

Louisville MSD Construction Inspection Program

5 Cities Plus
Columbus 2017

Aug. 16, 2017



Change

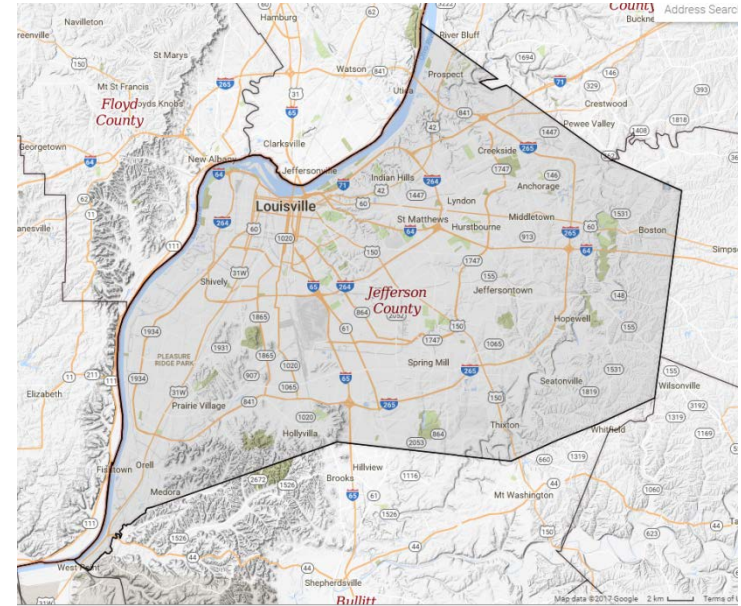
“After you've done a thing the same way for two years, look it over carefully. After five years, look at it with suspicion. And after ten years, throw it away and start all over.” —Alfred Edward Perlman

Agenda

- Inspection program overview
- The need for change
- Inspection program reorganization
- Continued programmatic enhancements
- Lessons learned

Inspection Program Overview

- Area of coverage:
 - 398 square miles
- Inspection responsibilities
 - 17 Capital projects
 - 74 Subdivision projects (storm/ sanitary)
 - 42 Water Management projects
 - 74 DRI projects
 - 1130 Homebuilding sites
 - 190 Demolition projects
 - Floodplain and Erosion & Sediment Control Ordinance Enforcement
 - Construction Bonds



The Need for Change

- **Louisville MSD Consent Decree**
 - First 10 years we thought the project delivery train was OK
- **Consent Decree Mid-Point Review**
 - Red lights signaled trouble ahead
 - Escalating construction cost
 - Independent review requested by Executive Director



Independent Review

Evaluating the Current Environment

- **MSD retained CDM Smith December 2014**
 - Provide comprehensive, unbiased, third-party evaluation of MSD's Amended Consent Decree (ACD) compliance program performance to date
 - Identify potential program risk elements and propose risk mitigation strategies
 - One Water Initiative requested by Mayor Fisher
- **MSD retained CH2M Hill June 2015**
 - Provide independent review of FY16-FY20 Capital Improvement Plan to evaluate the rising costs of capital program
 - Identify opportunities for cost savings, increasing efficiency of MSD staff resources and improving project delivery timeliness.
- **CDM Smith and CH2M Hill both provided similar recommendations to MSD**
 - Modify the organizational structure of the Engineering Division
 - Modify capital project management processes and procedures to facilitate enhanced performance and accountability both programmatically and project-based.

Independent Review Findings

Key findings from the review pertaining to the inspection program recommended the following:

- **Convert contract inspector positions to full-time MSD employees**
 - Add construction inspection positions to the current in-house staff of inspectors.
 - Post positions internally and externally for qualified candidates.
- **Issue RFP for Construction Inspection Services (as needed)**
 - Award contracts to as many as three engineering consulting firms to provide inspection services over the next five years.
 - Will allow MSD to balance the variable construction workload expected with the capital program and the increasing development activity.
- **Re-assign Inspection Services for large (> \$10 million) multi-year specialty projects**
 - Assign to the Professional Engineer of record.
 - Amend existing consulting engineering contracts to include resident engineering and construction inspection services.

Inspection Program Prior to Mid-Point Review

- 2015 staffing snapshot
 - 19 Contract staff from various firms.
 - 6 MSD staff inspectors
 - 4 MSD regulatory enforcement inspectors
 - Most contract staff had worked for MSD for over 20 years
- 3 different areas of inspection (capital, development, enforcement)
 - No cohesion, communication
 - Each area managed differently
 - Inconsistent accountability

Organizational Culture Change

Program Vision:

Implement an inspection program that develops a skilled workforce to provide high quality assurance of quality control and acceptance.

