The background features a vibrant blue gradient with abstract geometric shapes in shades of purple, yellow, and teal. On the left side, there are three overlapping map-like graphics: a yellow map at the top, a purple map in the middle, and a teal map at the bottom, all showing various geographical features and boundaries.

Durango Migrates its Infrastructure GIS to an Asset Management System

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Background

- In 2013, The City of Durango in SW Colorado committed to migrating its *public works* data into an Asset Management and Inventory System.
 - The ultimate goal of this ongoing endeavor was to develop a fully integrated infrastructure management program that is GIS centric and flexible over a number of platforms (desktop, web and mobile)

GIS-Centric Solution

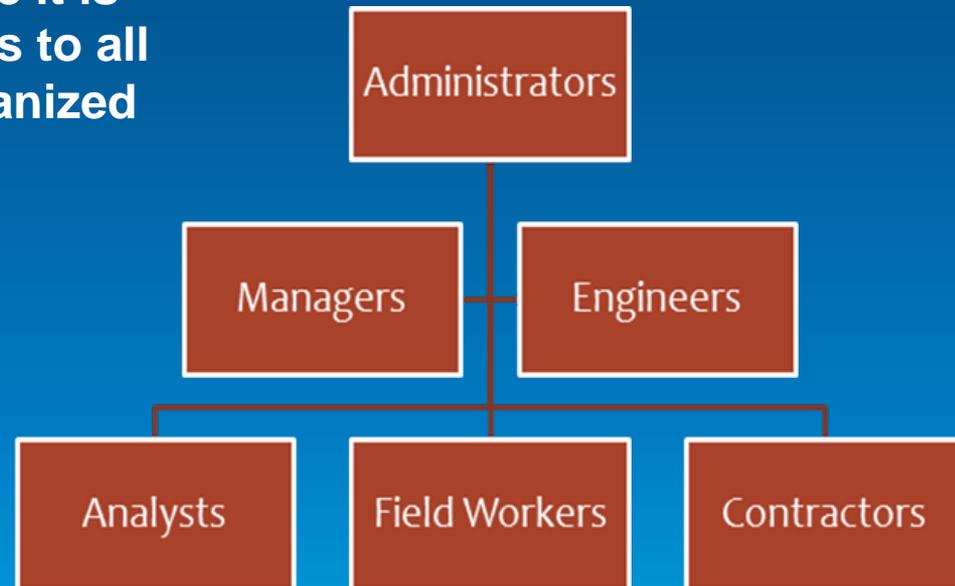
Work
Management



Asset
Management

GIS-Centric Solution

GIS is the centerpiece of this structured system because it is capable of leveraging assets to all city end-users via well-organized maps and views.



System Design

- **The role of the asset management system within the City would need to be two-fold.**
 - **1.) True asset inventory management which is largely GIS-based.**
 - **2.) Work assignment and tracking which is largely database driven.**

System Design

Asset Management

- Feature information
- Location information
- Interconnectivity
- Installation/inspection history
- Maintenance needs
- Condition/trend assessment
- Age and remaining life

Work Management

- Service requests
- Work orders
- Preventative Maintenance
- Equipment, parts and labor
- Materials and fluids
- Inventory tracking
- Equipment and labor costs

System Design

- After a thorough RFP process, the city selected a modular-based, software system solution with full GIS integration capability. - Lucity™
- Lucity's unified array of modules proved capable of supporting the inventory, inspection, projection and maintenance management needs of several key city departments and divisions.

System Configuration

- **An SDE enterprise geodatabase provided PW staff the most efficient access to a complete and comprehensive public works–based asset inventory.**
- **Custom configuration settings in Lucity allowed the city to effectively integrate and synchronize its GIS data components with Lucity GIS and the Lucity SQL database.**
- **Lucity provided the tools to setup and configure Lucity GIS to seamlessly work with the Durango’s comprehensive enterprise geodatabase.**

System Design

- **The GIS components of Durango's GDB that were configured in Lucity SQL are reflective of the departments that they would serve. The individual asset classes provide the first order inventory items needed to organize work.**
- **In preparation for the asset management GIS solution, the city's existing infrastructure spatial data was migrated into consolidated feature classes and feature datasets organized by asset categories, subcategories and departmental divisions.**

GIS Components and their Function

- **Utilities**

- **Wastewater collection network**
- **Water distribution system (WDS)**
- **Raw water supply, transmission and storage**
- **Water testing portals**
- **WTP/WWTP processes**
- **Storm water BMPs**

GIS Components and their Function

- **Parks**
 - **Urban Forestry**
 - Tree inventory library
 - Comprehensive city-owned tree inventory
 - **Parks and Recreation (future phase)**
 - All park infrastructure assets and equipment
 - Landscaped grounds
 - Irrigation

GIS Components and their Function

- **Streets**
 - **Street segment network**
 - **Intersection network**
 - **Bridges**
 - **Storm water conduit network**
 - **ADA ramps**
 - **Street signs and sign posts**
 - **MUTCD library**
 - **Sidewalks, curbs and driveway cuts (future phase)**

