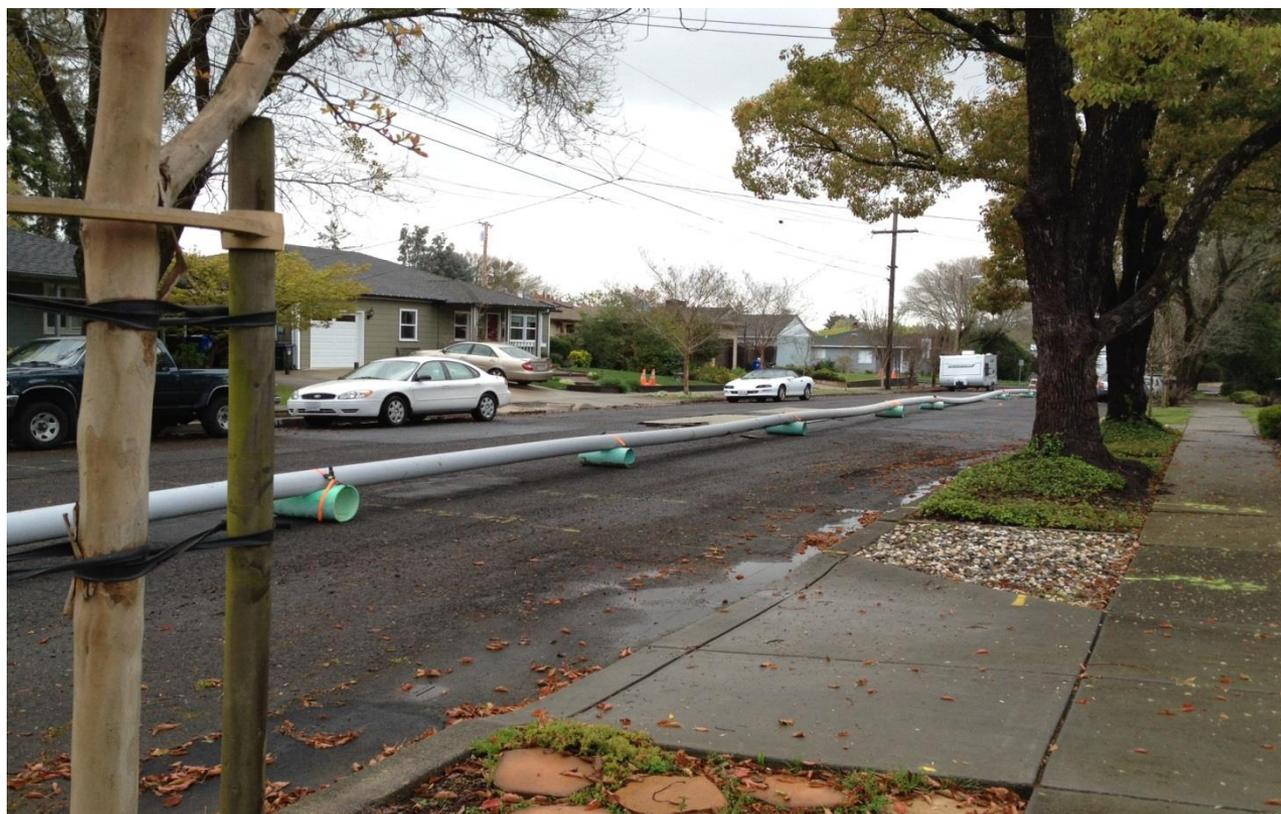


Collection System Future Project Priorities





Purpose

- Project planning
- Past projects
- 2017 projects
- Jan-Feb 2017 storm impacts
- Future project budgets
- Future project areas

- Confirm scope of 2018 project



Historical Rainfall

- 2016/17 winter is the 7th wettest season since 1892
- Napa State Hospital rain gauge
 - 2016/17 – 40.39 inches (to date)
 - Annual average is 25 inches



Example Planning Schedule 2019 Project

Task	Year
Flow Monitoring	Winter 2016/17
Nighttime Reconnaissance	Winter 2017/18
CCTV Inspection	Winter 2017/18
Office Research	Spring 2018
Manhole Survey	Spring 2018
Design	Summer 2018
Bidding	Winter 2018/19
Construction	Summer 2019
Post-Construction Flow Monitoring	Winter 2019/20

Flow Monitoring

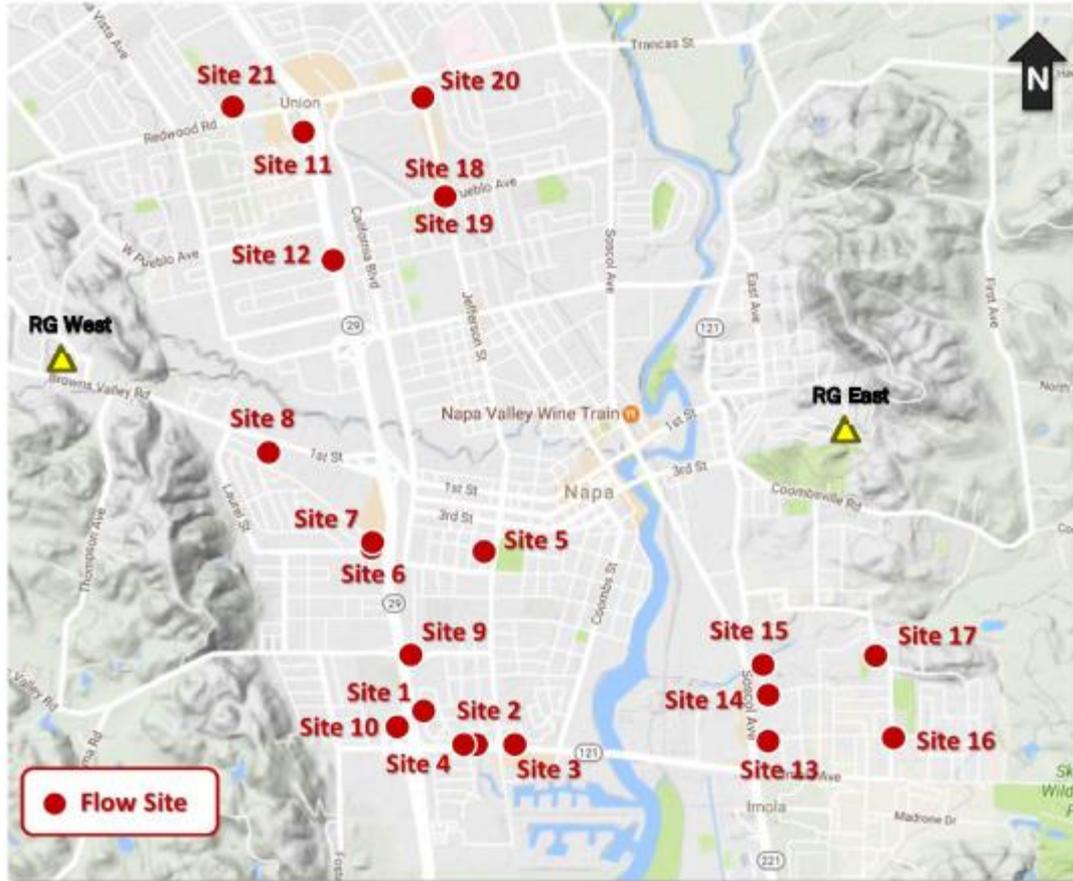
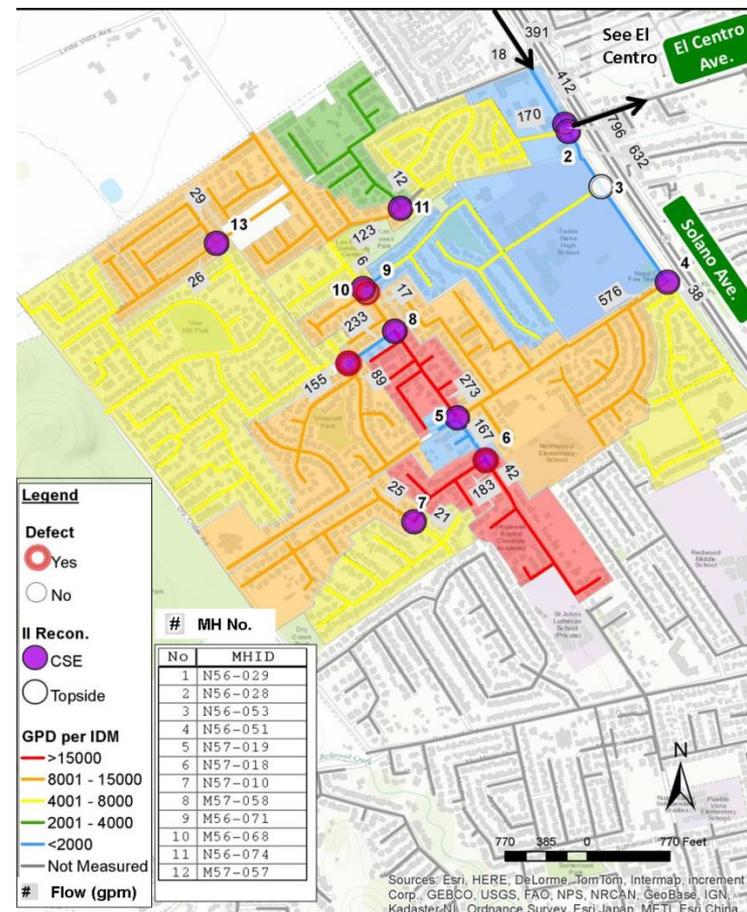
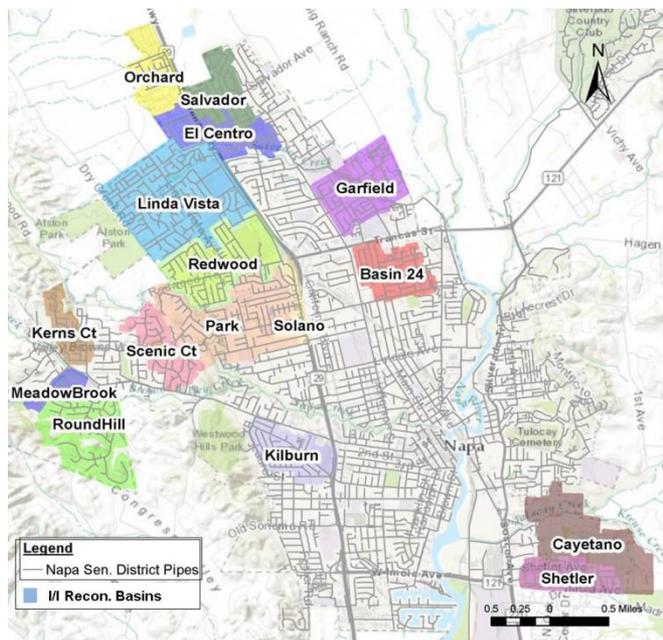


