

An aerial photograph of a city street intersection. The street has multiple lanes with white lane markings and arrows. There are crosswalks with white stripes. A green-painted median or island is visible in the center of the intersection. Trees and greenery line the streets. A blue car is visible on the left side of the street. The overall scene is a typical urban environment.

# Traffic Calming for Local Streets

Ideas for Westwood

# Content

- Why traffic calming
- Potential countermeasures for Westwood
- Context, considerations, and safety features
- Potential locations in Westwood
- Discussion

# Reduced Speed Limits and Slower Driving

HIT BY A VEHICLE  
TRAVELING AT:

**20  
MPH**



9 out of 10 pedestrians survive

HIT BY A VEHICLE  
TRAVELING AT:

**30  
MPH**



5 out of 10 pedestrians survive

HIT BY A VEHICLE  
TRAVELING AT:

**40  
MPH**



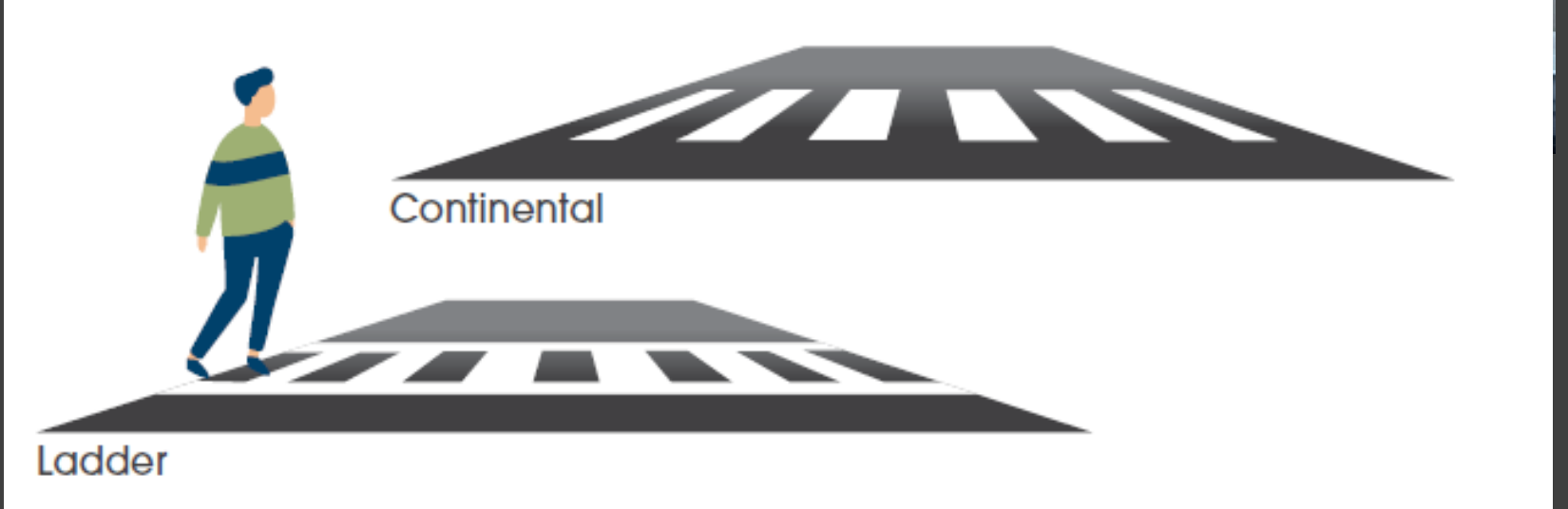
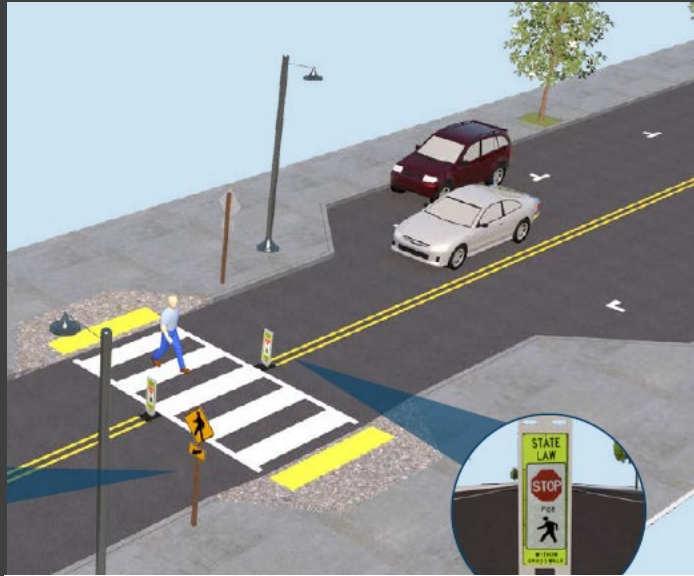
Only 1 out of 10 pedestrians survives