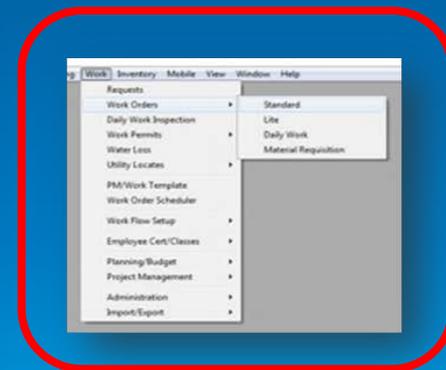
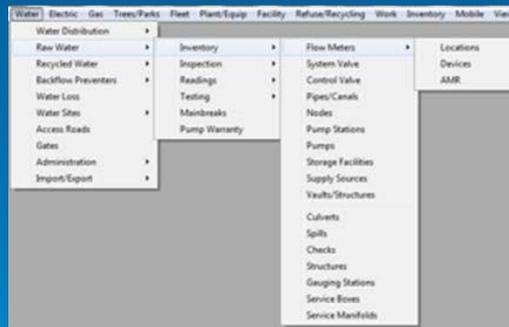
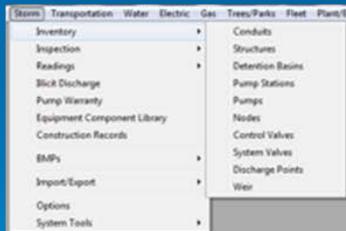
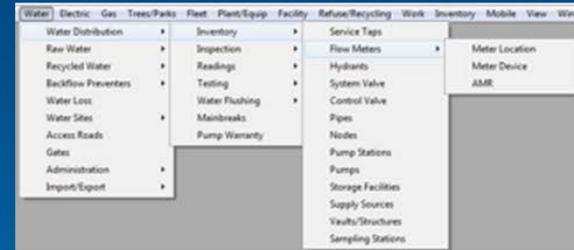
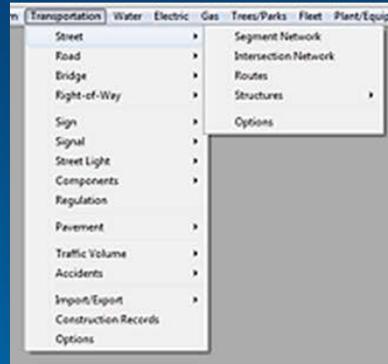
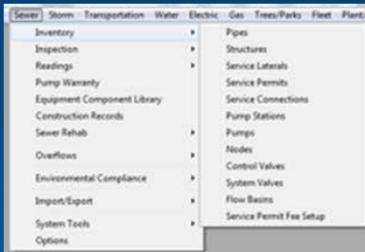
Work Module

- **In addition to the individual asset modules, Lucity also provides a detailed work module. The role of the work module is to provide city staff with the full-functionality needed in assigning and managing work performed on the inventory assets.**
 - **Assign and track service requests**
 - **Issue work orders (WO)**
 - **Schedule preventative maintenance (PM)**
 - **Organize work flows**
 - **Manage equipment, parts, and labor**
 - **Develop CIPs and forecast operational budgets**

Work Module

- **The work module's detailed tracking of resources provided each department a valuable financial tool.**
 - **Track costs per department**
 - **Work initiation, progress and stoppage**
 - **Personnel and work crews (including contractors)**
 - **Equipment and vehicles**
 - **Materials and fluids**

Inventory & Work Desktop Modules



Utility Inventory Sanitary Sewer Network

Case 1



Sanitary Sewer Network

- The city sanitary sewer inventory is a prime example of a network-based utility fully-integrated with the asset management DB system.
- Durango's mapped sanitary sewer network currently consists of 102 miles of pipe totaling 2,458 individual pipe segments connected by 2,344 manholes, 26 dual-pump lift stations, and 16,589 feet of force-main pipe (31 segments).
- The sanitary sewer collection basin is approximately 9.3 square miles.

Sanitary Sewer Network

- **GIS features of the City sanitary sewer network:**
 - **Trunk lines, mains, tributaries, siphons and force mains**
 - **WWTP plant laterals and effluent discharge pipes**
 - **Sanitary sewer structures (mainly manholes)**
 - **Lift Stations (including pumps and backup generators)**
 - **Service vaults**
 - **Cleanouts**
 - **Sanitary sewer collection basin**

Sanitary Sewer Network

Case Study 1

Sewer Pipe Inventory - No Filter

Alt Pipe ID: SSP-1399 Pipe Rec #: 1085 Address: 1914 FOREST AVE

From End Type: 1 Structure US Structure: MH-187 To End Type: 1 Structure DS Structure: MH-204 696 LEYDEN ST

Next US ↑ Next DS ↓

Attributes | Construct | Elevations | FM | TV | PACP | Lamping | Smoke | Bldg Insp | Laterals | Overflows | Acceptance | Rehab | WO/PM/Req | Instruct | Custom | Custom 2 | C: < >

Status	<input type="checkbox"/>	Map Page No.		Review Comments	<input type="checkbox"/>	Active	<input type="checkbox"/>
Collected By		Length (ft)	244.6				
Flow Basin	H	Length Status					
Owner	2 City of Durango	Pipe Sec Length (ft)	244.6	Est # of Joints			
Location		Material					
Line Type	3 Tributary	Liner					
Flow Type	19 Gravity Main	Lining Date	//	Year Lined			
Pipe Shape		Slope %	0.031	<input type="checkbox"/> Slope Lock			
Cleaning Freq		Mannings		Last Cleaning Date	//		
TV Frequency		Capacity (cfs)		Next Cleaning Date	//		
Dia/Height (in)	6	IDM		Cleaning Freq			
Pipe Width (in)		Pump Station ID		Cleaning Freq Units			
Managed By		Plant ID		Entering Plant			
Fixed Asset ID		Plant ID		Leaving Plant			

Record 1085 of 2458 View Mode Ready...

Sanitary Sewer Network

Case Study 1

Work Requests - No Filter

Request # 20150423-003 Status 998 [W/D Completed] Status Date 04/23/2015 03:55 PM

Customer Request Scripts | Department/Utility Locales | W/D Custom | Notification | Requesters | Tracking | Custom | Comments

Category 20100 Sanitary Sewer Pipes
Problem Investigat Investigate
Cause
Assigned Crew Coll Collections Crew
Priority 1 High Publicly Available

Information for Work Order
City Main has lots of roots

Loc Address 1911 FOREST AVE Loc Apart/Suite
Loc Street2
General Location
Loc City Loc Parcel Number
Loc State Loc Country Loc X Coord
Loc Zip Code Building Type Loc Y Coord
Supervisor 6329 Joe Coleman City Location TB Year
Affected Asset TB Coordinates
Desc 1 TB Page
Desc 2

Record 8 of 13 View Mode Ready...