Figure ES-1. Locations of Flow Monitoring Sites



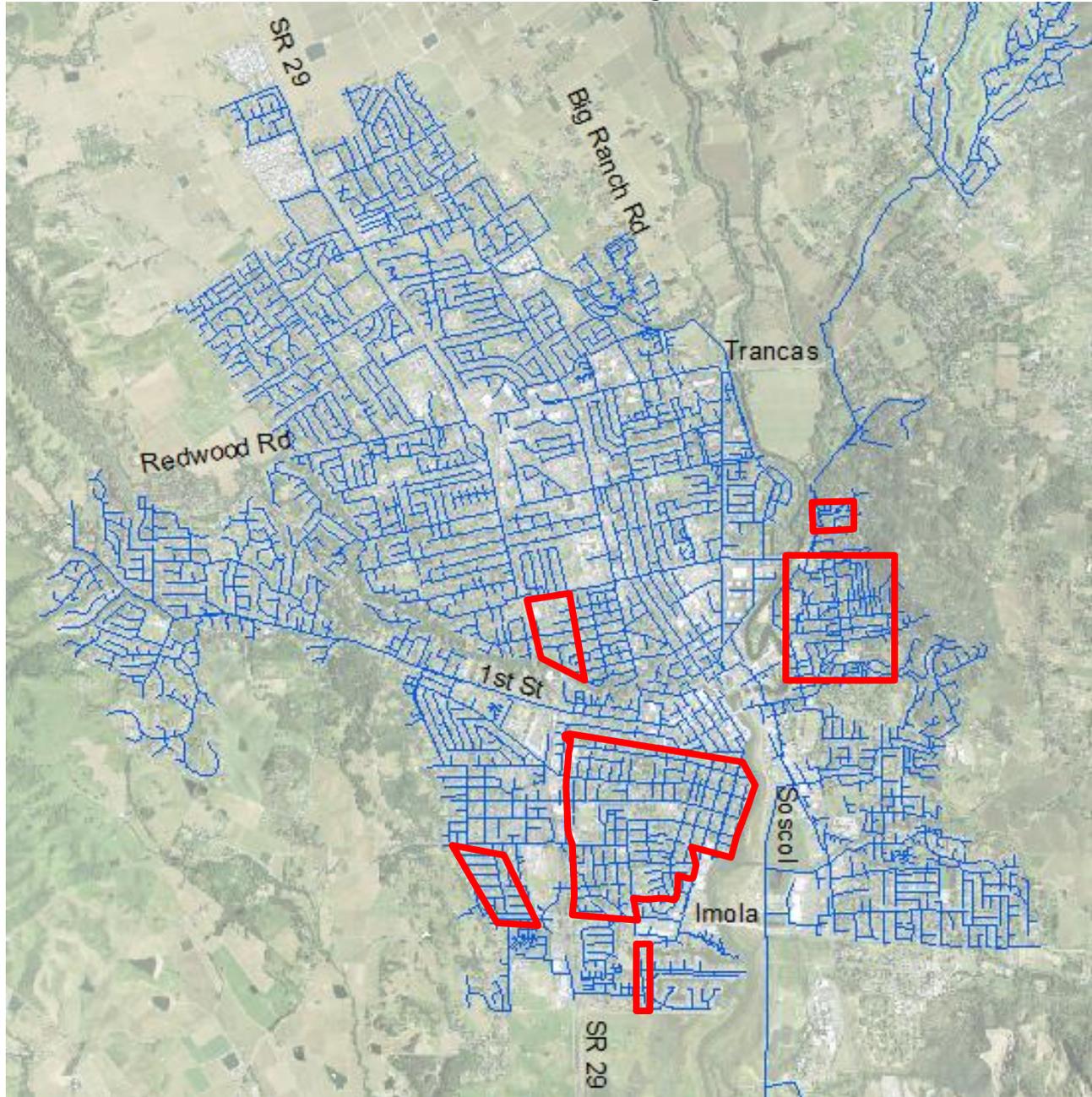
Nighttime Reconnaissance



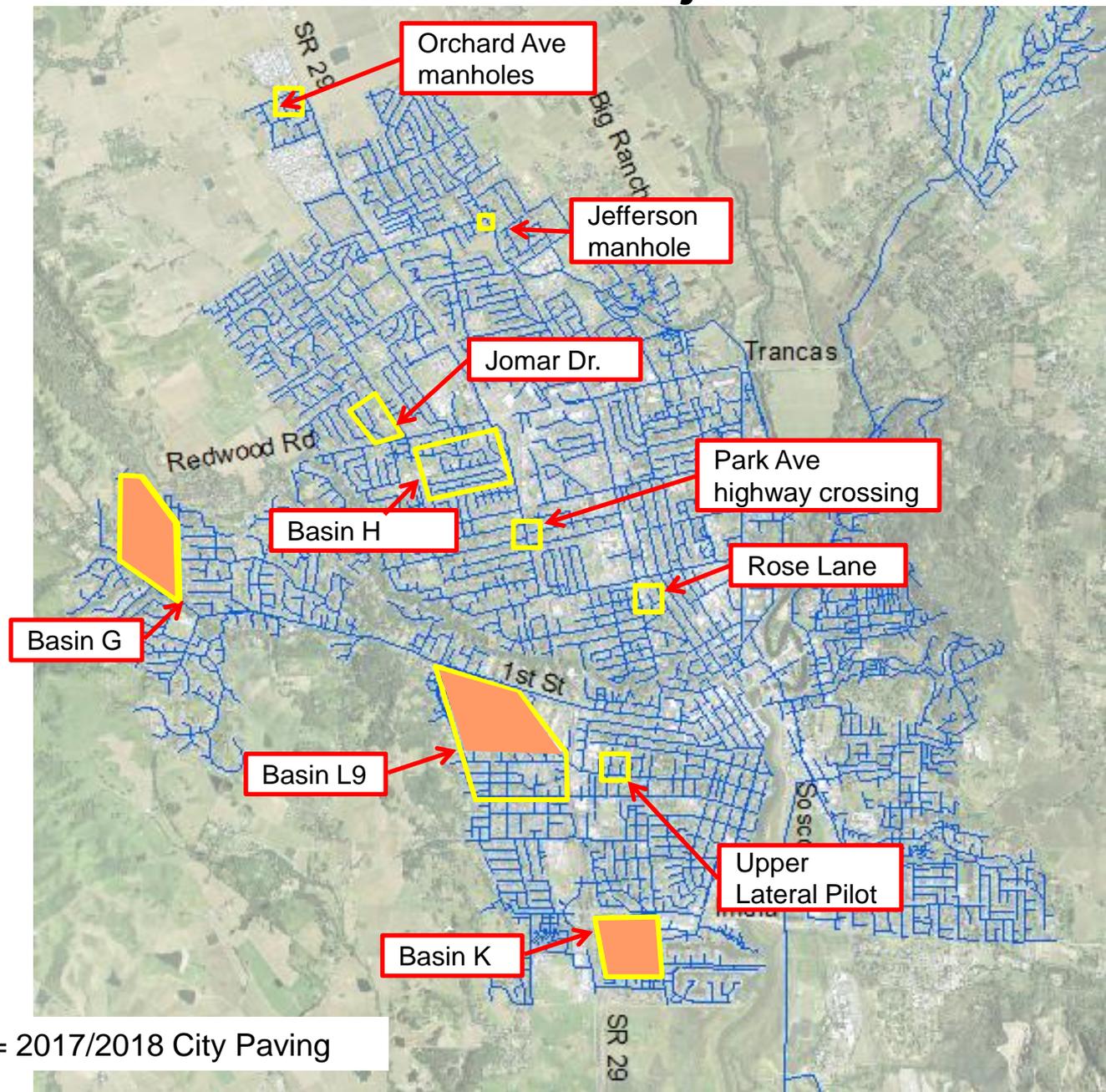
Inspection



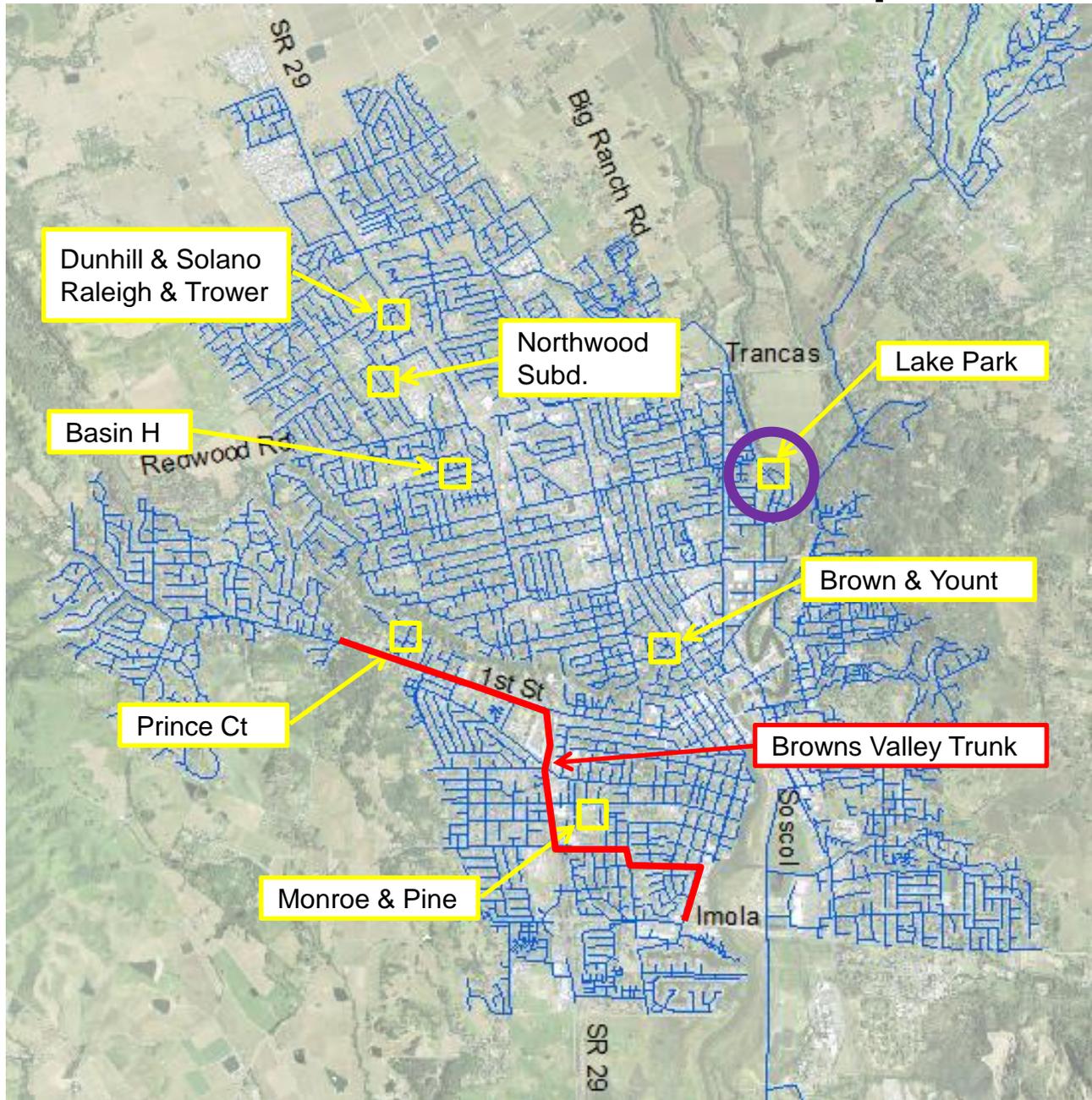
