

UTILIZING GIS TO IMPLEMENT ADA IMPROVEMENTS IN PLEASANTON, CA



PROJECT TEAM MEMBERS

- *Rusty Wynn, City of Pleasanton*
- *Bill Strand, RRM Design Group*
- *Eli Davidian, Consultant*



THE PROJECT

- *Part of the City's ADA Transition Plan and Capital Improvement Program*
- *Assess All Curb Ramps for ADA Compliance*
- *Assess Sidewalks for Deflections Greater Than ½ inch*



THE PROJECT

- *Assess Ramps for Compliance With 28 CFR Part 36*
 - *Developed 7 Classes To Categorize Curb Ramp Compliance*
- *Sidewalks Assessed For Level Of Deflection*
 - *3 Classes Of Deflection*



SPECIFICS

- *2,157 Intersections*
- *207 Centerline miles*
- *Create a GIS Database*
- *Prepare a Final Report With Costs*
- *Limited Budget*



CURB RAMPS AND SIDEWALKS



THE CHALLENGE

BUDGET



THE SOLUTION

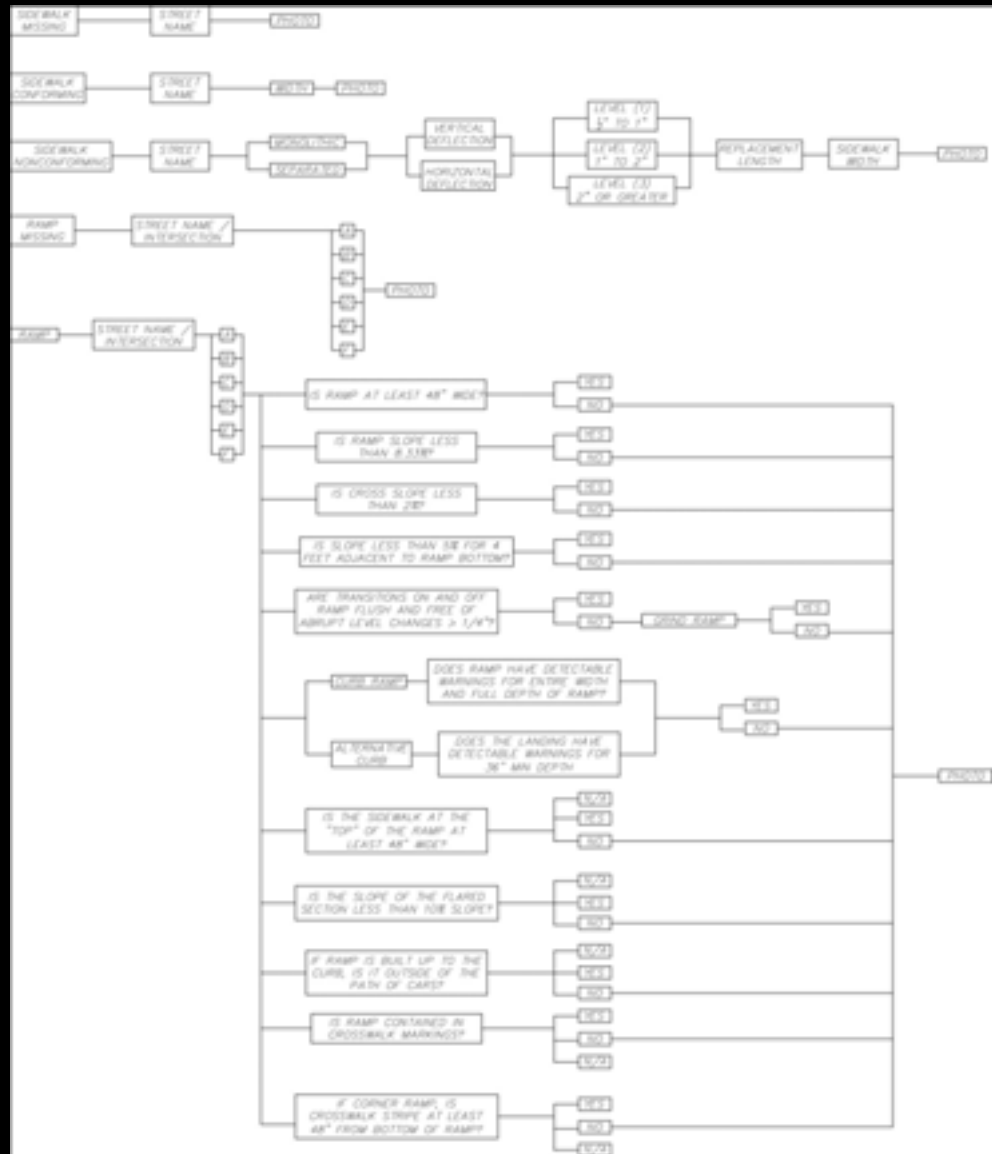


EFFICIENT APPROACH

- *GeoXH*
- *Bikes*
- *One Pass Approach*