Work Orders - No Filter

Work Order # 20150423-1694 Category 20100 Sanitary Sewer Pipes
Status 999 Complete Problem Investigat Investigate
Status Date 04/23/2015 03:55 PM Main Task

WO Location Assets List/Events Tasks/Res Routing Costs Billing Related Requests/Track Links Custom 1 Custom 2 Comments

Comment From Request
City Main has lots of roots

Asset [SSP-1399 MH-187 - 1914 FOREST AVE MH-204 - 696 LEYDEN ST
Location 1911 FOREST AVE

Cause
Assigned Crew Coll Collections Crew
Supervisor 6329 Joe Coleman Assigned By 6537 Justin Shauinger Override Notifications
Lead Worker Assigned Date 03/27/2015 12:00 PM Problem
Contractor Start Date 03/27/2015 12:00 PM Overdue
Priority 1 High End Date 03/27/2015 03:00 PM Lead Worker
Account # Master Project ID Supervisor
Proj No - Acct Name Hard Lock WD
Project Text
Reason
Received By
Inspected By

Record 23418 of 24488 View Mode Ready...

Sanitary Sewer Network

Case Study 1

Sewer Pipe Inventory - No Filter

All Pipe ID: SSP-1399 Pipe Rec #: 1085 Address: 1914 FOREST AVE

From End Type: 1 Structure US Structure: MH-187 To End Type: 1 Structure DS Structure: MH-204 696 LEYDEN ST

Attributes: Construct | Elevations | FM | TV | PACP | Lamping | Smoke | Bldg Insp | Laterals | Overflows | Acceptance | Rehab | WD/PM/Req | Instruct | Custom | Custom

Upstream to Downstream - Most Recent Inspection				Downstream to Upstream - Most Recent Inspection			
US Last TV Date	Total Remaining	Rating		DS Last TV Date	Total Remaining	Rating	
US Collap/Blocked	Structural			DS Collap/Blocked	Structural		
US Max Obs	Flow			DS Max Obs	Flow		
US Max Dist	Cleaning			DS Max Dist	Cleaning		
US Last TV Cond				DS Last TV Cond			

Date Televised	TV Direction Text	Inspection Crew	Purpose Text	Tape ID Number	Remain Structural #

Record 1085 of 2458 View Mode Ready...

Sewer TV Inspection - No Filter

All Pipe ID: Flow Basin: Depth: Pipe Rec #: TV Rec #: Most Recent Inspect: Needs Repair:

Set-up | Pipes | Data | TV Observation | Summary | Rehab | Custom | Comment

Date Televised	// /	: AM	Percent Full	
TV Direction			Purpose	
Inspection Crew			Flow Type	
Inspected By			Tape ID Number	
Weather			Counter Start	
Surface Condition			Counter Stop	
Dyed Water				

Maint. Prior to TV

Clean Prior	Degrease Prior	Point Repair Prior	Struc Replace Prior
Root Cut Prior	Root Chem Prior	Other Maint Prior	

Record 0 of 0 View Mode Ready

Urban Forestry Tree Inventory

Case 2



Urban Forestry – Tree Inventory

Case Study 2

- **The City tree inventory is an attribute-rich feature class. Hence it is not convenient to peruse the attribute table to find a given item.**
- **Synchronized tab views handles this far more effectively.**



Tree-laden Third Avenue Boulevard

Urban Forestry – Tree Inventory

Case Study 2

Tree Inventory - No Filter

Tree Rec # 5394 Alt Tree ID 3244 Status

Location | Attributes | Commissioning | Plantings/Associations | Inspections | WO/PM/Req | General | i-Trees | Comments

Tree Code 3400 Previous Tree #

Common Name Patmore Ash Date Planted //

Genus Fraxinus Removal Date //

Species pennsylvanica Planted Dia (Cal.) 0.0 Cost

Cultivar lanceolata 'Patmore' Owner 1 City

Tree Type 2 Deciduous Maint Zone 1 Unit 1

Designation Location (GSI) 3 Median or Island

City Text 1 Durango Plant Loc

Address 419 E 3RD AVE Grid Location

Cross Street E 4TH ST Street Side L

Gen. Location THIRD AVENUE BOULEVARD

Alt Park ID Segment ID 29

Alt Parking Lot ID Sidewalk ID

Circuit Number Alt Conduit ID

Storm Structure #

Detention Basin

Record 5393 of 8667 View Mode Ready...

No Filter

5394 Alt Tree ID 3244 Status

Commissioning | Plantings/Associations | Inspections | WO/PM/Req | General | i-Trees | Comments