In 2015, Seattle began lowering speed limits to 20 mph for residential streets and 25 mph for larger urban corridors. Since then, car crashes fell by approximately 20%, while the crashes that did occur resulted in significantly fewer injuries.

([yaleclimateconnections.org](http://yaleclimateconnections.org))



# In-Street Sign and High Visibility Crosswalk Markings



# Pinch Points and Curb Extensions





# ROADWAY FEATURES

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
<b>2 lanes</b> (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
<b>3 lanes with raised median</b> (1 lane in each direction)	① 2 3 4 5	① 5 ③ 7 9	① 5 ③ ⑦ ⑨	① 4 5 3 7 9	① 5 ③ ⑦ ⑨	① 5 ③ ⑦ ⑨	① 4 5 ③ 7 9	① 5 ③ ⑦ ⑨	① 5 ③ ⑨
<b>3 lanes w/o raised median</b> (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① 5 ③ 7 9	① 5 ③ ⑨	① 4 5 6 7 9	① 5 ③ ⑦ ⑨	① 5 ③ ⑨	① 4 5 ③ 7 9	① 5 ③ ⑨	① 5 ③ ⑨
<b>4+ lanes with raised median</b> (2 or more lanes in each direction)	① 5 ③ 7 8 9	① 5 ③ 7 8 9	① 5 ③ 8 ⑨	① 5 ③ 7 8 9	① 5 ③ ⑦ 8 ⑨	① 5 ③ 8 ⑨	① 5 ③ ⑦ 8 ⑨	① 5 ③ 8 ⑨	① 5 ③ 8 ⑨
<b>4+ lanes w/o raised median</b> (2 or more lanes in each direction)	① 5 ③ 7 8 9	① 5 ③ 7 8 9	① 5 ③ 8 ⑨	① 5 ③ 7 8 9	① 5 ③ ⑦ 8 ⑨	① 5 ③ 8 ⑨	① 5 ③ ⑦ 8 ⑨	① 5 ③ 8 ⑨	① 5 ③ 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.

\*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-RD-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. Carter, 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.

- 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)\*

# SAFETY FEATURES

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.					