- *2 Person Crews for Safety and Efficiency*
- *Quality Control Built Into Data Dictionary*



DATA DICTIONARY



Data Collection & Management

- *Trimble GeoXH*
 - *Sub Meter Accuracy*
 - *Windows Based OS*
 - *Bluetooth Enabled*
 - *Long Battery Life*
 - *Lightweight*



Data Collection & Management

- *Pathfinder Office & Terra Sync*
 - *Data Dictionary*
 - *Easily Customizable*
 - *Streamlined Collection*
 - *GeoXH Compatible*
 - *Photo Link*



Data Collection & Management

- *Field Preparation*

- *Planning*
- *Routes*
- *Crews*
- *Equipment*
- *Training*



Data Collection & Management

- *Performance Measures*
 - *Points Collected*
 - *Miles Covered*
 - *Field Days*
 - *Reshoots*



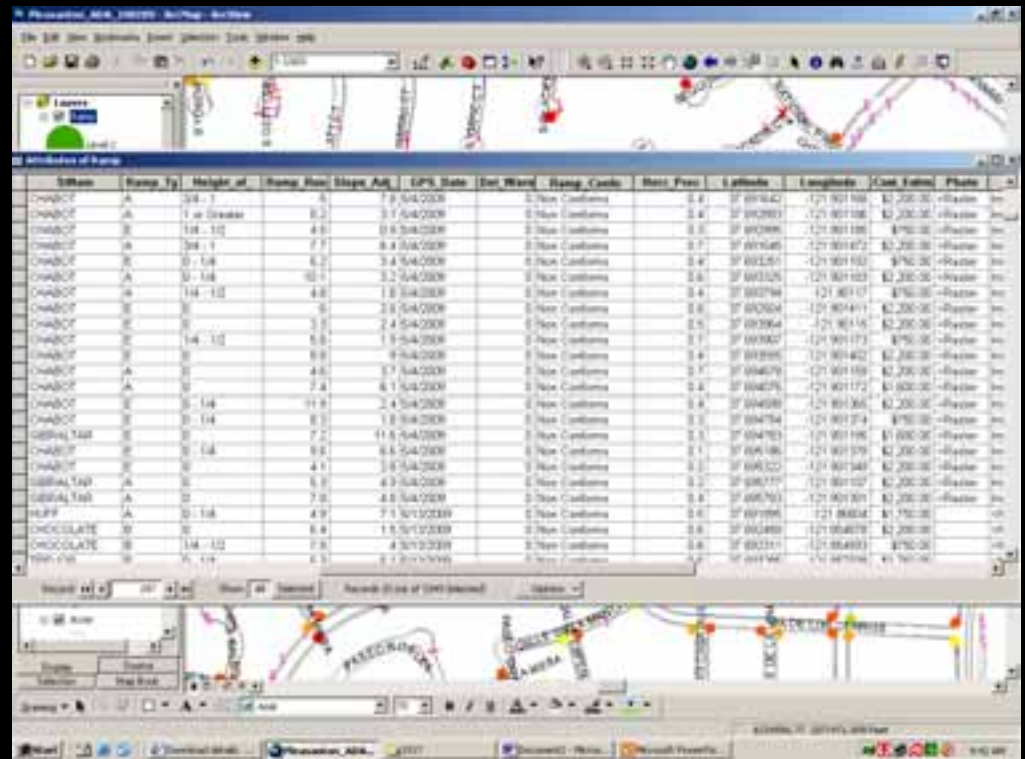
Data Collection & Management

- *Data Processing*
 - *Nightly Download*
 - *Weekly Compilation*
 - *Differential Correction*
 - *Export to Shapefile*