Indicator 2 No

Landuse 8 Public/Institutional

Category 2 Shade

User 4

Site Notes

Tree Notes

User 13 User 14

WD Comment

X Coordinate 2307579.75003462

Y Coordinate 1227651.12507127

Last Modified By szmałernj

GIS Sub Type

Calc DBH 8.33

Growth Rate 0.33

Growth Years 10.00

Inventory Date 05/25/2004

User 11 //

User 12 //

User 15

Ground Elevation

Map Number

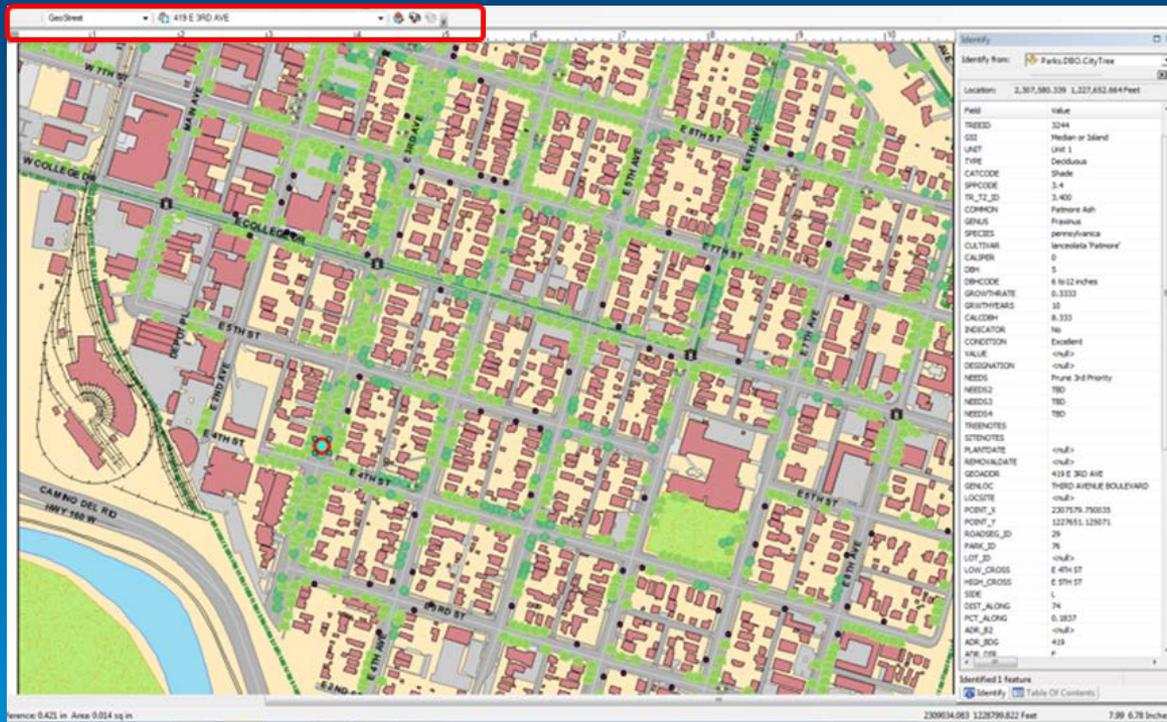
Last Modified Date 06/28/2015

Record 5393 of 8667 View Mode Ready...

Location attributes of an individual tree

Urban Forestry – Tree Inventory

Case Study 2



Urban Forestry – Tree Inventory

Case Study 2

- **An added functionality exists in the Tree Inventory Module as all trees planted and managed by the city are stored in a tree library.**
- **Common name, genus, species and cultivar is related to each tree via an established tree code list.**
- **The city's tree inventory library currently consists of 104 unique species and variants.**

Urban Forestry – Tree Inventory

Case Study 2 Durango Tree Species Inventory Library



Tree Code	Common Name	Tree Type Text
18	19.000 Other Species of Honeylocust	Deciduous
19	19.100 Imperial Honeylocust	Deciduous
20	19.200 Shademaster Honeylocust	Deciduous
21	3.500 American Arborvitae	Coniferus
22	20.000 Rocky Mountain Juniper	Coniferus
23	20.100 Colorado Juniper	Coniferus
24	20.200 Wichita Blue Juniper	Coniferus
25	20.300 Utah Juniper	Coniferus
26	21.000 Kentucky Coffee tree	Deciduous
27	21.100 Kentucky Espresso Coffeetree	Deciduous
28	22.000 Other Species of Linden	Deciduous
29	22.100 Legend American Linden	Deciduous
30	22.200 Little Leaf Linden	Deciduous
31	22.300 Greenspire Linden	Deciduous
32	22.400 Sterling Silver Linden	Deciduous
33	23.000 Black Locust	Deciduous
34	23.100 New Mexico Locust	Deciduous
35	24.000 Other Species of Maple	Deciduous
36	24.100 Autumn Blaze Maple	Deciduous
37	24.200 Norway Maple	Deciduous
38	24.300 Rocky Mountain Maple	Deciduous
39	24.400 Anhur Maple	Deciduous
40	24.500 Silver Maple	Deciduous
41	24.600 Green Mountain Sugar Maple	Deciduous
42	25.000 Mulberry	Deciduous
43	26.000 Other Species of Oak	Deciduous
44	26.100 Bur Oak	Deciduous
45	26.200 English Oak	Deciduous
46	26.300 Gambel Oak	Deciduous
47	26.400 Red Oak	Deciduous
48	26.500 Shumard Oak	Deciduous
49	26.600 Swampwhite Oak	Deciduous
50	26.700 White Oak	Deciduous
51	27.000 Olive	Deciduous
52	27.100 Russian Olive	Deciduous
53	28.000 Pear	Deciduous
54	28.100 Chanticleer Pear	Deciduous
55	28.200 Cleveland Select Pear	Deciduous
56	29.000 Other Species of Pine	Coniferus
57	29.100 Austrian Pine	Coniferus
58	29.200 Brachcone Pine	Coniferus
59	29.300 Mugo Pine	Coniferus
60	29.400 Pinon Pine	Coniferus
61	29.500 Ponderosa Pine	Coniferus
62	29.600 Scotch Pine	Coniferus
63	29.700 Southwestern White Pine	Coniferus
64	3.000 Other Species of Ash	Deciduous
65	3.100 White (or Purple) Ash	Deciduous
66	3.200 Green Ash	Deciduous
67	3.300 Summer Ash	Deciduous
68	3.400 Palmsire Ash	Deciduous
69	3.500 European Mountain Ash	Deciduous
70	3.600 Upright Ash	Deciduous
71	3.700 Mariani Seedless Ash	Deciduous
72	3.800 Blue Ash	Deciduous
73	30.000 Common Plum	Deciduous
74	30.100 Newport Plum	Deciduous
75	30.200 Krayer Versus Plum	Deciduous
76	31.100 Booleana Poplar	Deciduous
77	31.200 Fremont Cottonwood	Deciduous
78	31.300 Lanceleaf Cottonwood	Deciduous
79	31.400 Lombardy Poplar	Deciduous
80	31.500 Narrowsleaf Cottonwood	Deciduous
81	31.600 Rio Grande Cottonwood	Deciduous

Transportation Inventory Street Department Assets

Case 3



Street Department

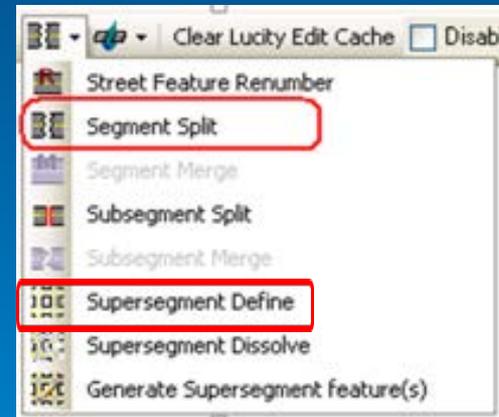
Case Study 3

- **Street Segments generally represent a length of road between intersections (i.e., block), contain a segment ID and have a left/right address parity for geocoding.**
- **Street segments can be split into sub-segments or consolidated into super-segments in order to better track tasks (e.g., painting, markings, sign placement, etc.).**
- **The street sub-segments and super-segments relate back to the original street segment by ID.**