# IMPLEMENTATION & OPERATIONS CONSIDERATIONS

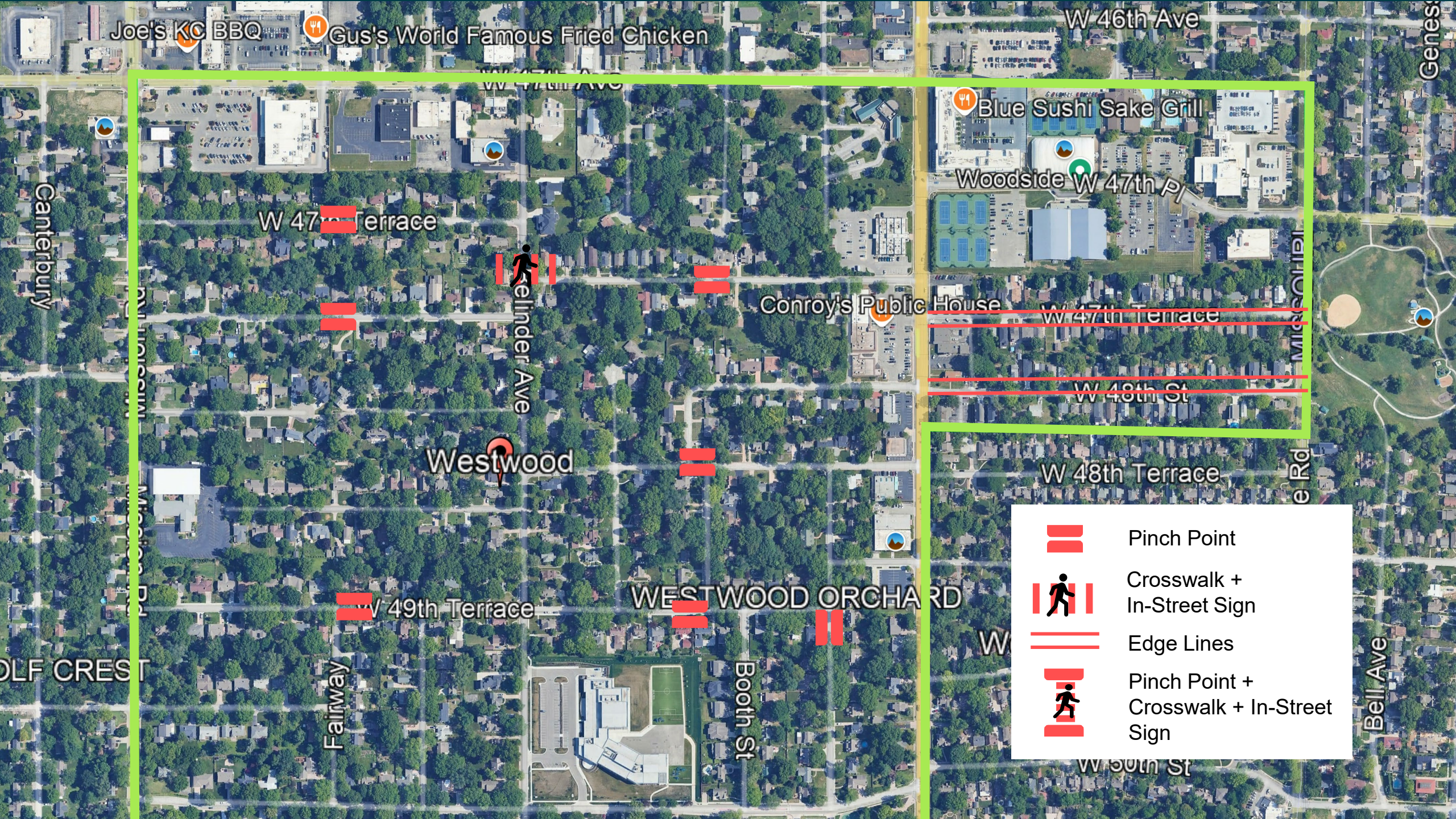


Click the check marks  
to learn more



	High Visibility Crosswalk Marking	In-Street Sign	Advance Yield or Stop Sign and Marking	Parking Restrictions on Crosswalk Approach	Curb Extension	Improved Nighttime Lighting	Raised Crosswalk	Pedestrian Refuge Island	Rectangular Rapid-Flashing Beacon (RRFB)	Road Diet	Pedestrian Hybrid Beacon (PHB)	Leading Pedestrian Interval (LPI)	Other Pedestrian Signal Options
Primary Safety Issues Addressed													
Reduce crashes at crossing locations	CRF: 48% (Peds)	UNK	CRF: 25% (Peds)	CRF: 30% (Peds)	UNK	CRF: 23% (Peds)	CRF: 45% (Peds)	CRF: 32% (Peds)	CRF: 47% (Peds)	CRF: 19-47% (all crashes)	CRF: 55% (Peds)	CRF: 13% (Peds)	CRF: 25% (Peds - Ped Countdown Signal)
Reduces vehicle speeds					✓		✓			✓			✓
Improves conspicuity/visibility	✓	✓	✓	✓	✓	✓	✓		✓			✓	
Improves separation from traffic					✓			✓		✓			
Installation Priorities													
Higher Pedestrian Volumes	✓						✓				✓	✓	✓
Public Response / Education							✓		✓	✓			
Midblock (non-Intersection) Location	✓	✓	✓		✓	✓	✓	✓	✓		✓		✓
Intersection Location					✓	✓	✓	✓		✓		✓	✓
Multi-Lane Crossings			✓					✓	✓	✓	✓		
Operations & Maintenance Considerations													
Transit / Emergency Vehicles	✓				✓		✓			✓			
Snow Removal					✓		✓	✓					
Drainage					✓		✓	✓					
Traffic & Bicycle Operations					✓					✓	✓	✓	✓
Push Button Maintenance									✓		✓		✓
MUTCD Reference	3B.18 2C.50	2B.12	3B.16 2B.11	2B.46 3B.19 3B.23			3B.25	3B.10 3B.23 3B.18	2C.50 7B.08 1A-21		Figure 4F-1 Figure 4F-2 Part 4F	4E.06	