Past I&I Projects



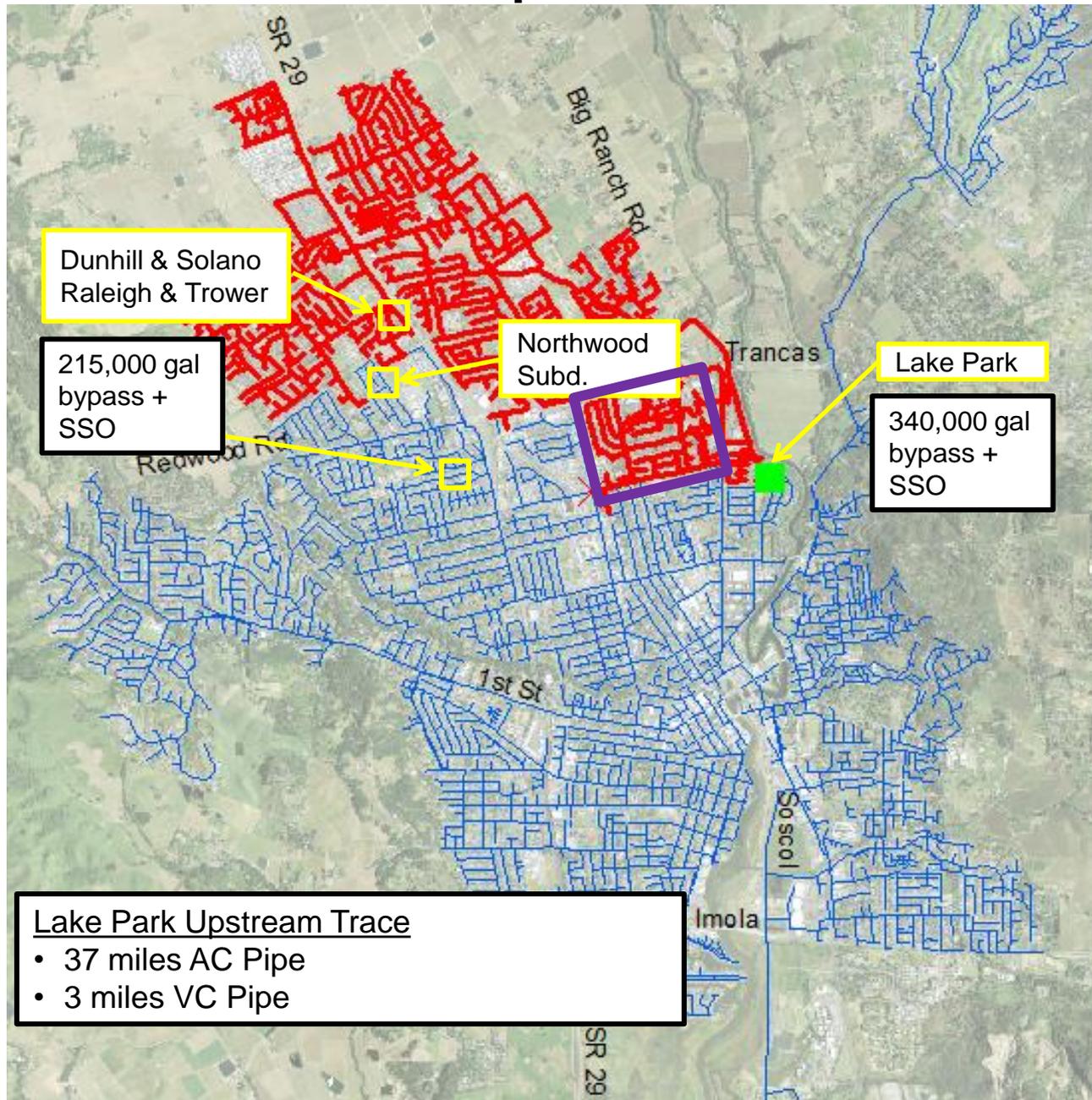
2017 I&I Projects



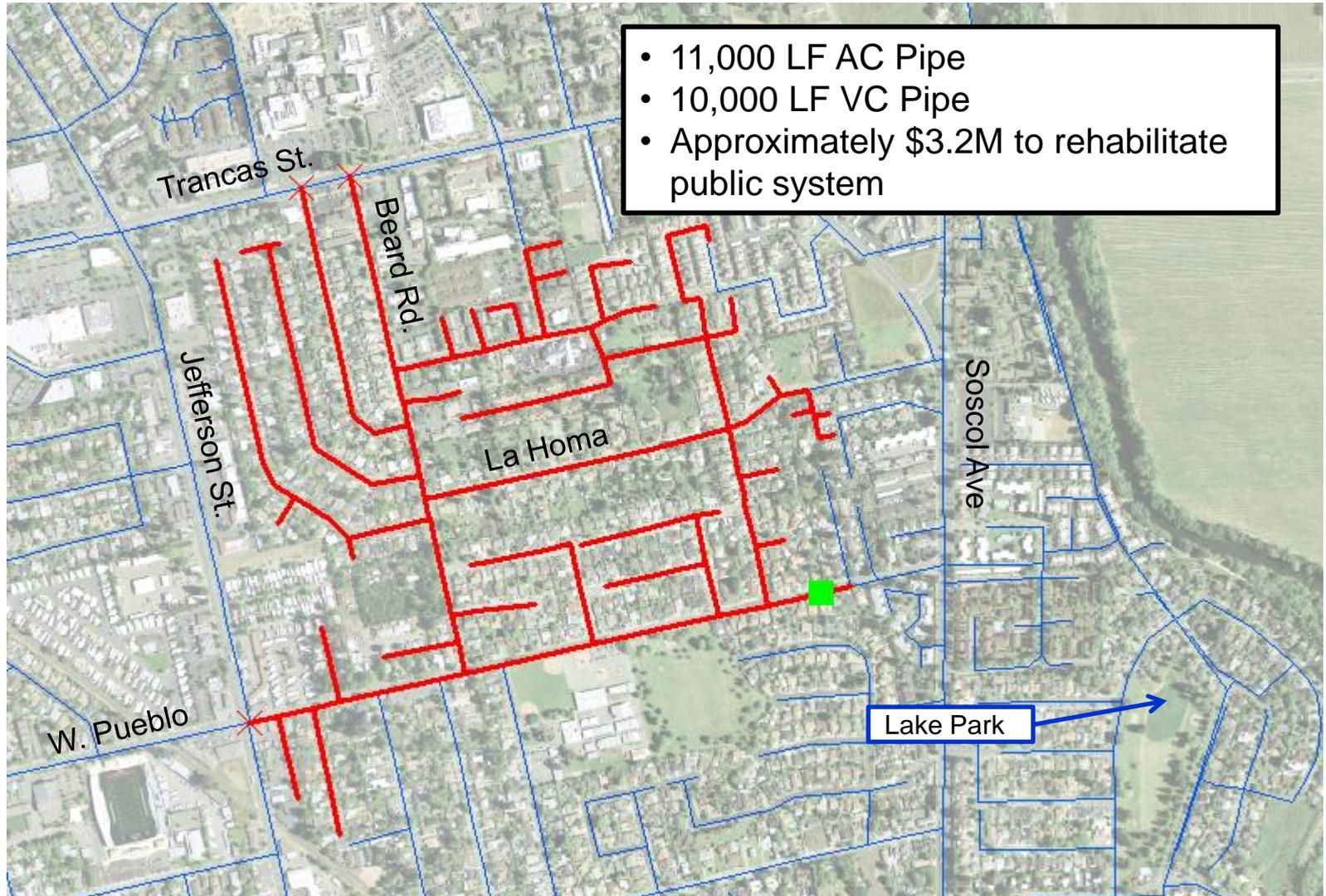
Jan/Feb 2017 Storm Impacts



Lake Park Upstream Trace



