STEP

Safe Transportation for Every Pedestrian

EDC





Tools to Inventory Pedestrian Crossing Infrastructure

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April 10, 2018

U.S. Department of Transportation
Federal Highway Administration

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The Fabulous Five: STEP Countermeasures


Crosswalk Visibility Enhancements


Raised Crosswalk


Pedestrian Refuge Island


Pedestrian Hybrid Beacon (PHB)


Road Diet

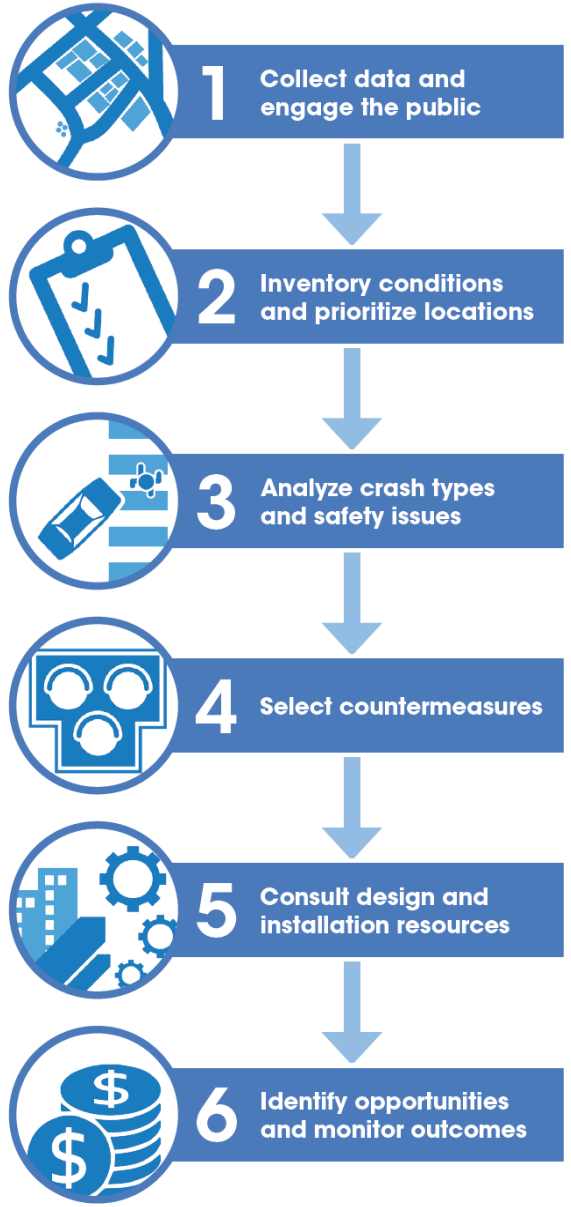
For more information about Rectangular Rapid Flashing Beacon (RRFB) interim approvals, please visit this website: https://mutcd.fhwa.dot.gov/resources/interim_approval/ia21/index.htm

Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

Follows a 6-step process

Guides the selection of countermeasures to improve pedestrian safety

Supported by a "Field Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations"

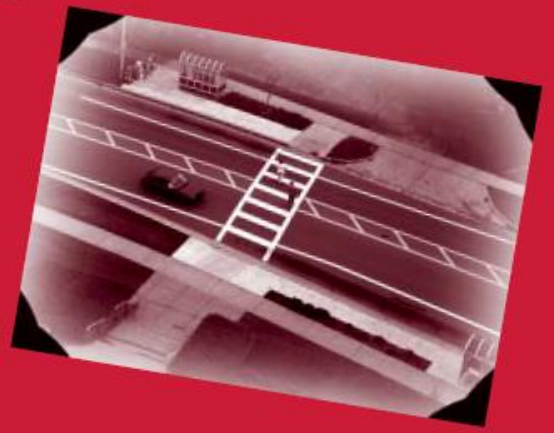


Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations

Final Report and Recommended Guidelines

FHWA PUBLICATION NUMBER: HRT-04-100

SEPTEMBER 2005



U.S. Department of Transportation
Federal Highway Administration

Research, Development, and Technology
Turner-Fairbank Highway Research Center
6300 Georgetown Pike
McLean, VA 22101-2296

