



*Public Works*

LOS ANGELES COUNTY

# Cyclomedia Curb Ramp Extraction Data Review

# Collection of Curb Ramps with CycloMedia

## **Objective**

Review measurements of curb ramps extracted by CycloMedia by comparing it to data collected by PW staff.

## **Test Area**

East LA. The area presents various challenges such as the hills and congestion which would make it difficult to always have a clear line of sight to the ramps. This was also a pilot area for the ADA curb ramp collection app that PW created with ArcGIS Survey123.

## **# of Locations**

3 locations were collected by CycloMedia.

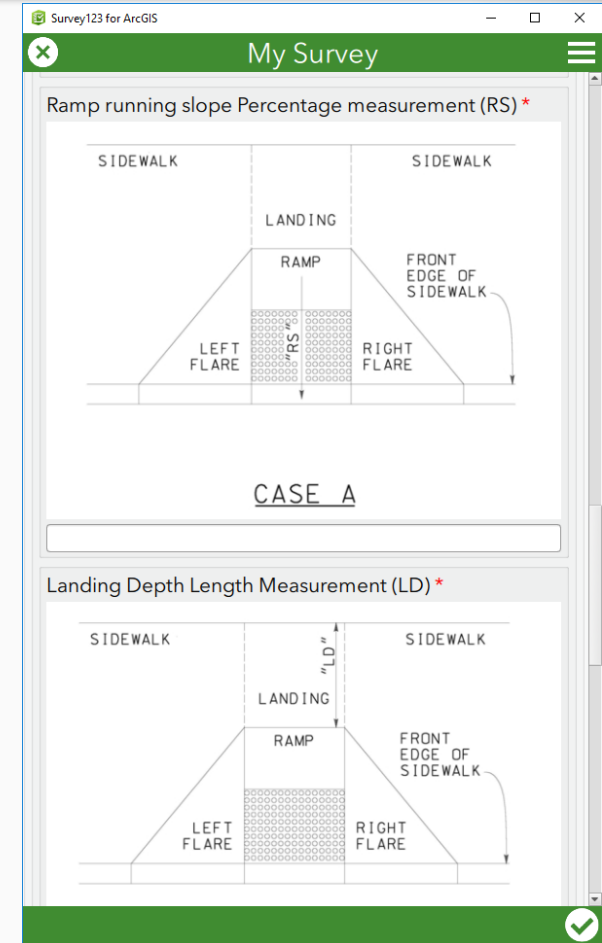
# Background of PW Collection Activities

- In 2017 Road Maintenance Division (RMD) was asked by administration about the curb ramp inventory in our Maintenance Management System as a result of a need to compile an ADA Transition Plan.
- No such inventory existed.
- Survey123 was chosen so collect the inventory due to the conditions that could be built in.
- Staff would go out in teams of 2 for collecting data.

