

# Stormwater Discussions 2015



## Albany's Water Systems



*Part 4– Current O&M Practices and Future Needs*



# Today's Agenda

- Overview of Albany's stormwater system
- Current operating and maintenance practices
- Typical MS4 Phase II Permit requirements for current permittees
- Expectations for future operating and maintenance practices



# Albany's Stormwater System

- Both piped and open conveyance
  - 127 miles of stormwater pipes
  - 4,202 catch basins/inlets
  - 2,236 manholes
  - 70+ miles of open ditches/culverts
  - 76 stormwater quality facilities
- Receiving waters include Periwinkle, Oak, Cox, Burkhart Creeks; Calapooia and Willamette Rivers



# Storm manhole under high flow conditions



Marquis Estates  
12/30/05



# Stormwater main





# Stormwater Quality Facility





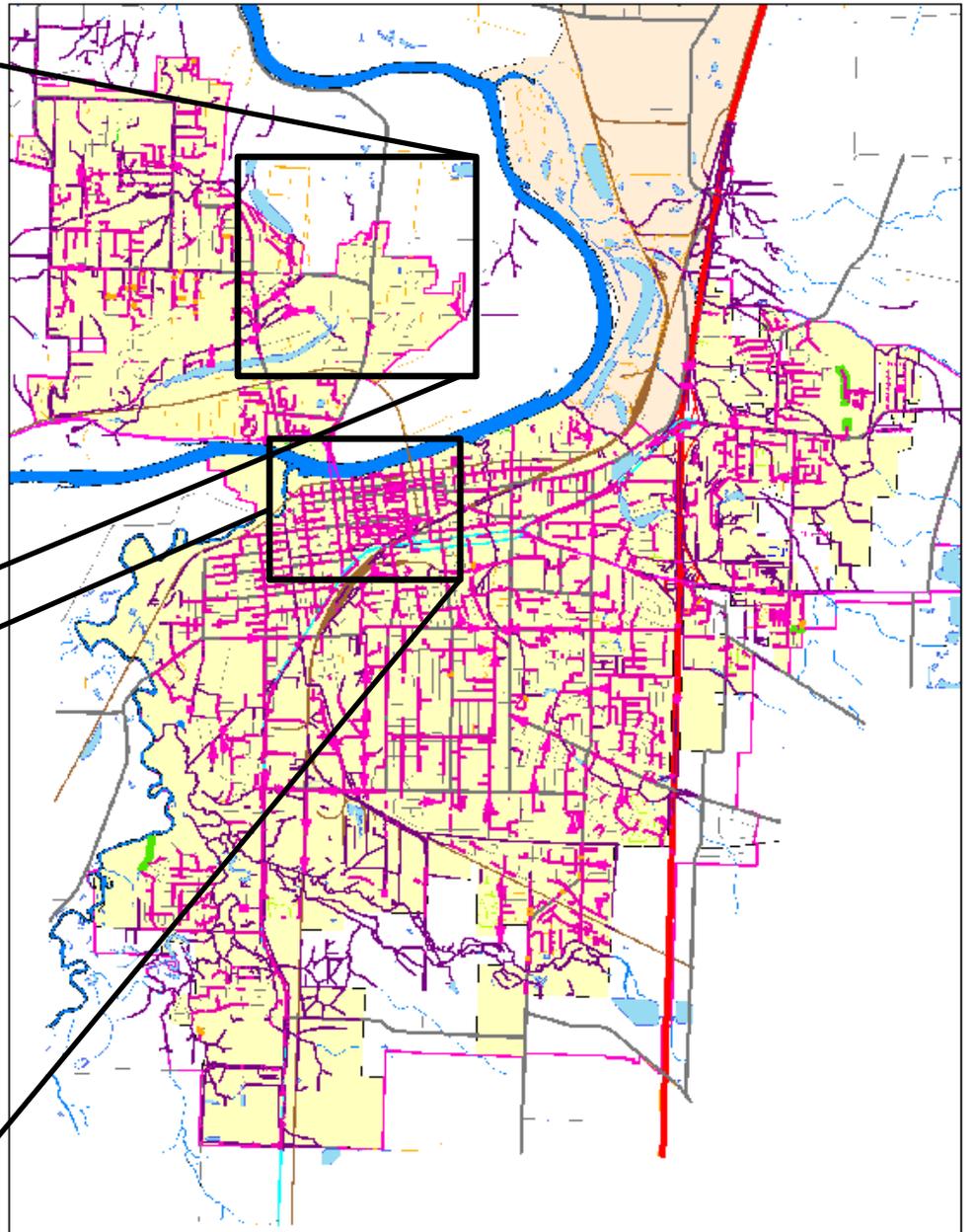
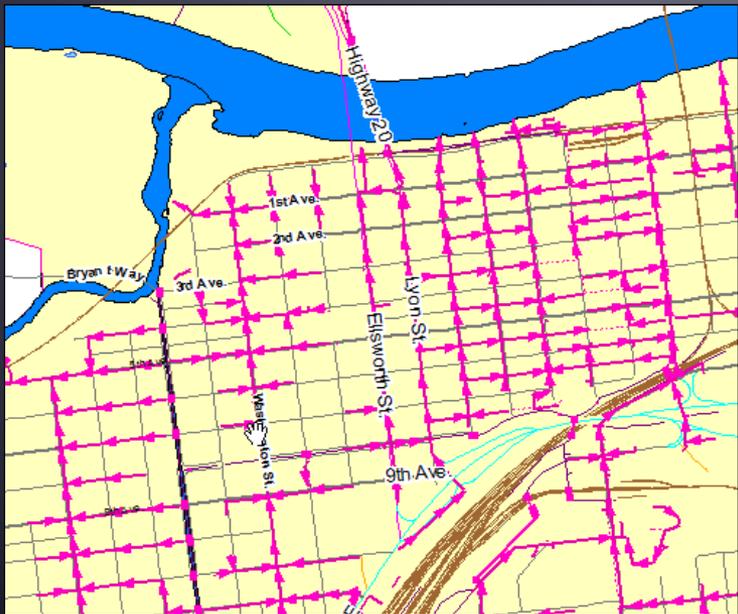
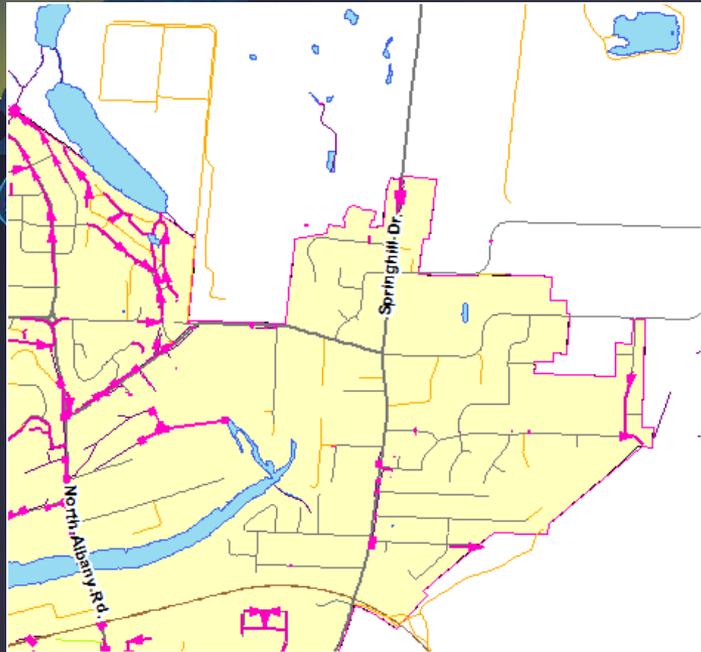
# Stormwater Quality Pond