2005

Pedestrian and Bicycle Safety

U.S. Department of Transportation
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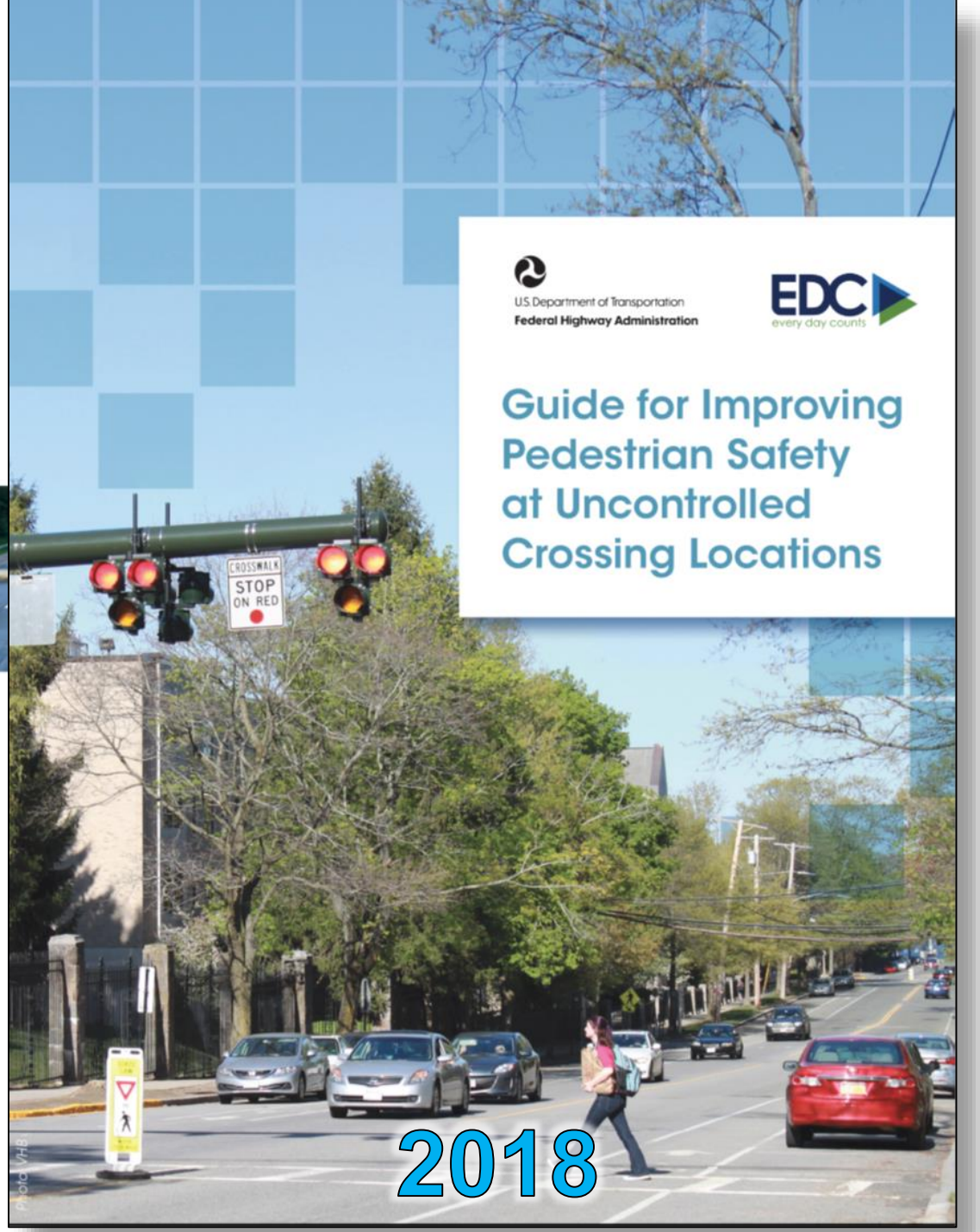
every day counts

Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations



2018

Roadway Configuration	Speed Limit								
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
2 lanes*	❶ 2 3 4 5 6	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6 7	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼
3 lanes with raised median*	❶ 2 3 4 5	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ 3 4 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 4 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼
3 lanes w/o raised median†	❶ 2 3 4 5 6 7	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6 7	❶ ❸ 5 6 ❼	❶ ❸ 5 6 ❼	❶ ❸ 4 5 6 7	❶ ❸ 5 6 ❼	❶ ❸ 5 6 ❼
4+ lanes with raised median‡	❶ ❸ 5	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼
4+ lanes w/o raised median‡	❶ ❸ 5 6 7 8	❶ ❸ 5 ❻ 7 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ 7 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8	❶ ❸ 5 ❻ ❼ 8

*One lane in each direction †One lane in each direction with two-way left-turn lane ‡Two or more lanes in each direction

Given the set of conditions in a cell,

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

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 restriction on crosswalk approach, adequate nighttime lighting levels
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 Pedestrian Hybrid Beacon
8 Road Diet

This table was developed using information from: Zegeer, C. V., Stewart, J. R., Huang, H. H., Lagerwey, P. A., Feaganes, J., & Campbell, B. J. (2005), Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines (No. FHWA-HRT-04-100); Manual on Uniform Traffic Control Devices, 2009 Edition, Chapter 4F. Pedestrian Hybrid Beacons; the Crash Modification Factors (CMF) Clearinghouse website (http://www.cmfclearinghouse.org/); and the Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE) website (http://www.pedbikesafe.org/PEDSAFE/).

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					

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

U.S. Department of Transportation
Federal Highway Administration

FHWA EVERY DAY COUNTS 4 / STEP

For Additional Information Contact:

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/step.cfm

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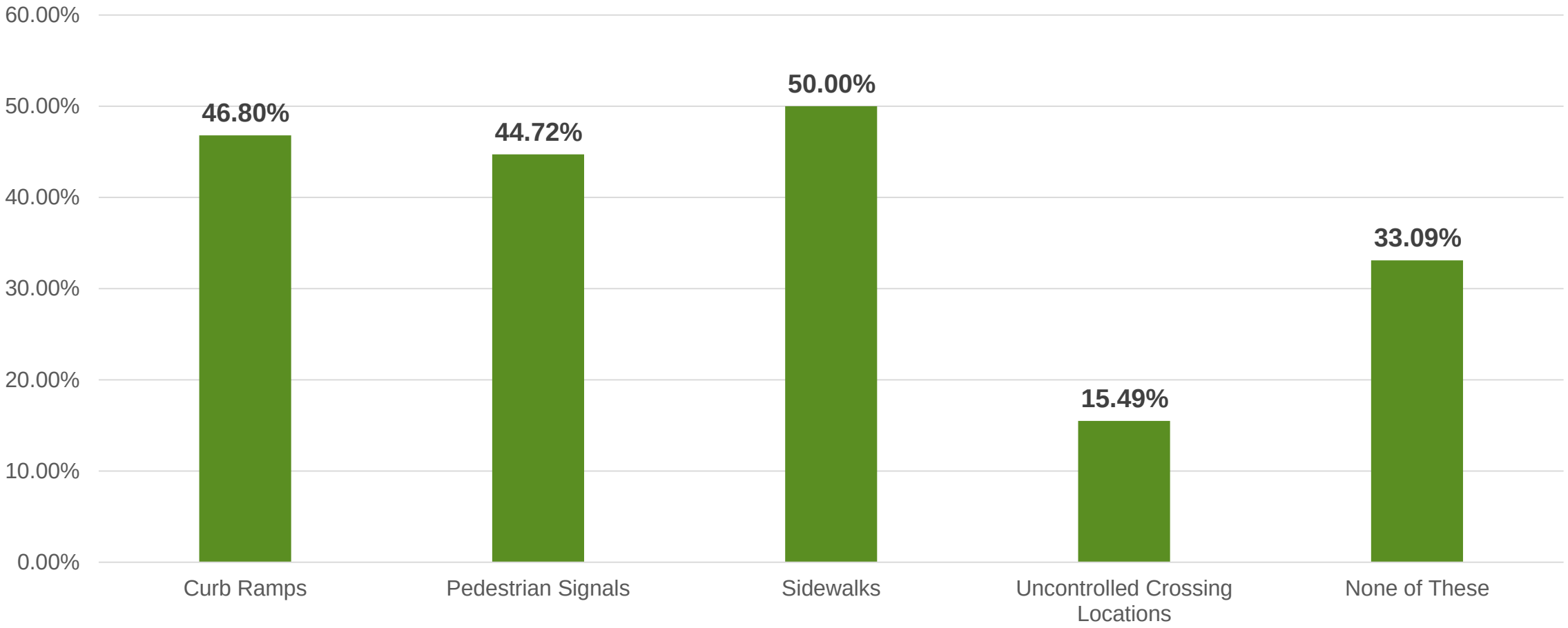
What type(s) of inventory has your agency collected?

Percent of attendee responses during January 30 webinar



U.S. Department of Transportation
Federal Highway Administration
Florida Division

SAPFIM

Safe and Accessible Pedestrian Facilities Inventory Model

BACKGROUND

- Vulnerable road users are an emphasis area for local and state transportation agencies, particularly with regard to safety and accessibility.
- Traditionally both State DOTs and Local Public Agencies (LPAs) struggle with developing system-wide plans for transitioning noncompliant pedestrian rights of way as required by the Americans with Disabilities Act of 1990 (ADA) and related authorities.
- Funding is increasingly uncertain. Agencies need cost effective, tech savvy tools that support safety and equity goals, but also make best use of available transportation funds.
- FDOT, in cooperation with FHWA, Broward MPO and the Lehman Center for Transportation Research at Florida International University (FIU) is committed to developing and sharing resources to meet these needs.

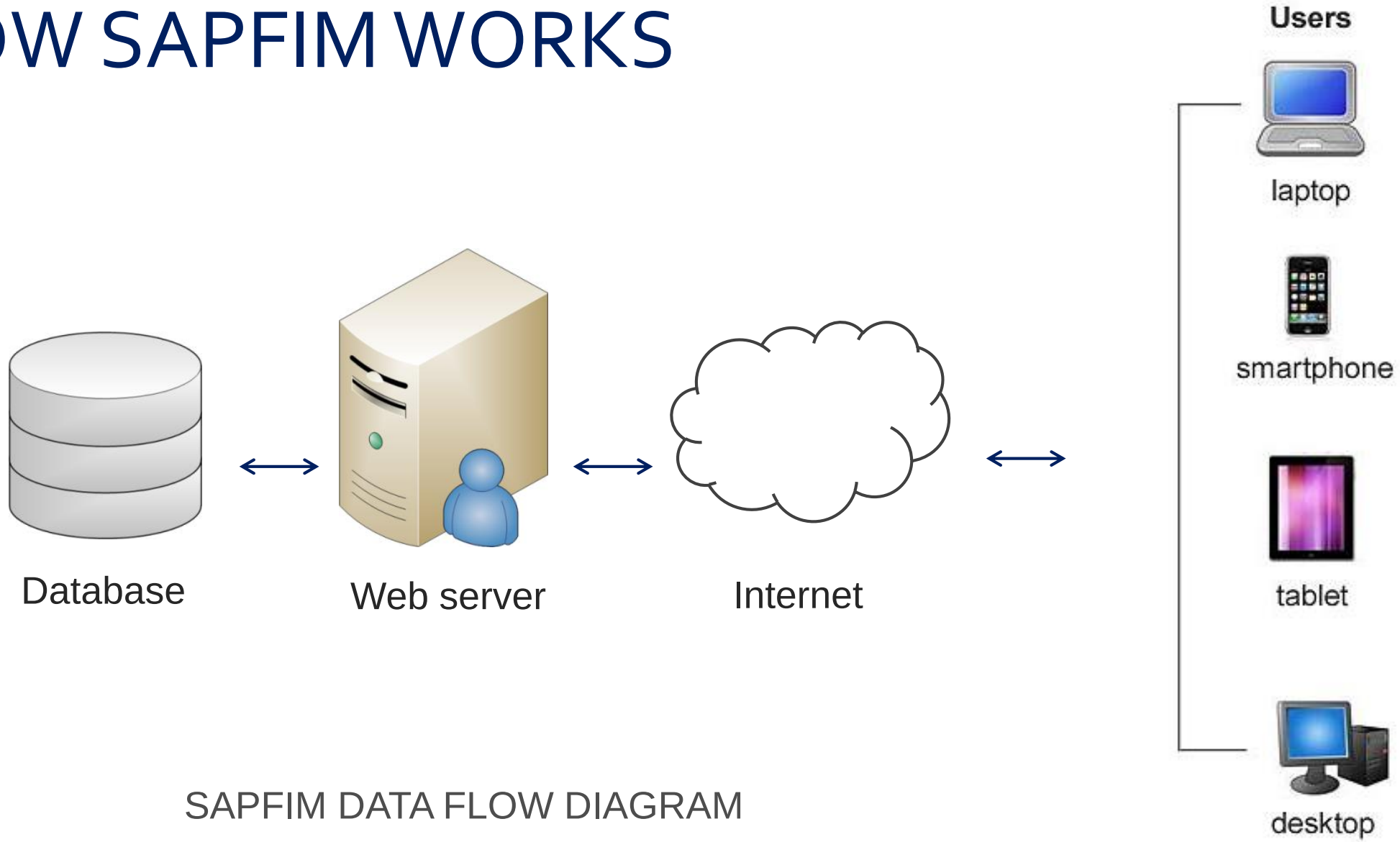
SAPFIM was developed with 3 objectives in mind:

- To provide SDOTs, LPAs, MPOs and other transportation agencies an effective, low cost/no cost means of collecting, storing, querying, and reporting the condition of pedestrian facilities.
- To ensure a means of identifying and assessing safety and accessibility of features associated with **sidewalks, curb ramps, and street crossings**, at a minimum.
- To provide an easy and convenient method of collecting data for direct upload into a web server.

How SAPFIM was developed

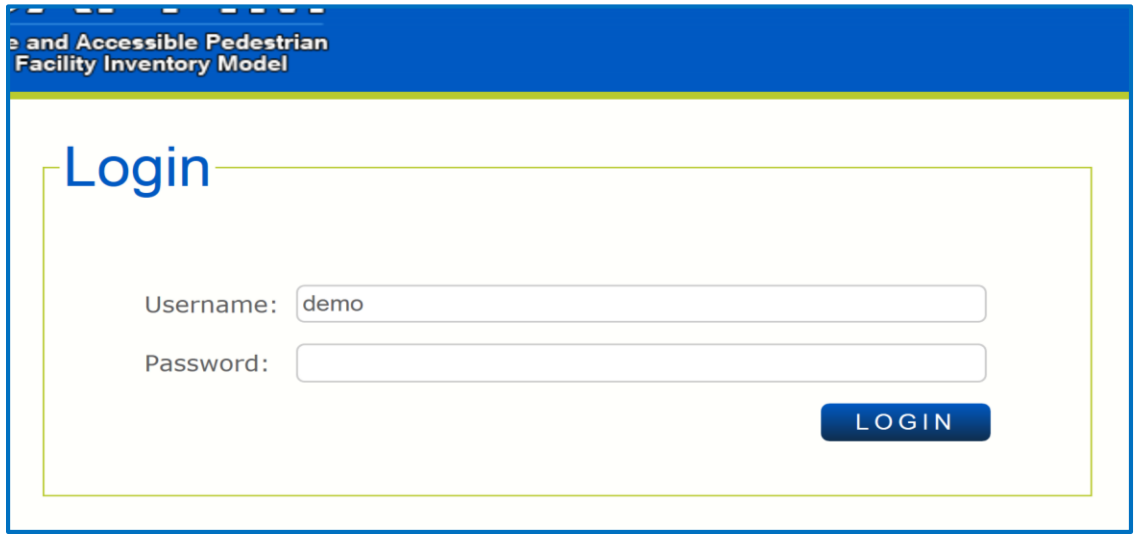
- Stakeholder input
- Meetings to gather technical and legal requirements
- Creation of database and user interface
- Stakeholder testing
- Training and support development
- Final testing
- Release and marketing

HOW SAPFIM WORKS



SAPFIM DATA FLOW DIAGRAM

Logging In to SAPFIM:



Login – FIU will maintain a test system at least until 12/2018:

http://sapfim.fiu.edu/

Username: demo

Pssword: SAPFIM

The opening page is intuitive, simple to navigate

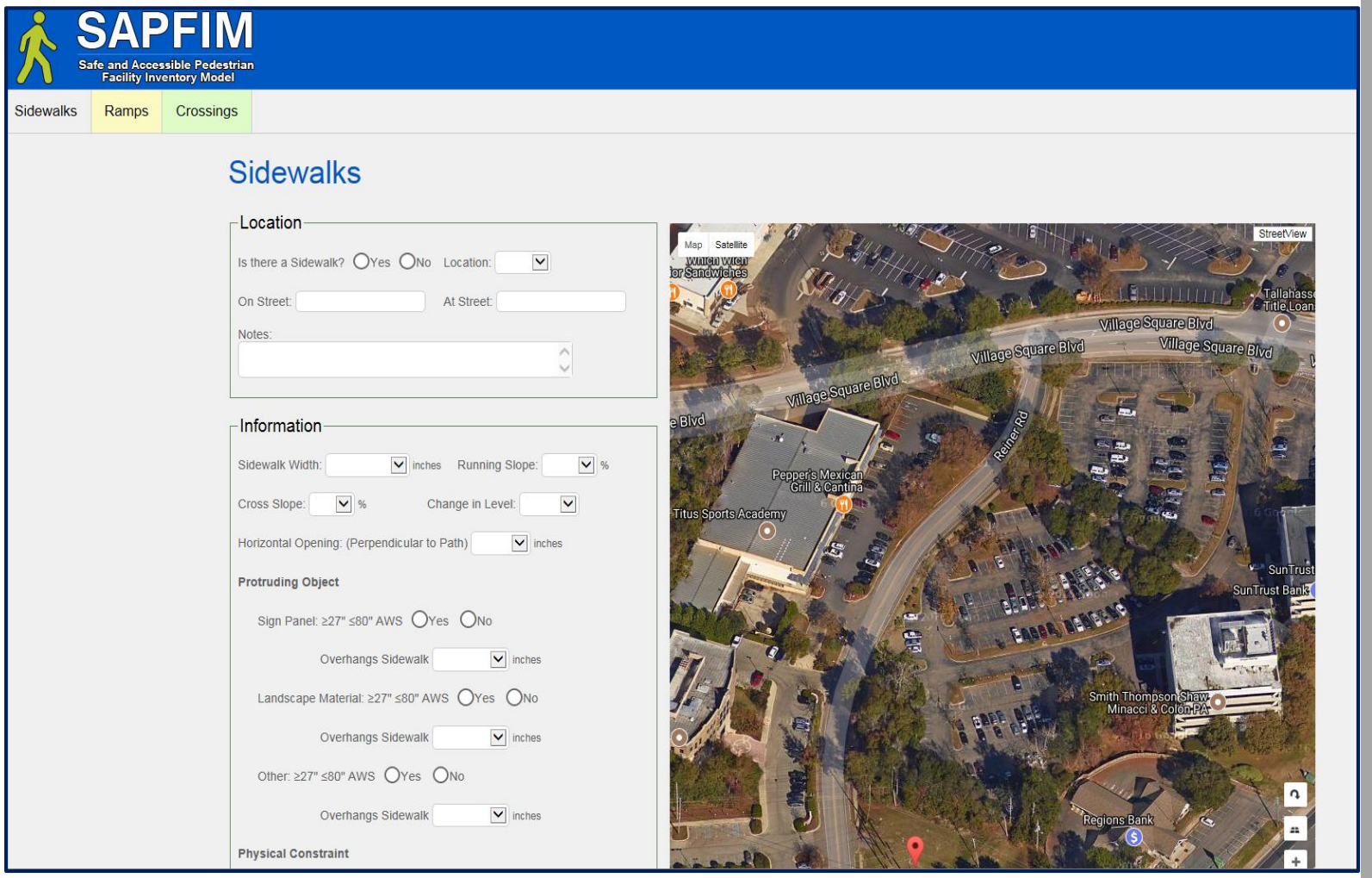
Quick Guide User's Guide

Plus tools to assist in case of questions/issues

The First Feature is DATA COLLECTION

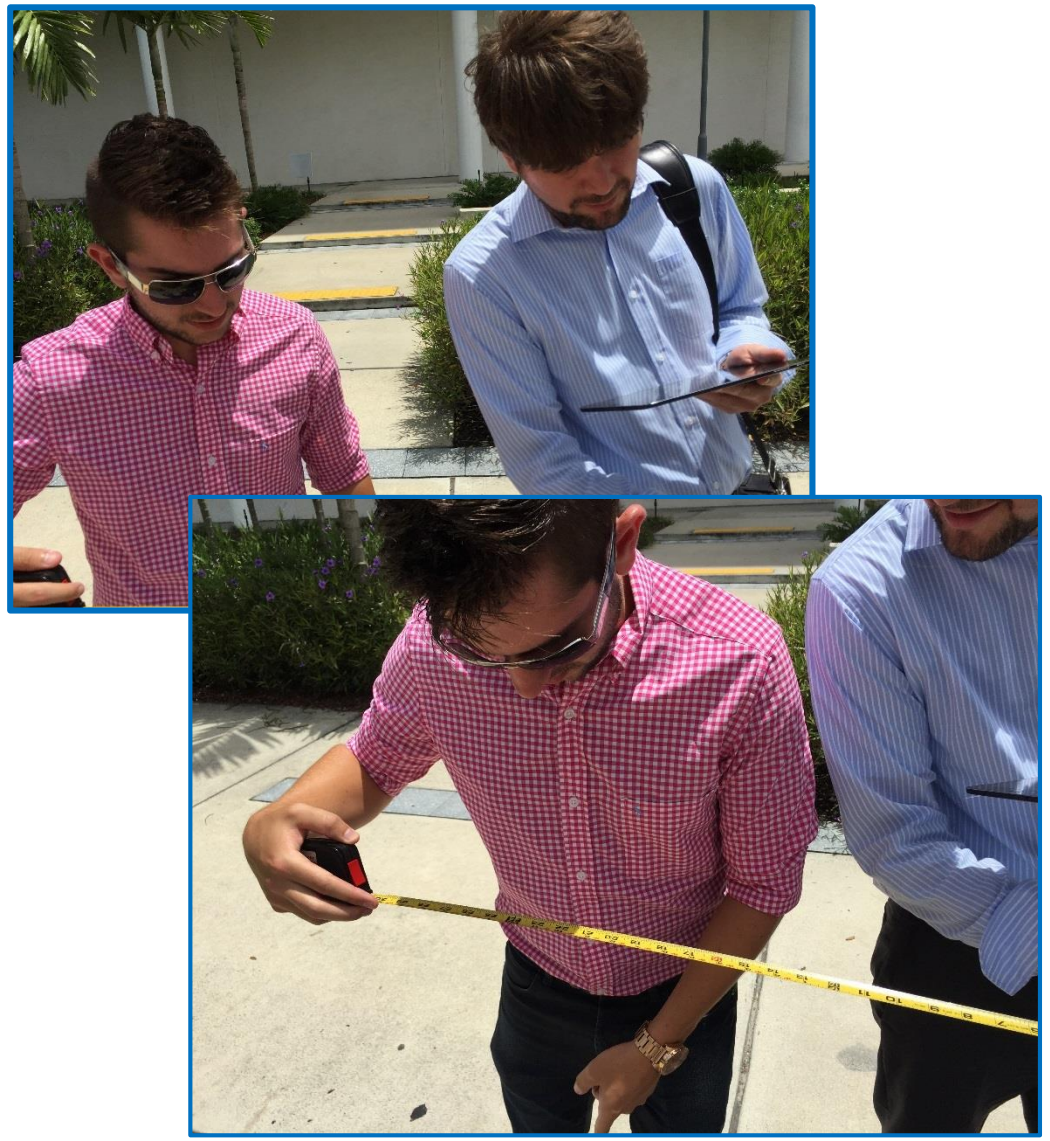
Collect data and enter it into the prescribed fields on a tablet, pad or smart phone

