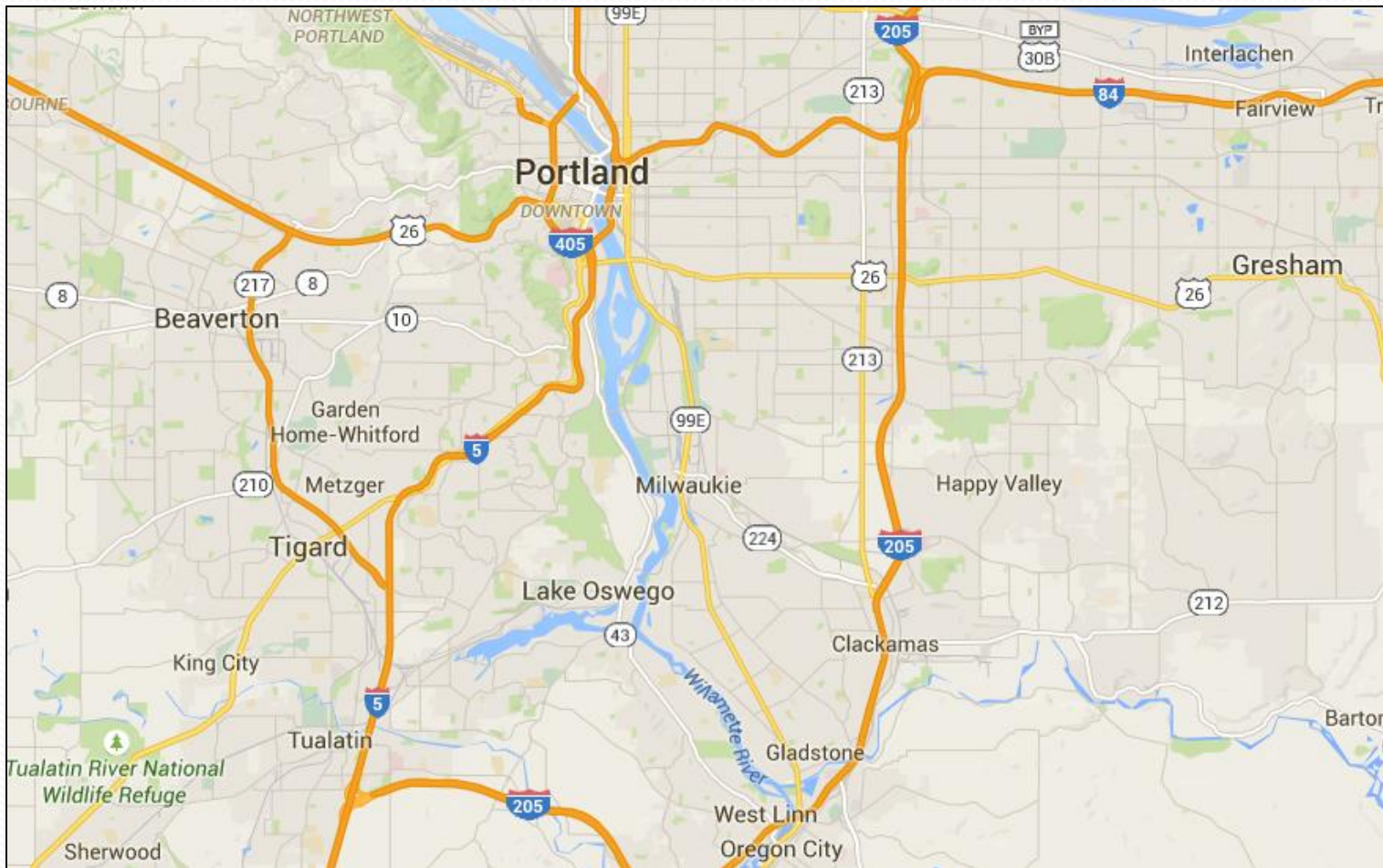


# Oak Lodge Sanitary District Asset Management Program

Rich Ludlow

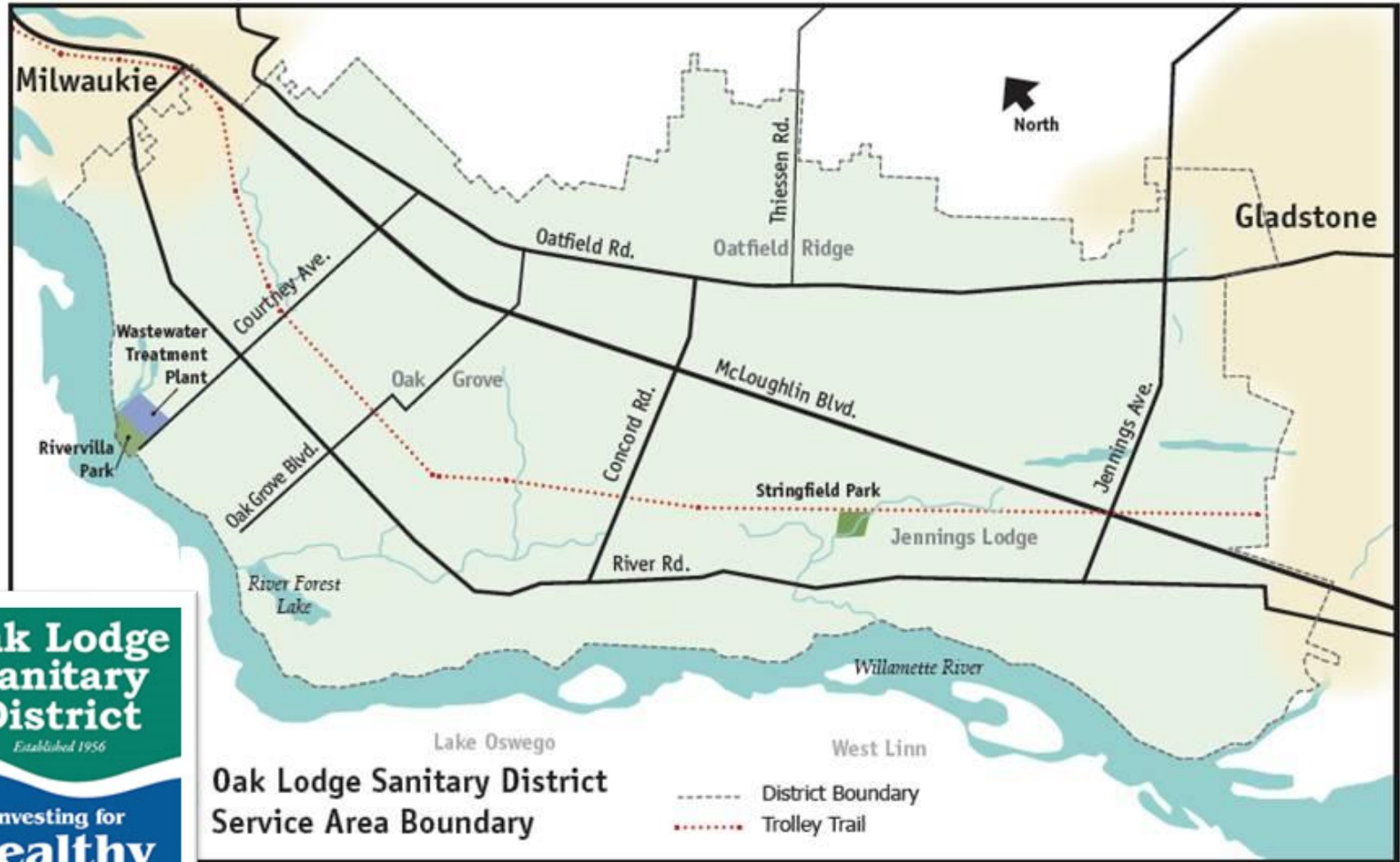
# Regional Perspective



# Oak Grove + Jennings Lodge



# Oak Lodge Sanitary District



**Oak Lodge Sanitary District**  
Established 1956

Re-Investing for **Healthy Rivers**

Oak Lodge Sanitary District  
Service Area Boundary

6.5 square miles

# Areas of Responsibility

- Sewer System
  - Approximately 8,600 sewer connections
  - 100 miles of sewer pipe
  - 2273 sewer manholes
  - 5 wastewater pump stations
- Water Reclamation Facility, 10 MGD, Cannibal Plant
- Surface Water Management:
  - 2,500 catch basins
  - 53 miles of storm lines
  - 100 sedimentation manholes
  - 50 private detention systems.



