

# East Port Orchard Regional Stormwater Drainage Study

Public Meeting

November 16, 2004

**R·W·BECK**

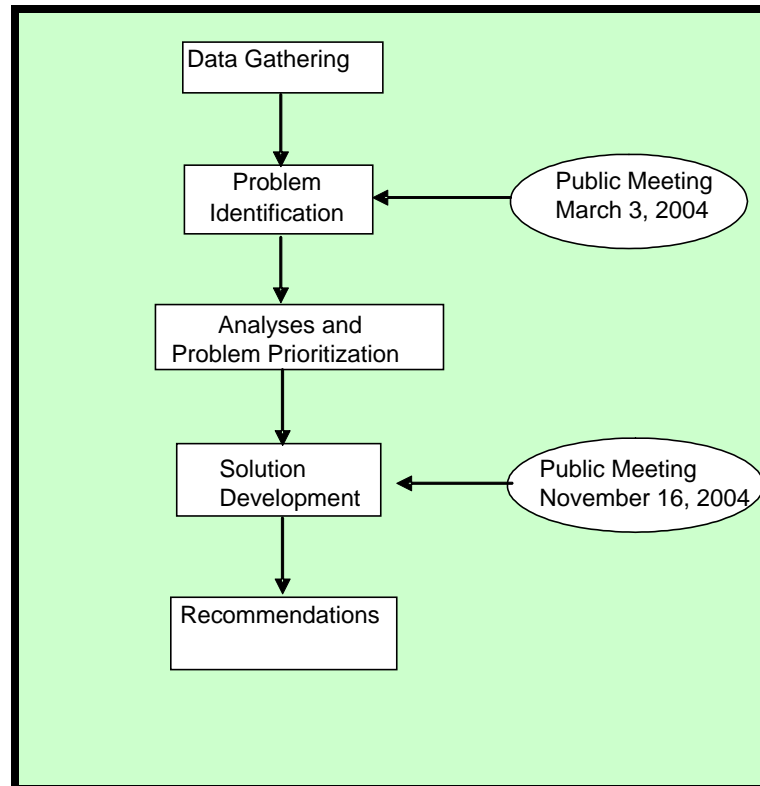
# Purpose of Tonight's Meeting

- Provide an overview of the project
- Describe what we have learned to date concerning problems and proposed solutions

# Purpose of Study

- Identify the location and nature of existing drainage problems in the basin
- Determine solutions for the most significant problems
- Provide recommendations that will be implemented through the Kitsap County Surface and Stormwater Management Program's Capital Facility Plan

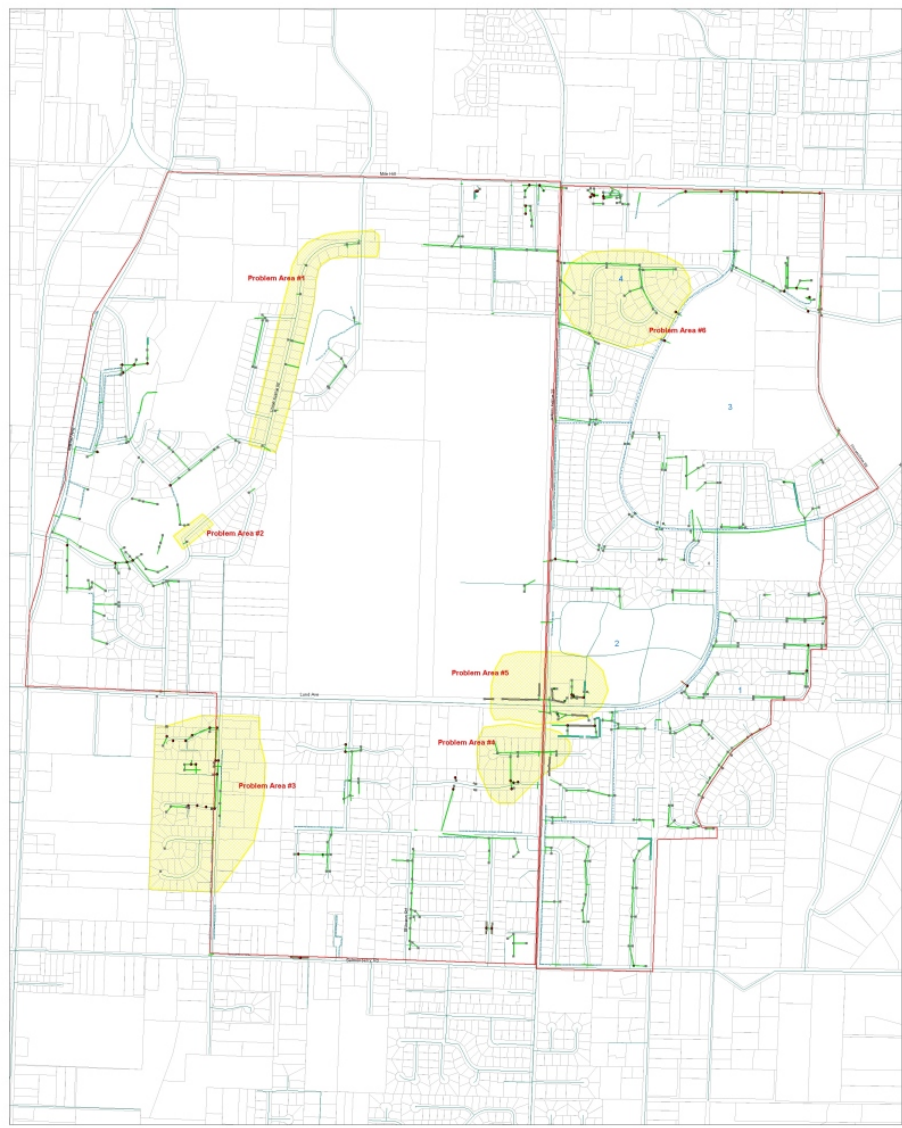
# Drainage Study Process



# Problem Prioritization

- 37 flooding problems were identified
- Problems prioritized based on:
  - Compliance with federal and state regulations
  - Threat to public safety, health, and welfare
  - Potential to damage property or impact public facilities
  - Effects on water quality
- Scores 0 to 95
- The six problems with scores of 90 or better were selected for solution development