NOTE: Fields are easy to populate with drop-downs and yes/no questions to help collect info. Maps are automatic and interactive. Pics may be taken and included



Further, Data Collectors need not be experts!

- Compliance determinations and prioritizing repairs occur in the Reports function, not Data Collection
- This makes SAPFIM ideal for school internships, community groups, Bike-Ped committees or faith based organizations – NOT just public works or maintenance staff
- Not every possible feature is included (though SAPFIM can be modified in future).
- Currently there are 42 data points for sidewalks, 23 for ramps and 23 for crossings



The Second Feature is Reports

Reports can be ‘Full’, providing complete data for all fields; or ‘Compliance’ which quickly assesses whether fields are compliant with the ADA Standards and even PROWAG complete Collect data and enter it into the prescribed fields on a tablet, pad or smart phone

By clicking on any icon (S, R or C) you can determine whether it is in compliance

The Third Feature is MAPS

Maps allows agencies to print or save a map along with the collected data. As with the Reports feature, clicking on a sidewalk, ramp or crossing icon will display a corresponding map

The Final Feature is DATA MANAGEMENT

A critical feature, Data Management gives the agency the ability to search, export to a maintenance or work program, and provide information for public view/comment. The public inspection element is one often overlooked by agencies during transition planning.

We are not 'selling' SAPFIM

SAPFIM was developed through an FHWA STIC grant along with matches from FDOT and Broward MPO. It is FREE to any agency that would like to use it.

HOWEVER,

Hosting data comes with a cost.

- Agencies with web servers may choose to host data internally, subject to a Microsoft licensing agreement.
- Agencies are welcome to contract with FIU for a nominal annual fee.
- Agencies are also welcome to contract with their own UTCs or private consultants.

If your agency does not have a Transition Plan (or any immediate prospects of one)

We urge you:

- Use the test system
- If you like what you see, contact Dr. Fabian Cevallos at FIU to discuss using SAPFIM
- FIU will assist you with downloading the necessary material (for those wanting to self-host data) or assist you with other options
- Contact any of the SAPFIM Champions with questions

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THANK YOU

And many thanks to *FIU, Broward MPO, FDOT, FHWA (HCR, NY DIV, AZ DIV, NM DIV, FL DIV, Resource Center) and the many fine folks at local agencies across the coun*try that assisted with the concept, development, testing and delivery of SAPFIM

Uncontrolled Crosswalk Inventories

LADOT's inventory

Origins, Characteristics, and Uses

LADOT

Why have an Uncontrolled Crosswalk Inventory?

- General asset management and tracking
- Catalog conditions/features by location
- Ability to sort and query by conditions/features
- Prioritize and determine need for upgrades

Important Conditions and Features

- Geography and location
- Roadway features (I/S type, roadway type, speed, etc.)
- Crosswalk features (color, style, signs, beacons)
- Collision history
- Planned upgrades/candidacy for upgrades

Types of Upgrades/Modifications for Consideration

- Conversion to all-way stop
- Upgrade with addt'l features (beacons, islands, signs)
- Conversion to PHB
- Conversion to traffic signal
- Move bus stop far side

FHWA's STEP Program
https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/step.cfm

