



## **SIDEWALKS/ADA RAMP INVENTORY & CONDITION ASSESSMENTS**

**LOCATE - ATTRIBUTE - ASSESS - PLAN AHEAD**



**Sidewalks are generally adjacent to a roadway and provide pedestrians a safe means of travel (by foot, bike, or approved motorized device) that does not impede the flow of traffic.**

**Knowing their location, type, condition, and associated ADA ramp compliance is critical to the development of a comprehensive CIP.**

Zac Thomason, M.B.A  
National Client Services Manager

# Establish Path To End Game



## End Game = LOS Expectations

**Step 1: Understand what we own and it's condition**

*image reviews – mobile surveys – or FOG*

**Step 2: Define acceptable sidewalk conditions**

*good, bad, or indifferent*

**Step 3: Determine remaining service life (RSL)**

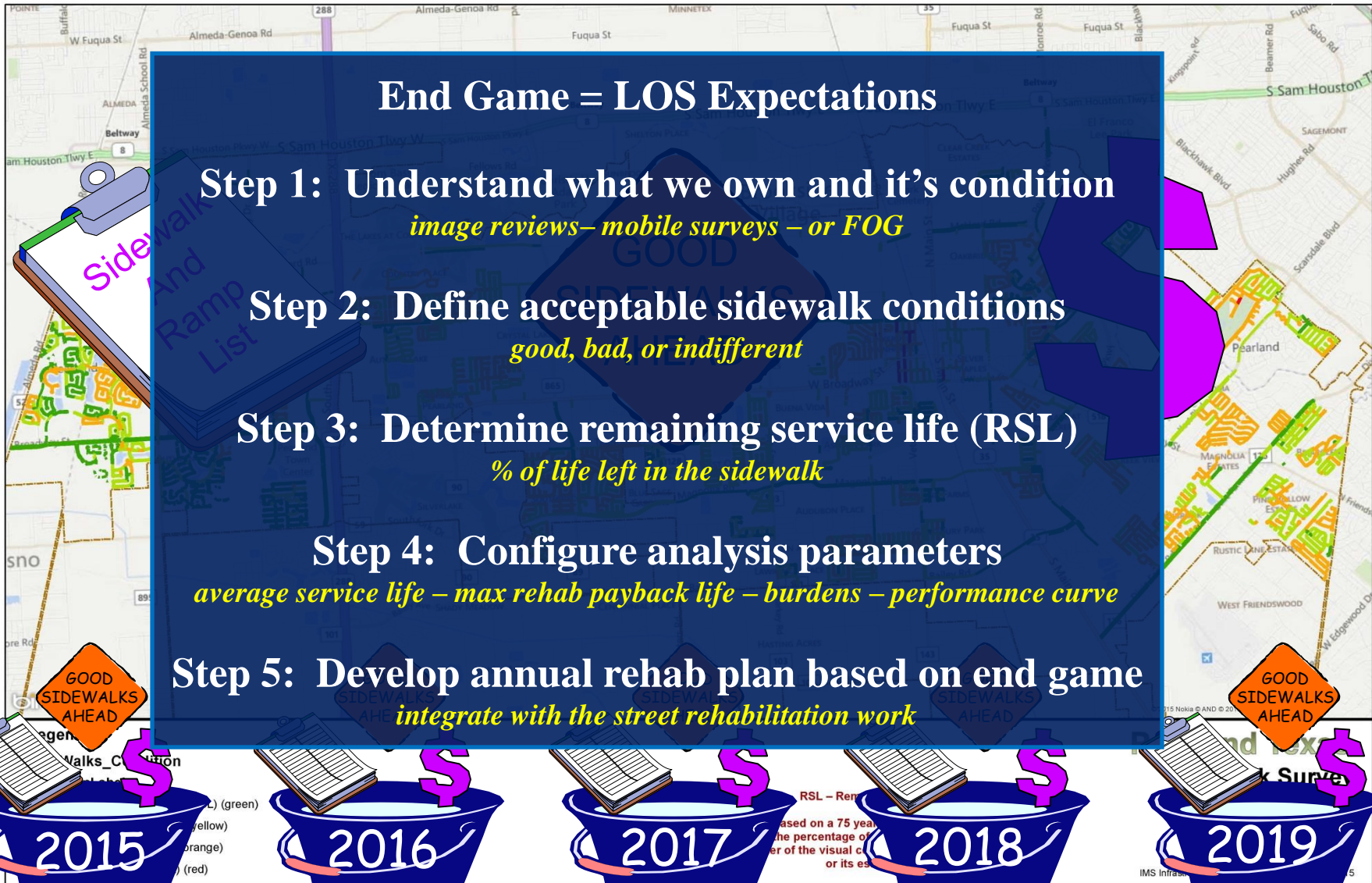
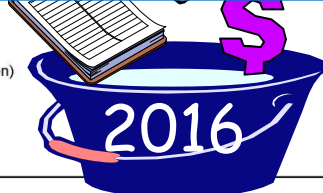
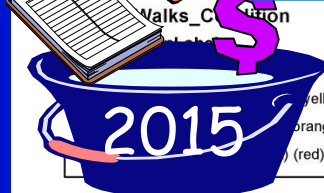
*% of life left in the sidewalk*