Street Department – Street Segmentation

Case Study 3

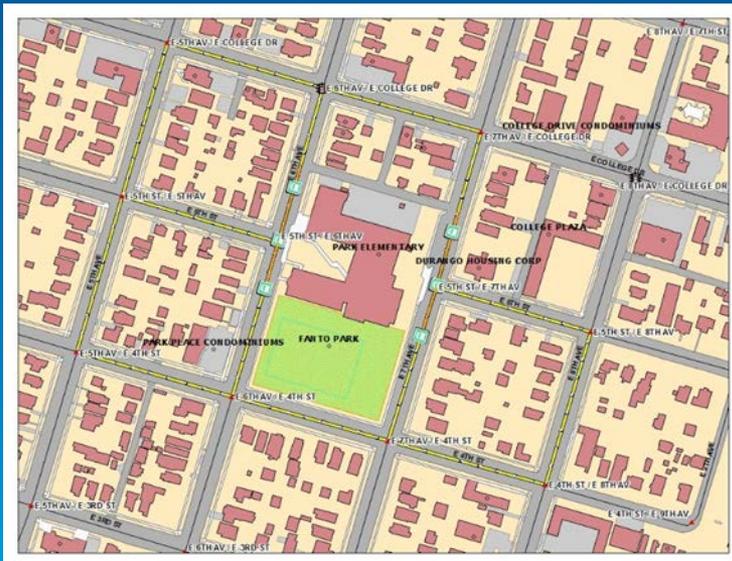
Reconfigure an existing school zone to initiate better safety measures.



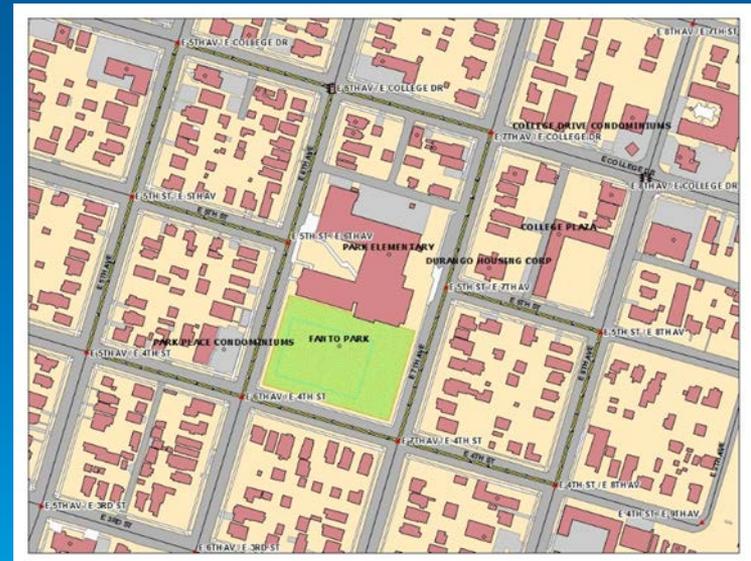
Street Department – Street Segmentation

Case Study 3

Bus Loading (Sub-segment)



School Zone (Super-segment)



Street Department – ADA Ramps

Case Study 3



Street Department – ADA Ramps

Case Study 3

Ramp Inventory - No Filter

Ramp Rec # 2798 Ramp Number 201183 Type 2 Type II

Status

Attribute 1 Attribute 2 Construction Inspection W/O/PM/Req ADA Ramps Custom 2 Comment

Installed By GPS Flag
Date Installed 7 / / : AM GPS Date 7 / / : AM
Owner 6 City of Durango Info Source
Maintained By X Coordinate 2308868.9590
Map Number Y Coordinate 1227571.7751
Drawing # Elevation

Links with Other Systems

Segment ID	30	Sidewalk ID		Subsegment Code	30-1
Intersection ID	19	Curb ID		Superseg ID	2550
Road Number					
Ref Post		Org. Station		Cur Station	

Record 1183 of 1615 View Mode Ready...

Ramp Inventory - No Filter

Ramp Rec # 2798 Ramp Number 201184 Type 2 Type II

Status

Attribute 1 Attribute 2 Construction Inspection W/O/PM/Req ADA Ramps Custom 2 Comment

Installed By GPS Flag
Date Installed 7 / / : AM GPS Date 7 / / : AM
Owner 6 City of Durango Info Source
Maintained By X Coordinate 2308888.9242
Map Number Y Coordinate 1227645.5597
Drawing # Elevation

Links with Other Systems

Segment ID	35	Sidewalk ID		Subsegment Code	35-1
Intersection ID	19	Curb ID		Superseg ID	2550
Road Number					
Ref Post		Org. Station		Cur Station	

Record 1184 of 1615 View Mode Ready...

Spatial relationships exist between ADA ramps and intersections, street segments, sub-segments and super-segments that are proximity-based and often complex in nature. In future phases these relationships will be extended further to include indexed sidewalk and curb features.

