessarily be installed at a crossing.

For multi-lane roadway crossings with vehicle AADTs exceeding 10,000, a marked crosswalk alone is typically insufficient (Zegeer, 2005). Under such conditions, more substantial crossing improvements (such as the refuge island, PHB, and RRFB) are also needed to prevent an increase in pedestrian crash potential.

Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6 7 9	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6 7 9	① 5 6 7 9	① 5 6 ⑨
3 lanes with raised median (1 lane in each direction)	① 2 3 4 5	① ③ 5 7 9	① ③ 5 ⑦ ⑨	① 3 4 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑦ ⑨	① ③ 4 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑨
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 ⑨	① 3 4 5 6 7 9	① ③ 5 6 ⑦ ⑨	① ③ 5 6 ⑨	① ③ 4 5 6 7 9	① ③ 5 6 ⑨	① ③ 5 6 ⑨
4+ lanes with raised median (2 or more lanes in each direction)	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 ⑨	① ③ 5 7 8 9	① ③ 5 ⑦ 8 ⑨	① ③ 5 8 ⑨	① ③ 5 ⑦ 8 ⑨	① ③ 5 8 ⑨	① ③ 5 8 ⑨
4+ lanes w/o raised median (2 or more lanes in each direction)	① ③ 5 6 7 8 9	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ ⑦ 8 ⑨	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ ⑦ 8 ⑨	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ 8 ⑨
Given the set of conditions in a cell, # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location. ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location. ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.* The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.					1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs 2 Raised crosswalk 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line 4 In-Street Pedestrian Crossing sign 5 Curb extension 6 Pedestrian refuge island 7 Rectangular Rapid-Flashing Beacon (RRFB)** 8 Road Diet 9 Pedestrian Hybrid Beacon (PHB)**				

*Refer to Chapter 4, "Using Table 1 and Table 2 to Select Countermeasures," for more information about using multiple countermeasures.

**It should be noted that the PHB and RRFB are not both installed at the same crossing location.

This table was developed using information from: Zegeer, C.V., J.R. Stewart, H.H. Huang, P.A. Lagerwey, J. Feaganes, and B.J. Campbell. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines. FHWA, No. FHWA-HRT-04-100, Washington, D.C.; FHWA. Manual on Uniform Traffic Control Devices, 2009 Edition. (revised 2012). Chapter 4F, Pedestrian Hybrid Beacons. FHWA, Washington, D.C.; FHWA. Crash Modification Factors (CMF) Clearinghouse. <http://www.cmfclearinghouse.org/>; FHWA. Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE). <http://www.pedbikesafe.org/PEDSAFE/>; Zegeer, C., R. Srinivasan, B. Lan, D. Carler, S. Smith, C. Sundstrom, N.J. Thirsk, J. Zegeer, C. Lyon, E. Ferguson, and R. Van Houten. (2017). NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Transportation Research Board, Washington, D.C.; Thomas, Thirsk, and Zegeer. (2016). NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways. Transportation Research Board, Washington, D.C.; and personal interviews with selected pedestrian safety practitioners.

Safety Issues Addressed per Countermeasure

The results of the crash analysis, road safety audit, and/or stakeholder input provide the agency with a better understanding of the risk factors at uncontrolled crossing locations. The countermeasures listed in this guide can improve the visibility of crossing locations and reduce crashes, and they each address at least one additional safety concern associated with a higher risk of collision and/or severe

injury. These additional safety issues include the following: excessive vehicle speed, inadequate conspicuity/visibility, drivers not yielding to pedestrians in crosswalks, and insufficient separation from traffic.

Table 2 shows the specific safety issues that each countermeasure may address. For example, the addition of PHBs has been consistently shown to improve motorist yielding by 90 percent or greater, when compared with no traffic control or warning type devices.

Table 2. Safety issues addressed per countermeasure.

Pedestrian Crash Countermeasure for Uncontrolled Crossings	Safety Issue Addressed				
	Conflicts at crossing locations	Excessive vehicle speed	Inadequate conspicuity/visibility	Drivers not yielding to pedestrians in crosswalks	Insufficient separation from traffic
Crosswalk visibility enhancement					
High-visibility crosswalk markings*					
Parking restriction on crosswalk approach*					
Improved nighttime lighting*					
Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line*					
In-Street Pedestrian Crossing sign*					
Curb extension*					
Raised crosswalk					
Pedestrian refuge island					
Pedestrian Hybrid Beacon					
Road Diet					
Rectangular Rapid-Flashing Beacon					

*These countermeasures make up the STEP countermeasure "crosswalk visibility enhancements." Multiple countermeasures may be implemented at a location as part of crosswalk visibility enhancements.

Using Table 1 and Table 2 to Select Countermeasures

Table 1 provides initial countermeasure options for various roadway conditions. Each matrix cell indicates possibilities that may be appropriate for designated pedestrian crossings. Not all of the countermeasures listed in the matrix cell should necessarily be installed at a crossing. Agency officials should also review safety issues referenced in Table 2, the surrounding land development context, pedestrian travel patterns, countermeasure effectiveness, and costs when considering what countermeasure(s) are best suited for the crossing.

A marked crosswalk is useful to show pedestrians and drivers preferred crossing locations. However, for multi-lane roadway crossings where vehicle AADTs are in excess of 10,000, a marked crosswalk alone is typically not sufficient (Zegeer, 2005). Under such conditions,

more substantial crossing improvements are also needed to prevent an increase in pedestrian crash potential. Examples of more substantial treatments include the refuge island, PHB, and RRFB. Refer to the symbols used in Table 1 for when a marked crosswalk should be paired with one or more of the other countermeasures described.

To further increase visibility of pedestrian crossings, agencies often integrate multiple countermeasures. For example, the Pedestrian Hybrid Beacon is often installed in conjunction with advance stop markings and signs. Also, Road Diets present opportunities for adding pedestrian refuge islands and curb extensions at key crossing locations. Agencies should consider roadway geometry and the MUTCD when integrating multiple countermeasures.

Countermeasure Descriptions

This subsection describes considerations for implementation of each of the countermeasures included in Tables 1 and 2. The agency can review other guidance—such as the MUTCD, the AASHTO Pedestrian Guide, and/or agency policies and practices—to identify and select countermeasures for implementation.

Crosswalk visibility enhancements

High-visibility crosswalks may include a variety of crosswalk striping designs, such as ladder, continental, or bar pairs. A high-visibility crosswalk is much easier for

an approaching motorist to see than the traditional parallel lines. The agency should strongly consider providing high-visibility crosswalks at all established midblock pedestrian crossings. The high-visibility markings may be supplemented with the pedestrian crossing warning signs (sign W11-2 in the MUTCD) on each approach to the crosswalk. MUTCD Section 2C.50—*Non Vehicular Warning Signs* and Section 3B.18—*Crosswalk Markings* provide additional information.

The agency should also strongly consider implementing parking restrictions on the crosswalk approach at all established

pedestrian crossings (both approaches) so there is adequate sight distance for motorists on the approaches to the crossings and ample sight distance for pedestrians attempting to cross. The minimum setback is 20 feet where speeds are 25 mph or less, and 30 feet between 26 mph and 35 mph. If this cannot be done, the curbs should be "bulbed out" to allow the pedestrian to see past the parked vehicle along the street. Adjacent bus stops should be placed downstream of the crosswalk and not on the crosswalk approach.