**Step 4: Configure analysis parameters**

*average service life – max rehab payback life – burdens – performance curve*

**Step 5: Develop annual rehab plan based on end game**

*integrate with the street rehabilitation work*



RSL – Remaining Service Life based on a 75 year average service life and the percentage of the visual condition of the sidewalk or its surface.

# Basic end game check...



## Sidewalk Network Valuation - Replacement Value of the Network Less Cost of Right of Way

	Network	Arterial	Collector	Local
Sidewalks (\$)	100,200,881	15,757,701	9,604,610	74,838,569
ADA Ramps (\$)	10,380,000	1,225,000	1,210,000	7,945,000
<b>Total Sidewalk Network Valuation (\$):</b>	<b>110,580,881</b>	<b>16,982,701</b>	<b>10,814,610</b>	<b>82,783,569</b>

## Annual Budget Comparison - Total Network Valuation Divided by Service Life

Total Network Valuation	110,580,881	\$	
Sidewalk Service Life	75	Years	
<b>Annual Service Life Cost</b>	<b>1,474,000</b>	<b>\$/year</b>	Does not include filling gaps or ramp replacements

N32.9464 W96.8883  
 CFCE00155T  
 2015/01/27 21:32:03

# A Better Approach To Surveys



**Laser Road Surface Tester (RST)**

*Automated pavement distress data  
GPS & multi-view HD RST video*

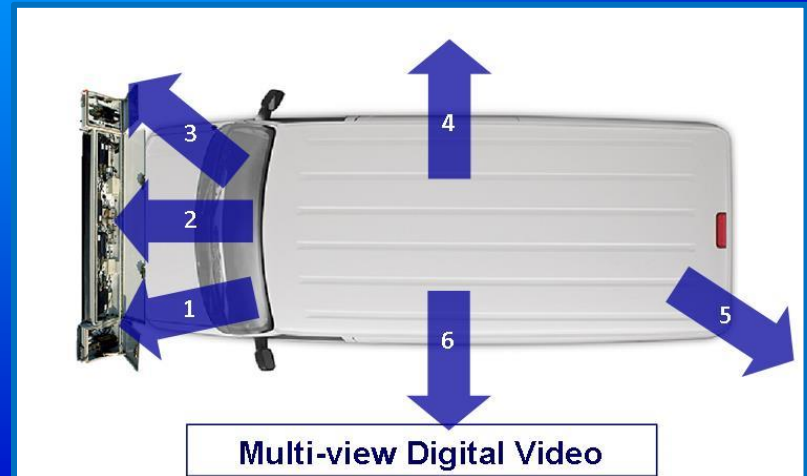
**1 pass locals & 2 pass arterials/collectors**