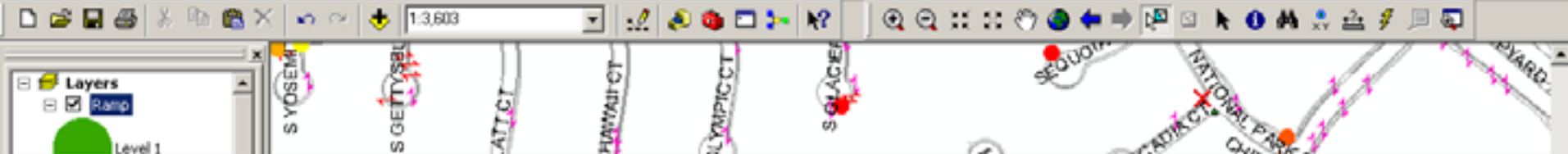


Data Collection & Management

- *Data Management – ArcGIS 9.3*
 - *Personal GeoDB*
 - *Arc Map Project*
 - *Data Cleaning*
 - *Attribute Edits*
 - *Photo Uploads*



The screenshot displays the ArcGIS 9.3 interface. The top portion shows a data table with the following columns: Station, Pump Ty, Height of, Pump Rate, Stage Adj, GPS Date, Dist. Ward, Pump Code, Dist. Fee, Latitude, Longitude, Cost Estm, and Photo. The table contains multiple rows of data, including entries for 'CHOCOLATE' and 'CHOCOLATE B'. The bottom portion of the screenshot shows a map view with a street network and several colored markers (red, yellow, green) placed along the streets, likely representing the data points from the table above.