The agency should consider providing an appropriate level of lighting at all established pedestrian crossings. Consideration should be given to placing the lights 10 to 15 feet in advance of the crosswalk on both sides of the street and on both approaches to better light the front of the pedestrian and avoid silhouette lighting (where possible).

In-street Pedestrian Crossing sign

In-street signs are placed in the middle of the road at a crossing and are often used in conjunction with refuge islands. These signs may be appropriate on 2-lane or 3-lane roads with speed limits of 30 mph or less. On higher-speed, higher-volume, and/or multilane roads, this treatment may not be as visually prominent; therefore, it may be less effective (drivers may not notice the signs in time to stop in advance of the crosswalk). For such roadways, more robust treatments will be needed. When making the choice to use these signs, the agency should consider making a plan and securing a funding source for the maintenance and prompt replacement of damaged signs. The MUTCD permits in-street pedestrian signs for installation on centerlines and along lane lines. MUTCD

Section 2B.12—*In-Street and Overhead Pedestrian Crossing Signs* contains additional information about these signs.

Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line

Advance Yield Here To (Stop Here For) Pedestrians signs are placed between 30 and 50 feet in advance of the marked crosswalk along with the stop line or "shark's teeth" yield line. This is a candidate treatment for any uncontrolled pedestrian crossing, and should be strongly considered for any established pedestrian crossing on roads with four or more lanes and/or roads with speed limits of 35 mph or greater. Stop Here For Pedestrians signs should only be used where the law specifically requires that a driver must stop for a pedestrian in a crosswalk. MUTCD Section 2B.11—*Yield Here To Pedestrians Signs and Stop Here For Pedestrians Signs* and Section 3B.16—*Stop and Yield Lines* contain additional information.

Curb extension

A curb extension or "bulbout" extends the sidewalk or curb line into the street or parking lane, thus reducing the street width and improving sight distance between the driver and pedestrian. A curb extension is a candidate treatment for any uncontrolled pedestrian crossing, particularly where parking lanes exist. Curb extensions should not extend into paths of travel for bicyclists.

Raised crosswalk

Raised crosswalks function as an extension of the sidewalk and allow a pedestrian to cross the street at a constant grade. A raised crosswalk is typically a candidate treatment on 2-lane or 3-lane roads with speed limits of 30 mph or less and AADTs below 9,000. Raised crossings are generally

avoided on truck routes, emergency routes, and arterial streets. Drainage needs to be accommodated. See MUTCD Section 3B.25—*Speed Hump Markings* for additional information about markings that can be used alongside raised crosswalks.

Pedestrian refuge island

A pedestrian island is typically constructed in the middle of a 2-way street and provides a place for pedestrians to stand and wait for motorists to stop or yield. This countermeasure is highly desirable for midblock pedestrian crossings on roads with four or more lanes, and should be considered for undivided crossings of four or more lanes with speed limits of 35 mph or greater and/or AADTs of 9,000 or greater. Median islands may also be a candidate treatment for uncontrolled pedestrian crossings on 3-lane or 2-lane roads, especially where the street is wide and/or where vehicle speed or volumes are moderate to high. Consideration should be given to creating a two-stage crossing with the island to encourage pedestrians to cross one direction of traffic at a time and look towards oncoming traffic before completing the second part of the crossing. The minimum pedestrian refuge island width is approximately 6 feet. MUTCD Section 3B.10—*Approach Markings for Obstructions*, Section 3B.18—*Crosswalk Markings*, and Section 3B.23—*Curb Markings* provide additional information.

Pedestrian Hybrid Beacon (PHB)

A PHB head consists of two red lenses above a single yellow lens, and is used in conjunction with pedestrian signal heads installed at each end of a marked crosswalk. Figure 6 shows a rendering of a PHB. The PHB has been referred to as the High-Intensity Activated crossWalk beacon (HAWK), but the MUTCD refers to this device as the PHB.

Unlike a traffic signal, the PHB rests in dark until a pedestrian activates it via pushbutton or other form of detection. When activated, the beacon displays a sequence of flashing and solid lights that control vehicular traffic while the pedestrian signal heads indicate the pedestrian walk interval and a pedestrian clearance interval.

The PHB should meet the installation guidelines—based on speed, pedestrian volume, vehicular volume, and crossing length—as provided in Section 4F.01 of the MUTCD (See Figure 4F-1 for speeds of 35 mph or less; Figure 4F-2 for speeds greater than 35 mph). Research indicates that PHBs are most effective at roads with three or more lanes that have AADTs above 9,000. PHBs should be strongly considered for all midblock crossings where the roadway speed limits are equal to or greater than 40 mph. Refer to Table 1 for other conditions where PHBs should be strongly considered. It should be noted that the PHB and RRFB are not both installed at the same crossing location.

PHBs have also been installed successfully at intersections under certain conditions. Since the current MUTCD guidance is to locate PHBs at least 100 feet away from an intersection, engineering judgment/engineering study must be carefully applied if considering an installation at an intersection.



Figure 6. Rendering of a PHB.

Source: FHWA STEP Countermeasure Tech Sheets.
(Note: Drawing not to scale.)

Road Diet

A road diet reconfigures the roadway. A frequently-implemented Road Diet involves converting a 4-lane, undivided roadway into a 3-lane roadway with a center turn lane. This is a candidate treatment for any undivided road with wide travel lanes or multiple lanes that can be narrowed or repurposed to improve pedestrian crossing safety.

After conducting a traffic analysis to consider its feasibility, the agency may determine that a Road Diet is a good candidate for use on roads with four or more lanes and traffic volumes of approximately 20,000 or less. In some cases, agencies have successfully implemented Road Diets on roads with AADTs of up to 25,000. By reducing the width of the roadway, pedestrians benefit from shorter crossing distances and often bike lanes or streetscape features can be added. Road Diets are often effectively accomplished during pavement resurfacing.

Rectangular Rapid-Flashing Beacon (RRFB)

An RRFB is a pedestrian-actuated conspicuity enhancement 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 an LED-array-based light source, that flash with high frequency when activated.

RRFBs may be used to enhance the conspicuity of standard pedestrian and school crossing warning signs at

uncontrolled marked crosswalks. RRFBs are placed on both ends of a crosswalk. If the crosswalk contains a pedestrian refuge island or other type of median, an RRFB should be placed to the right of the crosswalk and on the median (instead of the left side of the crosswalk). The RRFB's irregular flashing pattern pattern is unlit when not activated and can be activated manually by pedestrians using a push button or passively by a pedestrian detection system. This device is not currently included in the MUTCD, but FHWA has issued Interim Approval 21 (IA-21) for the use of the RRFB. State and local agencies must request and receive permission to use this interim approval before they can use the RRFB. IA-21 provides additional information about the conditions of use, including dimensions, placement, and flashing requirements. IA-21 does not provide guidance or criteria based on number of lanes, speed, or traffic volumes.

The RRFB is a treatment option at many types of established pedestrian crossings. Research indicates RRFBs can result in motorist yielding rates as high as 98 percent at marked crosswalks. However, yielding rates as low as 19 percent have also been noted. Compliance rates varied most per the city location, posted speed limit, crossing distance, and whether the road was one- or two-way.¹ RRFBs are particularly effective at multilane crossings with speed limits less than 40 mph. Consider the PHB instead of RRFBs for roadways with higher speeds. Table 1 provides specific conditions where practitioners should strongly consider the PHB instead of the RRFB.

