



IS THERE A MORE EFFICIENT WAY?

LOWER LATERAL AREA INSPECTION PROGRAM

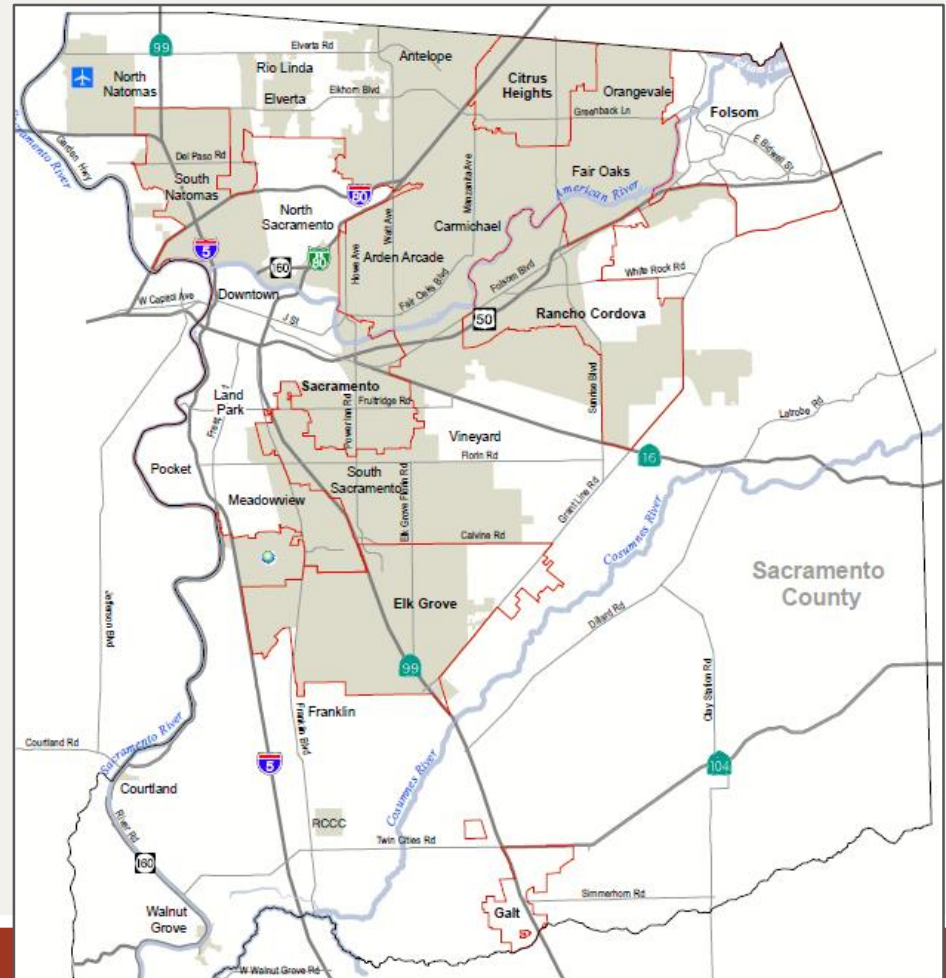
AGUSTIN LOPEZ, PE

PRESENTATION OVERVIEW

- SASD
- LOWER LATERAL AREA INSPECTION PROGRAM (LLAIP)
- SUMMARY
- NEXT STEPS
- QUESTIONS

SASD

- SERVICE AREA
- OFFICIAL COUNTS
 - Main Line: 3,100 miles
 - Lower Laterals: 1,500 miles
 - Pump Stations: 105
 - Service Connections: 297,000
 - Population Served: 1.2 Million



SASD

- **MISSION**

To protect public health and the environment by efficiently and effectively collecting sewage for our community

- **VISION**

Setting the bar for essential sewage collection services

LOWER LATERAL AREA INSPECTION PROGRAM

■ BACKGROUND

- **Purpose** → Reduce the potential for sanitary sewer overflows
- **Scope** → Survey and document cleanout locations, clean lower laterals (LLs) as needed, and inspect LLs with CCTV
- **Goal** → 10,000 inspections per year
- **Schedule** → Start summer 2015, with estimated completion fall 2019