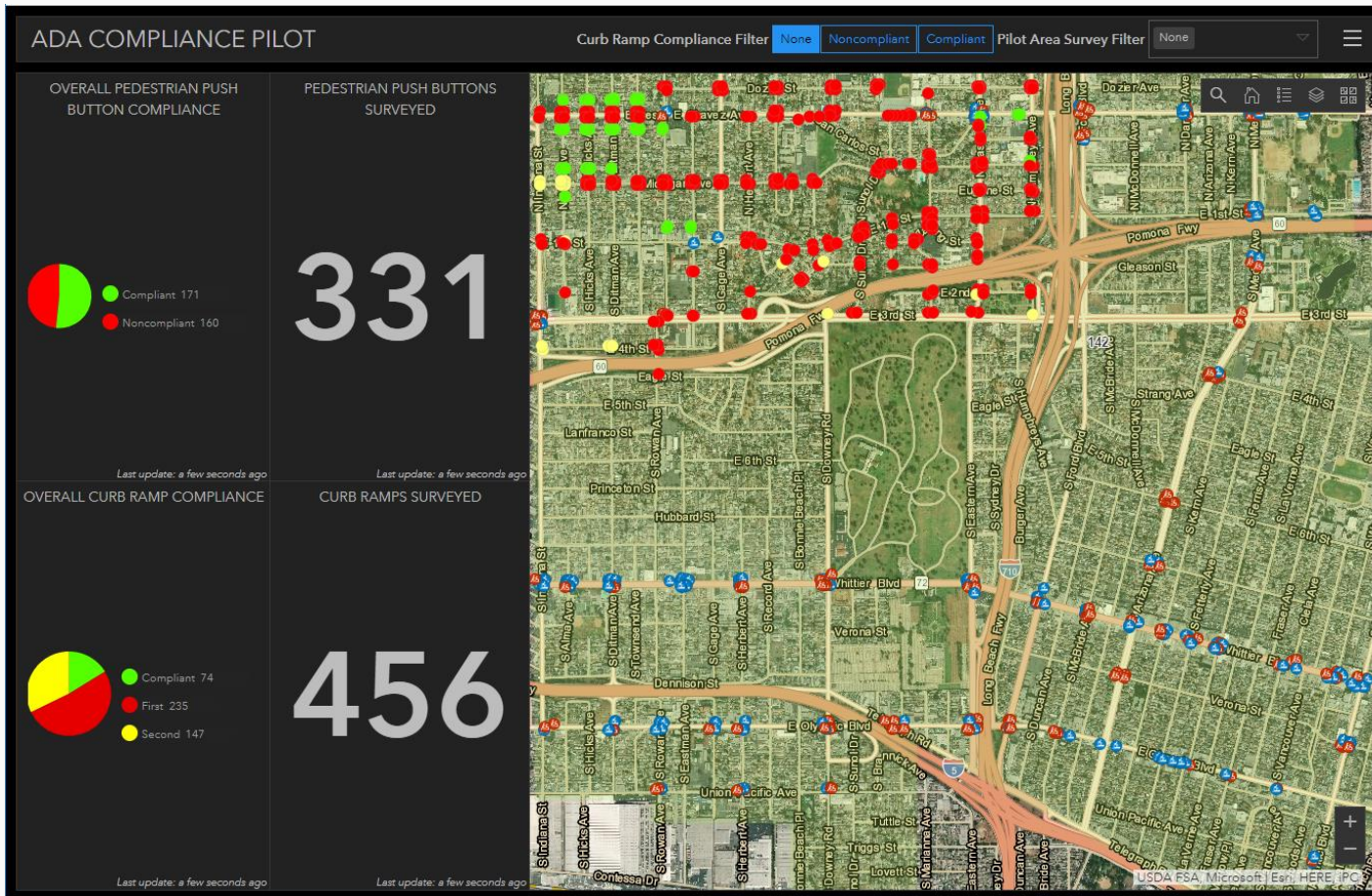
# Background of PW Collection Activities

## Technologies Evaluated

- LiDAR – \$\$\$\$\$
- Trimble Device – Very accurate, additional steps are involved in processing of data
- Collector – Easy to configure and use, although not capable of conditional statements and calculations.
- Survey123 – Ease of configuring and use.



# ArcGIS Online Operations Dashboard



# ArcGIS Online Operations Dashboard

ADA COMPLIANCE PILOT

Curb Ramp Compliance Filter: **None** Noncompliant Compliant Pilot Area Survey Filter: **None**

OVERALL PEDESTRIAN PUSH BUTTON COMPLIANCE

Compliant 2  
Noncompliant 1

**3**

*Last update: a few seconds ago*

PEDESTRIAN PUSH BUTTONS SURVEYED

**3**

*Last update: a few seconds ago*

OVERALL CURB RAMP COMPLIANCE

Compliant 22  
First 13  
Second 2

**37**

*Last update: a few seconds ago*

CURB RAMPS SURVEYED

**37**

*Last update: a few seconds ago*

1 of 2

Domes Depth Compliance

Case A Curb Ramp Overall Compliance

Noncompliant Explanation

Priority First

Pilot East Los Angeles

[image-20180307-205830.jpg](#)

Attachments

[image-20180307-205830.jpg](#)