# Coming Soon: Oak Lodge Water Services

- Consolidation with the OLWD (Water District) was approved by District voters on May 17<sup>th</sup>, 2016
- Plans to become one agency likely in December
- New financial software procurement planned
- District areas of responsibility will combine



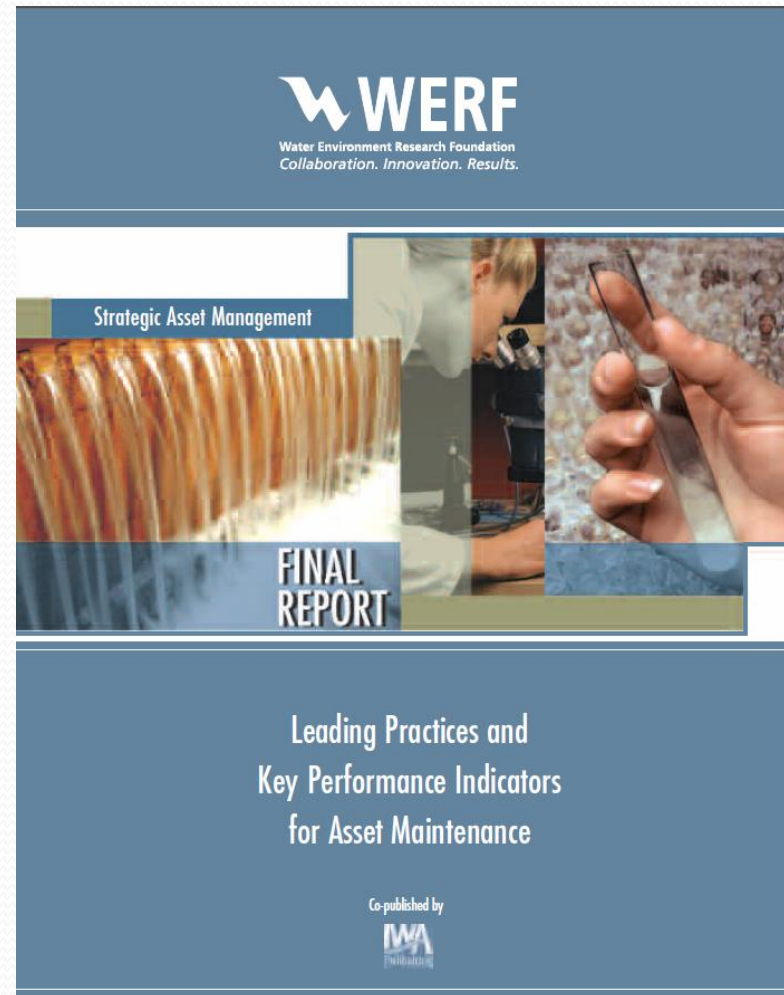
# Current District Advantage

- Technology tools and information in place
  - SCADA – WonderWare
  - GIS – Esri ArcGIS
  - Sewer Inspection – Cues Granite XP
  - CMMS – Lucity
  - Electronic O&M Manual – eFIMS
  - Operations/Lab Database Software – Hach WIMS
- Relatively small number of Assets (records in Lucity)
  - 1103 Equipment Assets
  - 17 Fleet Assets
  - 4011 Storm Assets
  - 12059 Sewer Assets
- Treatment plant recently reconstructed (2012)



# WERF Benchmarks for Strategic Asset Management (2014)

- Identified and benchmarked key competencies of successful Asset Management Maintenance programs





# 10 Core Competencies Identified

- Overall Maintenance Strategy
- Maintenance Tactic Selection
- Information Technology Infrastructure
- CMMS Access and Use
- Data Quality
- Planning and Scheduling
- Material Management
- Condition-Based Maintenance
- Reliability Analysis
- CMMS History
- Performance Measures

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# Overall Maintenance Strategy

- Typically focused on getting the approval and resourcing available to execute the initiatives derived from an ever evolving maintenance improvement plan
  - OLSD initiatives executed to support maintenance improvement:
    - Purchase of CMMS (Lucity)
    - Development of SCADA interface to CMMS
    - Evolutionary rollout of CMMS functionality
    - Deployment of mobile access to CMMS

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# Maintenance Tactic Selection