Pear Tree Area



Nighttime Recon



Napa Sanitation District
Inflow / Infiltration Reconnaissance Report

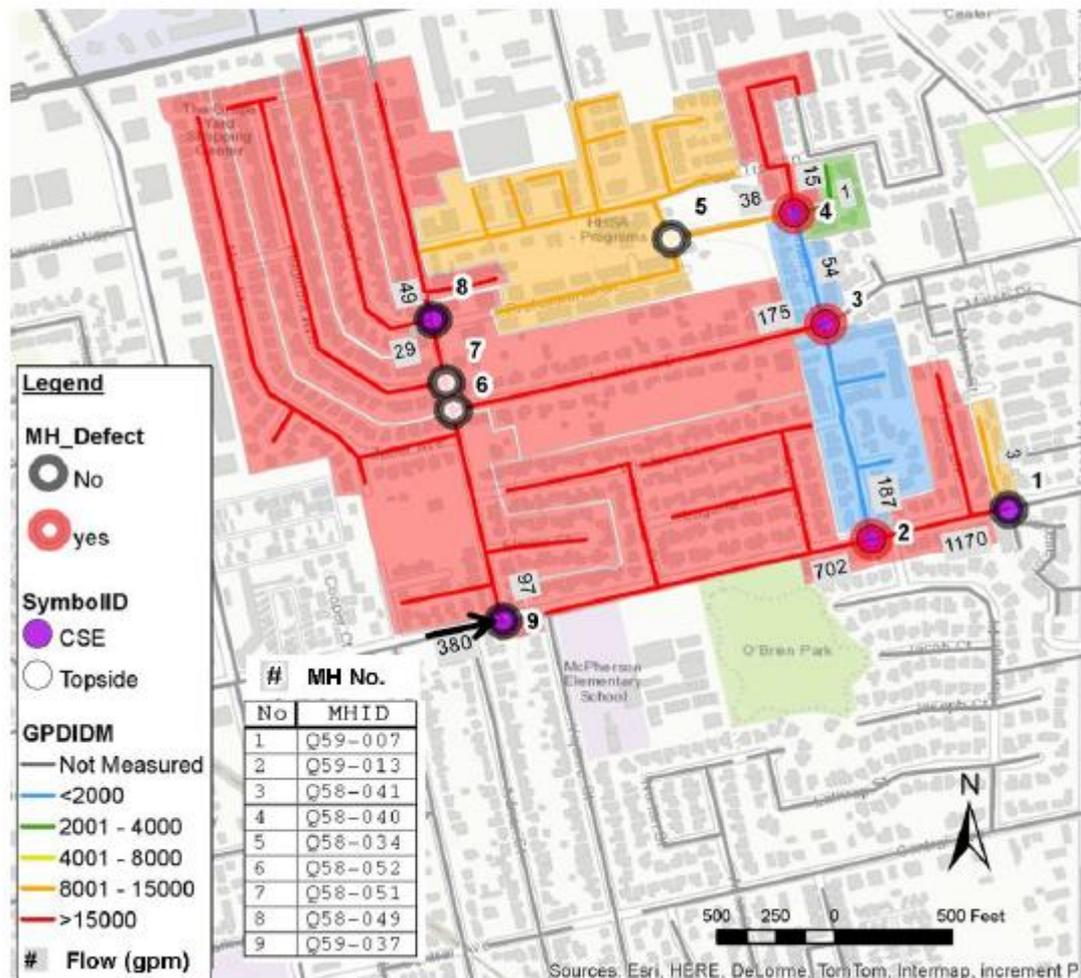
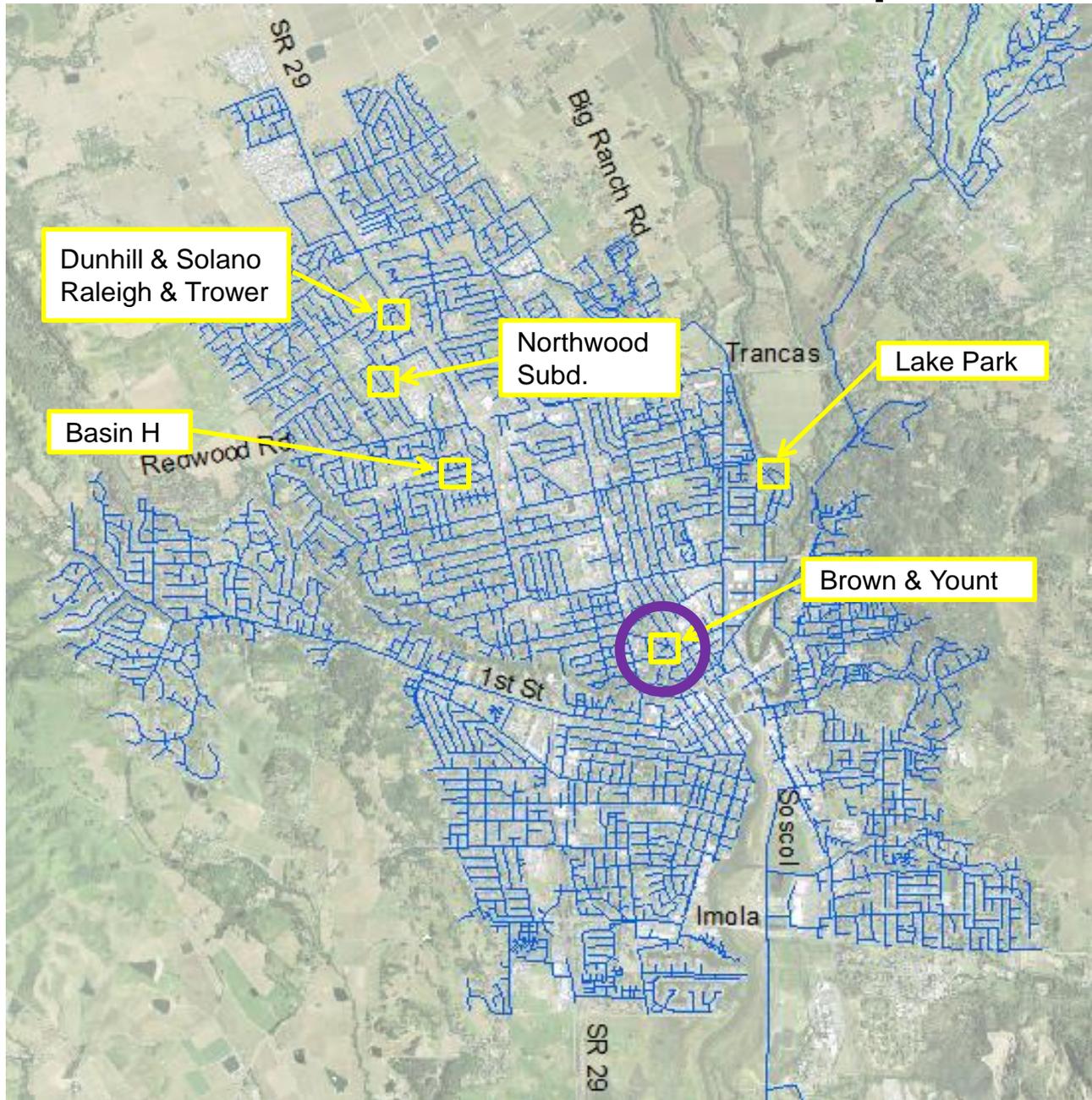