¹Fitzpatrick, K., M. Brewer, R. Avelar, and T. Lindheimer. 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, College Station, Texas. June 2016. <https://static.tti.tamu.edu/tti.tamu.edu/documents/TTI-CTS-0010.pdf>

RESOURCES

[PEDSAFE, Pedestrian Safety Guide and Countermeasure Selection System](#)

This online tool includes links to research studies, crash reduction statistics, and case studies for nearly 70 pedestrian safety countermeasures. Its Countermeasure Selection Tool provides countermeasure recommendations for uncontrolled crossing locations based upon variables such as AADT, vehicle speed, and number of lanes.

[Manual on Uniform Traffic Control Devices \(MUTCD\)](#)

This manual provides transportation engineers and planners with detailed guidance for the design and application of traffic control devices, including signage, roadway markings, and intersection controls. Refer to the specific sections of the MUTCD listed in the countermeasure descriptions and consult State-level supplements for additional information.

[FHWA Road Diet Desk Reference](#) (2015)

This resource includes sample policy, case studies, and design guidance for agencies and decision-makers considering Road Diets. The benefits of Road Diets include reducing vehicle speeds, reducing number of lanes to cross, and allocating space for pedestrian refuge islands.

[Highway Safety Manual](#)

This manual provides detailed guidance for the collection, analysis, and evaluation of roadway crash data, as well as related CMFs and treatment selection guidance.

[FHWA Design Resource Index](#)

This resource directs practitioners to the specific location of information about pedestrian and bicycle treatments or countermeasures, across various design guidelines published by organizations such as AASHTO, the Institute of Transportation Engineers, and National Association of City Transportation Officials.

[Informational Brief: Treatments for Uncontrolled Marked Crosswalks](#) (2017)

FHWA provided this information about optional treatments for uncontrolled pedestrian crossing locations.

[TCRP REPORT 112/NCHRP REPORT 562: Improving Pedestrian Safety at Unsignalized Crossings](#) (2006)

This document recommends treatments to improve safety for pedestrians crossing high-volume, high-speed roadways at unsignalized intersections, with particular focus on roadways served by public transportation.

[NHTSA "A Primer for Highway Safety Professionals"](#) (2016)

This resource outlines a comprehensive approach to improving safety for bicyclists and pedestrians and offers a summary of the most frequently used engineering, enforcement, and education safety measures. The resource identifies how certain treatments may be placed in relation to other treatments, such as the coordinated installation of a pedestrian refuge island and lighting.

[CMF Clearinghouse](#)

The CMF Clearinghouse is an online database of countermeasures and corresponding CMFs. The database describes the confidence of the study that produced the CMF with an assigned "star quality rating." The clearinghouse includes CMFs for most of the STEP countermeasures.

[NCHRP Report 841: Development of CMFs for Uncontrolled Pedestrian Crossing Treatments](#) (2017)

This report describes the safety benefits and CMFs for four types of pedestrian crossing treatments—rectangular rapid flashing beacons, PHBs, pedestrian refuge islands, and advance crosswalk signs and pavement markings.

[NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways](#) (2016)

This is a compilation of existing practices regarding the selection and implementation of pedestrian crossing improvements, as well as a literature review of research on more than 25 pedestrian crossing treatments.

5

Consult Design and Installation Resources



GUIDING PRINCIPLES

This section identifies additional resources that refine countermeasure options for priority sites. The following are important considerations for this step:

- » Consult the MUTCD for recommendations for signage and roadway markings for all countermeasures.
- » Review the MUTCD (Part 4) for more considerations, including pedestrian volumes and vehicle operating speeds, for the installation of PHBs.
- » Consult local and national design guidance for the preferred width and placement of these countermeasures.

Review Agency Design Guidelines

The agency can review and, if needed, enhance local guidance for traffic engineers and roadway designers to follow when installing countermeasures. The agency's roadway design manual can include details, such as design and installation guidance, for each of the countermeasure options. The agency may also consider creating additional warrant and threshold guidance for countermeasures such as the Road Diet, considering local conditions.

Consult the MUTCD

The agency may focus on three parts of the MUTCD for additional considerations when installing countermeasures:

- » Part 2: Signs.
- » Part 3: Markings.
- » Part 4: Highway Traffic Signals (includes detailed guidance for installing Pedestrian Hybrid Beacons based on traffic speeds, traffic volumes, and pedestrian volumes).

RESOURCE

AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition (2004)

This guide provides recommendations for the planning, design, and operation of accommodations for pedestrians on public rights-of-way. This guide also discusses the impact of land use and site design on pedestrian safety and connectivity.

6

Identify Opportunities and Monitor Outcomes



GUIDING PRINCIPLES

This section describes possible options for funding and implementation of the countermeasures described in this guide. The following are important considerations for this step:

- » Review the State's HSIP process for considering and funding pedestrian crossing countermeasures.
- » Review local traffic calming and land development policies for opportunities to install pedestrian crossing countermeasures.
- » Consider the costs to design, install, and maintain selected countermeasures.
- » Collect usage and crash data for at least three years after countermeasures are installed at priority sites.
- » Continue to monitor priority sites not funded for countermeasure installation.
- » Provide information to the public about planned countermeasure projects. Information should address the safety benefits and possible impacts to traffic operations.

Consider Funding Options

A major consideration when selecting a safety project or program is identifying and securing the funding to design, construct, operate, and maintain the project or program. FHWA, NHTSA, and other Federal agencies distribute funding to States and other jurisdictions for transportation safety projects. If local funding is scarce, agencies may approach the State Departments of Transportation for safety improvement funding consideration. Some projects may require a local match to leverage State or Federal dollars. The agency may consider the following steps:

- » Submit high-priority pedestrian crash locations as HSIP projects.
- » Consider other State safety funding programs for low-cost pedestrian safety improvements.
- » Address gaps in pedestrian accommodations through other State or Federal funding programs such as Transportation Alternatives Program, Congestion Mitigation and Air Quality, and Surface Transportation Block Grant (STBG).

Identify Opportunities for Successful Implementation

The agency can look beyond safety-focused funding programs to help implement countermeasures. By incorporating safety treatments into roadway maintenance or traffic operation projects, the agency can realize cost savings. For example, the agency should consider how resurfacing and operational projects may include countermeasures such as Road Diets and pedestrian crossing signal improvements.

The agency can also engage the community prior to programming the project. The treatments are likely to affect traffic operations, and the public may respond negatively to the change without sufficient notice and education. The agency can develop public education materials describing the benefits and costs of the countermeasures. Law enforcement, pedestrian safety advocates, public health officials, and other community partners may be able to help distribute the materials.

It is important for the agency to work with local partners to coordinate early in the process of designing or improving a roadway to identify opportunities for improved pedestrian crossing safety. If the agency has a Complete Streets policy in place, the policy describes how pedestrian crossing treatments and sidewalks are incorporated into roadway projects. Roadway project design should identify locations and countermeasure options for pedestrian crossings. Developing preliminary cost estimates early for these improvements will help local partners make decisions about funding for pedestrian crossing treatments.

The agency can also work with land developers to incorporate pedestrian crossing treatments into site plans and connecting roadways. Land development policies provide an opportunity to integrate pedestrian and multimodal improvements, connectivity, and accommodations into site plans and nearby roadways. The agency can examine development policies or ordinances for requirements to install sidewalks and pedestrian crossing treatments.