Attributes of Ramp

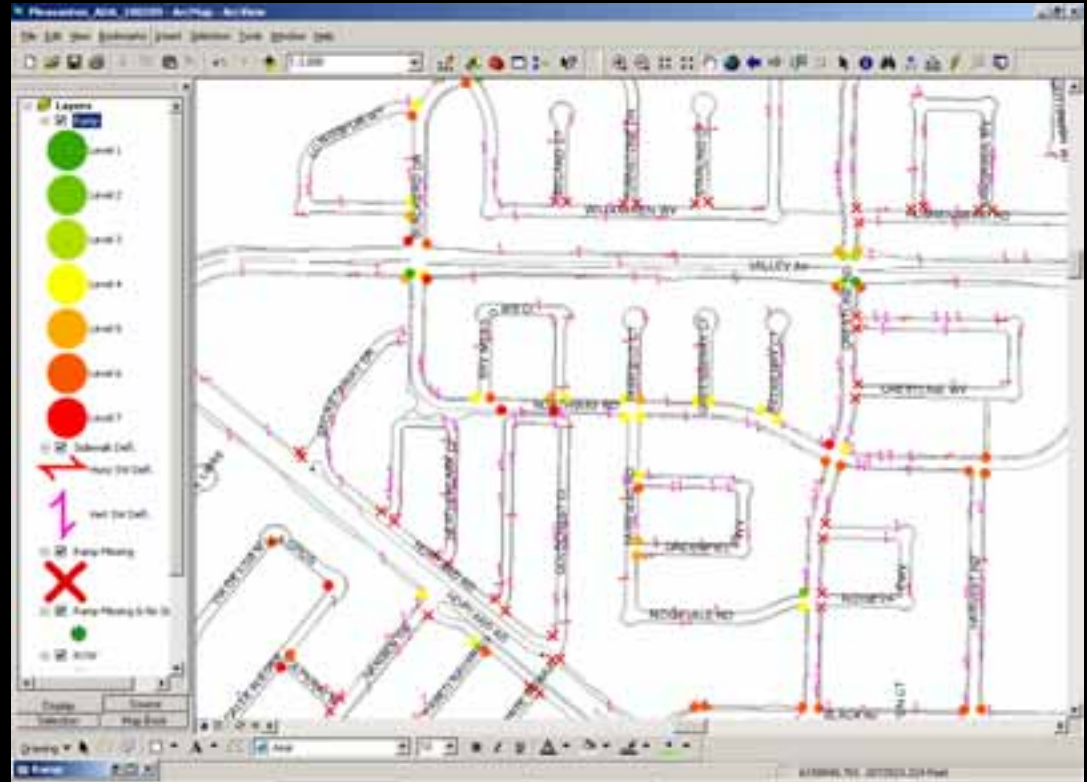
StNam	Ramp_Ty	Height of	Ramp_Run	Slope_Adj	GPS Date	Det Warn	Ramp_Confo	Horz_Prec	Latitude	Longitude	Cost Estim	Photo
CHABOT	A	3/4 - 1	5	7.8	5/4/2009	0	Non Conforms	0.4	37.691642	-121.901168	\$2,200.00	<Raster Im
CHABOT	A	1 or Greater	8.2	3.1	5/4/2009	0	Non Conforms	0.4	37.692693	-121.901186	\$2,200.00	<Raster Im
CHABOT	E	1/4 - 1/2	4.5	0.9	5/4/2009	0	Non Conforms	0.3	37.692995	-121.901185	\$750.00	<Raster Im
CHABOT	A	3/4 - 1	7.7	6.4	5/4/2009	0	Non Conforms	0.7	37.691645	-121.901472	\$2,200.00	<Raster Im
CHABOT	E	0 - 1/4	6.2	3.4	5/4/2009	0	Non Conforms	0.4	37.693251	-121.901192	\$750.00	<Raster Im
CHABOT	A	0 - 1/4	10.1	3.2	5/4/2009	0	Non Conforms	0.6	37.693325	-121.901183	\$2,200.00	<Raster Im
CHABOT	A	1/4 - 1/2	4.8	1.8	5/4/2009	0	Non Conforms	0.4	37.693794	-121.901117	\$750.00	<Raster Im
CHABOT	E	0	6	2.6	5/4/2009	0	Non Conforms	0.8	37.692504	-121.901411	\$2,200.00	<Raster Im
CHABOT	E	0	3.3	2.4	5/4/2009	0	Non Conforms	0.5	37.693964	-121.901115	\$2,200.00	<Raster Im
CHABOT	E	1/4 - 1/2	5.6	1.9	5/4/2009	0	Non Conforms	0.7	37.693907	-121.901173	\$750.00	<Raster Im
CHABOT	E	0	8.8	9	5/4/2009	0	Non Conforms	0.4	37.693555	-121.901402	\$2,200.00	<Raster Im
CHABOT	A	0	4.6	3.7	5/4/2009	0	Non Conforms	0.7	37.694678	-121.901159	\$2,200.00	<Raster Im
CHABOT	A	0	7.4	6.1	5/4/2009	0	Non Conforms	0.4	37.694076	-121.901172	\$1,600.00	<Raster Im
CHABOT	E	0 - 1/4	11.9	2.4	5/4/2009	0	Non Conforms	0.4	37.694598	-121.901365	\$2,200.00	<Raster Im
CHABOT	E	0 - 1/4	8.3	1.8	5/4/2009	0	Non Conforms	0.3	37.694784	-121.901374	\$750.00	<Raster Im
GIBRALTAR	E	0	7.2	11.6	5/4/2009	0	Non Conforms	0.3	37.694783	-121.901195	\$1,600.00	<Raster Im
CHABOT	E	0 - 1/4	9.6	6.6	5/4/2009	0	Non Conforms	0.1	37.695106	-121.901378	\$2,200.00	<Raster Im
CHABOT	E	0	4.1	2.8	5/4/2009	0	Non Conforms	0.2	37.695322	-121.901349	\$2,200.00	<Raster Im
GIBRALTAR	A	0	5.3	4.9	5/4/2009	0	Non Conforms	0.2	37.695777	-121.901107	\$2,200.00	<Raster Im
GIBRALTAR	A	0	7.8	4.8	5/4/2009	0	Non Conforms	0.4	37.695783	-121.901391	\$2,200.00	<Raster Im
HUFF	A	0 - 1/4	4.9	7.1	5/13/2009	0	Non Conforms	0.5	37.691895	-121.866804	\$1,750.00	<N
CHOCOLATE	B	0	6.4	1.5	5/13/2009	0	Non Conforms	0.6	37.692458	-121.854578	\$2,200.00	<N
CHOCOLATE	B	1/4 - 1/2	7.8	4	5/13/2009	0	Non Conforms	0.6	37.692311	-121.854593	\$750.00	<N
TOBYLOP	B	0 - 1/4	6.3	6.1	5/13/2009	0	Non Conforms	0.6	37.692365	-121.857039	\$1,750.00	<N