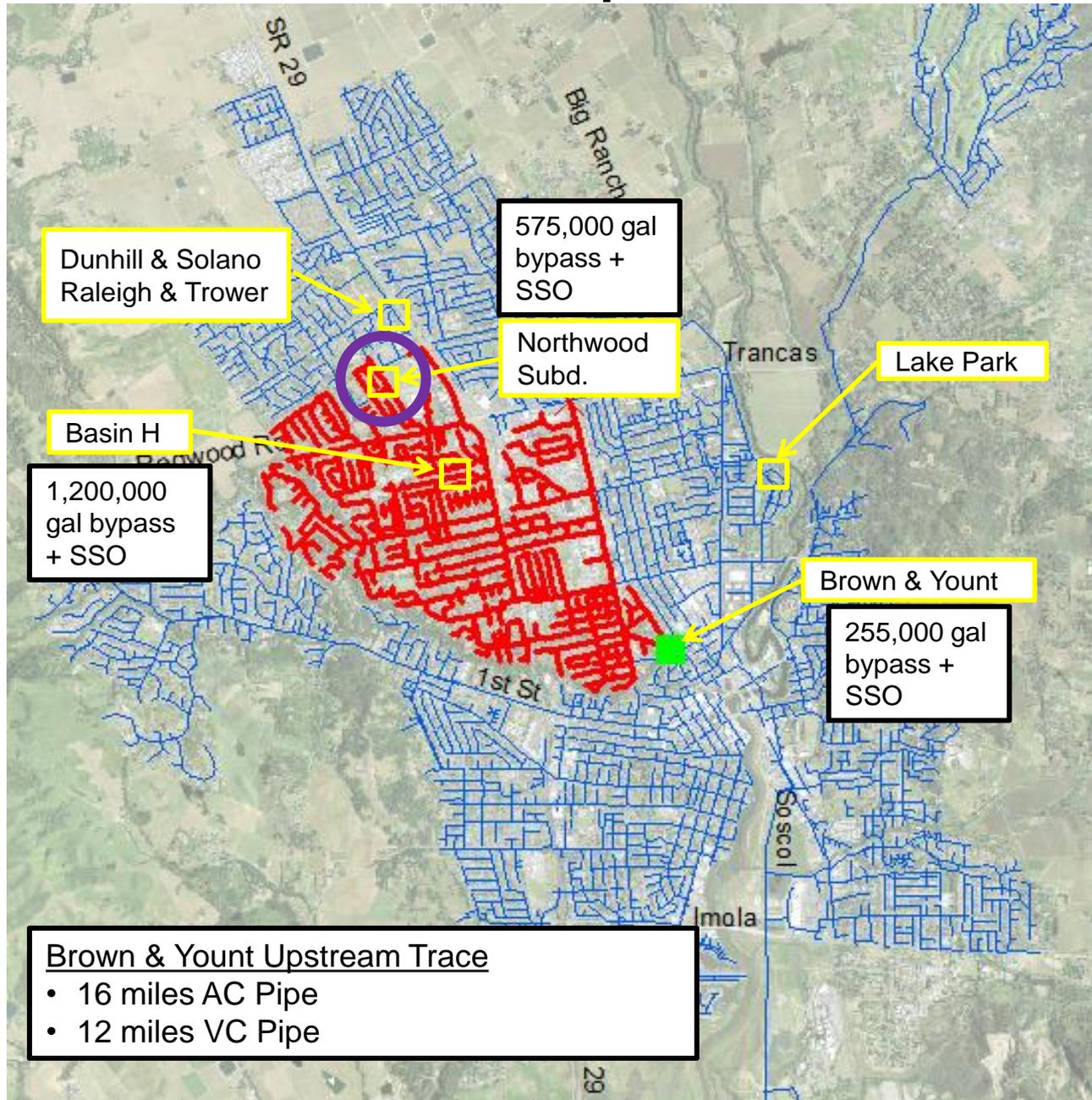
Figure 3-3. I/I Reconnaissance Summary, IJ-2- Basin 24