Construct Improvements

The public may have questions about the improvements as construction activities begin. The agency should post information about the improvements and a timeline for construction to a public-facing website and consider issuing a press release about the project. The agency should also provide detailed information to neighbors and business owners impacted by construction activities about the project. Pedestrians will maintain access through the work zone area by way of temporary walkways, curb ramps, and traffic control signage.

The agency may consider phasing in the improvements. For example, a refuge island can be implemented initially by pavement markings and flexible delineators in the center lane. The agency can later add a raised median and appropriate landscaping at the refuge island.

Monitor Results of Implementation

The agency should consider monitoring the impacts of countermeasures per defined performance measures. Specific performance measures can be outlined in plans, such as a PSAP. The PSAP may

also list priority locations and proposed countermeasures.

The first measure of success for a project or program is public support. States and local governments can prepare public information for countermeasures that are new to the community or may change traffic patterns. Public information about the projects may describe the crash history or risks noted at the site, as well as the benefits of the proposed countermeasure.

States and local government can also collect and analyze crash and traffic data related to countermeasure sites for at least 3 years following the installation of the project. This time allows for data to be collected to compare crash rates and severity with the same data collected before the installation. The agency should work with their State HSIP to evaluate projects by continuing to collect data, and it is essential that the treatment

installation date be documented. In addition to the safety performance of the treatment, agency staff should consider assessing the durability and life cycle maintenance needs for in-service devices.

In addition to crash data, it is important to collect data on pedestrian volumes, traffic speeds, and interactions between pedestrians and drivers. Pedestrian volume data can help demonstrate the benefits of implementing safety countermeasures. Information about traffic speeds and behaviors also help confirm the effectiveness of installing these countermeasures. As more pedestrian crossing treatments are implemented, State and local agencies can use these data to research the effectiveness of countermeasures and best practices for installation. Evaluation also helps an agency demonstrate the value of the investment in countermeasures to community leaders and the public.

RESOURCES

[FHWA Federal-aid Program Administration](#)

This website includes links to guidance for local and State governments administering federally-funded projects, such as those funded by HSIP or STBG.

[FHWA Guidebook for Developing Pedestrian and Bicycle Performance Measures](#) (2016)

This resource identifies a wide variety of potential metrics for setting goals, prioritizing projects and evaluating outcomes of bicycle and pedestrian plans, including plans for pedestrian safety improvements. Performance measures may include pedestrian levels of service or pedestrian fatality rates.

[FHWA Pedestrian and Bicycle Funding Opportunities Summary](#) (2016)

This resource includes a matrix comparing eligibility of various federal transportation funding programs for different types of bicycle and pedestrian projects.

[NCHRP Report 803: Pedestrian and Bicycle Transportation Along Existing Roads—ActiveTrans Priority Tool Guidebook](#) (2015)

This resource includes an interactive tool and guidance to help agencies prioritize pedestrian and bicycle improvements, including safety projects, either as standalone or incidental to a roadway project.

Glossary

Annual Average Daily Traffic (AADT)

The total volume of traffic passing a point or segment of a highway facility in both directions for one year divided by the number of days in the year.

Average Daily Traffic (ADT)

The average 24-hour volume of traffic passing a point or segment of a highway in both directions.

Complete Streets

Complete Streets are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. (Smart Growth America, National Complete Streets Coalition.)

Controlled pedestrian crossing

A pedestrian crossing where motorists are required to stop by either a STOP sign, traffic signal, or other traffic control device.

Crash modification factor (CMF)

A multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure. If available, calibrated or locally developed State estimates may provide a better estimate of effects for the State. (Crash Modification Factors Clearinghouse.)

Crash reduction factor (CRF)

The percentage crash reduction that might be expected after implementing a given countermeasure at a specific site.

Curb extensions

A roadway edge treatment where a curb line is bulbed out toward the middle of the roadway to narrow the width of the street. Curb extensions are sometimes called “neckdowns.”

Highway Safety Improvement Program (HSIP)

A Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance. (FHWA.)

High visibility crosswalk

A pedestrian crossing location marked by patterns such as zebra, ladder, or continental markings as described by the MUTCD.

Marked crosswalk

A pedestrian crossing that is delineated by white crosswalk pavement markings.

Parking restriction

Parking restriction can include the removal of parking space markings, installation of new “parking prohibition” pavement markings or curb paint, and signs.

Pedestrian Hybrid Beacon (PHB)

A traffic control device with a face that consists of two red lenses above a single yellow lens. Unlike a traffic signal, the PHB rests in dark until a pedestrian activates it via pushbutton or other form of detection.

Raised crosswalk

Raised crosswalks are ramped speed tables spanning the entire width of the roadway, often placed at midblock crossing locations.

Rectangular Rapid-Flashing Beacon (RRFB)

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 an LED-array-based light source, that flash with high frequency when activated. RRFBs are placed on both ends of a crosswalk. If the crosswalk contains a pedestrian refuge island or other type of median, an RRFB should be placed to the right of the crosswalk and on the median (instead of the left side of the crosswalk). The flashing pattern is pedestrian-activated by pushbuttons or automated detection and is unlit when not activated.

Refuge island

A median with a refuge area that is intended to help protect pedestrians who are crossing the road. This countermeasure is sometimes referred to as a crossing island or pedestrian island.

Road Diet

A roadway reconfiguration resulting in a reduction in the number of travel lanes. The space gained by eliminating lanes is typically used for other uses and travel modes. (FHWA.)

Road Safety Audit (RSA)

A formal examination of an existing or future road or intersection by a multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. (FHWA.)

Toward Zero Deaths (TZD)

TZD is a traffic safety framework that seeks to eliminate highway fatalities by engaging diverse safety partners and technology to address traffic safety culture. (See also: Vision Zero.)

Uncontrolled pedestrian crossing

An established pedestrian crossing that does not include a traffic signal, beacon, or STOP sign to require that motor vehicles stop before entering the crosswalk.

Vehicle queue

A line of stopped vehicles in a single travel lane, commonly caused by traffic control at an intersection.

Vision Zero (VZ)

Similar to TZD, Vision Zero is a vision to eliminate traffic fatalities and serious injuries within the transportation system. VZ employs comprehensive strategies to address roadway design, traffic behavior, and law enforcement.

Appendix A: Framework for a Resolution Supporting Pedestrian Safety

Agency policies respond to a need or opportunity, such as pedestrian safety crash and fatality trends. A resolution may help decision-makers, including elected officials or appointed commissioners, better understand the need for pedestrian crash countermeasure policy or design guidance.

The following is a list of possible elements for a local or Statewide resolution in support of a pedestrian crossing policy. These elements may be developed into “Whereas” statements or be included as explanatory text introducing the policy. The list of resolution elements is presented as four categories covering a spectrum of pedestrian safety issues.

1. Example statistics that may raise awareness of pedestrian safety trends.

- » Percent pedestrian fatalities of total traffic fatalities.
- » Number of total pedestrian crashes/fatalities per year.
- » Percent of pedestrian crashes occurring outside the intersection.

SAMPLE LANGUAGE

"Whereas the number of pedestrian crashes per year and the percent of pedestrian fatalities out of all traffic fatalities in [State] demonstrate the need for improved pedestrian safety at roadway crossings..."