- Certification requirements
- Enforce regulations through out
- Consistent level of standards across the Engineering Division
- Progression for retention
- Succession planning



Inspection Program Reorganization

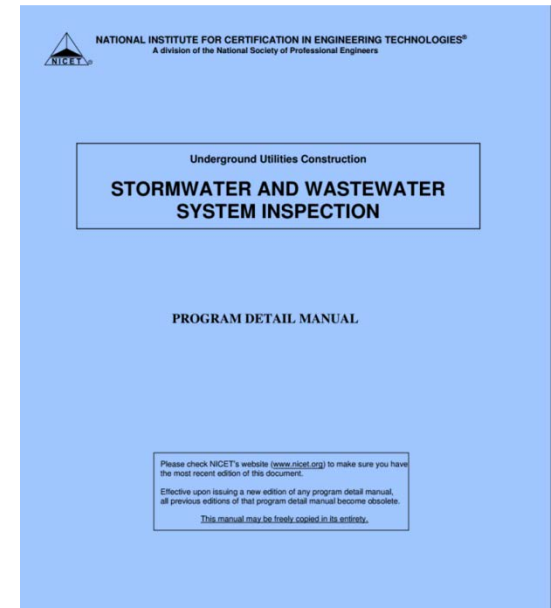
- Executive led change initiative.
- Develop plan for reorganization
 - Resource allocation (general, enforcement, specialized)
 - Develop job descriptions for each position
 - Grade positions to be competitive
- Business case to hire 11 new inspection staff to eliminate need for contract staff
- Discussions with staff regarding expectations
 - Follow specifications
 - Regulatory as important as construction
 - Accountability

Unconventional Approach

Construction Manager			
Inspection Manager		Engineering Managers	
General Construction (Collection Systems, Private Development, Homebuilding & Enforcement of Erosion & Sediment Control & Floodplain Management Ordinances)		Specialized Construction (Treatment Plants, Tunnels, Capital > 10m, Flood Protection, I&I projects)	

Inspection Program Reorganization

- Knowledge Enhancement
 - NICET Certification
 - Each supervisor and inspector required to obtain NICET Certification
 - *"Incentivized"* job knowledge enhancement
 - Cross training
 - Goals established to increase knowledge
- Staff Retention
 - 3 Levels of Inspectors
 - Progression path created
 - Staff meetings
 - Evaluation of Pay Scales vs. other Utilities



Continued Programmatic Enhancements

- Must continue to "tweak" as conditions change
 - Staff re-organization
 - Monitoring workloads
- Keep up with technology
 - Utilize smart phones, tablets and drones
- Develop "tools" for efficiency
 - Inspections, reports and photos in a web application
 - "live" mapping
- NICET Certification program changes
- Experience gap



Continued Programmatic Enhancements

- Development of job advancement packet
 - For level I to II and Level II to III
 - Identifying critical areas of experience
 - Create team of reviewers
 - Consistency in staff development
 - New staff spend time with seasoned inspectors
- Succession planning
 - Promoting cross training opportunities
 - Hiring younger staff to promote (longevity)
- Build a team approach by involving staff
 - SOP's written with staff involvement
 - Construction Field Guide updated with staff involvement
 - Inspection Supervisors mentor inspection staff
 - Open dialog



Inspection Web Application

Current Project: Catalpa Farms Sec 4

Filter Projects
 Subdivision Infrastructure

Inspector
 Nalley, Jeffrey
 Richards, Ronnie
 Richardson, Bryon
 Roberts, Woodrow