Jan/Feb 2017 Storm Impacts

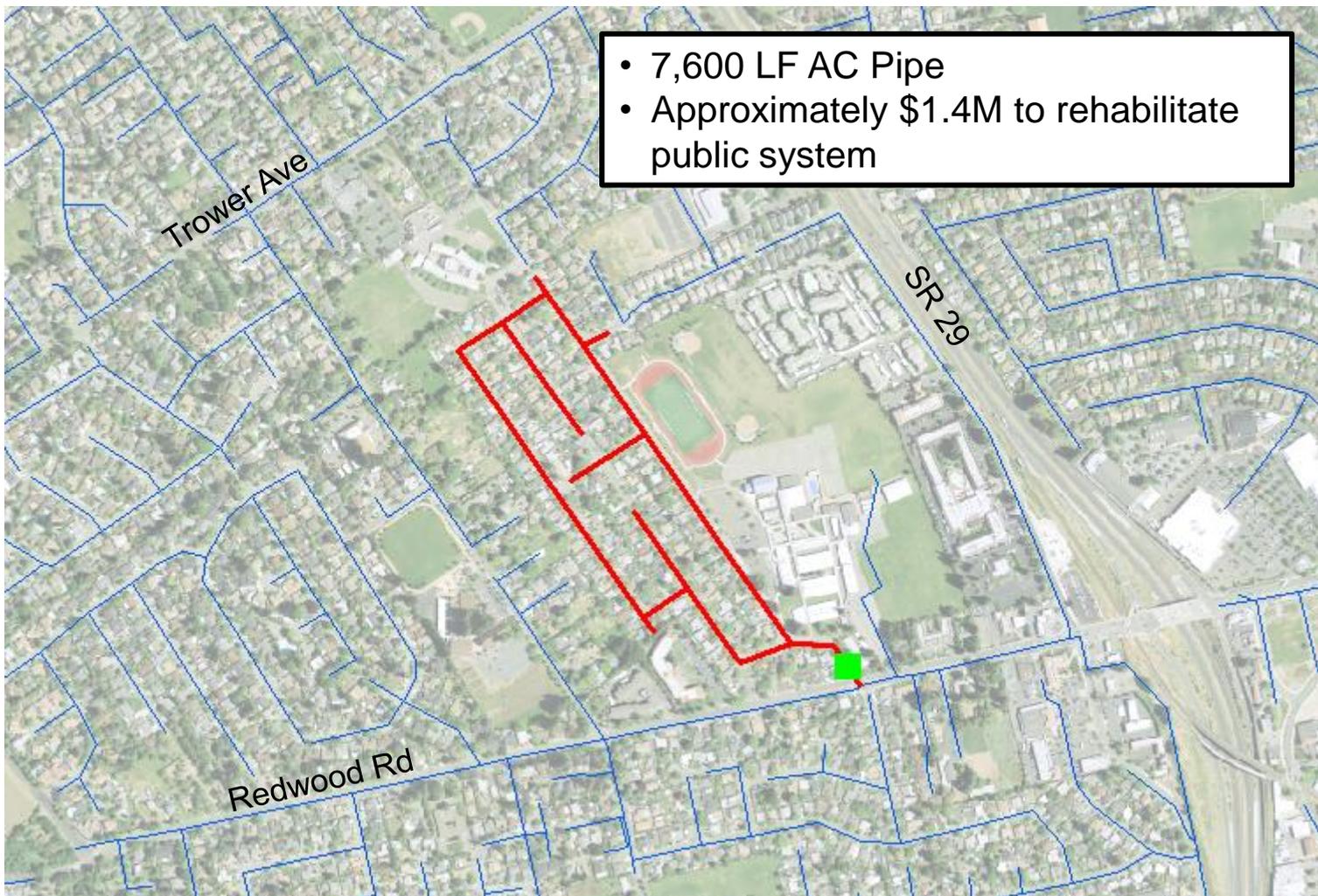




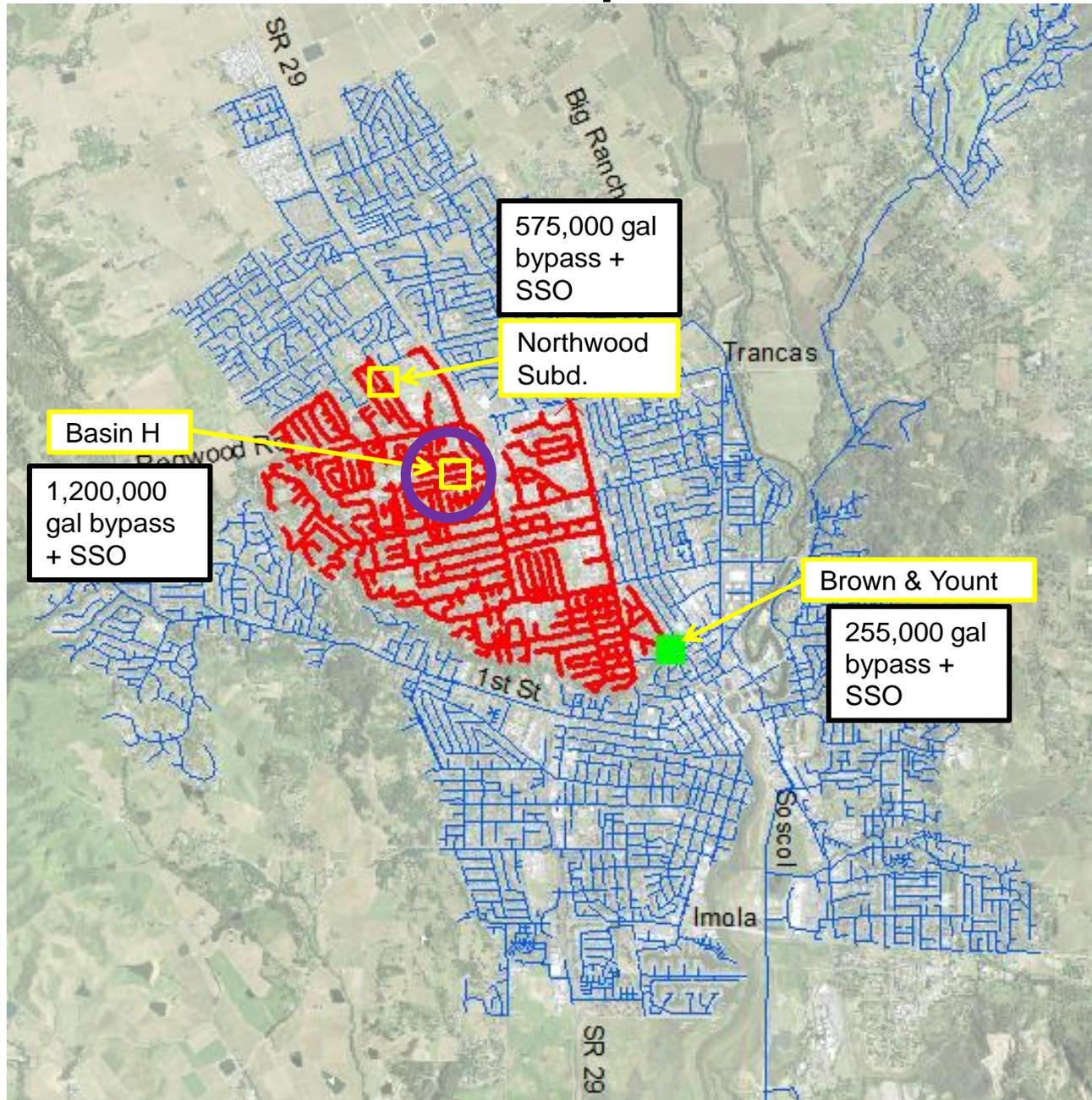
Brown & Yount Upstream Trace



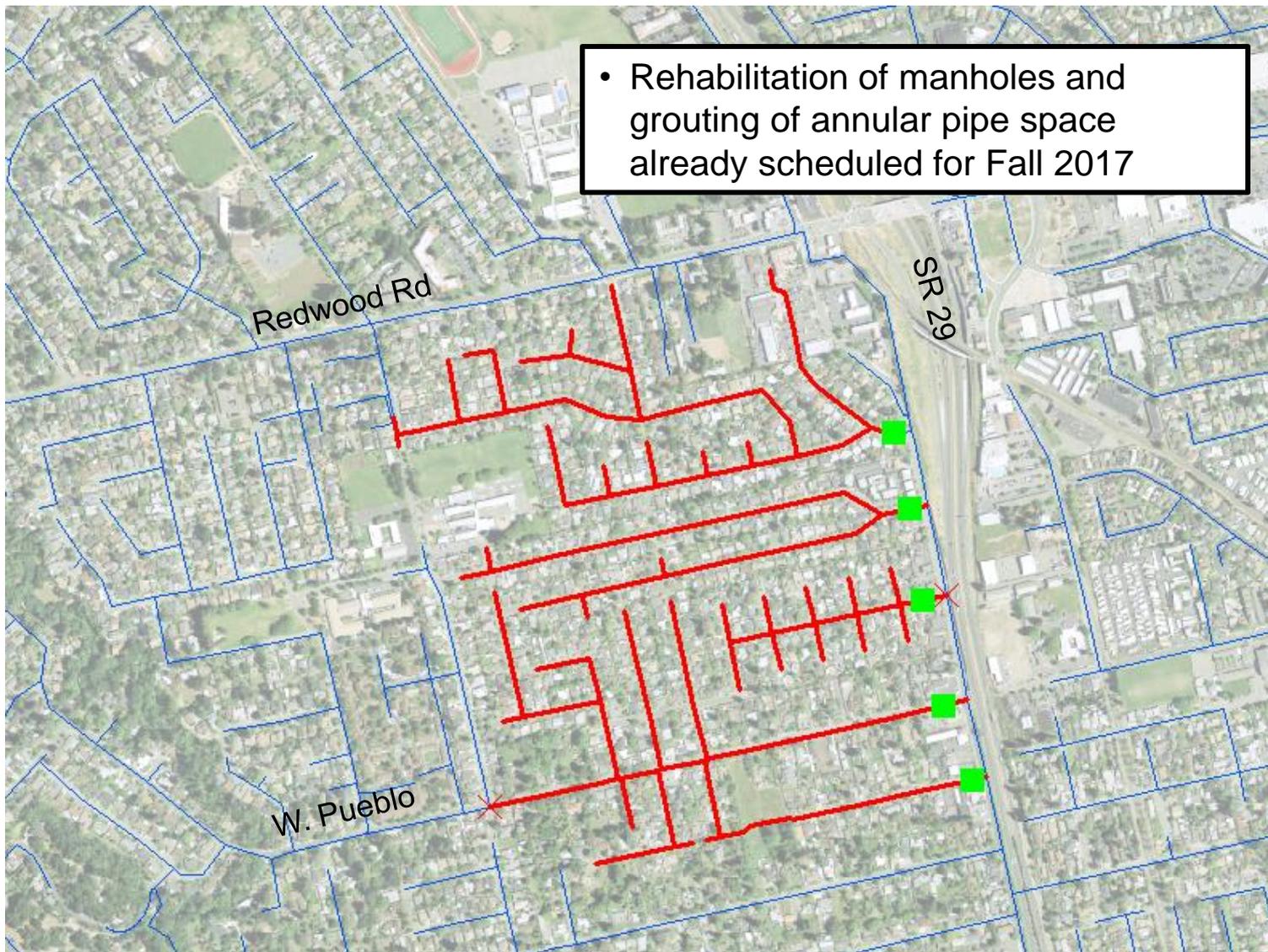
Northwood Subdivision



Brown & Yount Upstream Trace



Basin H (Nipak area)





Project Budgets

	2017	2018	2019	2020	2021
per 218 & 16/17 CIP	1.3%	1.3%	1.3%	2.0%	2.0%



Project Budgets

	2017	2018	2019	2020	2021
per 218 & 16/17 CIP	1.3%	1.3%	1.3%	2.0%	2.0%
Revised 16/17 CIP	1.8%	0.8%	1.6%	2.0%	2.0%

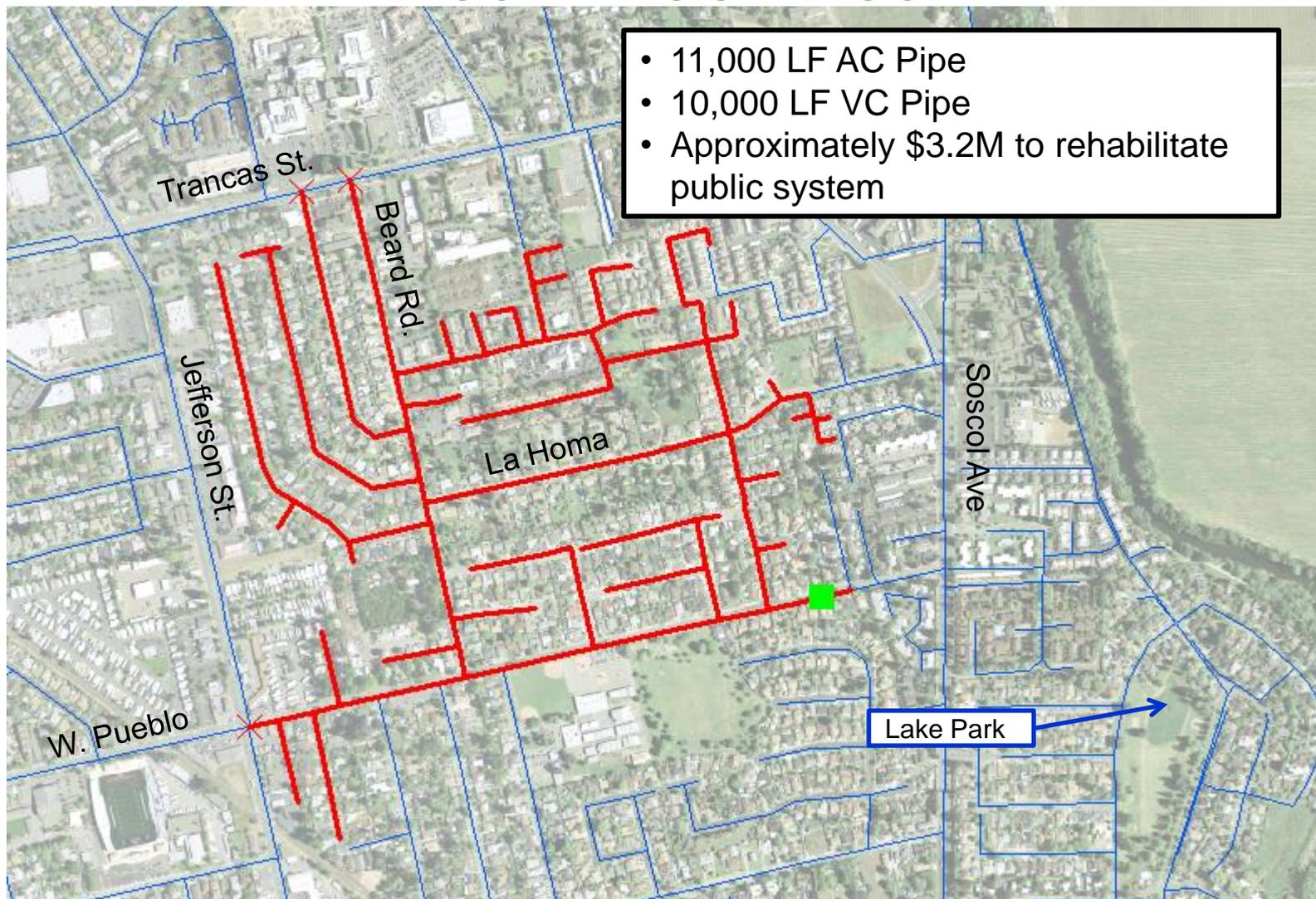


Project Budgets

	2017	2018	2019	2020	2021
per 218 & 16/17 CIP	1.3%	1.3%	1.3%	2.0%	2.0%
Revised 16/17 CIP	1.8%	0.8%	1.6%	2.0%	2.0%
% of system	2.1%	1.7%	1.6%	2.0%	2.0%
Budget	\$5.3m	\$4.6m	\$4.8m	\$6.0m	6.2m
Miles	5.7	4.0	4.3	5.4	5.4

