Smart Systems for Small Communities
ArcGIS and Cartegraph for Work Management

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Santa Rosa County, Florida
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After a decade of clustering into cities and large metropolitan areas, the US is experiencing a continued rise in both outer exurban areas and low-density emerging suburban counties. -William H. Frey, Brookings Institute
Increases in Population Presents Challenges for Local Governments

- Increases in construction and building
- Need for improved infrastructure
- Prioritization of projects
- Justification of time, materials, and dollars spent
- Limited resources – staffing, funding
- Need for improved technology
Santa Rosa County, Florida

- 1100 sq. miles
- 12th fastest growing county in Florida
- Population increased ~10% in last 5 years
- 160,421 in 2013 to 177,125 in 2018
- Jobs increased 14.5%
- Increase in construction
- County resources stretched thin
- Public Works Division
  - Road and Bridge
  - Parks & Recreation
  - Building Maintenance
Santa Rosa County, Florida
Population Growth vs. # of Public Work Employees

[Graph showing population and number of employees from 2000 to 2019, with specific population and employee numbers marked for each year.]
Cartegraph was Implemented by Public Works Division as a Management Solution

- Asset and Operations Management System (OMS)

- Cartegraph integrates with:
  - ArcGIS Enterprise
  - ArcGIS Online
  - Operations Dashboard

- Allows users to:
  - Tracks assets and resources
  - Map citizen requests and public works tasks
  - Document infrastructure maintenance
Cartegraph Implementation with Esri Tools
Blends GIS, IT, and Operations Management

- ArcGIS Online (AGOL) Hosted Feature Layers
- Continual two-way sync from SQL database to AGOL Hosted Feature Layer
- 26 Feature Classes of different asset types
- Feeds Operations Dashboard – real-time updates
Cartegraph Synchronization with Esri Tools
Blends GIS, IT, and Operations Management

Cartegraph SQL

ArcGIS Online

Cartegraph OMS

ArcGIS Online

Operations Dashboard

County Website

Cartegraph One
Citizen Requests are Entered and Routed to Field Workers

- Online Form
- Phone Calls
- Work tickets created and sent to crews
Workers Create and Complete Tasks in the Field

- Apple iPads
- Smart Phones (iPhone and Android)
- Route to Asset Locations with GPS
- Log Labor, Equipment, & Material Costs
- Attach Photo Documentation
- Real-Time Updates from Job Sites
- Reduce or Eliminate Paper
- Complete Pavement Inspections
Operations Dashboard Provides Real-Time Updates to Administration

- Met need for better reporting
- Cartegraph AGOL layer provides real-time feed to Operations Dashboard
- Created Dashboard for Road & Bridge Department
Pavement Condition Calculator Helps Allocate Resources and Prioritize Paving Tasks Throughout County

- Need for maintaining pavement as county assets with limited resources
- 1,500 miles (35,000 sq. mi.) of pavement in over 8,600 segments
- Manage pavement asset condition over time
- Freshly paved – sets Condition Index = 100
- When work is done condition is adjusted and cost of labor/equipment/materials tracked
Pavement Condition Calculator Helps Allocate Resources and Prioritize Paving Tasks Throughout County
Moving from Reactive to Proactive Management

- Mowing was a reactive task
- We integrated Cartegraph with AGOL to build a custom solution
Next Steps: ArcGIS Insights and Portal to Further Explore Asset Management Capabilities

- Portal
- Insights Data Analytics
  - Cost breakdowns
  - Forecasting
  - Budget preparation
- Disaster response
- Mobile data collection
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QUESTIONS?