# Priority Problems



- EPO Basin Study**
- Problem Areas - RW Beck 11-2004
  - CB 1
  - CB 2
  - CMH
  - OWS
  - OWS 1
  - OWS 2
  - TIDE GATE
  - VAULT
  - Cross Culvert
  - Open Ditch
  - Closed Conveyance
  - Bio-Swale
  - Infiltration Trench



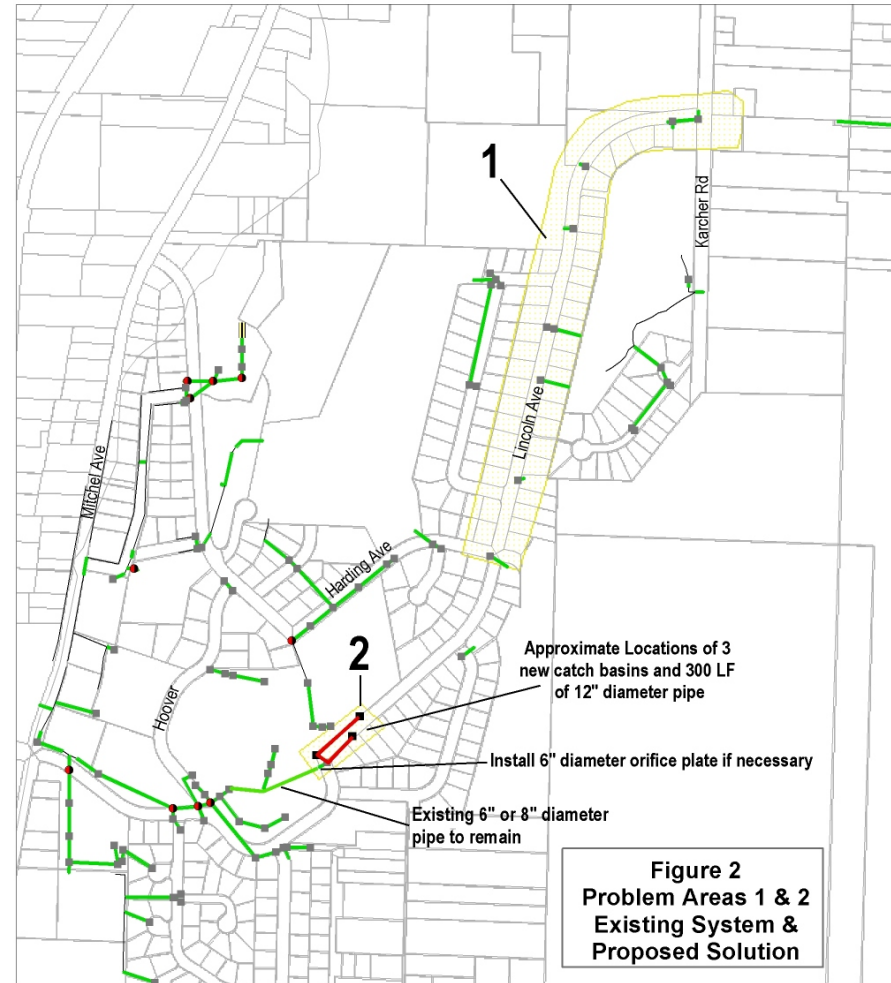
# Steps in the Process

1. Characterize individual components of drainage system
2. Determine capacities and compare predicted flooding frequencies against observations
3. Design improvements involving part or all of drainage system

# #1 - Lincoln Ave

- Problem Description

- Catch basin grates below roadway elevation
- Property, roadway, and driveway flooding reported