LADOT

Primary Street [1]	Cross Street	I/S ID/Street View	CD	DOT Dist	On HIN?	On RPC?	Functional Classification	24 hr Lanes	Pk Hr Lanes	Tot Approach Thru Ln	Street Width (Ft)
103rd St.	Clovis Ave.	134660	8	S	✖	✖	Collector	2	0	2	50
103rd St.	E/O Compton Ave.	96087	15	S	✔	✖	Collector	4	0	4	66
103rd St.	Firth Bl.	160570	15	S	✔	✖	Collector	2	0	2	60
103rd St.	Gorman Ave.	127781	15	S	✖	✖	Collector	2	0	2	50
103rd St.	Graham Ave.	148797	15	S	✔	✖	Collector	4	0	4	56
103rd St.	Juniper St.	117335	15	S	✖	✖	Collector	2	0	2	
104th St.	Wall St.	117129	8	S	✖	✖	Collector	2	0	2	
108th St.	Denver Ave.	110206	8	S	✖	✖	Avenue II	2	0	2	
108th St.	Grandee Ave.	131199	15	S	✖	✖		2	0	2	
11th St.	Mesa Ave.	103897	15	S	✖	✖	Local	2	0	2	
120th St.	Stanford Ave.	96172	15	S	✖	✖	Collector	2	0	2	
12th St.	Crocker St.	99988	14	C	✔	✖	Collector	2	0	2	
12th St.	San Julian St.	124579	14	C	✖	✖	Modified Collector	2	0	2	
15th St.	San Julian St.	137259	14	C	✖	✖	Collector	2	0	2	
182nd St.	Denker Ave.	96161	15	S	✖	✖		4	0	4	62
182nd St.	Evelyn Ave.	138258	15	S	✖	✖		4	0	4	66
23rd St.	Estrella Ave.	141331	1	C	✖	✖	Collector	2	0	2	
253rd St.	Senator Ave.	106738	15	S	✖	✖	Collector	2	0	2	
25th St.	Moray Ave.	131673	15	S	✖	✖		2	0	2	
27th St.	Paloma St.	138385	9	C	✖	✖		2	0	2	
28th St.	Hope St.	141968	9	C	✖	✖		2	0	2	
30th St.	McClintock Ave.	96548	9	S	✖	✖	Local	2	0	2	
36th St.	W/O Patton Ave.	107118	15	S	✖	✖	Local	2	0	2	
3rd St.	Columbia Ave.	124586	1 , 13	H/W	✔	✖		4	0	4	
3rd St.	Grand View St.	150073	1	C	✔	✖		4	0	4	70

Primary Street [1]	Cross Street	I/S ID/Street View	Pavement Type	Leg	I/S Type	Signal Dist (Ft) [2]	ADT	Speed Limit	Color	Style	Shark Teeth?	Paddle Signs?
103rd St.	Clovis Ave.	134660	AC	W	STD	-	7,212	30	White	Contin.	✔	✖
103rd St.	E/O Compton Ave.	96087	AC		MB	431/402	12,463	30	White	Ladder	✔	✖
103rd St.	Firth Bl.	160570	AC	E	T	-	12,962	30	Yellow	Ladder	✔	✖
103rd St.	Gorman Ave.	127781	AC	W	T	-	9,692	30	Yellow	Ladder	✔	✖
103rd St.	Graham Ave.	148797	AC	E	T	330/1,000	10,720	30	White	Ladder	✔	✖
103rd St.	Juniper St.	117335	AC	W	STD	-	6,450	30	White	Ladder	✔	✖
104th St.	Wall St.	117129	AC	W	STD	-		25	Yellow	Ladder	✖	✖
108th St.	Denver Ave.	110206	AC	E	STD	-	4,873	35	White	Contin.	✔	✖
108th St.	Grandee Ave.	131199	AC	W	T	-		25	Yellow	Ladder	✖	✖
11th St.	Mesa Ave.	103897	AC	W	STD	-		25	White	Ladder	✖	✖
120th St.	Stanford Ave.	96172	AC	E	T	-	11,090	30	White	Contin.	✔	✖
12th St.	Crocker St.	99988	AC	W	T	-		25	White	Contin.	✔	✖
12th St.	San Julian St.	124579	AC	W	STD	-		25	White	Contin.	✔	✖
15th St.	San Julian St.	137259	AC	W	T	-		25	Yellow	Contin.	✔	✖
182nd St.	Denker Ave.	96161	AC	E	STD	1,345/1,678	14,970	30	White	Ladder	✔	✖
182nd St.	Evelyn Ave.	138258	AC	E	STD	2,017/1,000	10,590	30	Yellow	Ladder	✔	✖
23rd St.	Estrella Ave.	141331	AC	W	T	-	10,204	30	White	Transverse	✖	✖
253rd St.	Senator Ave.	106738	AC	E	STD	-		25	White	Contin.	✔	✖
25th St.	Moray Ave.	131673	AC	E	STD	2,000/710		35	White	Contin.	✔	✖
27th St.	Paloma St.	138385	AC	E	STD	-		25	White	Contin.	✔	✖
28th St.	Hope St.	141968	AC	E	T	-		25	White	Contin.	✔	✖
30th St.	McClintock Ave.	96548	AC	W	Y	-		25	White	Ladder	✔	✖
36th St.	W/O Patton Ave.	107118	AC		MB	-		25	Yellow	Ladder	✖	✖
3rd St.	Columbia Ave.	124586	AC	W	STD	N/A			Yellow	Contin.	✔	✖
3rd St.	Grand View St.	150073	AC	E	STD	1,563/696	27,858	35	White	Ladder	✔	✖