Joe's KC BBQ

Gus's World Famous Fried Chicken

W 46th Ave

Blue Sushi Sake Grill

Woodside W 47th Pl

W 47th Terrace



Melinder Ave

Conroy's Public House

W 47th Terrace

W 48th St

Westwood

W 48th Terrace





W 49th Terrace

WESTWOOD ORCHARD

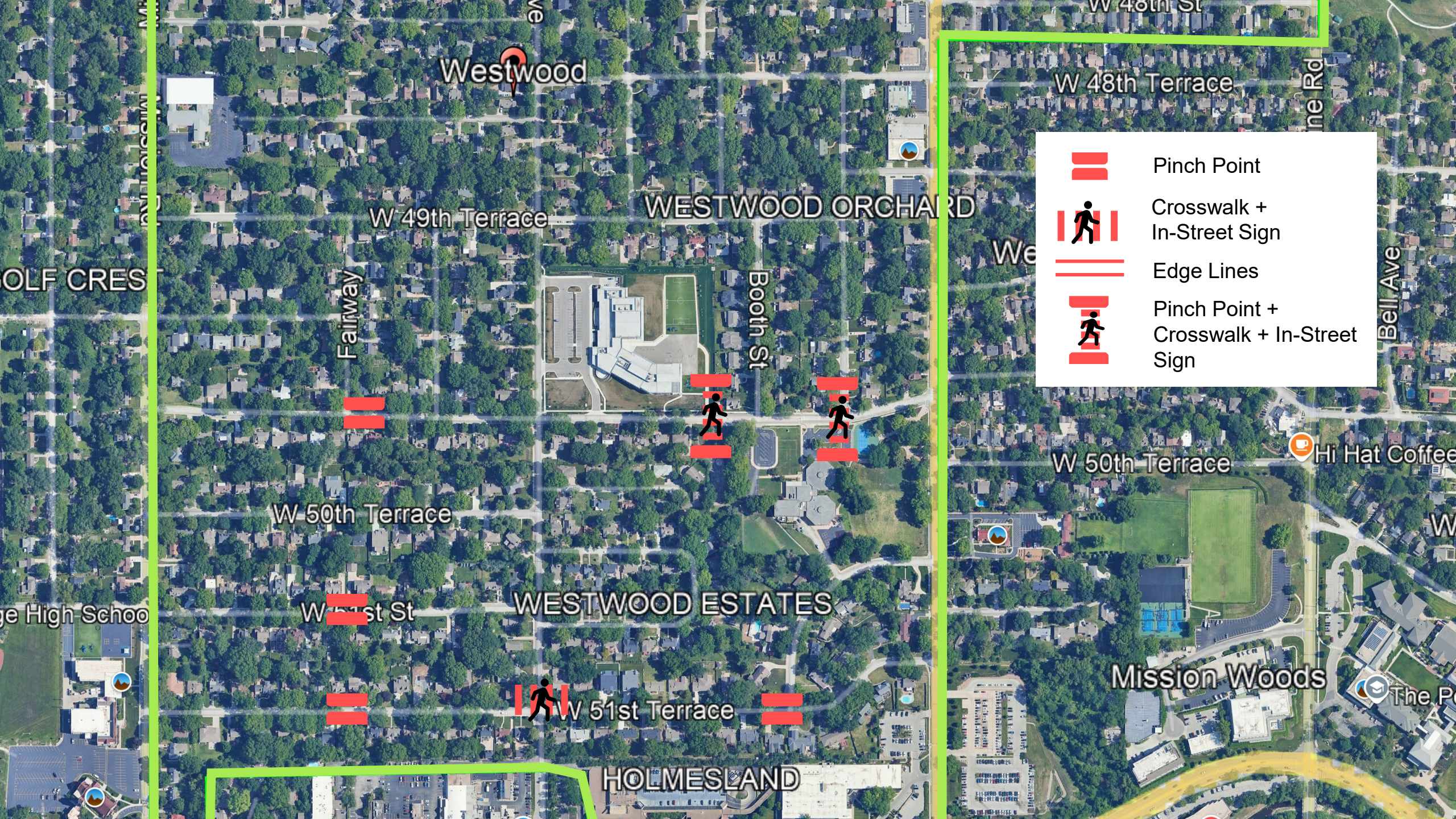
Fairway





Booth St

Bell Ave

-  Pinch Point
-  Crosswalk + In-Street Sign
-  Edge Lines
-  Pinch Point + Crosswalk + In-Street Sign





	Pinch Point
	Crosswalk + In-Street Sign
	Edge Lines
	Pinch Point + Crosswalk + In-Street Sign