**EPO Basin Summary**

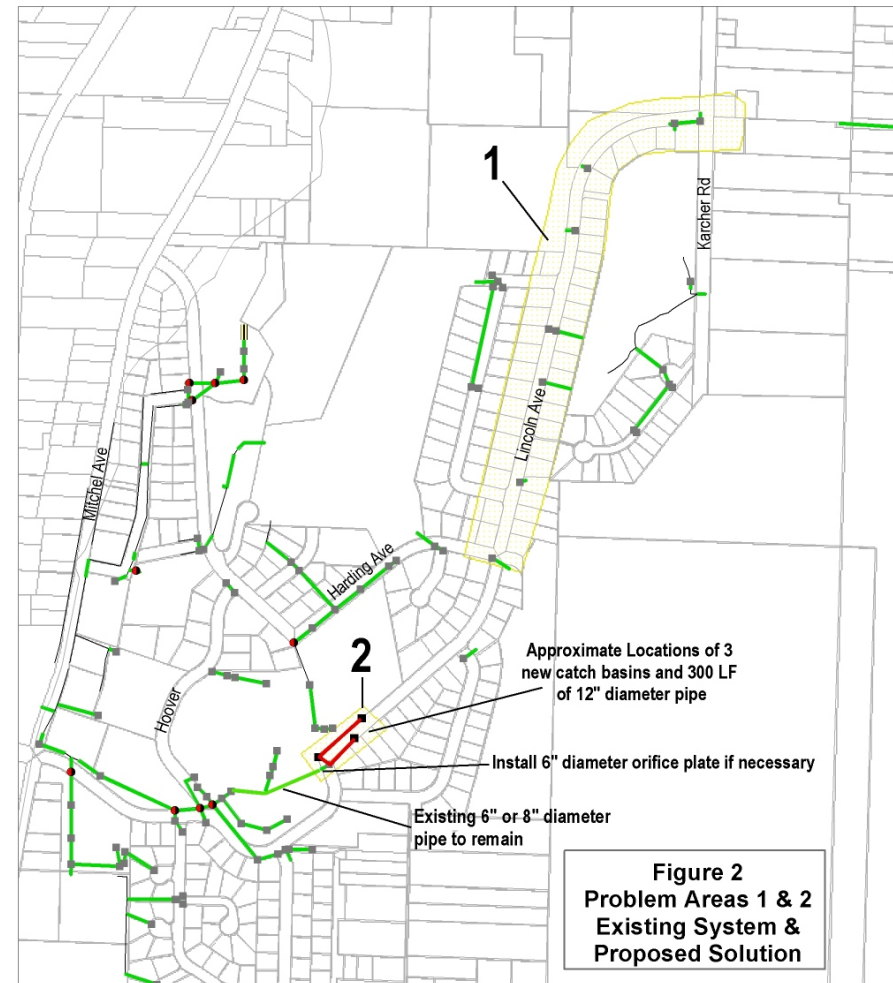
• CB 1	• OWS	▲ TIDE GATE	— DITCH	— TRENCH
• CB 2	• OWS 1	■ VAULT	— PIPE	— SWALE
• CM4	• OWS 2	— CULVERT	— SWALE	

Problem Areas - R/W Back 11/2004



# #1 - Lincoln Ave

- Problem Assessment
  - Gutters and catch basin grates have adequate capacity
  - No flooding at Karcher/Lincoln since rain on snow event



**EPO Basin Summary**

• CB 1	• OWS	▲ TIDE GATE	— DITCH	— TRENCH
• CB 2	• OWS 1	■ VAULT	— PIPE	— Problem Areas - FY11 Back 11-2004
• CM4	• OWS 2	— CULVERT	— SWALE	

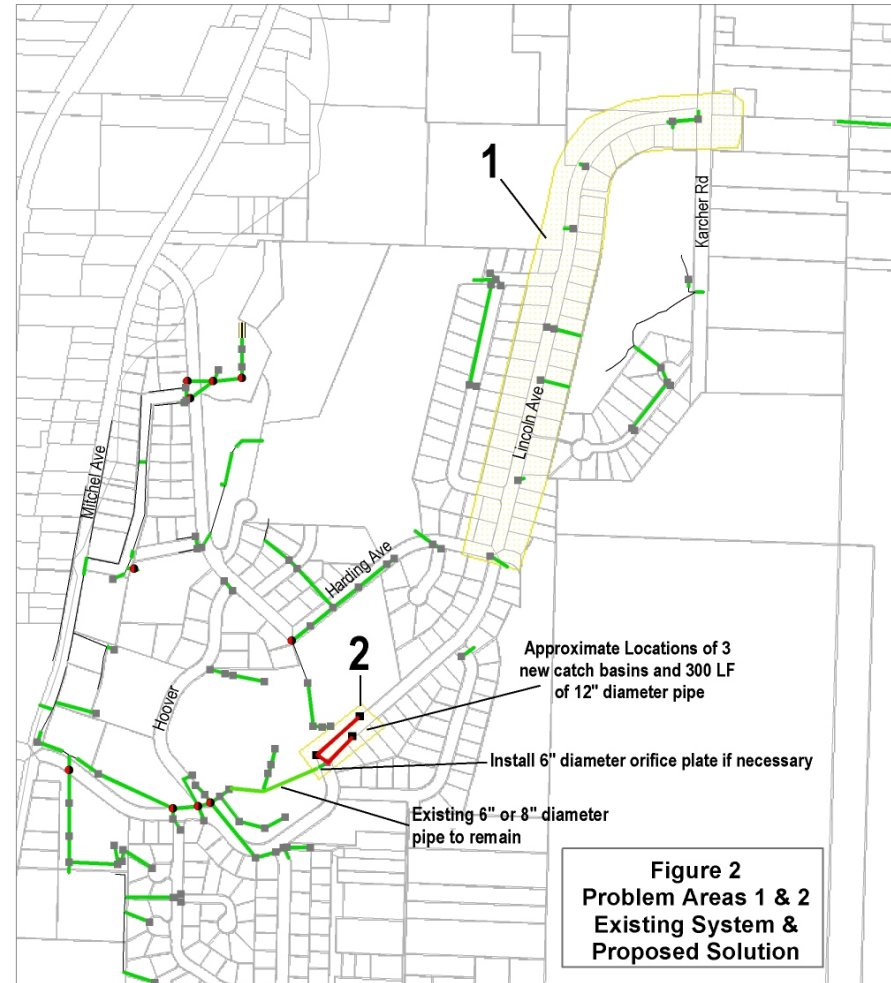


# #1 - Lincoln Ave

## ● Solution

- Traffic safety issue more than drainage issue; grind pavement as part of future roadway project
- Inspect storm drain lines to verify condition and need for maintenance

East Port Orchard Basin Plan  
Priority Problem Areas and  
Proposed Capital Improvement Projects