Status
 Active
 Completed
 Warranty
 Dormant

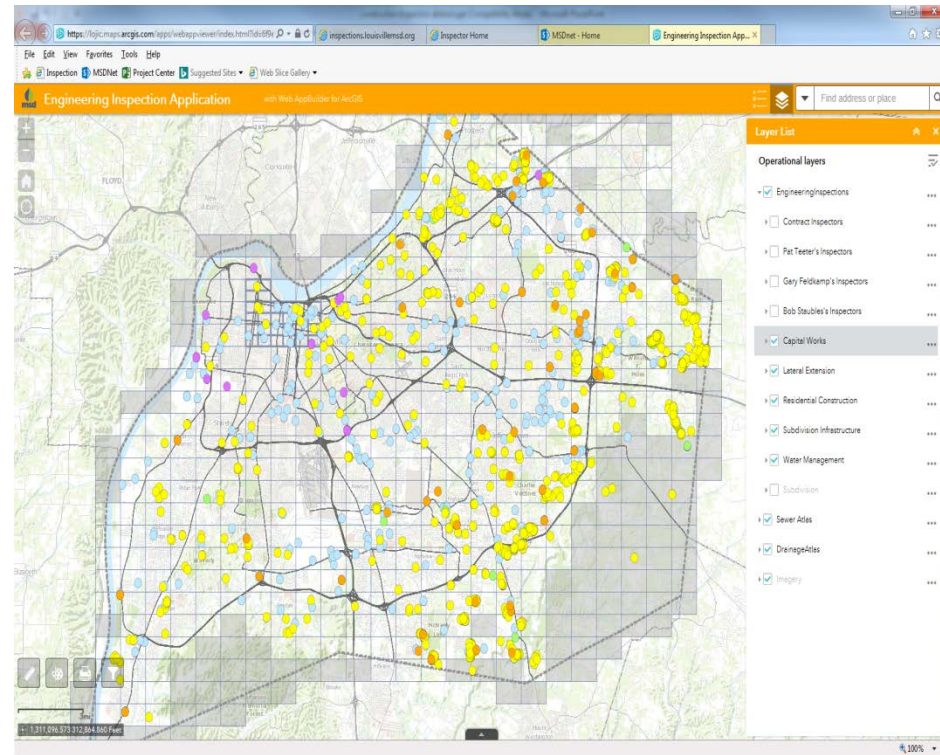
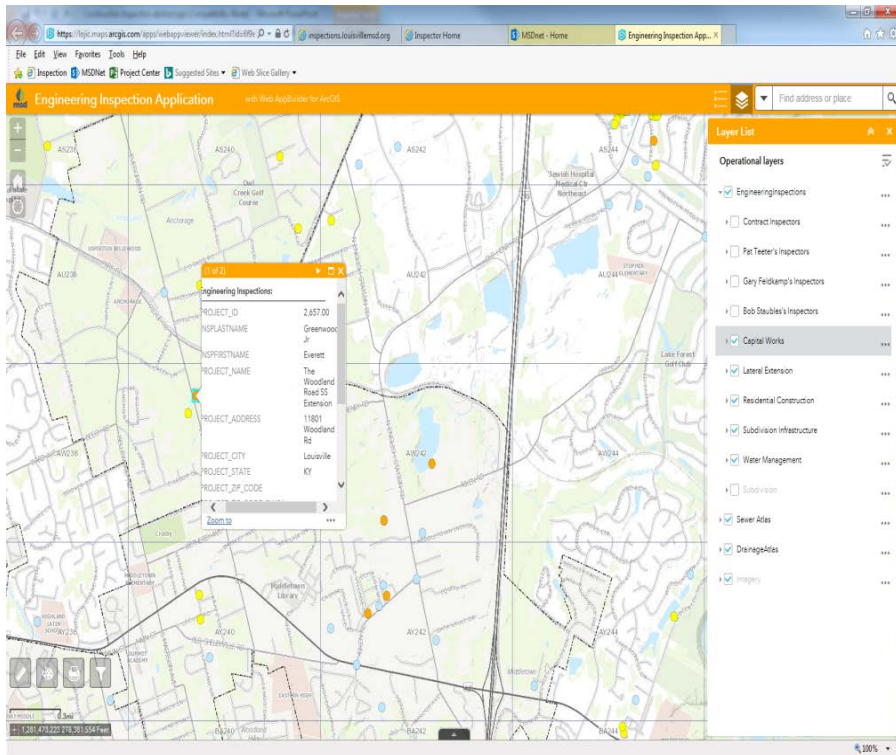
Search

Select a Project

Select	Goodwill Industries of Kentucky	WM	12616 Taylorsville Rd		
Select	Grove Point Masonic Homes Assisted Living	WM	230 Masonic Home Drive		
Select	Kroger L-379 Expansion	WM	9080 Taylorsville Road		
Select	Kroger L-743 Expansion	WM	12611 Taylorsville Road		
Select	Kroger L-743 Expansion S/S	LE	12611 Taylorsville Road		
Select	Masonic Homes Independent Living	LE	200 Masonic Home Drive		

Bonds
 FCN(s)
 NOV(s)

Inspection Mapping



Summary

- Regularly evaluate your program
- Develop culture change
- Adaptive management
- Be patient but focused