*Rear facing camera for adjacent ROW*

**Deliverable – 25 foot intervals**

**ROW Asset Inventory Development**

*RST views, aerial photos, GIS toolkits*



# Attributes must be visible from imagery

## Segment ID & Asset ID

### Types – 5 to 7 categories

*SW: Boulevard – meandering – mono – etc.*

*RP: shallow slopes – slope to traffic – flat pan – rear curb – no ramp but none required – etc.*

### Condition – 5 categories

*Very Good to Very Poor*

### Material – SW Width – Location

### SW & Ramp Obstructions

*None – slight – moderate – extensive*

### Ramp Function

*Pedestrian ramp – commercial approach – driveway - other*

### Ramp Facilities

*Truncated domes - textured - none*

### Ramp Orientation

*orthogonal – mid radius - complex*

### Ramp Placement

*intersection – mid block – island – median*

N29.5515 W95.3427  
RFDC02IMS  
2014/07/02 16:44:31

# *Database Development*



## **Data Format & Delivery**

*Upload to Lucity ROW module (Stret and Comm)*

*Geodatabase and/or series of shape files*

*Google Earth KMZ for review*

Google earth

# *SST - Enhanced Understanding*



**Modified gas powered golf cart**  
**Nomad survey application**  
**GPS & E-Prance HD cameras**  
**Distress observations**  
**Tilt, grade, & adjustable fault meter**  
**Climbs 8" curbs**