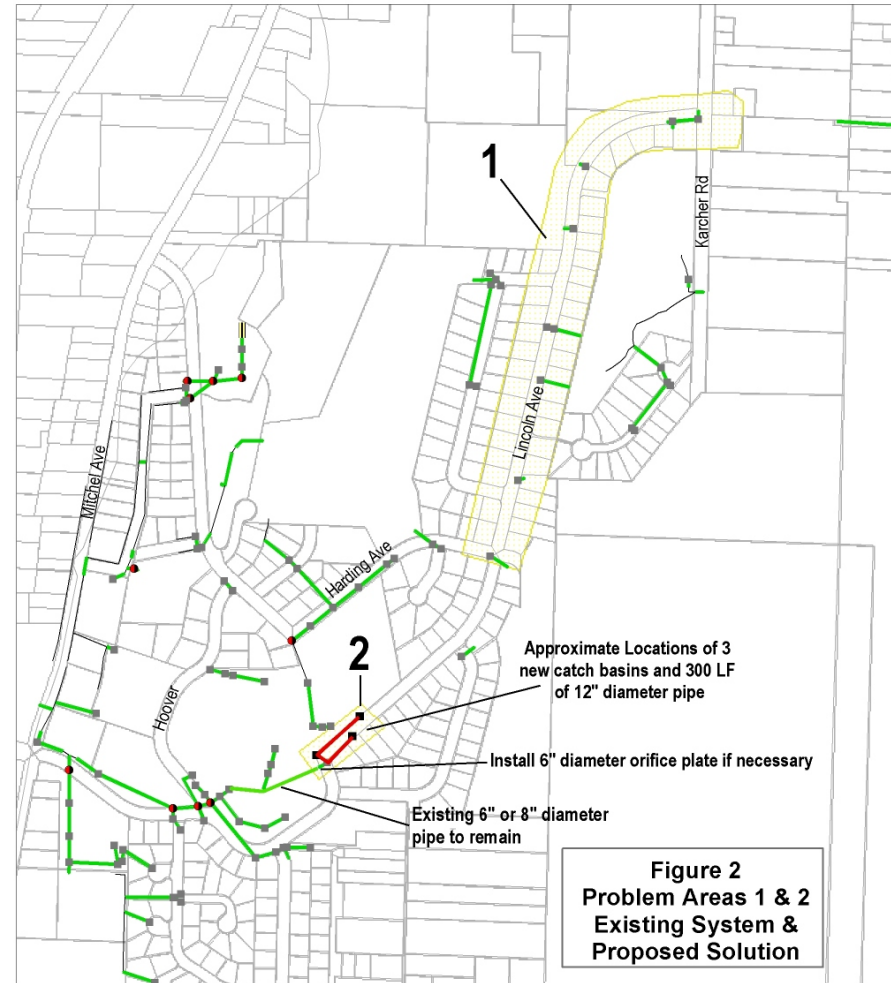
### EPO Basin Summary

• CB 1	• OWS	▲ TIDE GATE	— DITCH	— TRENCH
• CB 2	• OWS 1	■ VAULT	— PIPE	— Problem Areas - FY Back 11-2004
• CM4	• OWS 2	— CULVERT	— SWALE	

# #2 - Lincoln Ave near McKinley PI

- Problem Description
  - Reported flooding of roadway at school bus stop
  - Backyard flooding reported

East Port Orchard Basin Plan  
Priority Problem Areas and  
Proposed Capital Improvement Projects