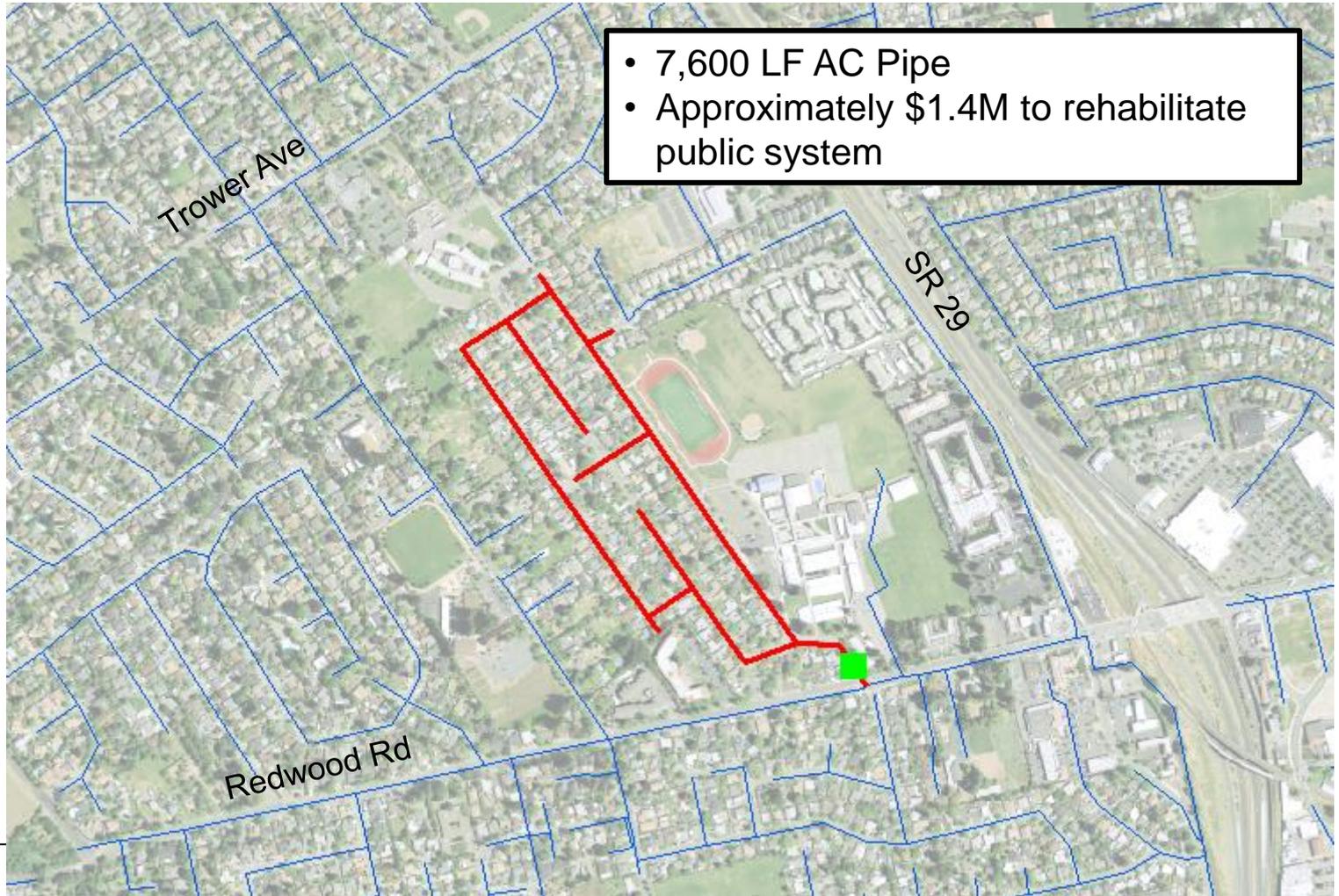
Proposed 2018 I&I Project

Pear Tree Area

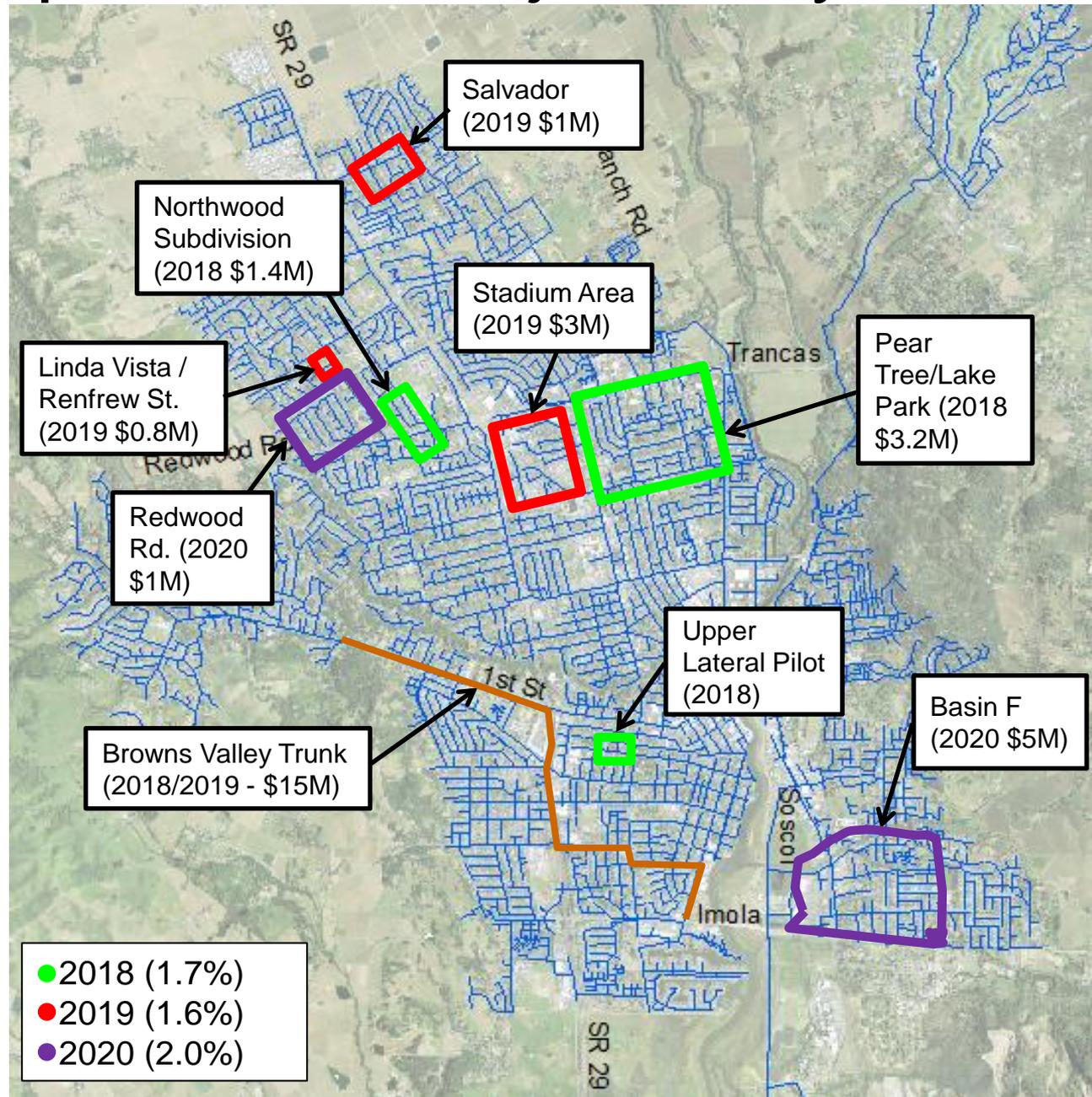


Proposed 2018 I&I Project

Northwood Subdivision



Proposed I&I Projects beyond 2017





Questions & Discussion



Extra Slides



Proposed 16/17 10-Year CIP

	2017	2018	2019	2020
Budget	\$4.7m	\$3.9m	\$4.8m	\$6.0m
Miles	3.5	3.5	4.3	5.4
% of system	1.3%	1.3%	1.6%	2.0%

Revised 16/17 10-Year CIP

	2017	2018	2019	2020
Budget	\$6.0m	\$2.6m	\$4.8m	\$6.0m
Miles	4.9	2.2	4.3	5.4
% of system	1.8%	0.8%	1.6%	2.0%

Proposed 17/18 10-Year CIP

	2017	2018	2019	2020
Budget	\$6.3m	\$4.4m	\$4.8m	\$6.0m
Miles	5.7	4.0	4.3	5.4
% of system	2.1%	1.5%	1.6%	2.0%