# SST Sidewalk Distress Survey

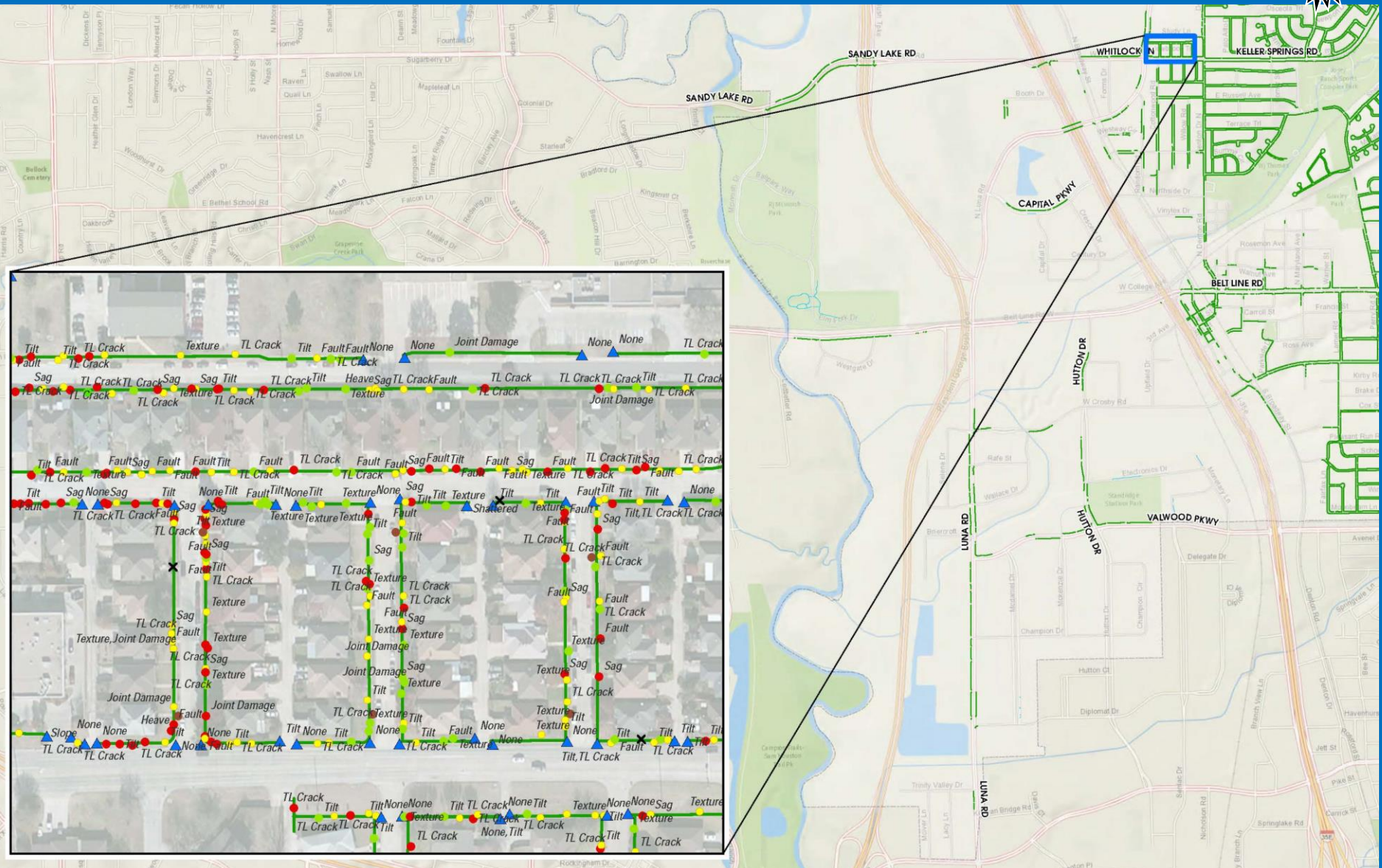


## City of Carrollton Sidewalk/Ramp Distress Severities

	PCC Distress	ACP Distress	Description	Slight	Moderate	Severe
1	Heave	Heave	Sidew alk or multiple slabs have uplifted over a short length	0' to 2.5" over 5 feet (4%)	2.5" to 5" over 5 Feet (4% to 8%)	> 5" over 5 Feet (>8%)
2	Sag	Sag	Sidew alk or multiple slabs have settled over a short length	0' to 2.5" over 5 feet (4%) May pond up to 2.5"	2.5" to 5" over 5 Feet (4% to 8%) May pond up to 5"	> 5" over 5 Feet (>8%) Will pond over 5"
3	Tilt	Tilt	Sidew alk or multiple slabs have tilted over a short length	0 to 2% (1/2" over 2 feet)	2% to 4% (1/2" to 1" over 2 feet)	> 4% (>1" over 2 feet)
4	Shattered Slab	Fatigue Crk	Slab/w alk have 2 or more cracks and may be associated w ith settlement	Slab still flat, cracks < 1/4", no broken out pieces	Cracks 1/4" to 1", slight settlement up to 1"	Cracks > 1", settlement > 1", missing pieces, shattered appearance
5	TL Crk Cnrr Brk	TL Crk Cnrr Brk	A crack across the w idth or length of a slab/w alk, a crack or breal at the corner	Slab still flat, cracks < 1/4", no broken out pieces	Cracks 1/4" to 1", slight settlement up to 1"	Cracks > 1", settlement > 1", ragged crack or missing pieces
6	Fault	Distortion	Vertical displacement at a joint or crack - either up or down	< 1.5"	> 1.5"	
7	Texture	Texture	Loss of fines, crazing, pop outs or scaling of the ramp surface	Surface is just starting to lose its smooth texture, slight exposing of aggregate - still suitable for small w heels	Surface has lost its fines, aggregate exposed, small w heels will jamb w hile rolling	The surface texture is rough - aggregate exposed almost like gravel, small w heels stop rolling
8	Joint damage		The joints have open up or loss of joint sealant	Joint is opened up to 1"	Joint is opened 1" to 2" and w eeded	Joint is opened >2" and w eeded
9	Patching	Patching	The ramp has been patched or cut and patched	Patch is smooth matching sidew alk surface and made of similar material	Patch is starting to fail, rough or made from dissimilar material	Patch has dropped or heaved, failed, very rough and will trap small w heels
10	Slope	Slope	The sidew alk has excessive slope	Up to 8.33% slope up to 2" in 2 feet	8.33% to 12.5 % 2" to 3" in 2 feet	> 12.5% Slope > 3" in 2 feet