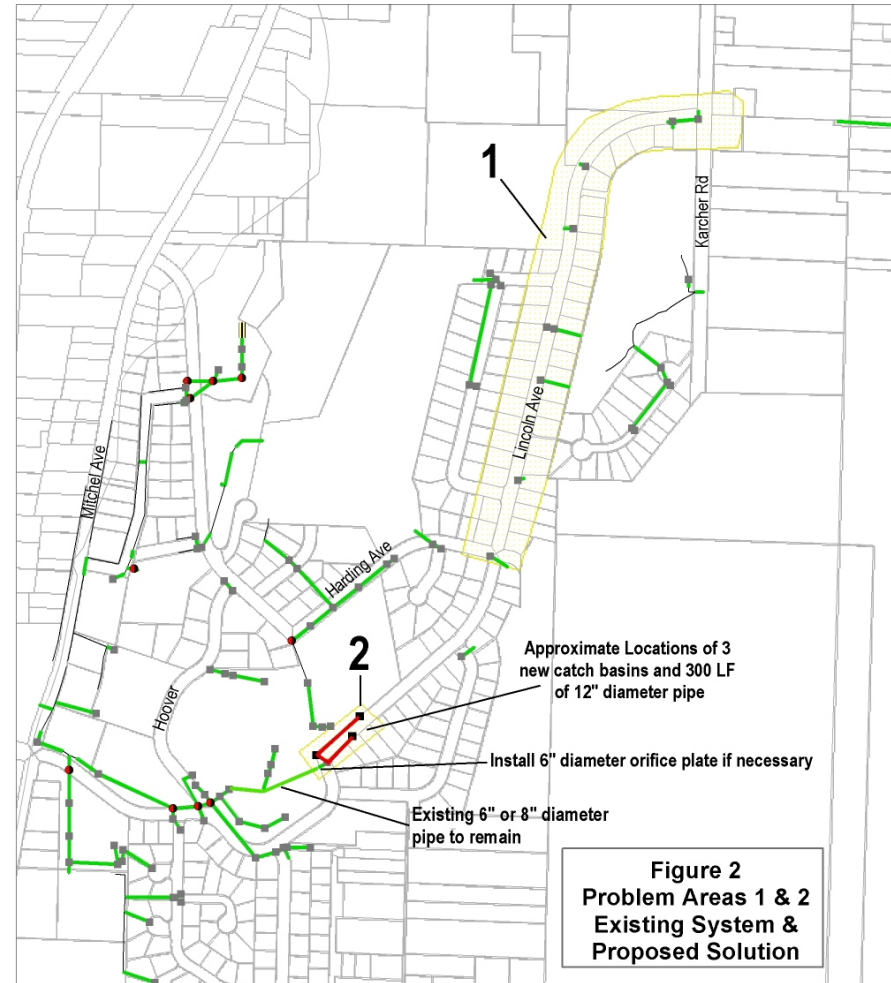


**EPO Basin Summary**

• CB 1	• OWS	▲ TIDE GATE	— DITCH	— TRENCH
• CB 2	• OWS 1	■ VALLT	— PIPE	— Problem Areas - R/W Back 11/2004
• CM4	• OWS 2	— CULVERT	— SWALE	

# #2 - Lincoln Ave near McKinley PI

- Problem Assessment
  - Limited inlet and gutter capacity



**Figure 2**  
Problem Areas 1 & 2  
Existing System &  
Proposed Solution

**EPO Basin Summary**

• CB 1	• OWS	▲ TIDE GATE	— DITCH	— TRENCH
• CB 2	• OWS 1	■ VALLT	— PIPE	— SWALE
• CM4	• OWS 2	— CULVERT	— SWALE	

Problem Areas - RYR Back 11/2004

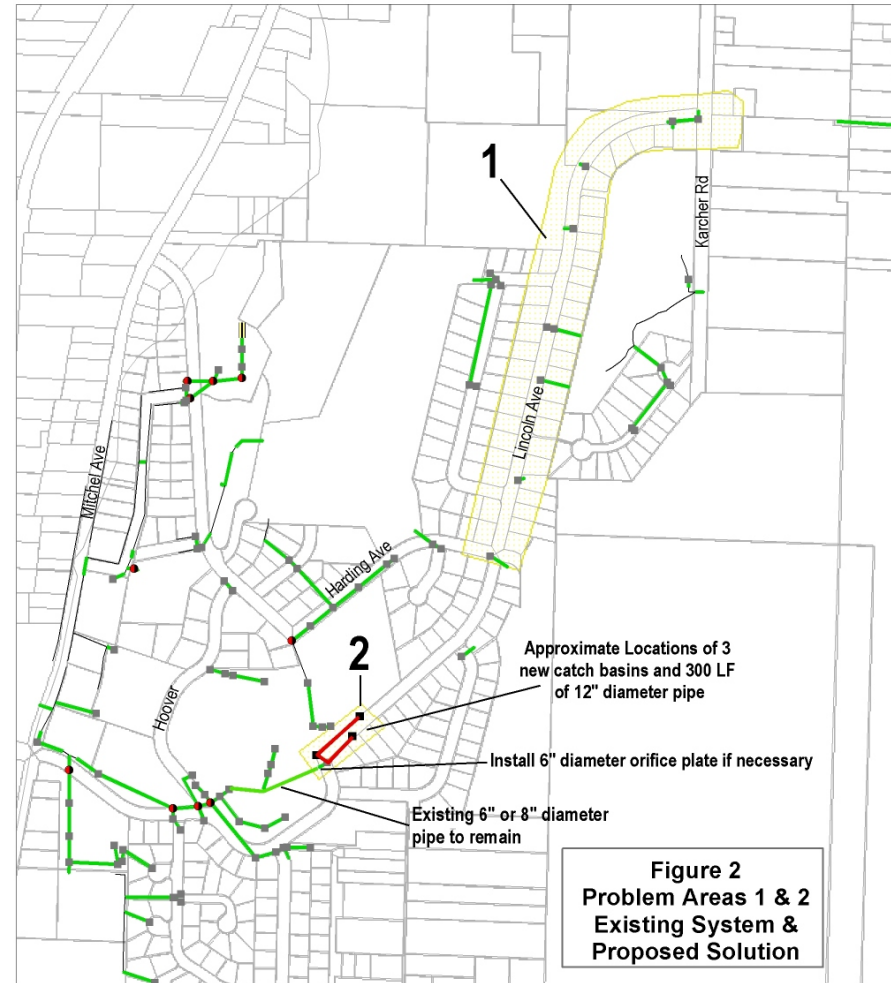


# #2 - Lincoln Ave near McKinley PI

## ● Solution

- Add three new catch basins and replace existing catch basin and tie into drainage beneath parking lot

East Port Orchard Basin Plan  
Priority Problem Areas and  
Proposed Capital Improvement Projects



### EPO Basin Summary

• CB 1	• OWS	▲ TIDE GATE	— DITCH	— TRENCH
• CB 2	• OWS 1	■ VAULT	— PIPE	— Problem Areas - R/W Back 11/2004
• CM4	• OWS 2	— CULVERT	— SWALE	