Record: 207 Show: All Selected Records (0 out of 3349 Selected) Options



Data Collection & Management

- *Quality Control*
 - *Precision*
 - *Completeness*
 - *Consistency*
 - *Duplicates*



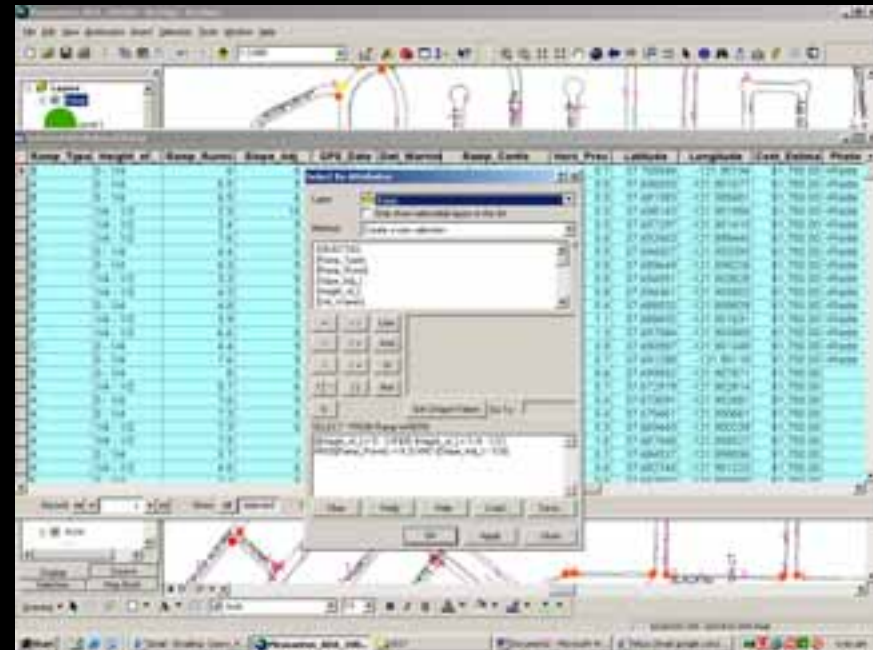
Layers

- Ramp
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5
- Level 6
- Level 7
- Sidewalk Defl.
- Horiz SW Defl.
- Vert SW Defl.
- Ramp Missing
- Ramp Missing & No Si
- ROW



Data Collection & Management

- *Analysis*
 - *Sorting the Data*
 - *Establishing Priorities*
 - *Reporting Outcomes*