# Distress Database Development



# Sidewalk & Ramp Obstructions



1141 S Broadway St



Sign Pole or Post  
Utility

Light Standard

Traffic Signal

Power Pole

Street Furniture

Garbage Receptacle

Bus Stop Shelter

Tree/Vegetation

Guy Wire/Support

Grating or Planting Cover

## OBSTRUCTION SEVERITY

*Slight – present but clearance is > 40”*

*Moderate – present but clearance is between 32” and 40”*

*Severe – present but clearance is < 32”*

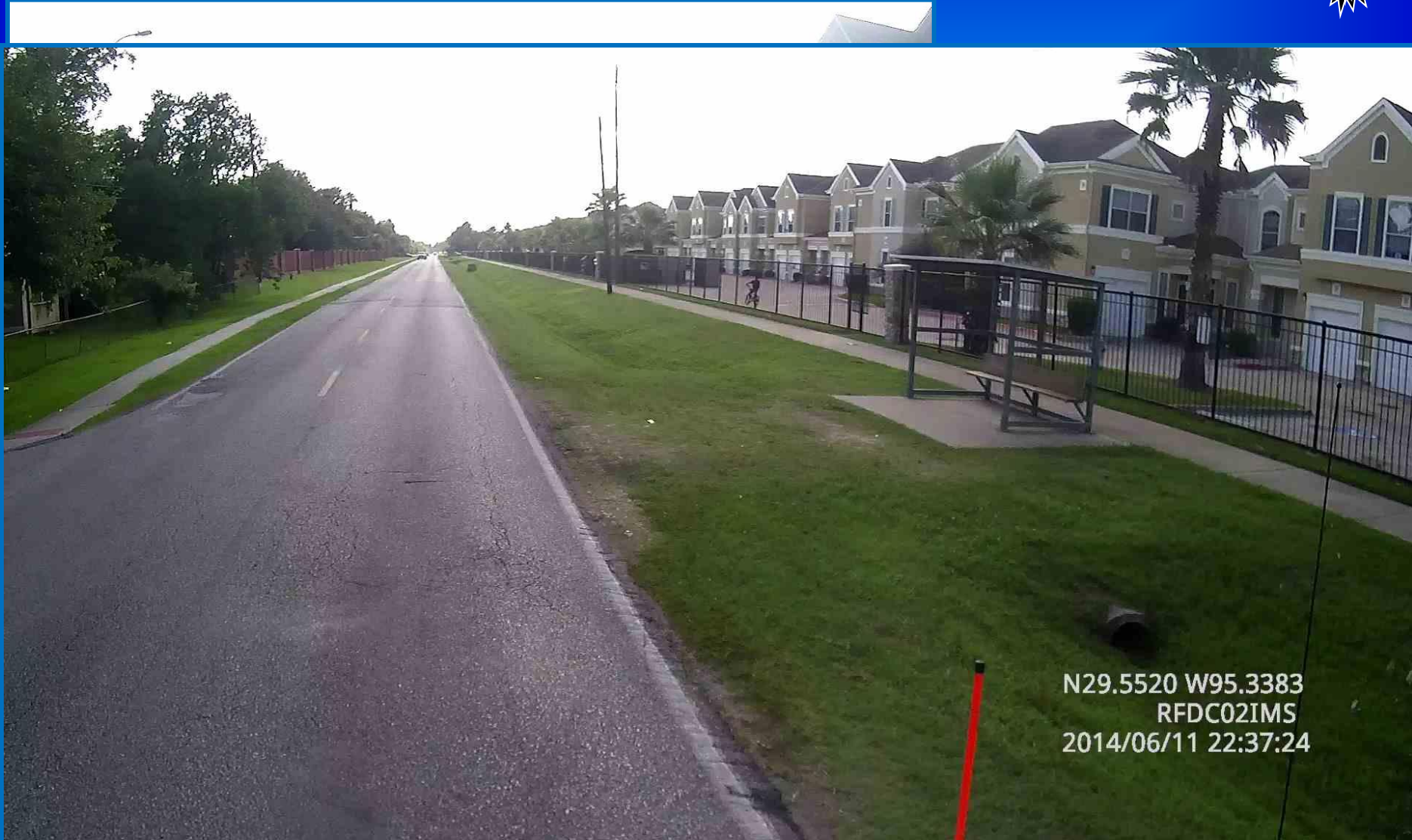
© 2015 Google

Google earth

Report a problem

32°57'07.85" N 96°54'27.91" W elev 448 ft eye alt 456 ft

# *Missing Terminus*



N29.5520 W95.3383  
RFDC02IMS  
2014/06/11 22:37:24

# *ADA Compliance*



Ignorance  
Evolution

Compliance



OS

# Replacement Value & Ramp Counts



Sidewalk Network Valuation - Replacement Value of the Network Less Cost of Right of Way				
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Sidewalks	Network	Arterial	Collector	Local	
Sidewalk Network Length (ft)	2,514,254	283,923	207,667	2,022,664	
Sidewalk Network Length (mi)	476.2	53.8	39.3	383.1	
Sidewalk Network Area (ft <sup>2</sup> )	299,362,373	47,187,851	33,165,307	219,009,216	