LOWER LATERAL AREA INSPECTION PROGRAM

■ PROJECTS

- **Contractor** → Collected data on paper, inspected LLs with CCTV, cleaned LLs as needed, and submitted video files in external hard drives
- **SASD** → Reviewed videos and returned hard drives



LOWER LATERAL AREA INSPECTION PROGRAM

- **SCOPE CHANGE**
 - **Consent Decree** → Led to an increase in inspections from 10,000 to approximately 100,000 per year

LOWER LATERAL AREA INSPECTION PROGRAM

■ CHALLENGES

- **Data Collection** → How to reduce errors?
- **WO Creation/Updating** → How to quickly create and update WOs in mass?
- **TVI Submittals** → How to quickly receive and review large amounts of video files?
- **Project Management** → How to manage projects efficiently?



LOWER LATERAL AREA INSPECTION PROGRAM

■ THE SOLUTION

Continually asking if there was a better way led to the following:

- **Data Collection** → ArcGIS Collector and FME
- **WO Creation/Updating** → MaxOut → Mx Loader
- **TVI Submittals** → Review process change → SacDrive → contractor staff
- **Project Management** → Exploration of software program

LOWER LATERAL AREA INSPECTION PROGRAM

■ ARCGIS COLLECTOR

- A mobile data collection application
- Web maps
- Data captured in field
- Desktop/laptop web maps available

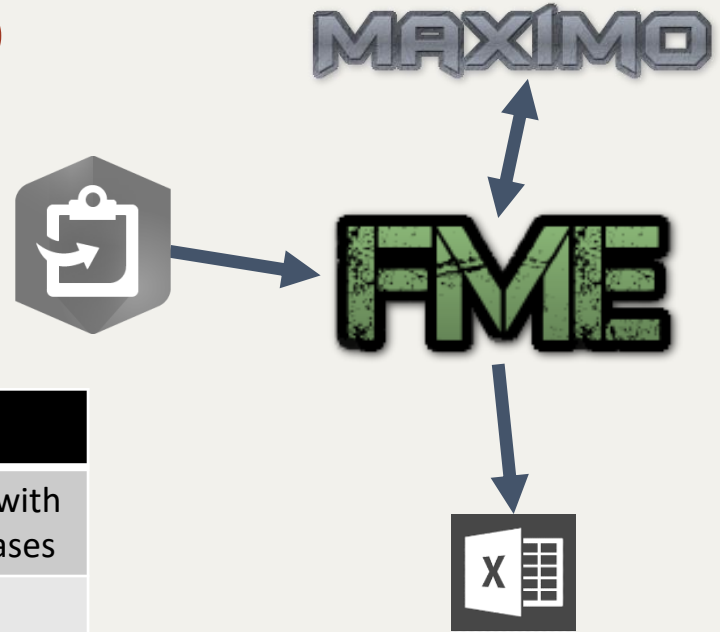


Benefits		
Efficient data collection	Real-time data	Eliminated paper maps
Eliminated transferring data from paper	Single data source	Multiple field users



LOWER LATERAL AREA INSPECTION PROGRAM

- **FEATURE MANIPULATION ENGINE (FME)**
 - Converts data into different formats
 - Automates data collection
 - Provides one project sheet



Benefits		
Takes data from Collector into Excel	Replaces project tracking sheet	Communicates with multiple data bases
Reduces errors	Automates tasks	

LOWER LATERAL AREA INSPECTION PROGRAM

- **MAXOUT**
 - In-house program for creating WOs
 - Uses Excel and Maximo



Benefits		
Improves the creation of WOs	Saves time	Accurate
Updated as Maximo updated	Creates 2-3 WOs per minute	

LOWER LATERAL AREA INSPECTION PROGRAM

- **Mx LOADER**
 - Discovered after concerns with MaxOut
 - Creates and updates WOs using Excel spreadsheet

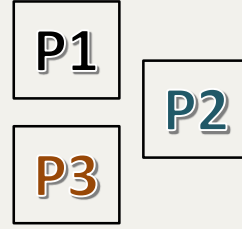
Mx Loader

Benefits		
Super fast, up to 13 WOs created per min	Accurate	Supported by IBM
WO creation and updating done in background	Allows PMs to invoice in Maximo efficiently	