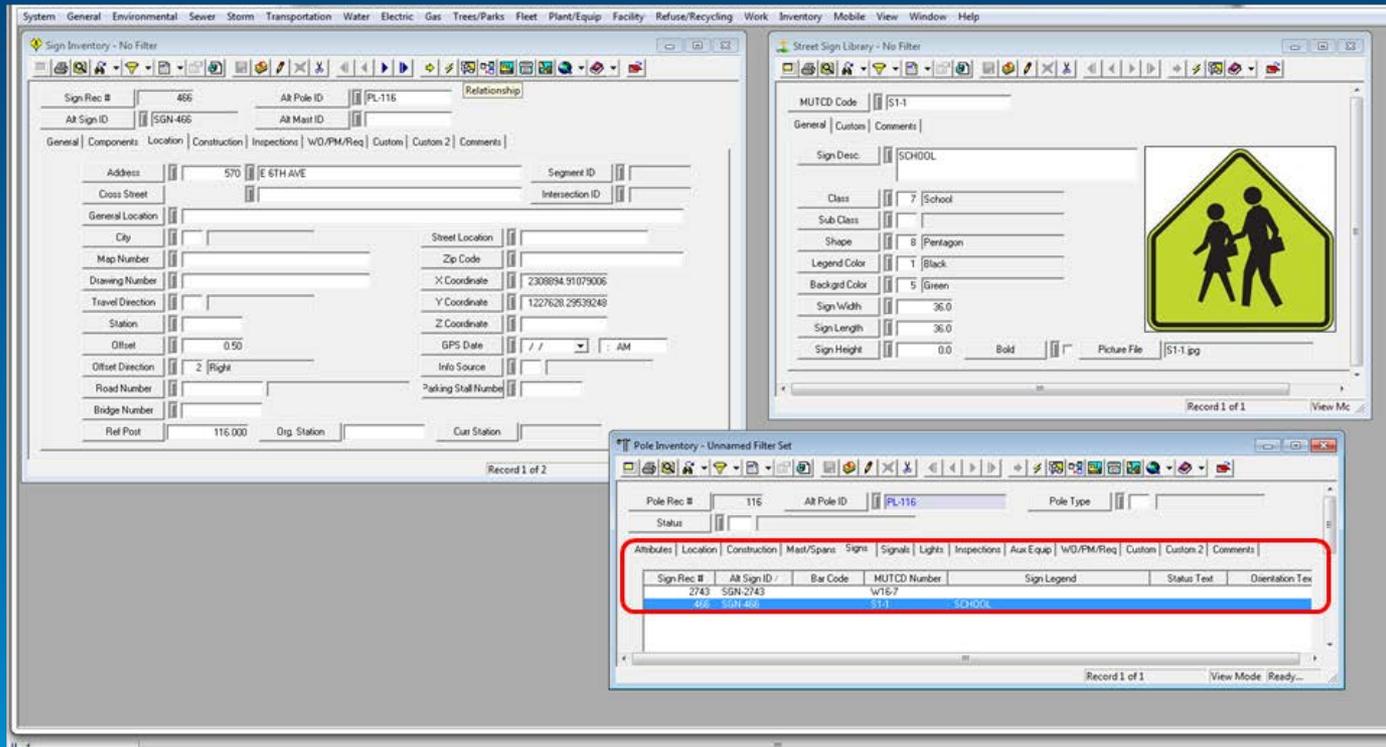
Street Department – Street Signs

Case Study 3



Street Department – Street Signs

Case Study 3



Coincident asset relationships (e.g., multiple signs on single signpost) are not easily perceived in GIS but are readily handled by the database.

Transportation Inventory Pavement Analysis

Case 4



Transportation Inventory– Pavement Analysis

Case Study 4

- **The Pavement Analysis module facilitates storage and application of relevant pavement criteria by street segment and sub-segment for use in planning (city-maintained roads).**
- **Field Inspections allow Durango crews or contracted specialists to gather pavement information on city-maintained streets block-by-block.**
- **Conditional criteria is then used by the street superintendent to selectively evaluate the health of the city road network and to calculate the overall Pavement Condition Index (PCI).**

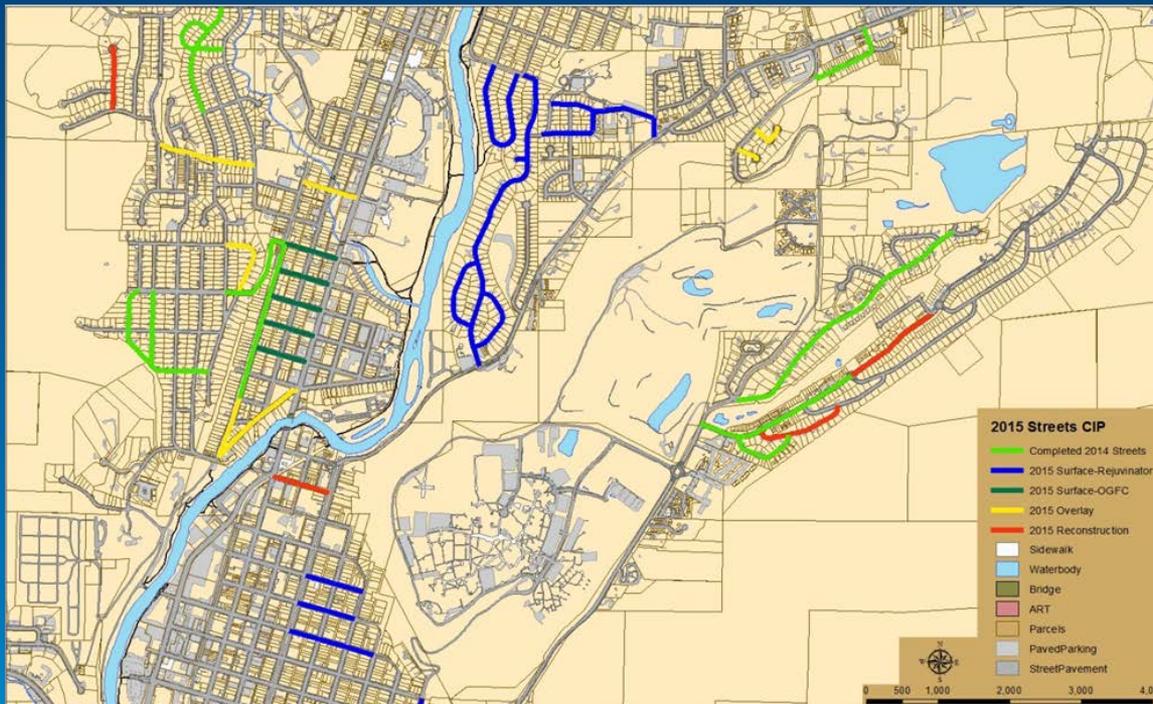
Transportation Inventory– Pavement Analysis

Case Study 4

- **Criteria includes:**
 - **Width, length, area and depth**
 - **Surface types**
 - **Structural rating**
 - **Surface distress**
 - **Cracks and ruts**
 - **Potholes**
 - **Distortion/faulting**
 - **Structural and roughness index**
 - **Curb types**
 - **Patching estimates**

Transportation Inventory– Pavement Analysis

Case Study 4



The PCI was used to develop a 2015 CIP and generate revenue into the street department's operational budget.