ADA Ramp Counts	Network	No VIP	Textured	Domes	
Type I	101	83	12	6	
Type II	3956	531	2998	427	
Type III	8	4	2	2	
Type IV	32	10	21	1	Priority Highlighted In Yellow
Type V	1	1	0	0	
Type VI	51	24	25	2	Priority Highlighted In Yellow
Type VII	3	0	1	2	
Missing Terminus	1229	1229	0	0	
<b>Total Ramp Count</b>	<b>4151</b>	<b>652</b>	<b>3059</b>	<b>440</b>	
Missing Ramps or No End Terminus	1230	1230	0	0	
Type I: Shallow slopes, does not slope to traffic, with rear curb - compliant Type II: Shallow slopes, slight slope to traffic, no rear curb - compliant, but older standard Type III: Shallow slopes, slope to traffic, no rear curb - partially compliant Type IV: Poor non-compliant geometrics, narrow or steep approach, excessive cross fall Type V: No ramp Type VI: No ramp, but one is required Type VII: The ramp is some other type than those areas listed above Missing Terminus: Sidewalk ends mid-block with no ramp or exit					

# Deficiency Costs & Parameters



## Sidewalk Deficiency Costs

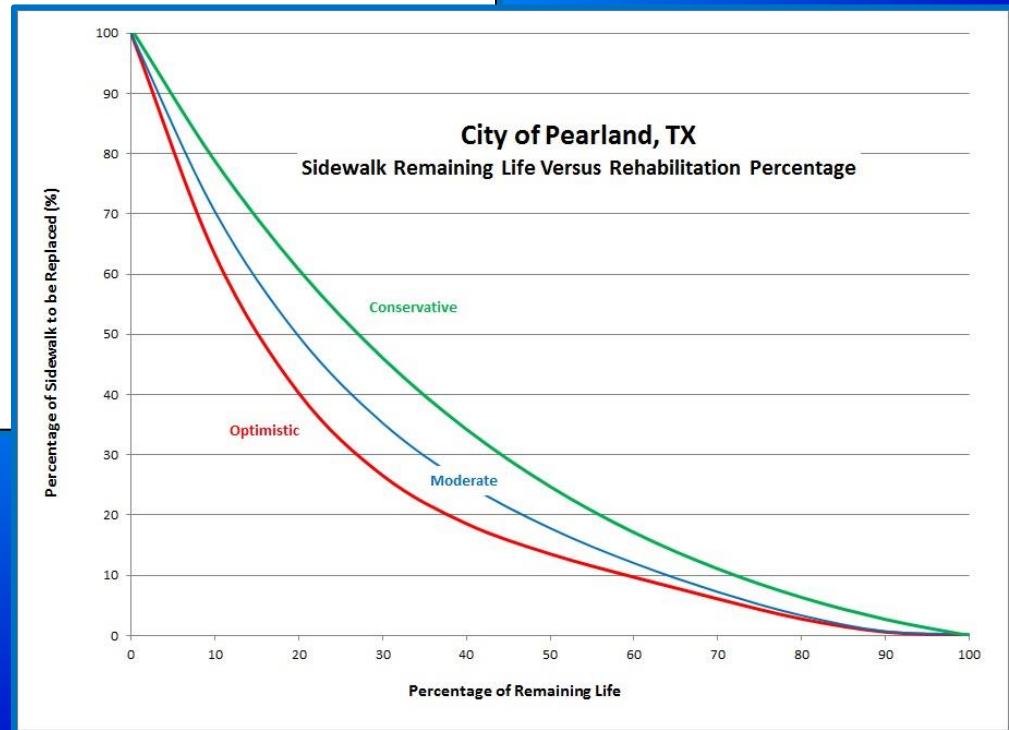
Estimated Sidewalk Rehab Deficiency Costs:	8,853,000	\$
Estimated Gap Filling Cost:	6,009,000	\$
Missing Terminus Costs:	1,905,000	\$
Ramp ADA Compliance Costs:	1,155,000	\$