LOWER LATERAL AREA INSPECTION PROGRAM

■ TVI REVIEW PROCESS CHANGE

- Three priority ratings developed
 - P1, severe pipe defects
 - P2, moderate pipe defects
 - P3, none to light pipe defects
- Temporary Contractor Staff Hired
 - Trained quickly & reviewed thousands of TVIs



Benefits		
Repaired assets in need quicker	Reduced the potential for SSOs	Reviewed inspections efficiently

LOWER LATERAL AREA INSPECTION PROGRAM

- **SACDRIVE**
 - Sacramento County instructed to stop usage of Drop Box
 - Sacramento County developed its own version



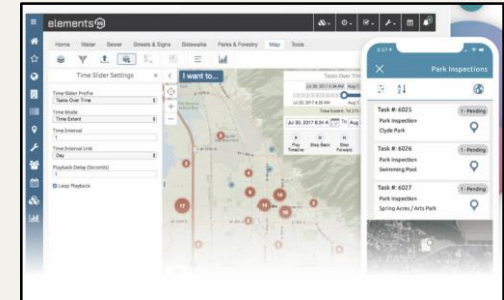
Benefits		
Quicker submittal of video files	Access from anywhere	Eliminated delivery and pick up of hard drives
We own data	Mobile version	

LOWER LATERAL AREA INSPECTION PROGRAM

- **ELEMENTS XS**
 - Exploring a more efficient way to complete our work
 - Asset management software for Engineering Design
 - Will not replace current asset management system

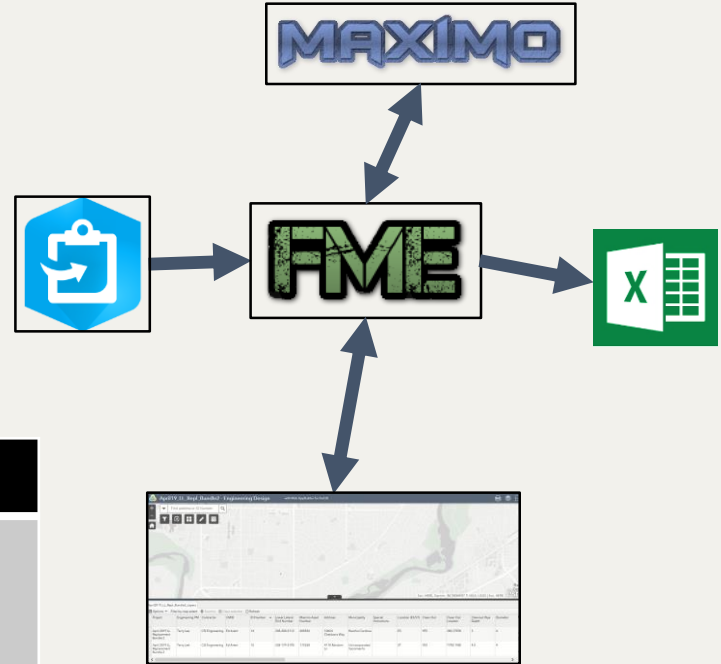


Benefits		
Map-based asset management	Includes mobile application	Custom workflows
Custom reports	Efficient WO creation/updating	Auto notifications



LOWER LATERAL AREA INSPECTION PROGRAM

- **BUNDLE PROJECT ADMINISTRATION**
 - Uses ArcGIS web maps
 - Customizable for more efficient project management
 - Utilizes Collector and FME



Benefits		
Utilizes current staff	Create/Update WOs automated	Customizable for PMs, CMID, and Contractor
Minimal cost	Time savings to set up and maintain	Available now

SUMMARY

■ CONCLUSION

- SASD Engineering Design has improved efficiency:
 - Significantly reducing time in completing WOs
 - Eliminating paper maps
 - Reducing potential for errors with one data source
 - Adding costs to WOs quicker
 - Standardizing project management
 - Building projects quicker

NEXT STEPS

- **LLAIP**
 - After completion, a targeted approach will be in place to better identify and inspect lower laterals
- **ELEMENTS**
 - Will move forward with process to purchase
- **BUNDLE PROJECT ADMINISTRATION**
 - Will continue to use until final decision is made with elements xs

QUESTIONS?