2. List of broad issues that agencies commonly consider when discussing pedestrian safety and crash countermeasures.

- » Safety is a priority for all road users.
- » Crossings are essential to a complete network for pedestrian mobility.
- » Pedestrian safety is part of overall quality of life and improved public health.
- » Improvements to pedestrian safety often improve safety for all road users.
- » Pedestrian countermeasures are generally lower-cost treatments.
- » Many pedestrian crash countermeasures have been evaluated as highly effective.

SAMPLE LANGUAGE

"Whereas [Agency/State] recognizes that safety is a priority for all road users, and improvements to pedestrian safety often improve safety for all road users..."

3. List of example planning documents that frequently discuss Statewide pedestrian safety concerns and may include statistics or other compelling reasons for implementing pedestrian crossing treatments.

- » State Strategic Highway Safety Plan includes pedestrian safety as an emphasis area.
- » State Highway Safety Plan includes pedestrian safety programs or enforcement support.
- » State Roadway Design Manual includes guidance for countermeasure design.
- » Highway Safety Improvement Program includes safety performance targets for non-motorists.

SAMPLE LANGUAGE

"Whereas [State]'s Strategic Highway Safety Plan addresses pedestrian safety as an emphasis area..."

4. List of Statewide opportunities for promoting, planning, and funding the construction of pedestrian crossing treatments.

- » Highway Safety Improvement Program includes specific focus or funding for pedestrian crash countermeasures.
- » Complete Streets Policy directs the inclusion of pedestrian accommodations as part of other transportation projects.
- » Vision Zero or Towards Zero Deaths initiative strives to reduce or eliminate all traffic-related fatalities, including pedestrians.

SAMPLE LANGUAGE

"Whereas [Agency]'s Highway Safety Improvement Program includes specific funding for pedestrian crash countermeasures..."

Appendix B: CRF and CMF Summary Table

Table 3. CRFs and CMFs by countermeasure.

Countermeasure	CRF	CMF	Basis	Reference
Crosswalk visibility enhancement ¹	—	—	—	—
Advance STOP/YIELD signs and markings	25%	0.75	Pedestrian crashes ²	Zegeer, et. al. 2017
Add overhead lighting	23%	0.77	Total injury crashes	Harkey, et. al. 2008
High-visibility marking ³	48%	0.52	Pedestrian crashes	Chen, et. al., 2012
High-visibility markings (school zone) ³	37%	0.63	Pedestrian crashes	Feldman, et. al. 2010
Parking restriction on crosswalk approach	30%	0.70	Pedestrian crashes	Gan, et. al., 2005
In-street Pedestrian Crossing sign	UNK	UNK	N/A	N/A
Curb extension	UNK	UNK	N/A	N/A
Raised crosswalk (speed tables)	45%	0.55	Pedestrian crashes	Elvik, et. al., 2004
	30%	0.70	Vehicle crashes	
Pedestrian refuge island	32%	0.68	Pedestrian crashes	Zegeer, et. al., 2017
PHB	55%	0.45	Pedestrian crashes	Zegeer, et. al., 2017
Road Diet – Urban area	19%	0.81	Total crashes	Pawlovich, et. al., 2006
Road Diet – Suburban area	47%	0.53	Total crashes	Persaud, et. al., 2010
RRFB	47%	0.53	Pedestrian crashes	Zegeer, et. al. 2017

¹This category of countermeasure includes treatments which may improve the visibility between the motorist and the crossing pedestrian.

²Refers to pedestrian street crossing crashes, and does not include pedestrians walking along the road crashes or “unusual” crash types.

³The effects of high-visibility pavement markings (e.g., ladder, continental crosswalk markings) in the “after” period is compared to pedestrian crashes with parallel line markings in the “before” period.

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Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT											
	Vehicle AADT 1,500-3,000			Vehicle AADT 3,000-9,000			Vehicle AADT 9,000-15,000			Vehicle AADT >15,000		
	< 30mph	35 mph	≥40 mph	< 30mph	35 mph	≥40 mph	< 30mph	35 mph	≥40 mph	< 30mph	35 mph	≥40 mph
2 lanes (1 lane each direction)	1 2 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	1 2 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 5 6 7 9	① 5 6 7 9	① 5 6 ⑦ ⑨	① 5 6 7 9	① 5 6 7 9	① 5 6 ⑨
3 lanes with raised median (1 lane each direction)	1 2 3 5	① 3 5 7 9	① ③ 5 ⑦ ⑨	1 2 3 5	① ③ 5 7 9	① ③ 5 ⑦ ⑨	① 3 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑦ ⑨	① ③ 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑨
3 lanes w/o raised median (1 lane each direction with a two way left turn lane)	1 2 3 5 6	① 3 5 6 7 9	① ③ 5 6 ⑨	1 2 3 5 6	① ③ 5 6 7 9	① ③ 5 6 ⑨	① 3 5 6 7 9	① ③ 5 6 ⑦ ⑨	① ③ 5 6 ⑨	① ③ 5 6 7 9	① ③ 5 6 ⑨	① ③ 5 6 ⑨
4+ lanes with raised median (2 or more lanes each direction)	① 3 5	① 3 5 7 8 9	① ③ 5 8 ⑨	① ③ 5	① ③ 5 7 8 9	① ③ 5 ⑦ 8 ⑨	① ③ 5	① ③ 5 ⑦ 8 ⑨	① ③ 5 8 ⑨	① ③ 5 ⑦ 8 ⑨	① ③ 5 8 ⑨	① ③ 5 8 ⑨
4+ lanes w/o raised median (2 or more lanes each direction)	① 3 5 6	① 3 5 ⑥ 7 8 9	① ③ 5 ⑥ 8 ⑨	① ③ 5 6	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥	① ③ 5 ⑥ ⑦ 8 ⑨	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ ⑦ 8 ⑨	① ③ 5 ⑥ 8 ⑨	① ③ 5 ⑥ 8 ⑨

Treatments for roadways under 1,500 AADT should be evaluated based on site specific conditions using engineering judgement.

Given the set of conditions in a cell,

Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgement at a marked uncontrolled crossing location.

○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgement.

1 Crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs ***

2 Raised crosswalk

3 Advanced Stop Here For Pedestrians sign and stop line

4 In-Street Pedestrian Crossing sign

5 Curb extension

6 Pedestrian refuge island

7 Rectangular Rapid-Flashing Beacon (RRFB)**

8 Road Diet

9 Pedestrian Hybrid Beacon (PHB)**

* Refer to Chapter 4, 'Using Table 1 and Table 2 to Select Countermeasures' in [FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations](#), for more information about using multiple countermeasures.

** It should be noted that the PHB and RRFB are not both installed at the same crossing location.

*** Not all items in this category must be used concurrently. Engineering judgement based on site specific conditions should be used to evaluate which treatments are utilized and how they are implemented (e.g. standard or high visibility crosswalk), particularly in lower volume areas.

**CITY OF BLOOMINGTON
REPORT FOR THE TRANSPORTATION COMMISSION
APRIL 20, 2021**

CASE NUMBER:	SUBJECT:	ORIGINATING FROM:
INFORMATION	Summary of Citizen Comments/Complaints Received April 2021	Philip Allyn, PE, PTOE City Traffic Engineer
REQUEST:	Item submitted as information for the Transportation Commission. Any feedback or comments are welcome.	

STAFF RECOMMENDATION: N/A

Staff submits the following information to the Commission. Any comments or feedback is appreciated.