Layers

- Ramp
- Level 1



Selected Attributes of Ramp

Ramp_Type	Height_of	Ramp_Runni	Slope_Adj	GPS Date	Det Warnin	Ramp_Confo	Horz Prec	Latitude	Longitude	Cost Estima	Photo
B	0 - 1/4	6	6				0.7	37.700048	-121.90194	\$1,750.00	<Raste
A	0 - 1/4	5.5	5				0.8	37.696053	-121.901077	\$1,750.00	<Raste
B	0 - 1/4	6.5	6				0.9	37.681383	-121.905681	\$1,750.00	<Raste
A	1/4 - 1/2	2.9	15				0.3	37.698143	-121.901956	\$1,750.00	<Raste
A	1/4 - 1/2	2.4	9				0.5	37.697297	-121.901415	\$1,750.00	<Raste
A	1/4 - 1/2	7.6	5				0.6	37.692663	-121.898446	\$1,750.00	<Raste
B	0 - 1/4	4.4	6				0.5	37.694007	-121.903393	\$1,750.00	<Raste
B	0 - 1/4	6.3	5				0.8	37.689649	-121.898226	\$1,750.00	<Raste
B	1/4 - 1/2	3.3	9				0.0	37.694051	-121.903825	\$1,750.00	<Raste
B	1/4 - 1/2	4.3	9				0.8	37.694361	-121.903902	\$1,750.00	<Raste
E	0 - 1/4	4.8	5				0.4	37.688532	-121.899828	\$1,750.00	<Raste
A	1/4 - 1/2	3.9	7				1.1	37.688492	-121.901631	\$1,750.00	<Raste
F	1/4 - 1/2	6.6	8				1.3	37.697084	-121.903865	\$1,750.00	<Raste
D	0 - 1/4	4.4	9				0.9	37.690587	-121.901248	\$1,750.00	<Raste
A	0 - 1/4	7.6	9				0.7	37.691288	-121.90118	\$1,750.00	<Raste
B	0 - 1/4	8	5				0.6	37.699562	-121.907871	\$1,750.00	
A	1/4 - 1/2	5.7	6				0.7	37.672979	-121.902814	\$1,750.00	
A	0 - 1/4	7.6	9				0.4	37.673091	-121.902681	\$1,750.00	
A	0 - 1/4	7.3	5				0.4	37.670461	-121.900661	\$1,750.00	
A	1/4 - 1/2	7.3	6				0.3	37.669443	-121.900239	\$1,750.00	
A	1/4 - 1/2	7.5					1.6	37.687048	-121.898527	\$1,750.00	
A	0 - 1/4	3.7	7				0.7	37.684537	-121.898596	\$1,750.00	
A	1/4 - 1/2	4.8	6				0.6	37.682745	-121.901223	\$1,750.00	
E	0 - 1/4	7.1	0				0.6	37.682663	-121.899886	\$1,750.00	

Select By Attributes

Layer: Ramp

Method: Create a new selection

[OBJECTID]
[Ramp_Type]
[Ramp_Runni]
[Slope_Adj]
[Height_of]
[Det_Warnin]

Is Like And Or Not

Get Unique Values Go To:

SELECT * FROM Ramp WHERE:
 ([Height_of_] = '0 - 1/4') OR ([Height_of_] = '1/4 - 1/2')
 AND ([Ramp_Runni] <= 8.3) AND ([Slope_Adj] > 5.0)

Clear Verify Help Load... Save... OK Apply Close

Record: 1 Show: All Selected

Display Selection

Source Map Book



UTILIZING THE DATA

- *Merging of Feature Classes*

- The initial delivery included:

- Ramp
- Ramp_Missing
- Ramp_Missing_No_SW
- ROW_etc
- Stnames
- SW_Deflection
- SW_Missing

- Now it is in SDE:

- vector.GIS_ADMIN.Ramps
- vector.GIS_ADMIN.SW.Deflection
- vector.GIS_ADMIN.SW_Missing

SDE Feature Class
SDE Feature Class
SDE Feature Class



UTILIZING THE DATA

- *Updated Database To Reflect Recent Repairs*
 - *70 New Ramps*
 - *192 Replacements*



UTILIZING THE DATA

- *Created Maps Depicting The Status of Ramp and Sidewalk Conditions for The City's ADA Citizen Advisory*