# Stormwater outfall







# Storm vs. Sanitary

## Sanitary

- Pipe size: 75% is 8"
- Simple layout: lateral, main, MH, force main
- All drain to one place: the WRF for treatment

## Storm

- Larger pipe: 60% is 10" – 15"
- More structure types: Inlet, CB, detention pipe, outlet, culvert, ditch, swale, planter, pond...
- Drain to the different receiving waters, mostly untreated



# Storm vs. Sanitary

- SW systems are not always “on”
- Flow is flashy and unpredictable
- Storm event flow may vary significantly across the city
- Ownership is complicated
- SW systems are designed knowing they will be overwhelmed
- Permits are very different
- Point sources vs Nonpoint sources
- Treated / Non-treated
- Human contact



# Impacts of high velocity runoff





## Street ponding





## Field runoff





# Current O&M Practices

- 50% of storm catch basins cleaned annually
- Known problem catch basins cleaned every year
- 2% of storm pipes are cleaned annually
- Storm ditches mowed/cleared
- Regular street sweeping schedule
- Storm quality facility weeded/maintained
- Stormwater education & outreach
- Spill response and clean up



# Stormwater Detention Pipe Cleaning





Dirty catch basin





## Ditch repair





Polluted  
runoff





## Culvert Repair





## Spill Cleanup





Grout

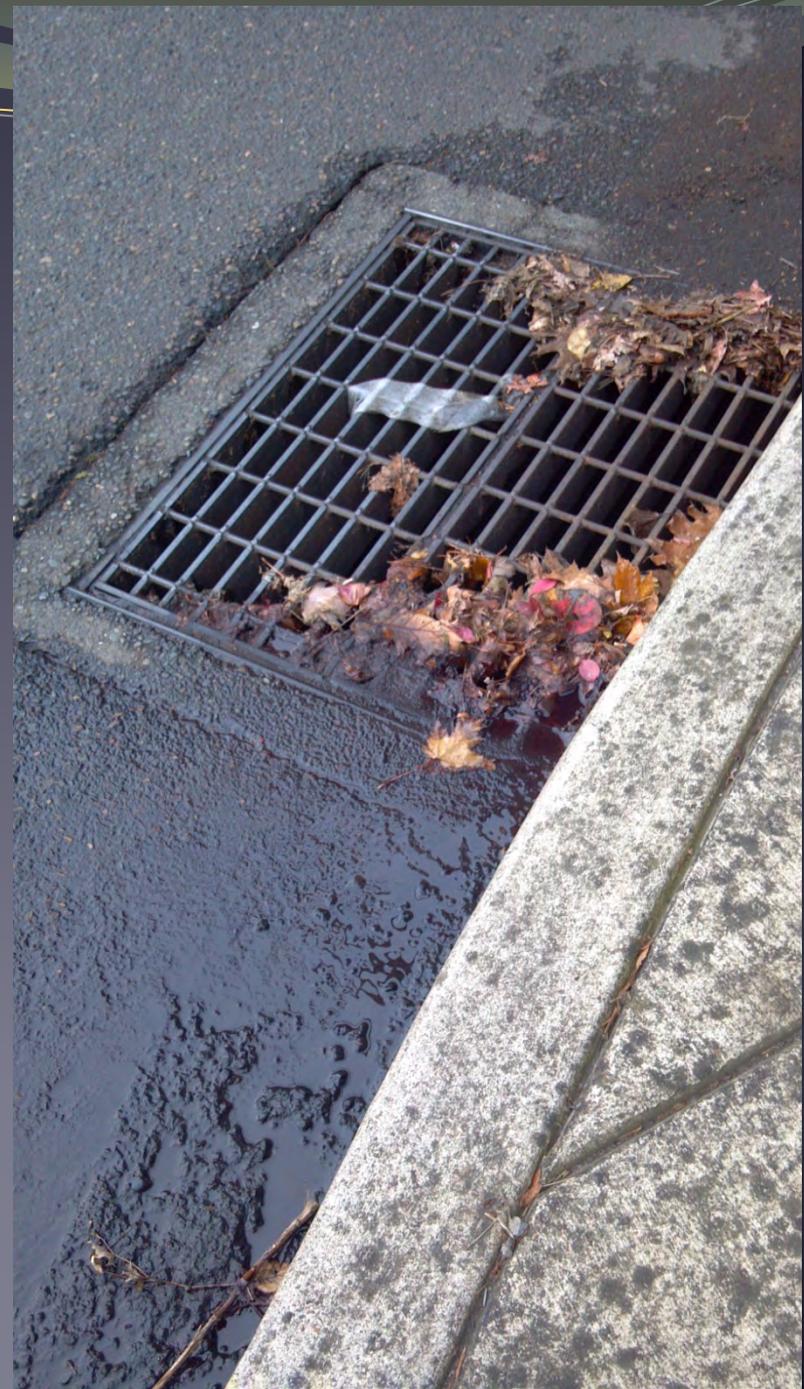


Oil



Whey

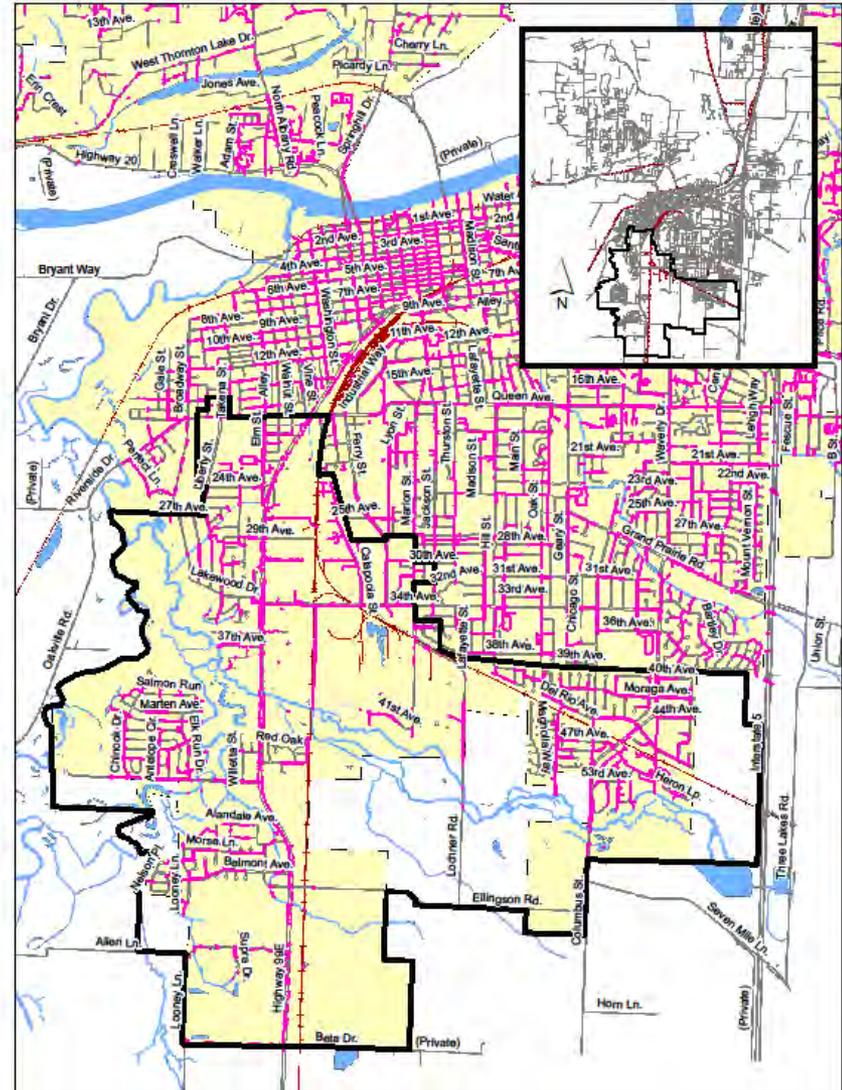
Wine



# Summer 2015 Storm Work



- Storm maintenance pilot
- Oak Creek Watershed
- Represents 19% storm system, some new, some old
- Plus some areas with known flooding
- From May through August
- Cleaning, TV/inspecting, updating data





# Summer 2015 Storm Work

- Cleaned/TV about 70,000' = 50% Oak Creek Watershed
- 10% of the total storm piping system
- Much slower: larger pipe, more debris, several passes with cleaning nozzle
- Takes more water to clean, fills up truck, more trips back to Ops