# PW Pilot Area Stats

## Time and Cost Estimates

- Total Hours = 7806 ~ 7 Person Years
- Total Cost = \$750,000

Pilot Area	Intersections	Curb Ramps Surveyed	Curb Ramps per Intersection	Hours	Hours per Intersection	Hours per Curb Ramp	Cost	Cost per Intersection	Cost per Curb Ramp
East LA	202	435	2.15	191	0.95	0.44	\$ 18,850.91	\$ 93.32	\$ 43.34
Lennox	106	253	2.39	85	0.80	0.34	\$ 8,944.46	\$ 84.38	\$ 35.35
WEST LOS ANGELES (SAWTELLE VA)	18	43	2.39	12	0.67	0.28	\$ 978.86	\$ 54.38	\$ 22.76
<b>AVERAGE</b>			<b>2.31</b>		<b>0.80</b>	<b>0.35</b>		<b>\$ 77.36</b>	<b>\$ 33.82</b>
<i>County Wide Estimate</i>	<i>9701</i>	<i>22407</i>		<i>7806</i>			<i>\$ 750,482.77</i>		
<i>* Note estimated hours and cost only includes time used for data collection</i>									

# PW Pilot Area Results/Conclusions

- 2789 Curb ramps surveyed to date
- Very low compliance rate, based on the latest ADA standards
- Consider the cost of surveying all ramps when so many are already noncompliant.
- Possibly only consider an inventory of ramps and evaluate them in detail on a project-by-project basis. This can be completed by a student worker in a relatively short amount of time based on aerials and street level imagery already available.



# Cyclomedia Pilot in East LA

- Sample of 3 curb ramps already surveyed by PW
- Settings were not tailored to the specific cases that primarily occur throughout LA County.

# Cyclomedia Pilot in East LA

## Sample 1: Michigan Ave & N Humphreys SW Corner (Case A Ramp)



# Cyclomedia Pilot in East LA

## Sample 1: Michigan Ave & N Humphreys SW Corner (Case A Ramp) Measurements Calculated from the Data

Ramp		Value	Standard Deviation	# LAZ Points
	Length	5.73	0.11	
	Width	3.92	0.13	
	Running Slope (in %)	5.8	0.2	286
	Running Slope Bottom (in %)	8.6	0.2	316
	Running Slope Total (in %)	9.0	0.0	861
	Cross Slope (in %)	0.7	0.8	204
	Ramp Rise	0.46	0.03	
	Flare Slope LEFT (in %)	-8.3	0.6	216
	Max Flare Slope LEFT (in %)	-9.6	0.6	
	Flare Slope RIGHT (in %)	5.8	0.3	186
	Max Flare Slope RIGHT (in %)	5.8	0.3	
	Curb reveal	0.03	0.02	
	Gutter Slope (in %)	0.1	0.2	288
	Counter Slope (in %)	-7.9	0.3	205
	Pad Length	3.80	0.13	
	Pad Width	4.03	0.13	
Landing				
	Landing Length	4.02		
	Landing Width	3.92	0.13	
	Running slope (in %)	4.4	0.2	254
	Cross Slope (in %)	3.9	0.2	251
	Right Approach	10.19		
	Left Approach	9.25		
	CornerID	339867		

# Cyclomedia Pilot in East LA

## Sample 1: Michigan Ave & N Humphreys SW Corner (Case A Ramp) – Data Comparison

- Ramp determined noncompliant by PW

Measurement	Cyclomedia	PW	Standard
Running Slope (%)	9	10.5	8.33
Landing Length (ft)	4.02	3.7	4

# Cyclomedia Pilot in East LA

## Sample 2: Michigan Ave & N Humphreys NW Corner (Case A Ramp)



# Cyclomedia Pilot in East LA

## Sample 2: Michigan Ave & N Humphreys NW Corner (Case A Ramp) – Data Comparison

- Ramp determined compliant by PW and Cyclomedia data is supportive.