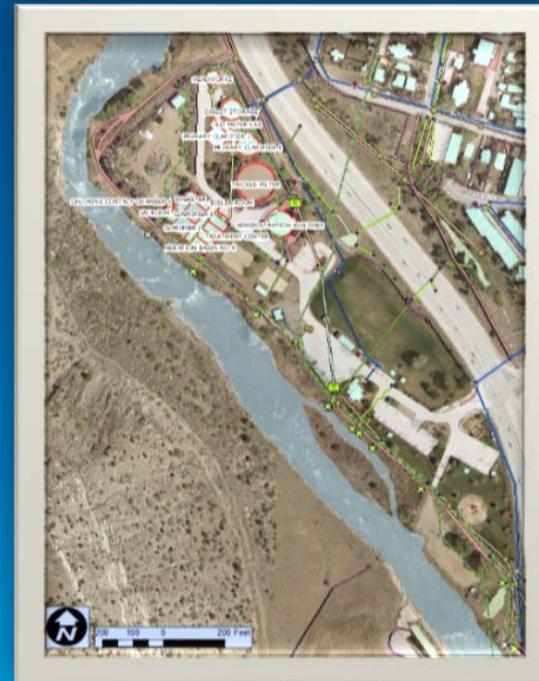
Plant Processes Equipment Maintenance

Case 5

Plant Processes – Equipment Maintenance

Case Study 5

The **WTP/WWTP Plant Inventories** define the 2 treatment facilities by sequential process. Each process takes place at a physical location within the plant. Hence assets, parts and equipment are associated to a process stream in GIS (i.e., polygon representation). This housing ensures a more efficient method of data storage and the rapid retrieval of the equipment component inventory, PM/WOs and work histories.



Plant Processes – Equipment Maintenance

Case Study 5 – PM Template

Work Orders - No Filter

Work Order # 20150624-2768 Category 31100 Process Equipment
Status 2 New Work Order Problem 1024 Preventative Maintenance
Status Date 06/24/2015 02:10 AM Main Task INSPECT Scheduled Equipment Inspection

WD Location Assets List/Events Tasks/Res Routing Costs Billing Related Requests/Track Links Custom 1 Custom 2 Comments

Asset WWTP-53 TC Bridge Crane
Location

Cause
Assigned Crew MAINT1 WWTP Plant Maintenance 1
Supervisor 4316 John Sandhaus
Lead Worker 7362 Jeff Whitman
Contractor
Priority
Account #
Proj No - Acct
Project Text
Reason
Received By
Inspected By

Assigned By 7362 Jeff Whitman
Assigned Date / / : AM
Start Date 06/24/2015 : AM
End Date / / : AM

Comment From Request

Override Notifications
Problem
Overdue
Lead Worker
Task
Supervisor
Hard Lock WO

Master Project ID
Name

Record 24409 of 24410 View Mode Ready...

Plant Processes – Equipment Maintenance

Case Study 5 – PM Template

Work Orders - No Filter

Work Order # | 20150624-2768 | Category | 31100 | Process Equipment
Status | 2 | New Work Order | Problem | 1024 | Preventative Maintenance
Status Date | 06/24/2015 | 02:10 AM | Main Task | INSPECT | Scheduled Equipment Inspection

WD | Location | Assets | List/Events | Tasks/Res | Routing | Costs | Billing | Related | Requests/Track | Links | Custom 1 | Custom 2 | Comments

Department | 9 | WWTP
Division | 1 | Utilities
Sub-Division | 1 | Sewer
Area |
Sub-Area |
Owner |
Location Entered | 2 | No
Classification |
Maintenance Zone | | Alternate Zone |

Comment to Crew
REQUIRED PPE - safety goggles, leather gloves

No.	Address	Address2	Loc X Coord	Loc Y Coord

Work Orders - No Filter

Work Order # | 20150624-2768 | Category | 31100 | Process Equipment
Status | 2 | New Work Order | Problem | 1024 | Preventative Maintenance
Status Date | 06/24/2015 | 02:10 AM | Main Task | INSPECT | Scheduled Equipment Inspection

WD | Location | Assets | List/Events | Tasks/Res | Routing | Costs | Billing | Related | Requests/Track | Links | Custom 1 | Custom 2 | Comments

Checklist

No	Checklist Item	Completed	Condition Text	Completion Date	Completion Time
1	Visually inspect crane and make note of any unusual sound...	No			
2	Make note on work order if any of the above exist and notifi...	No			
3	Lubricate cables with TelGel lubricant.	No			
4	Check all oil levels, add units if needed.	No			
5	If oil is black or otherwise contaminated, change oil and no...	No			
6	Check cables and hooks for any signs of wear and make n...	No			
7	Check O&M for other needed inspection procedures, items ...	No			
8	Notify Jeff of any problems.	No			
9	Make note on work order of lubricant amounts used and if ...	No			

Events

Event Text /	Event Date	Event Time	Note

Record 24409 of 24410 | View Mode | Ready...

Plant Processes – Equipment Maintenance

Case Study 5 – Housing Equipment by Plant Process

The screenshot shows a software application window titled "Plant - No Filter". The window contains several input fields and two tables. The input fields are:

- Plant ID: CMWTP
- Plant Name: College Mesa Water Treatment Plant
- Plant Rec #: 2
- Operating Status: 1 Active
- Use: 2 Water Treatment Plant
- Property ID Tag: 777701
- Address: 980 CR 239

Below the input fields is a menu bar with options: Attributes, Processes, WD/PM/Req, Sewer Pipes, Storm Conduits, Water Distribution, Raw Water, Recycled Water, Custom 1, Custom 2, Comments. The "Processes" menu item is selected.