# #3 – Harris Road

- Problem Description
  - Property and roadway flooding reported

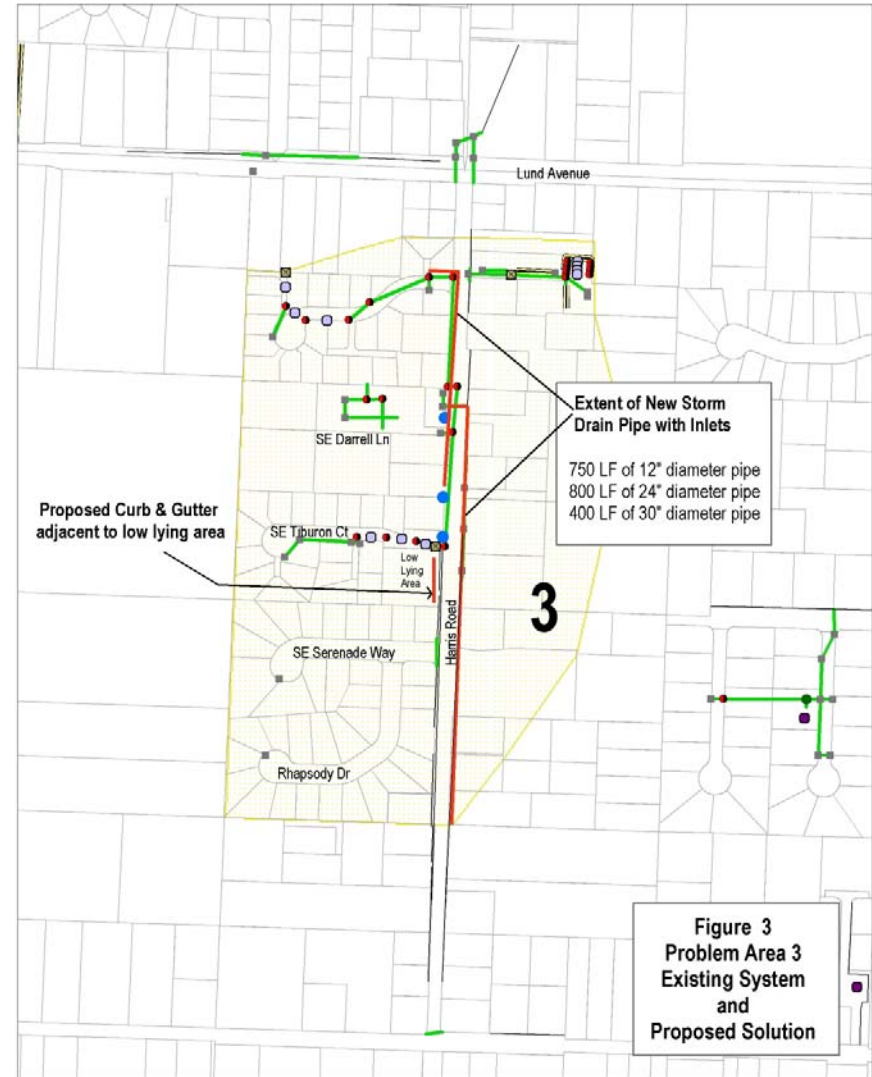


Figure 3  
 Problem Area 3  
 Existing System  
 and  
 Proposed Solution

EPO Basin Summary

Problem Areas - RW Beck 11-2004	DETENTION	CB 1	OWS 2	DITCH
POSP	CB 2	TIDE GATE	PIPE	SWALE
RETENTION	CMH	VAULT	CULVERT	TRENCH
TANK	OWS	OWS 1		



# #3 – Harris Road

- Problem Assessment
  - Closed depressions (no outlet for runoff)
  - Informal drainage system or lack thereof
  - Inadequate capacity of some existing ditches, culverts, storm drains

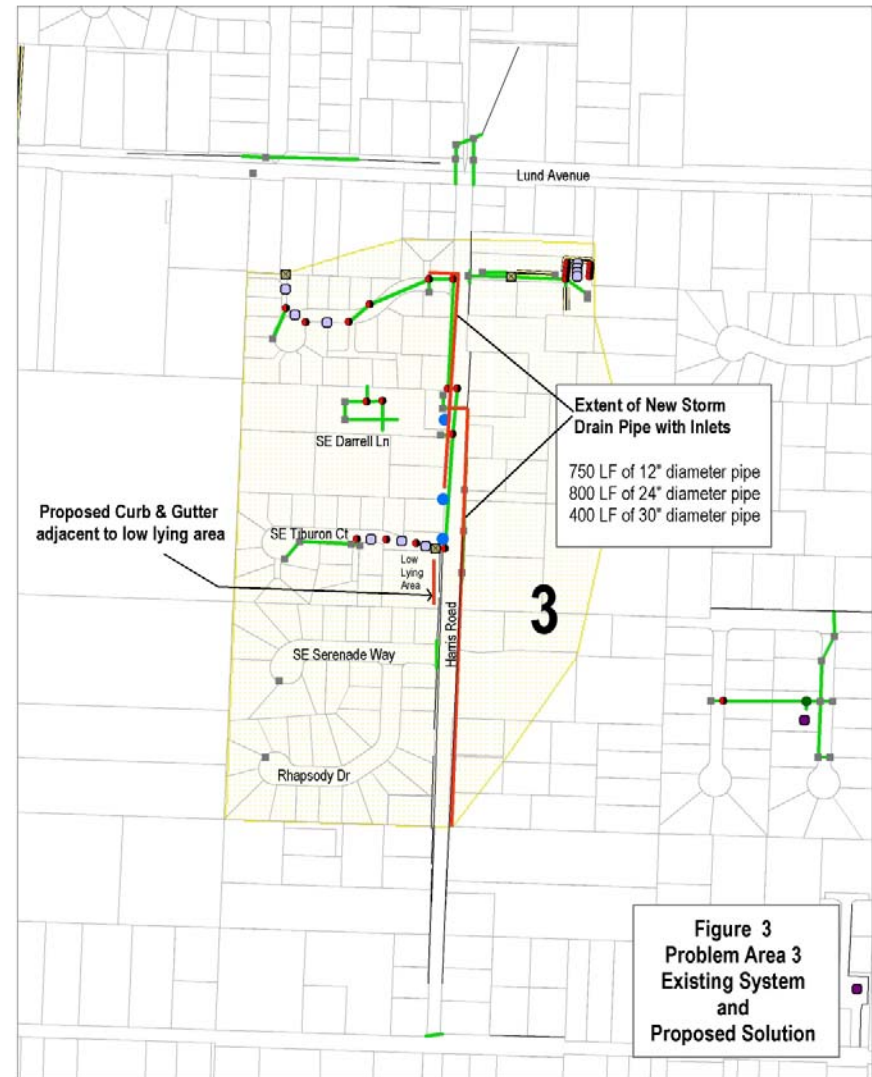
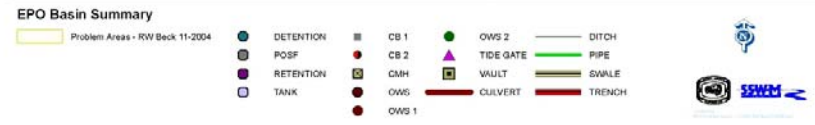