1. ATTACHMENTS:

- a. None**

2. BACKGROUND AND SUPPLEMENTAL INFORMATION:

The following comments were received by the Engineering Department between September 12, 2020 and April 15, 2021 or are updates of previous comments (additions to previous updates are **Bold-Underlined**):

- 1) Received Request to replace faded parking restriction signs along Washington Street. Need to visit site and submit work order to sign crew.
- 2) Received complaint of speeding on E. Oakland east of Hershey, especially around Watford. Due to hill east of Watford, can be worrisome turning from Watford onto Oakland and being overtaken. Request reduction from 40 mph to 30 mph. Completed field check. There is a hill to the east of Watford limiting the view of the intersection from westbound Oakland. There is also an existing "intersection warning" sign with a 30 mph plaque. Could consider speed reduction, but would need speed study. 85th percentile likely closer to 40 mph than 30 mph. Speed data collected indicates speeding issues. Reviewing results with Police for potential solutions.
- 3) Received complaint of speeding and request for "Children at Play" signs on Gill Street at pass-through-cul-de-sac west of Airport. Need to evaluate "Yield" sign usage for clarity. Installed traffic cameras to determine number of trucks utilizing the cul-de-sac to avoid traveling through the neighborhood to the west and south on Vladimir to observe if there are any usual traffic movements.

- 4) Received request for traffic calming on Eastport Drive between Clearwater and Empire. Speed data collected. Speed data was inconclusive, need to collect data in additional locations.
- 5) Received concern about an increase in collisions on GE Road between Golden Eagle and Towanda Barnes Road. Need to pull accident data, review for trends and evaluate options.
- 6) Received two separate concerns about commercial parking on residential portion of Norma Drive. Need to contact residents and discuss.
- 7) Received request for no parking in front of a residence on Colton due to constant blocking of driveway. Need to visit site and review.
- 8) Received complaint of landscaping creating a sight obstruction at Peirce and Mercer. Need to visit site and review when landscaping is in full bloom.
- 9) Received complaint of out of town school buses parking and blocking alley behind Elmwood Road and the BHS football/baseball fields during school sports activities. Need to visit site and review.
- 10) Received complaint of speeding on GE Road between Towanda Barnes and Airport Road with numerous accidents on a consistent basis. Request study of adding traffic signals and/or stop signs. Contacted and will gather speeding and crash data.
- 11) Received request to limit parking on Beecher between Fell and Horenberger due to sight distance reasons. Visited site for preliminary evaluation. Need to contact requestor and discuss further.
- 12) Received concern about no turn on red at Six Points Road and S. Morris. Need to contact to clarify.
- 13) Received request for explanation on why parking not being allowed on Elmwood between Colton and Towanda. During football games many cars park on Colton, creating unsafe conditions, when they should be able to park on Elmwood. Need to research and evaluate.
- 14) Received complaints of bicyclists blowing stop sign at Bunn / Buchanan and Buchanan / Clayton. Request to evaluate options for additional signage and increased enforcement.
- 15) Received concern about inadequate school zone signage for Corpus Christi School. Requested multiple blinking lights. Complained of cars extending out onto Lincoln during pickup and drop-offs. Need to visit site and review school zone signage and discuss modifications to drop-off and pickup routing on school site with school. Met with the Principal and Facilities Manager and reviewed current signage. School zone appears to be correctly signed currently. Observed pick-up and drop-offs, which

- appear to minimize impacts to surrounding area as much as possible. Need to determine options for increased signage, if any.
- 16) Received concern about parking availability in neighborhoods surrounding Sarah Raymond School during school drop-off, pickup, and special events. Need to evaluate parking in area and discuss with school.
 - 17) Received request for school crossing guard at Irving. Completed data gathering, working on analysis.
 - 18) Received complaint of cars not stopping for stopped school bus at Harvest Pointe and Dry Sage Circle. Request 4-way stop, reduced speed limit or Children at Play sign. Contacted and discussed issues with submitter. There are several repeat offenders. Encouraged them to contact the school to request the bus driver submit a report of failure to stop when it occurs. Encouraged them to take photos and document and submit to the police department for enforcement. Contacting the school district to inquire about revising bus pickup locations to eliminate the need for children to cross Harvest Pointe. Need to research posted 35 mph speed limit on Harvest Pointe.
 - 19) Received request for streetlight on Cottage between Perry and Graham. Need to visit site and evaluate lighting levels.
 - 20) Received request to consider changing speed limit on Streid Drive and Oakland between Hershey and Streid to reduce the speed of vehicles on these roads. Speed data currently being gathered and analyzed.
 - 21) Received request for removal of accessible parking spot on 700 block of N. McLean due to person no longer living there. Need to verify, complete work order for removal, and update City Code.
 - 22) 1/17/19 – Received a request to limit the parking on Ridgewood Terrace to only one side of the street. Letters notifying residents of the potential removal of parking on the north side, including the cul-de-sac, and requesting comments were hand delivered on 4/3/19. Vote was not supportive of restricting parking. Need to review for adequate turning room in cul-de-sac for garbage trucks.
 - 23) 2/21/19 – Received request for “Deer Crossing” warning signs on W. Washington Street between Caroline and I-74 after witnessing 5 hit deer within the last year and seeing a large heard of deer several times along the road.
 - 24) 3/7/19 – Received a request for stops signs at Maizefield Drive and Harbord Drive. Currently stop signs on Maizefield. Need to contact and clarify request.
 - 25) 3/12/19 – Received complaints about speeding on Woodruff from Colton to Locust and on Linden from Woodruff to Monroe. Completed preliminary review for traffic calming: ADT and functional classification requirements appear to be met. Collected speed data. Need to compare data to traffic calming policy.

- 26) 3/13/19 – Received concerns about the speed of traffic on Beich Road presenting a hazard to drivers entering and exiting the Nestle plant. An employee inadvertently pulled onto Beich and was involved in a collision. The interstate presents an optical distraction. Need to review crash data and potentially gather speed data. Posted speed on this rural road is currently 45 mph. Contacted IDOT to inquire about replacing old and missing visual barrier panels in the existing ROW fence between Beich Road and the Interstate. Discussed additional options with requestor. Entrance owner plans to upgrade the stop sign to a higher-visibility sign and add “cross traffic does not stop”. IDOT informed that they will not replace the visual barrier panels. Fence too short to adequately block view of traffic on the interstate that drivers are confusing for traffic on Beich Road. Original requestor asked for “Plant Entrance” sign on southbound Beich Road. Contacted IDOT about planting trees in the I-55 right of way to create visual barrier. IDOT indicated that trees would not be allowed, but gave a couple species of tall grasses that could be considered. Visited site visit with Parks Department and discussed planting some tall decorative grasses in the spring.
- 27) 4/9/19 – Received a request to evaluate the parking in front of 613 E. Mill Street (corner of Mill and Evans intersection) to allow garbage trucks to be able to turn without running over the curb and sidewalk. Reviewed in field and confirmed narrow streets combined with allowed parking cause garbage trucks to have to driver over curve and sidewalk ramps (less than 2-year-old ramp is now severely cracked). **Completed work order to restrict parking in front of 613 E. Mill Street and verified sign was installed. Need to modify City Code. Item considered Closed.**
- 28) 4/10/19 – Received request for additional lighting on Orchard. Evaluated existing street lighting: fixtures are older style, submitted request to Ameren to upgrade to newer, brighter, LED heads. Will evaluate further once upgrades are complete.
- 29) 4/12/19 – Received a complaint about speed on Vladimir and motorcycles and mopeds driving on the sidewalks.
- 30) 4/22/19 – Received a request for No Parking signs to be posted in North/South Alley adjacent to 504 E. Locust. Vehicles from apartment building park in alley rather than the building’s parking lot and block the driveway.
- 31) 4/30/19 – Received request for “Deer Crossing” warning signs by 1608 Six Points Road. Deer regularly cross in this location.
- 32) 5/2/19 – Received concern about speeding in the alley between White Place and Constitution Trail north of Empire. Requested increased speed limit signage, No Through Traffic signage and speed bumps.
- 33) 6/12/19 – Received request for removal of accessible parking spot at 506 E. Douglas due to person no longer living there. Need to verify, complete work order for removal, and update City Code.
- 34) 6/25/19 – Received request to limit parking on one side of the street on Forrest between Cottage and the dead-end west of Hinshaw. Letters notifying residents of the