Planned Projects

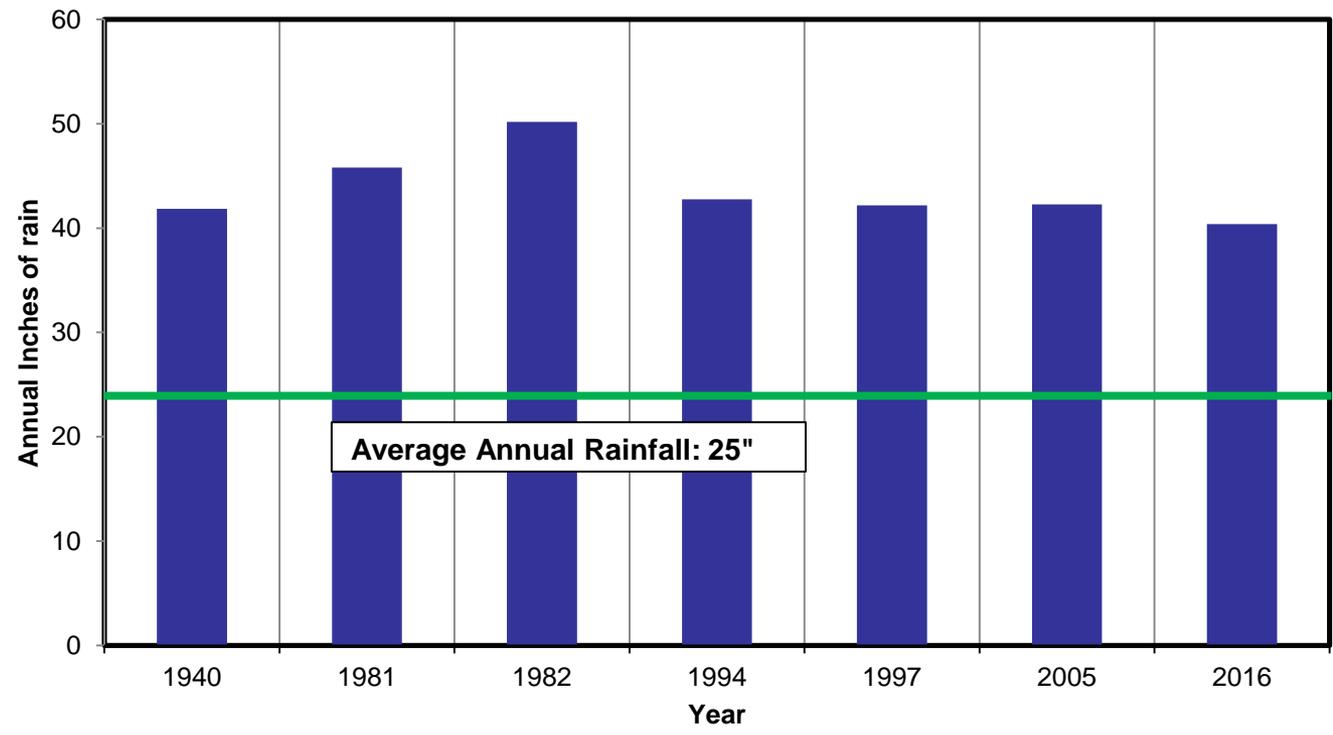
- 2017 – Large rehab project in West Napa Basin (\$5M)
- 2017 – Soscol/Sousa Trunk (\$1M)
- 2017 – Manhole rehab in Basin H (\$365k)
- 2018 – Northwood Subdivision (\$2.6M)
- 2018/19 – Browns Valley Trunk (\$15M)
- 2019/20 – Pear Tree/Lake Park (\$5.9M)
- 2020/21 – Basin F (southeast Napa) (\$6.1M)



Historical Peak Rainfall

- 2017 marks 7th largest rainfall since 1892

Historical Peak Annual Rainfall at Napa Hospital





Jan/Feb 2017 Storm Data

Location/System	SSO (gal)	Bypass (gal)	Total (gal)
West Napa	30,000	570,000	600,000
North Napa – Park/Solano/ Redwood	170,000	1,860,000	2,030,000
North Napa – Lake Park/ El Centro	330,000	230,000	560,000
Total	530,000	2,660,000	3,190,000

I'm not sure where this slide fits



R&R Project Prioritization

- Use Asset Management to prioritize R&R
 - Consequence/Probability of Failure
 - Condition Assessment/CCTV
 - Locations of SSOs
 - Frequency of Maintenance
 - Pipe failure locations
 - Flow Monitoring
 - Nighttime reconnaissance
 - Manhole inspections
 - Smoke Testing
- **R&R based on actual conditions**



Reasons to be Proactive

Emergency repairs are costly and disruptive to the community

Failures and capacity issues can lead to sewer overflows

Regional Board comments during NPDES permit approval



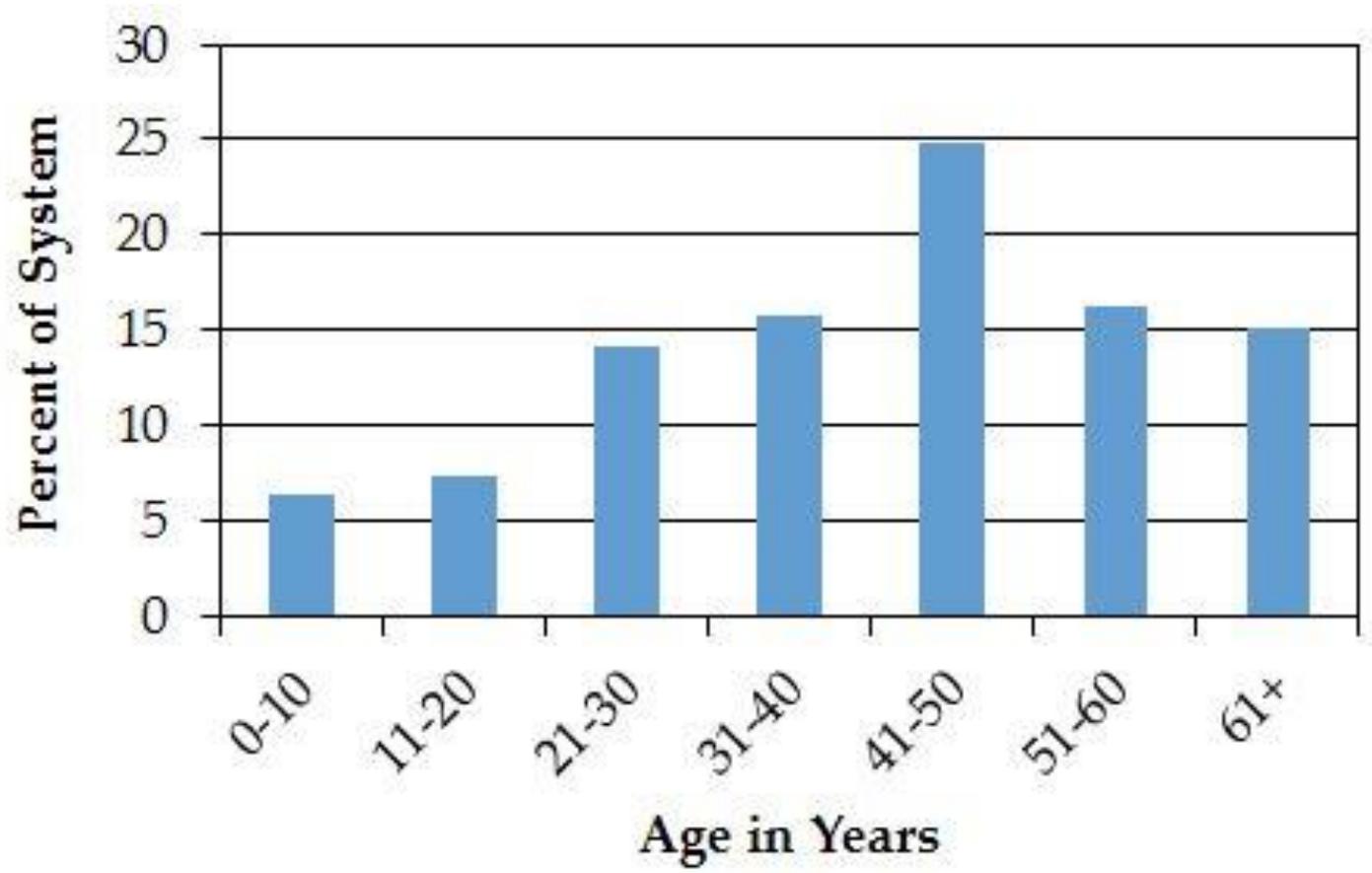
I/I Project Results

Project	Year	Miles	% of System	Peak Reduction
Upper Alphabet	2011	2.0	0.7%	53%
Basin L#1	2012	1.7	0.6%	34%
Basin L#2	2013	1.8	0.7%	11%
Basin L#3	2014	2.5	0.9%	26%
Basin L#4	2015	3.8	1.4%	41%

Total reduction in peak flow from 5 projects = 8.7 mgd



Age of Existing System





Replacement Time

- 270 miles of mainline pipe
- 1.0% of the system is 2.7 miles

- 0.8% = every 125 years
- 1.0% = every 100 years
- 2.0% = every 50 years



Benefits of Pipe Rehab

- Inflow/Infiltration (I/I) reduction
 - Decrease sanitary sewer overflows (SSO)
 - Decrease treatment costs
 - Decrease pond storage issues in winter
- Failure avoidance
 - Minimize costly emergency repairs
 - Decrease environmental impacts
 - Creeks/rivers
 - Traffic
- Avoid projects to increase collection system and treatment plant capacity



Costs: Rehab vs. Repair

Main St (2nd to 3rd)

44-years old 8" AC

Repair cost \$90,100

128 feet of open cut repair
\$636 per foot + CIPP lining

Est Rehab cost \$8,700

290 feet of CIPP
\$30 per foot

Silverado Resort

51-years old 6" AC

Repair cost \$81,000

100 feet of open cut repair
\$370 per foot + alignment change

Est Rehab cost \$12,740

260 feet of CIPP
\$49 per foot



Recent Repair Costs

Jefferson St (near Old Sonoma) 64-years old Clay

Repair cost \$34,300 Open cut of 2 laterals

Est Rehab cost \$3,620 2 lateral rehab CIPP
\$1,820 each

3rd Street (East of Jefferson) 60-years old 8" Clay

Repair cost \$15-20k Open cut repair
Issues with old rail car tracks
Recently paved street

Est Rehab cost \$2,000 Spot liner
\$2,000 each