Figure 3  
 Problem Area 3  
 Existing System  
 and  
 Proposed Solution



# #3 – Harris Road

- Solution
  - New storm drain system
  - Curb and gutter adjacent to low-lying area (to collect and convey runoff)

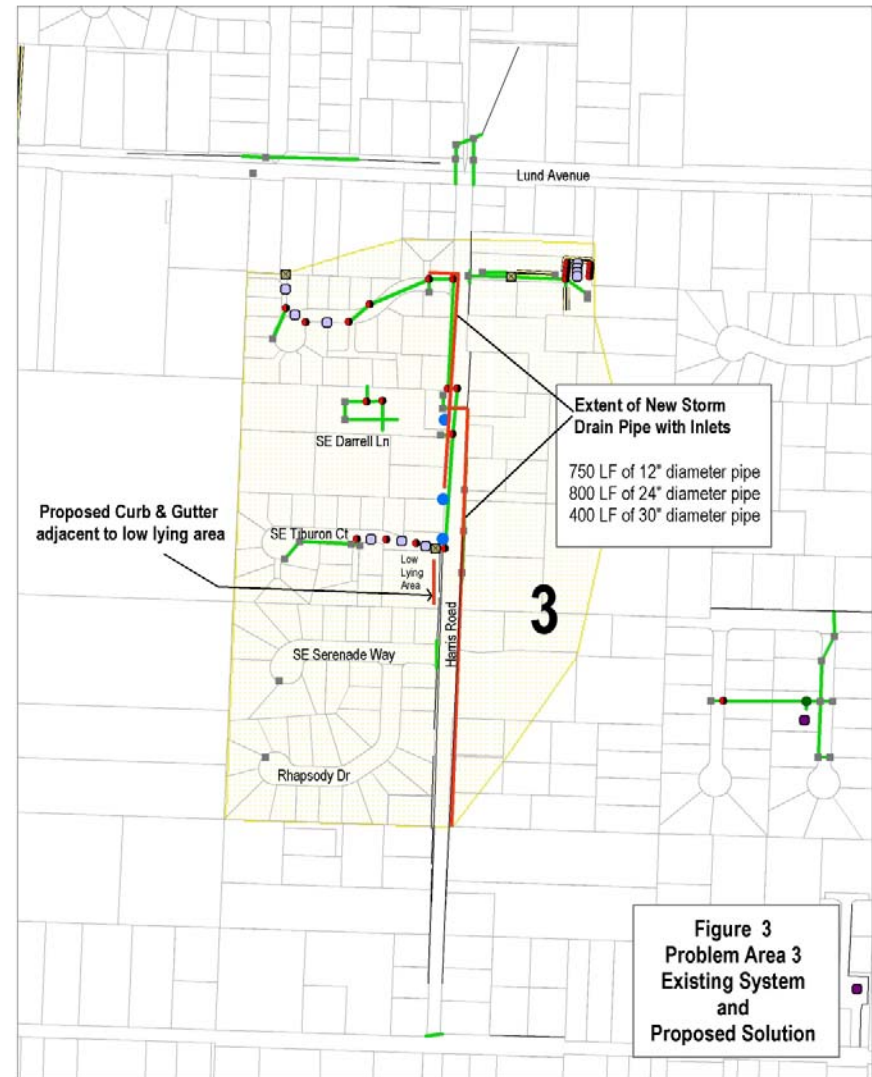
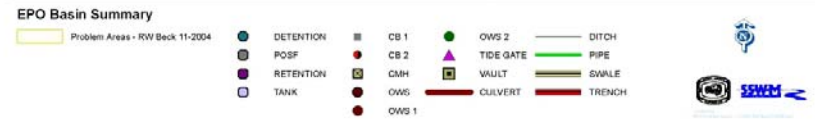