	Measurement	Cyclomedia	PW	Standard
Ramp	Running Slope (%)	7.2	7.7	8.33
	Ramp Width	4.99	4.1	4
	Pad Length	2.67	3	3
	Pad Width	4.08	4	4
Landing	Landing Length (ft)	3.59	4.1	4
	Landing Width (ft)	4.99	4.3	4
	Running Slope (%)	1.5	1.7	2
	Cross Slope (%)	0.9	1.8	2

# Cyclomedia Pilot in East LA

## Sample 3: East 1<sup>st</sup> Street (Case C Ramp)



# Cyclomedia Pilot in East LA

## Sample 3: East 1<sup>st</sup> Street (Case C Ramp) – Data Comparison

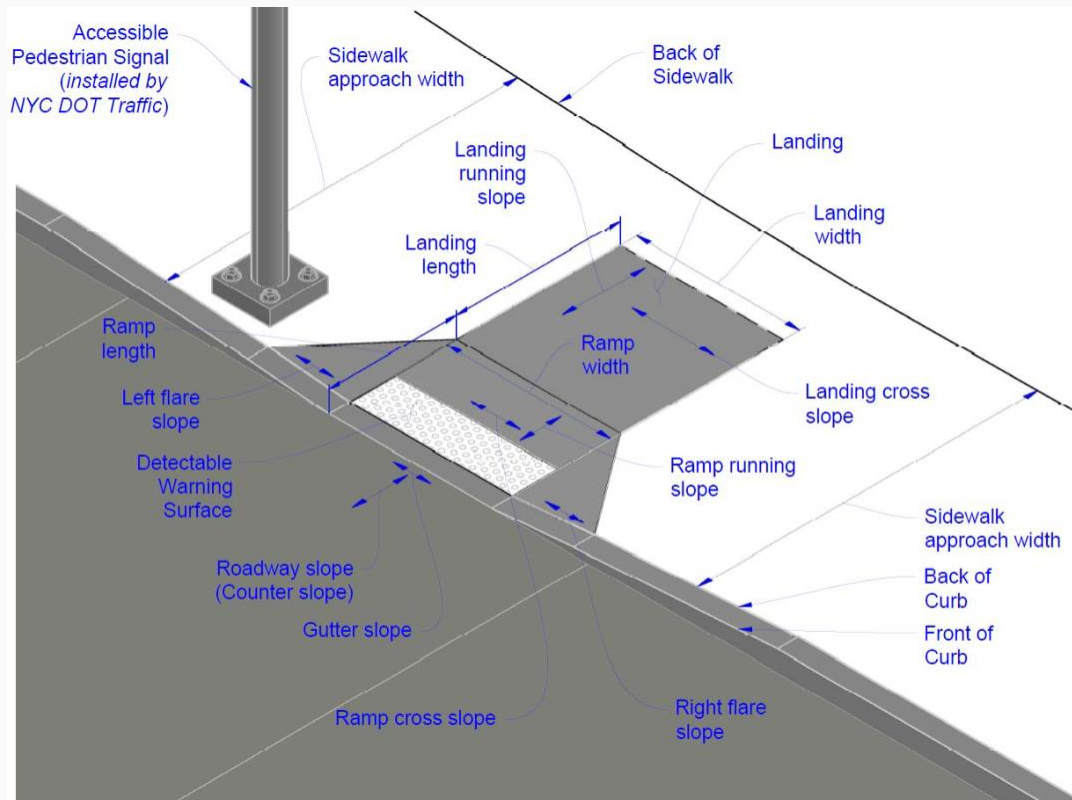
- Ramp determined noncompliant by PW

Measurement	Cyclomedia	PW	Standard
Running Slope (%)	1.7	3.1	2
Cross Slope (%)	5.4	7	2
Landing Depth	5	5.15	4



# Cyclomedia Curb Ramp Data Extraction

## Ramp Case Example (NYC)



# Cyclomedia Curb Ramp Data Extraction Considerations

- Cyclomedia data differed from PW data from 2% up to 50%
- More samples may be necessary to make a more thorough evaluation.
- Models that Cyclomedia has are not customized for PW ramp cases.
- Cost. There could be a major savings since this data will be gathered at the same time as other assets.
- Safety. Exposure to staff will be eliminated.
- PW still needs to complete the inventory of curb ramps.

# Cyclomedia Curb Ramp Data Extraction

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