- potential removal of parking and requesting comments to be written and delivered. After receiving resident feedback, a determination will be made on whether to implement the parking restriction. Street currently under construction, waiting until complete. Starting process of polling residents.
- 35) 7/30/19 – Received complaint about large number of vehicles traveling down Maysel St. (dead end) only to turn around at the end and speed back out. Requested additional or more visible dead-end signs.
 - 36) 8/8/19 – Received complaint about speeding on Baywood east of Towanda Barnes. Requested additional speed limit sign or relocation of the existing sign further from the intersection to be more visible.
 - 37) 8/11/19 – Received report of missing speed limits signs along Towanda Avenue between Empire and Vernon. Investigated and found one sign missing. Need to completed work order for replacement and evaluate if additional signs are needed.
 - 38) 8/11/19 – Received request for lower speed limits and Children Playing signs on Northway, Vista, Garfield & Bradley.
 - 39) 8/16/19 – Received report of several missing signs and broken posts Ireland Grove Road. Reviewed and determined missing signs. Need to submit work order for replacement.
 - 40) 8/20/19 – Received request for No Parking signs on south side of Beecher between Main and East by mid-block driveway.
 - 41) 8/22/19 – Received complaint of speeding on Vladimir between Gill and Rainbow and requested traffic calming.
 - 42) 8/24/19 – Received letter with concerns from Wood Hill Towers related to pedestrian safety at the Main/MacArthur and Main/Wood intersections. Responded addressing most concerns, need to contact IDOT about potentially modifying pedestrian crossing times.
 - 43) 9/10/19 – Received complaint that all left turn lanes at Hershey and Empire intersections go straight from green arrow to red arrow and need green “yield to oncoming traffic” signal.
 - 44) 9/13/19 – Received notification of missing parking signs on Seville. Need to verify signs are missing and complete work order for replacement.
 - 45) 9/19/19 – Received request to evaluate Woodruff and Linden by David Davis for traffic calming. Received a complaint about speeding on Woodruff from Colton to Locust and on Linden from Woodruff to Monroe. Completed preliminary review for traffic calming: ADT and functional classification requirements appear to be met. Collected speed data. Need to compare data to traffic calming policy.

- 46) 9/24/19 – Received notification that street name sign at Lake Shore and Northpointe is unreadable. Need to complete work order for replacement.
- 47) 9/27/19 – Received request to remove stop sign at Towanda Crossing and the Frontage Road along the north side of Empire. Need to review traffic data and see if it's still needed with decrease in traffic in that area.
- 48) 9/29/19 – Received request for changing Allin and Oakland to an all-way stop. Traffic Counts completed. Compared traffic volumes and crash history to all-way stop warrants: Warrants are not met. Reviewing crash history in more detail to check for patterns that may indicate something else would be beneficial such as oversized stop signs, "Cross Traffic Doesn't Stop" signs, or parking restrictions.
- 49) 10/1/19 – Received complaint of speeding on Broadmoor.
- 50) 10/10/19 – Received request for newer and additional speed limit signs on Sunset, also warning signs for horse and buggy, children playing or "slow area"
- 51) 11/8/19 – Received request for No Parking Here to Corner sign on Market west of Clinton.
- 52) 11/14/19 – Received request to review parking signage in 500 block of Main Street for missing signs.
- 53) 12/3/19 – Received request to change signal at Veterans and Morris to allow left turns one green after yielding to oncoming traffic. Forwarded the request to IDOT.
- 54) 12/21/19 – Received complaint about the left turn lane configuration on Washington by Regency. Discussed with resident. Will review options for discouraging drivers from entering the two-way-left-turn-lane too early.
- 55) 1/9/20 – Received request for parking restriction on State Street between Taylor and Jackson.
- 56) 1/10/20 – Received request for signage on Springfield Road by Maywood Village.
- 57) 1/14/20 – Received request for a streetlight at Mercer and Ireland Grove.
- 58) 1/15/20 – Received request to restrict parking to only the west side of Madison between Miller and Bissell.
- 59) 1/21/20 – Received request to repaint cross walk and stop bars across Empire at Gettysburg. Discussed with IDOT who indicated it would be acceptable for City to repaint the lines. **Verified work was completed. Item Considered Closed.**
- 60) 1/23/20 – Received request to limit parking at the intersection of Western and Perry and along Perry to the east of Western. Completed work order for signage limiting parking at the intersection. **Need to verify completed.**

- 61) 2/13/20 – Received complaint that traffic signals on Veterans Parkway are not coordinated earlier than 6:30 am creating unsafe driving habits as drivers speed to catch lights before they change. Discussed with IDOT and made a minor adjustment to the coordination settings. Need to follow up to confirm effectiveness after updated settings have been in place. **No further complaints. Item Considered Closed.**
- 62) 2/20/20 – Received a request for a traffic signal at Ft. Jesse and Airport.
- 63) 3/4/20 – Received complaint of speeding along all of Mason St.
- 64) 3/23/20 – Received complaint about parking blocking sight distance at McGregor and Oakland.
- 65) 4/2/20 – Received request to remove the accessible parking spot at 506 E. Douglas (resident has moved).
- 66) 4/16/20 – Received complaint about traffic using to the condo parking lot at 307 Fairway to make u-turns to access the Post Office. **Working with IDOT to install wayfinding signs directing vehicles from the west, north and east to use Empire Crossing and Empire intersection to access the frontage road to the post office. Signs have been installed. Item Considered Closed.**
- 67) 4/22/20 – Received a request to limit parking to one side of Kreitzer between Taylor and Jackson and a sign restricting parking so close to the intersection of Kreitzer and Taylor.
- 68) 5/12/20 – Received a request for a parking restriction on Lamon at Hershey.
- 69) 5/12/20 – Received a request for "No Parking From Here to Corner" sign to be placed in front of 1206 Eastport on the west side of the street.
- 70) 5/31/20 – Received request for stop signs at Fell and Graham and at Franklin Park.
- 71) 6/4/20 – Received a complaint about the speed and tonnage of trucks on Hamilton Road.
- 72) 6/11/20 – Received a request to remove the “No Turn on Red” signs at Empire and Regency.
- 73) 6/15/20 – Received a complaint about the speed of vehicles on Olive west of Euclid.
- 74) 6/23/20 – Received a request for traffic calming on Hidden Lake Road.
- 75) 6/26/20 – Received a request for a “No Outlet” or “Dead End” sign at Jodi Land and Ebach from Jill Court.