**Total Sidewalk Network Deficiency: 17,922,000 \$**

**Ramps That Are a Priority Costs 227,500 Type IV and Type VI Ramps Only**

## Parameters

Average Sidewalk Service Life:	75	Years
<b>Rehabilitation Payment Max Life:</b>	<b>20</b>	Years
Local Road Sidewalk Width:	4	Ft
Collector Road Sidewalk Width:	5	Ft
Arterial Road Sidewalk Width:	6	Ft
<b>Sidewalk Life to Rehab Cost Outlook:</b>	<b>Moderate</b>	2
Base Sidewalk Rehab Cost:	75	\$/yd <sup>2</sup>
<b>Burden Rate:</b>	<b>10</b>	%
Total Sidewalk Rehab Unit Rate:	9.25	\$/ft <sup>2</sup>
Minimum % for Gaps to be filled:	75	%
Maximum % for No Gaps to be filled:	25	%
Ramp Installation Cost:	2,500	\$
Tactile Plates Retrofit Installation:	250	\$



# Remaining Service Life (RSL)



## RSL – Remaining Service Life

*RSL is the percentage of life left in the sidewalk based on the lesser of the visual condition rating or it's estimated age*

Based on a 75 year ultimate service life  
Sidewalks are more akin to a light bulb  
than a deteriorating asset

### Legend

RAMP\_Deficiency Sdewalk\_Terminus

- No Deficiency
- <\$2500
- >\$2500

CL\_Sidewalk\_Fill\_In  
Estimated\_Fill\_In\_Costs

- No Fill In Cost
- Estimated\_Fill\_In\_Costs >0

SideWalks\_Condition  
ConditionLabel

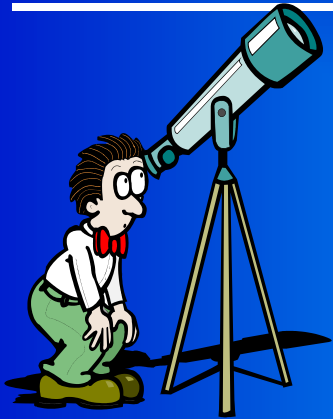
- Very Good (80 to 100% RSL)
- Good (60 to 80% RSL)
- Fair (40 to 60% RSL)
- Poor (20 to 40% RSL)

### RSL – Remaining Service Life

Based on a 75 year ultimate service life,  
the RSL is the percentage of life left in the sidewalk based on  
the lesser of the visual condition rating of the sidewalks  
or its estimated age.

**Pearland Texas**  
**Sidewalk Survey**

# One Minute Close...



**Start From a Good Foundation**  
inventory what you have to understand the  
value and condition

## Determine End Game

Define the level of service expectations and  
understand how that impacts your budget



## Accurate Attributes

Type, obstructions, material, condition,  
width, location, etc.



# Questions ?