- How well an organization designs maintenance strategy at the equipment and system levels
  - OLSA has explored equipment inventories and system criticality resulting in:
    - ✓ Purchased of shelf spare electric motors for any application where the motor cost less than \$500. These applications will not be maintained, but will run to failure and be replaced with the shelf spare.
    - ✓ Purchased spare equipment for shelf stock on critical systems that lack redundancy
  - Investment in predictive maintenance technologies:
    - Covered later as another metric

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# Information Technology Infrastructure

- The extent an organization utilizes IT resources
  - OLSD has leveraged IT infrastructure in a number of ways
    - Integration between GIS and Lucity
    - Integration between Granite XP and Lucity
    - Integration between SCADA and Lucity
    - Integration between SCADA and Hach WIMS
    - Redundant Win911 alarm telephony
    - Completely redundant remote site monitoring and alarming

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# CMMS Access and Use

- The degree to which an organization adopts CMMS
  - Lucity web was implemented as part of the WRF construction project in 2011
  - Web dashboards have been refined to include only what users need – efficiently and effectively
  - Mobile access achieved from the TV truck
  - Working remotely with laptop for real time work tracking on Storm assets
  - Budgeting for Lucity Mobile to further leverage two way information flow
  - Restructuring Categories to be more equipment specific

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# Data Quality

- Data representation of relative asset inventory and cost capture
  - Asset data inventory scrub 95% complete
  - Continuing to refine PM structure
  - Refining ease of use for better data capture
    - Short, applicable pick lists
    - Real time data capture
    - Ease of use = better data

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# Planning and Scheduling

- Ability to optimize resources and improve efficiencies in conducting maintenance
  - Field Operations footage goals and task identification
    - Cleaning and inspecting sewers are a priority, but not without competition
  - Plant Maintenance weekly planning meetings
    - Map out work for coming week
    - Review accomplishments of previous week
  - Stormwater pilot project
    - Resource requirements identified

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# Material Management

- Planning and maintaining inventory of what is needed, forecasting when it is needed, and planning and staging materials for upcoming work.
- This is an area OLSA can and should improve on to:
  - Capture costs to assets as materials are consumed in maintenance through interface with financials
    - Analyze full life cycle costs for assets
    - Make better repair/replace decisions
    - Account for material use more accurately
- Currently no link between Lucity and financial software
  - Previously budgeted but not executed
- Future opportunity with financial software procurement

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# Condition Based Maintenance

- The District has invested in equipment for condition based maintenance
  - Flir thermal image camera
    - Indicates temperature characteristics of equipment
    - Indicates maintenance needs for electrical equipment
  - Fluke vibration monitor for SPM
    - Indicates need for lubrication preventing over lubrication
    - Indicates need for more elaborate vibration analysis
  - Fluke clamp on multimeter
    - Indicates amp draw on electrical components

# 10 Core Competencies Identified

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# Reliability Analysis

- Program to assess and improve asset reliability
  - OLSD does not perform reliability analysis at this time
  - Steps needed to move in this direction include:
    - Develop appropriate failure modes by equipment type
    - Train and perform root cause analysis
    - Train and perform reliability centered maintenance (RCM) techniques to reduce/eliminate failure causes

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# CMMS History

- The degree that an organization can use trending for forecasting
  - OLSD has good history in the collection system with consistent inspection evaluations from as early as 1996
  - Plant assets weren't tracked as well so history began in 2012 with the Lucity implementation

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# Performance Measures

- Staff utilization to work orders (percentage)
- Sewer cleaning and inspection measurable goals (footage)
- Sediments removed from catch basins (cubic feet, NPDES)
- Treatment Plant effluent quality (NPDES reporting)
- Percent planned work

# Summary

- We have made good progress toward industry identified best practices
- We still have work to do and will for some time



# Questions?



PROVIDING SERVICE IT PROCESS PROPERTY FINANCIAL  
DISPOSING ENTITY ASSET COST INTELLECTUAL  
MONITORING  
**MANAGEMENT**  
LIFE CYCLE  
FIXED UPGRADING MAINTAINING SYSTEM  
DIGITAL  
FACILITIES GOODWILL OBJECTIVE ENTERPRISE  
INFRASTRUCTURE OPERATING EQUIPMENT PHYSICAL GROUP EFFECTIVELY