- 76) 7/8/20 – Received request to re-evaluate speed limits on Ireland Grove Road, Hershey Ave., and Hamilton Road and add additional signs indicating pedestrian walkways and crossings.
- 77) 7/10/20 – Received request for traffic calming on Providence Dr. between Airport Road and Interlocken Dr.
- 78) 7/11/20 – Received request for additional lane use signage on Washington just west of Veterans Parkway.
- 79) 7/20/20 – Received request for traffic calming on Stone Mountain Blvd to the north and south of Degarmo.
- 80) 7/31/20 – Received request for “No Parking Here to Stop Sign” on Kreitzer at Oakland.
- 81) 8/4/20 – Received request for streetlights on Carrington Lane by Bedeker Way.
- 82) 8/4/20 – Received request for a “No Outlet” sign on Carrington Lane at Crooked Creek Road.
- 83) 8/5/20 – Received request for a streetlight by 1918 Garling Dr.
- 84) 8/12/20 – Received request to change the intersection of Cave Creek and Cashel from two-way stop control to all-way stop control to control speeding.
- 85) 8/17/20 – Received request for stop signs at Lake Bluff and Lake Fork intersection, and Hidden Lake and Twin Lake intersection and “Slow Children” signs to slow drivers.
- 86) 8/21/20 – Received request for traffic calming on Riverwoods between Lay Lane and Sutter.
- 87) 8/21/20 – Received request for additional signage on Brookline.
- 88) 8/24/20 – Received request for traffic calming on Brookline between Cadillac and Rexel.
- 89) 8/26/20 – Received a complaint about the speed of vehicles on Jessamine, Yarros and Foxtail in the Summerfield subdivision.
- 90) 8/28/20 – Received request for Slow Children sign at Baywood and Escalade.
- 91) 8/28/20 – Received request remove a streetlight in the alley east of White Place between Empire and University.
- 92) 9/8/20 – Received complaint about the intersection of Ireland Grove and Hershey.

- 93) 9/11/20 – Received two separate requests for traffic calming at Sarah Anne and Matthew.
- 94) 9/14/20 – Received request for traffic calming on Crooked Creek Road.
- 95) **NEW:** 9/15/20 – Received request for traffic calming on Brookline Ct.
- 96) **NEW:** 9/16/20 – Received request for the replacement of missing street name signs at East and Grove.
- 97) **NEW:** 9/16/20 – Received request for LED stop signs at Morris & Oakland and Morris & MacArthur.
- 98) **NEW:** 9/24/20 – Received request to check detection at Carnahan and Route 9. Carnahan cycles green where there are no vehicles present. Notified electricians who repairs. Item Considered Closed.
- 99) **NEW:** 9/24/20 – Received request for stop or yield sign on Neaves at intersection with Keybridge in Hershey Grove subdivision.
- 100) **NEW:** 9/25/20 – Received complaint about truck traffic on Fox Creek Road.
- 101) **NEW:** 10/5/20 – Received request for light off of Veterans or new arrows going into Potbelly. Starbucks backs traffic up on Krispy Kreme and out to the road from Veterans. Middle turn lane on Krispy to Starbucks is a big issue. Reached out to resident and requested a clarification on requested light location and explained that Krispy Kreme Drive is a private street. No response on clarification received.
- 102) **NEW:** 10/6/20 – Received request for street light in alley behind 300 block of E. Locust.
- 103) **NEW:** 10/16/20 – Received request to remove coordination of Eastland Crossing and Empire intersection and also to remove the northbound yield sign between Empire and IAA Drive. Forwarded requests to IDOT who responded. Item Considered Closed.
- 104) **NEW:** 10/23/20 – Received request to install Right Turn Only signs at Veterans and Washington between Veterans and St. Joseph.
- 105) **NEW:** 10/27/20 – Received request to install street light on the curve at 312 Granada Road.
- 106) **NEW:** 11/2/20 – Received request for Deaf Child warning sign on Eagle Crest Road between 3200 block and 3300 block.
- 107) **NEW:** 11/2/20 – Received request to straighten street name sign at Geranium and Old Route 66/Beich Road and move it closer to Beich Road.

- 108) **NEW:** 11/4/20 – Received request for short term parking at 614 N. Main Street.
- 109) **NEW:** 11/16/20 – Received notification that street light at 54/56 North Country Club Place wasn't working and request for a new decorative light.
- 110) **NEW:** 11/20/20 – Received request stop sign on Finance Dr. at Currency Dr.
- 111) **NEW:** 12/2/20 – Received request for LED flashing stop signs on Washington Street at Allin. Began evaluation of intersection. Need to still review accident data.
- 112) **NEW:** 12/7/20 – Received request for all way stop signs at Kreitzer and Maizefield and at Florence and Maizefield. Contacted requestor and determined the concern is speed related. Need to review locations for other mitigations such as speed limit signs.
- 113) **NEW:** 12/11/20 – Received request to adjust crossing times at Washington and State to allow more time for kids to cross with the crossing guard. Called and discussed with the crossing guard coordinator and had electricians adjusted time. Will follow up and see if it was sufficient.
- 114) **NEW:** 1/4/21 – Received report of push buttons at Main and Emerson and at Market and Brown not functioning properly. Forward to electricians to check on button operations. Item Considered Closed.
- 115) **NEW:** 1/12/21 – Received request for accessible parking space at 708 W. Washington.
- 116) **NEW:** 1/16/21 – Received request to restrict parking on the east side of Madison between Miller and Bissell.
- 117) **NEW:** 1/27/21 – Received request for a stop sign at Highland Animal Hospital.
- 118) **NEW:** 2/22/21 – Received request for a street light at Morris and Six Points Road.
- 119) **NEW:** 2/25/21 – Received request for traffic calming on Elmwood Road and on Monroe Road.
- 120) **NEW:** 3/8/21 – Received request to lengthen crosswalk time at Towanda and Emerson.
- 121) **NEW:** 3/9/21 – Received request for stop sign on Dry Sage Circle at Harvest Pointe Blvd and turn around area at north end of Harvest Pointe Blvd to access houses on west side north of Dry Sage Circle.
- 122) **NEW:** 3/9/21 – Received complaint about signal at Ireland Grove and Towanda Barnes doesn't have enough time to cross. Only 3 cars can get through.

- 123) **NEW:** 3/22/21 – Received complaint about signal at Ireland Grove and Towanda Barnes doesn't have enough time to cross. Only 3 cars can get through.
- 124) **NEW:** 3/22/21 – Received complaint cars parked in front of Red & Blue Convenience store on Market street make it impossible to see from Howard.
- 125) **NEW:** 3/22/21 – Received request for permission left turns on W. Market at JC Parkway and Walton Drive. Forwarded request to IDOT who responded. Item Considered Closed.
- 126) **NEW:** 3/23/21 – Received request for no parking area by 302 E. Miller.
- 127) **NEW:** 4/2/21 – Received request to block the frontage road access to Fairway by the Post Office.
- 128) **NEW:** 4/4/21 – Received request for stop signs at Witten Woods and Treeline.

3. STAFF RECOMMENDATION:

Staff submits the above information to the Commission. Any comments or feedback is appreciated.

Respectfully submitted,

Philip Allyn, PE, PTOE
City Traffic Engineer