- Need to protect downstream outfalls
- Piping rough on camera equipment and hoses
- GIS data missing or wrong
- Condition of some pipe is very bad; many impassable



# Summer 2015 Storm Work

## Other Findings

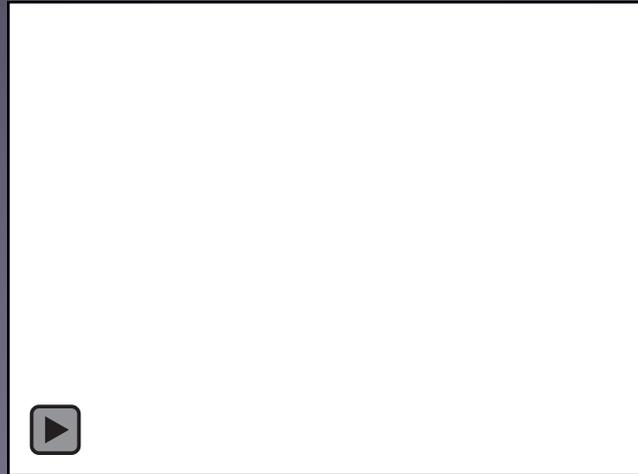
- Different types of pipe
  - corrugated metal
- 4% lines couldn't be televised
- 6% rated poor or needs immediate attention
- Worst pipe is 60x worse than the worst sanitary pipe





Albany's  
**STORM**  
Water

# Summer 2015 Storm Work



# Six Minimum Control Measures



- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection & Elimination
- Construction Site Stormwater Control
- Post-construction Stormwater Management
- Pollution Prevention in Municipal Operations

# Typical Phase II Permit Requirements



- Development and approval of a Stormwater Management Program (SWMP) is critical
- Phase II permits do not currently contain numeric pollutant limits
- They do require specific Best Management Practices (BMPs) with measurable goals, implementation dates, and interim milestones for each of the 6 Control Measures
- Adaptive Management is required



# Future O&M Activities

- Increased frequency of system cleaning
  - Better understanding of what is removed
  - Develop a logical, defensible schedule of cleaning
- Improved system mapping
  - Identify all storm system assets
  - Public and private storm outfalls
- Proactive IDDE procedures
  - Regular outfall inspections and procedures



# Future O&M Activities

- Defined system maintenance activities
  - Inspection cycles
  - Preventive /predictive maintenance
  - Asset management approach
- Stormwater Quality Facility maintenance
  - Demand will increase as the number of facilities grows
- Monitor/measure effectiveness of BMPs
  - How do we know we are having an impact?





# How are current efforts funded?



**Street Funds**



**Sewer Funds**



No Dedicated Stormwater Funding