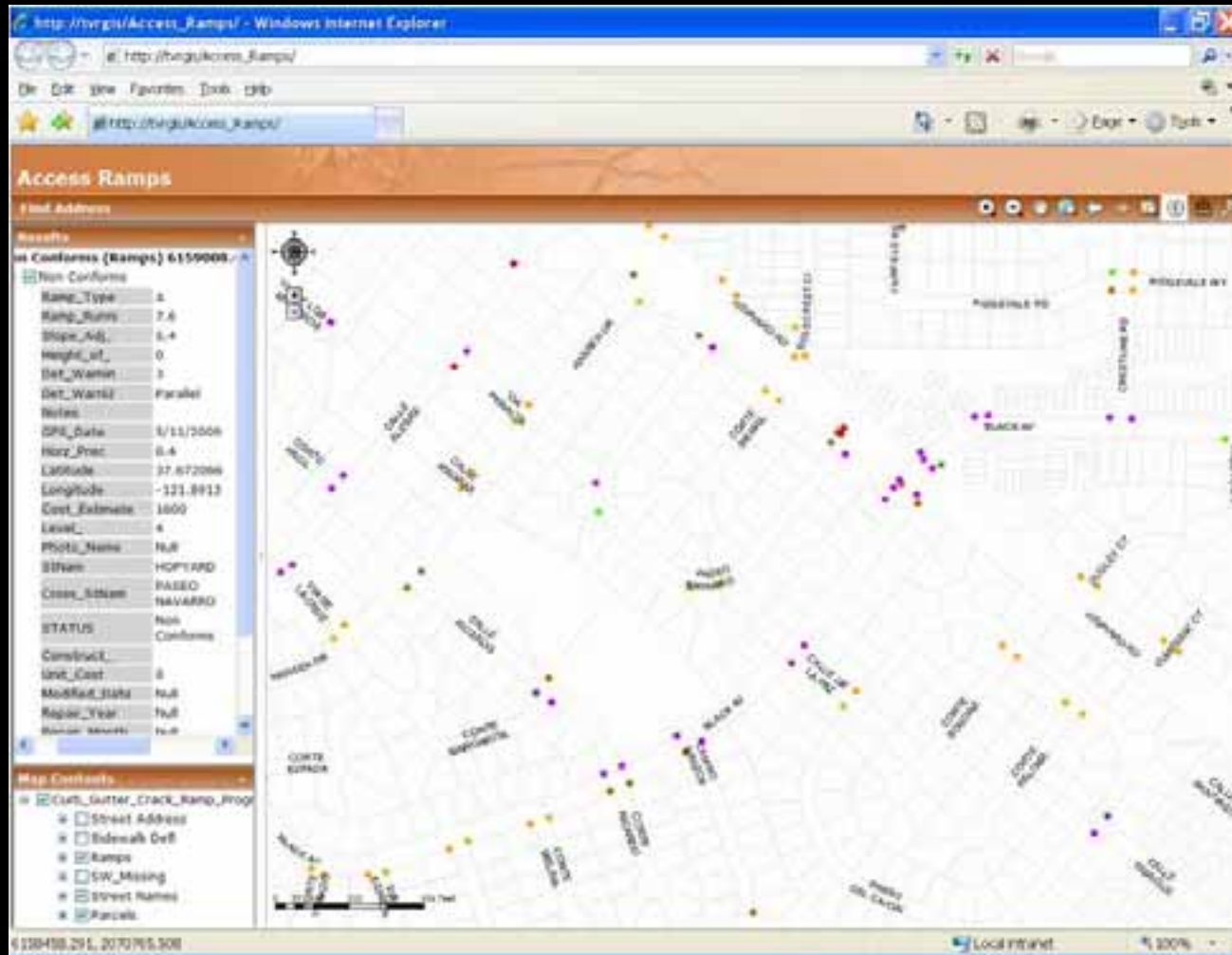


UTILIZING THE DATA

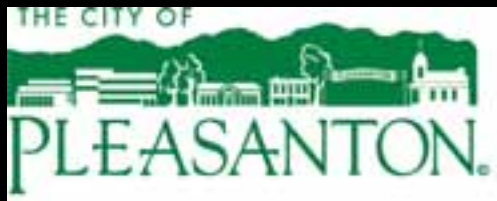
- *CCMS (Computer Maintenance Management System)*
 - *Ramp and Sidewalk Layers Now Contain Additional "ID" Which is Required for Loading Into CCMS*
 - *Both Layers are Visible in CMMS*
 - *CMMS Users Are Not Allowed to Edit Database*



UTILIZING THE DATA



INTERNAL WEBSITE CREATED



UTILIZING THE DATA



- *Internal Website Created Showing Ramps and Sidewalks*
- *Users Log Proposed Changes In an Excel Spreadsheet on The City's SharePoint Site and GIS Updates The Geodatabase*

THE FUTURE

- *This Project Was Just The Beginning*
- *The City is Now Delving Deeper Into the Attribute Data, and Planning Long Term Construction Based On This Project*



LESSONS LEARNED

- *Wi-Fi Camera Transfer of Data is Slow And Battery Intensive*
- *Clearly Define What a “Missing Ramp” Is*