The window displays two tables:

Process Sequence /	Process	Process Text
1	1	Reclaim Pond Pumping Station
2	2	7.2 Mgal Tank
3	3	Hillcrest Pump House
4	4	Bobcat Building
5	5	Clear Well (300,000 Gal)
6	6	Backwash Pump House
7	7	Miox Building
8	8	Filter Building
9	9	T-1 Sedimentation Basins
10	10	Chemical Building
11	11	T-1 Floc Basin
12	12	T-2 Plate Settler Basin
13	13	Chlorine Building
14	14	T-2 Floc Basins
15	15	Old Reclaim Vault
16	16	Hillcrest / Timberline Vault
17	17	Silver Shed
18	18	Florida River Outfall
19	19	Santa Rita/Animas River Outfall
20	20	Terminal Reservoir
21	21	EPTD Master Meter Vault

Equipment Number	Equipment ID Text	Operating Status
CMWTP-948	T-1 Floc Basin Safety Switch	
CMWTP-947	T-1 Transformer	
CMWTP-946	T-1 Flash Mixer Control	
CMWTP-945	T-1 South B Mixer Control	
CMWTP-944	T-1 South A Mixer Control	
CMWTP-943	T-1 North B Mixer Control	
CMWTP-942	T-1 North A Mixer Control	
CMWTP-941	T-1 Flash Mixer VFD	
CMWTP-940	T-1 South B Mixer VFD	
CMWTP-939	T-1 South A Mixer VFD	
CMWTP-938	T-1 North B Mixer VFD	
CMWTP-937	T-1 North A Mixer VFD	
CMWTP-936	T-1 Flash Mixer Drive	
CMWTP-935	T-1 South B Mixer Drive	
CMWTP-934	T-1 South A Mixer Drive	
CMWTP-933	T-1 North B Mixer Drive	
CMWTP-932	T-1 North A Mixer Drive	
CMWTP-931	T-1 Flash Mixer Motor	
CMWTP-930	T-1 South B Mixer Motor	
CMWTP-929	T-1 South A Mixer Motor	
CMWTP-928	T-1 North B Mixer Motor	
CMWTP-927	T-1 North A Mixer Motor	

At the bottom of the window, there is a status bar showing "Record 1 of 2", "View Mode", and "Ready..."

Web and Mobile Solutions

In Closing

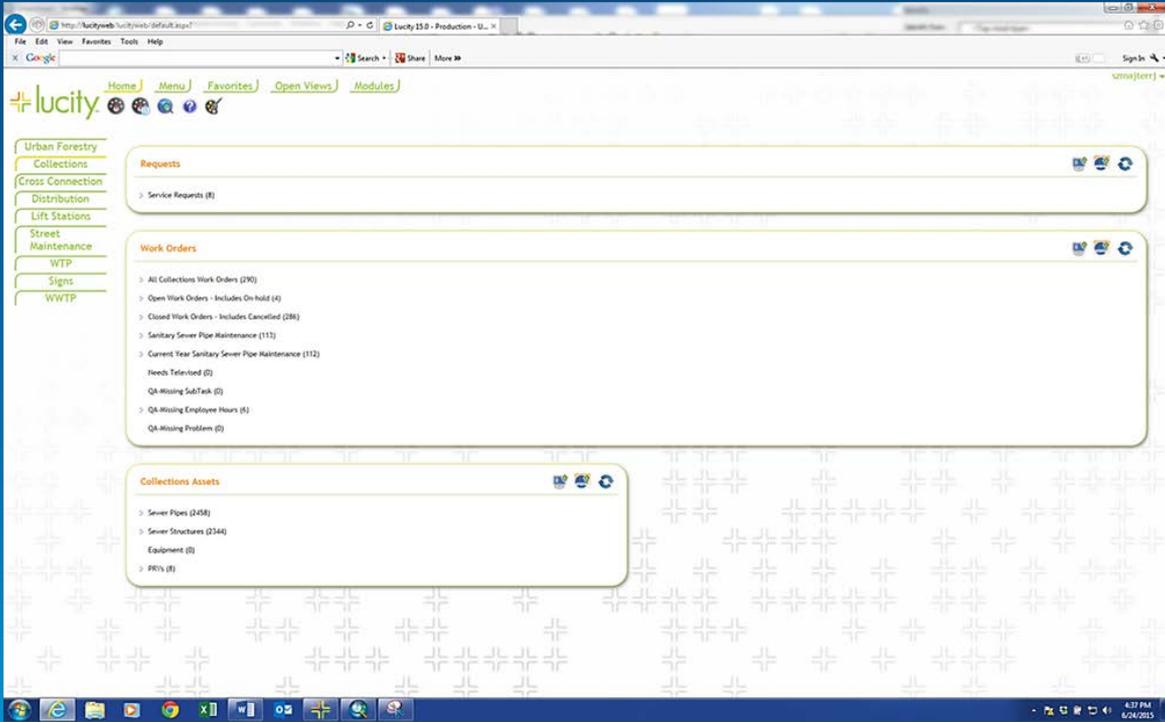
Web and Mobile Solutions

In Closing

- **Time constraints limited this presentation to the desktop asset management system. However the city has developed and leveraged a web-based dashboard with essentially the same capabilities to city utility and street crews.**
- **Work continues on the development of a mobile solution. Both these items may be presented at a later conference.**

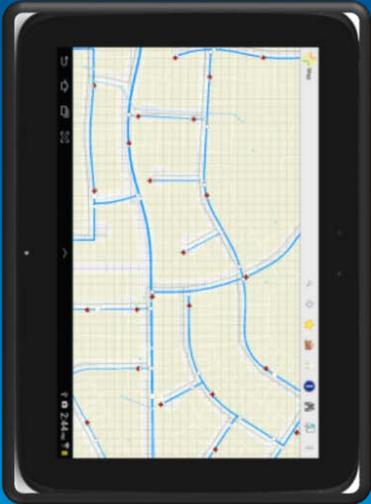
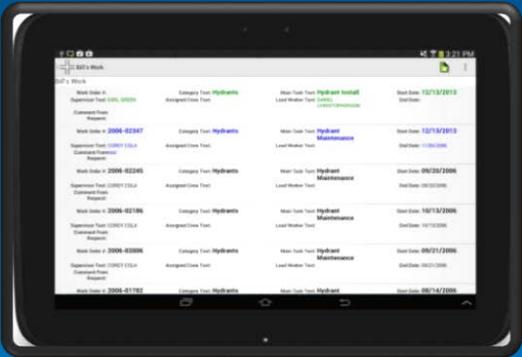
Web and Mobile Solutions

Web Dashboard



Web and Mobile Solutions

Mobile



Lucy Tablet End-User Training



Thank You

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