Primary Street [1]	Cross Street	I/S ID/Street View	Existing Beacon Type	Existing Beacon Install Date	Manufacturer	Flash Duration (sec.)	Planned Device Type	Planned Device Funding Source	Near Side Bus Stop?
103rd St.	Clovis Ave.	134660							
103rd St.	E/O Compton Ave.	96087							
103rd St.	Firth Bl.	160570							
103rd St.	Gorman Ave.	127781							
103rd St.	Graham Ave.	148797							
103rd St.	Juniper St.	117335							
104th St.	Wall St.	117129							
108th St.	Denver Ave.	110206							
108th St.	Grandee Ave.	131199							
11th St.	Mesa Ave.	103897							
120th St.	Stanford Ave.	96172							
12th St.	Crocker St.	99988							
12th St.	San Julian St.	124579							
15th St.	San Julian St.	137259							
182nd St.	Denker Ave.	96161							
182nd St.	Evelyn Ave.	138258							
23rd St.	Estrella Ave.	141331							
253rd St.	Senator Ave.	106738							
25th St.	Moray Ave.	131673	FB						
27th St.	Paloma St.	138385							
28th St.	Hope St.	141968							
30th St.	McClintock Ave.	96548							
36th St.	W/O Patton Ave.	107118							
3rd St.	Columbia Ave.	124586	APWD				Full Signal	SR2S C3	
3rd St.	Grand View St.	150073							

Primary Street [1]	Cross Street	I/S ID/Street View	Striping?	Channelization?	Median?	Refuge Island?	Ped Vol Signal Warrant Met?	Total Ped/Bike Collisions (12-16)	Ped/Bike KSI (12-16) [3]	Zeeger Rating [4]
103rd St.	Clovis Ave.	134660		✔	✖			0	0	-
103rd St.	E/O Compton Ave.	96087		✔	✖			13	1	1
103rd St.	Firth Bl.	160570		✔	✖			0	0	-
103rd St.	Gorman Ave.	127781	✔	✖	✖			4	0	-
103rd St.	Graham Ave.	148797		✔	✖			0	0	2
103rd St.	Juniper St.	117335	✔	✖	✖			3	1	-
104th St.	Wall St.	117129	✔	✖	✖			1	0	-
108th St.	Denver Ave.	110206		✔	✖			0	0	-
108th St.	Grandee Ave.	131199	✖	✖	✖			0	0	-
11th St.	Mesa Ave.	103897	✔	✖	✖			1	0	-
120th St.	Stanford Ave.	96172	✔	✖	Painted			1	0	-
12th St.	Crocker St.	99988	✔	✖	✖			7	0	-
12th St.	San Julian St.	124579	✔	✖	✖			3	0	-
15th St.	San Julian St.	137259	✔	✖	✖			0	0	-
182nd St.	Denker Ave.	96161		✔	✖			0	0	1
182nd St.	Evelyn Ave.	138258		✔	✖			0	0	2
23rd St.	Estrella Ave.	141331	✔	✖	✖			4	0	-
253rd St.	Senator Ave.	106738	✔	✖	✖			1	0	-
25th St.	Moray Ave.	131673		✔	✖			2	0	N/A
27th St.	Paloma St.	138385	✖	✖	✖			0	0	-
28th St.	Hope St.	141968	✖	✖	✖			2	0	-
30th St.	McClintock Ave.	96548	✔	✖	✔			3	0	-
36th St.	W/O Patton Ave.	107118	✔	✖	✖			0	0	-
3rd St.	Columbia Ave.	124586		✔	✖		✔	5	0	N/A
3rd St.	Grand View St.	150073		✔	✖			3	0	1

Primary Street [1]	Cross Street	I/S ID/Street View	Land Use	Comments
103rd St.	Clovis Ave.	134660	Residential	
103rd St.	E/O Compton Ave.	96087	WIC, shopping center	May qualify for full signal (distance)
103rd St.	Firth Bl.	160570	Riley HS, residential	Firth Bl. looks like an alley
103rd St.	Gorman Ave.	127781	Weigand Ave Es, Jordan HS, residential	
103rd St.	Graham Ave.	148797	Residential, near Blue Line Sta.	
103rd St.	Juniper St.	117335	Mini market, residential, housing project	
104th St.	Wall St.	117129	107th St ES, residential.	
108th St.	Denver Ave.	110206	Residential	
108th St.	Grandee Ave.	131199	Markham MS, railroad	
11th St.	Mesa Ave.	103897	Residential	
120th St.	Stanford Ave.	96172	Residential, park	
12th St.	Crocker St.	99988	Fashion district	
12th St.	San Julian St.	124579	Fashion district	
15th St.	San Julian St.	137259	Industrial	San Julian St. looks like an alley
182nd St.	Denker Ave.	96161	186th St ES, residential	Shared with Gardena
182nd St.	Evelyn Ave.	138258	186th St ES, Gardena HS, church	Shared with Gardena
23rd St.	Estrella Ave.	141331	Mt. Saint Marys, bus stop, residential	
253rd St.	Senator Ave.	106738	Residential	
25th St.	Moray Ave.	131673	7-11, gas station, residential	
27th St.	Paloma St.	138385	Residential	
28th St.	Hope St.	141968	Medical Center	
30th St.	McClintock Ave.	96548	Church, residential	
36th St.	W/O Patton Ave.	107118	White Point ES, residential	Query Dist. for SSA conv.
3rd St.	Columbia Ave.	124586	Castro MS, Belmont HS, residential & commercial	
3rd St.	Grand View St.	150073	St Vincent's Hosp., Near Bridge Xing	

Discussion

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- ⇨ Follow up with us:
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