Figure 3  
 Problem Area 3  
 Existing System  
 and  
 Proposed Solution



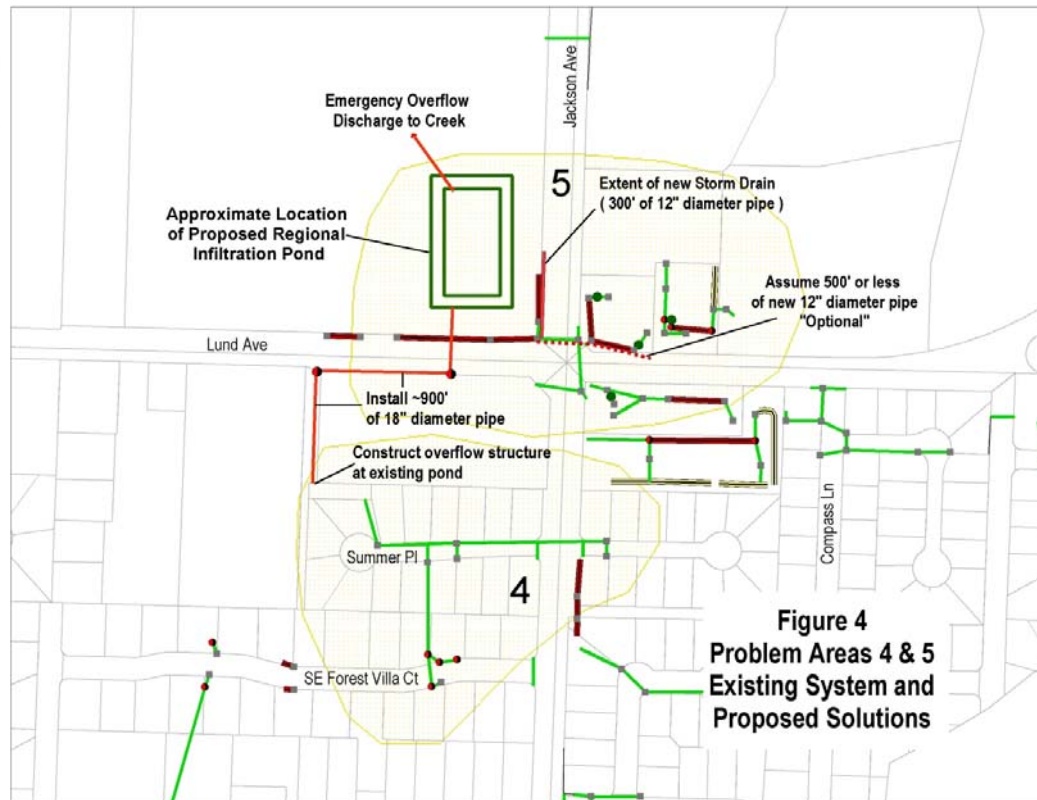
# #4 – Forest Villa Ct

- Problem Description – Street and yard flooding reported

East Port Orchard Basin Plan  
Priority Problem Areas and  
Proposed  
Capital Improvement Projects



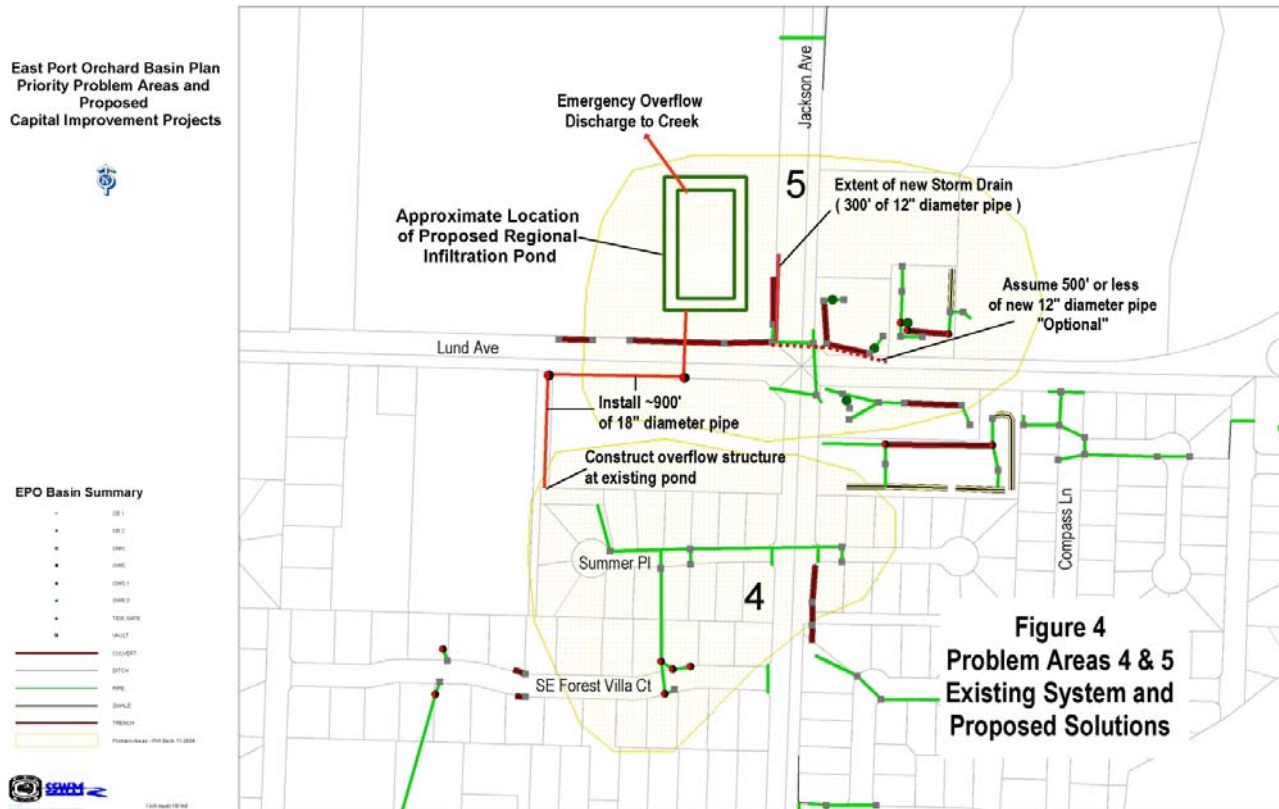
EPO Basin Summary





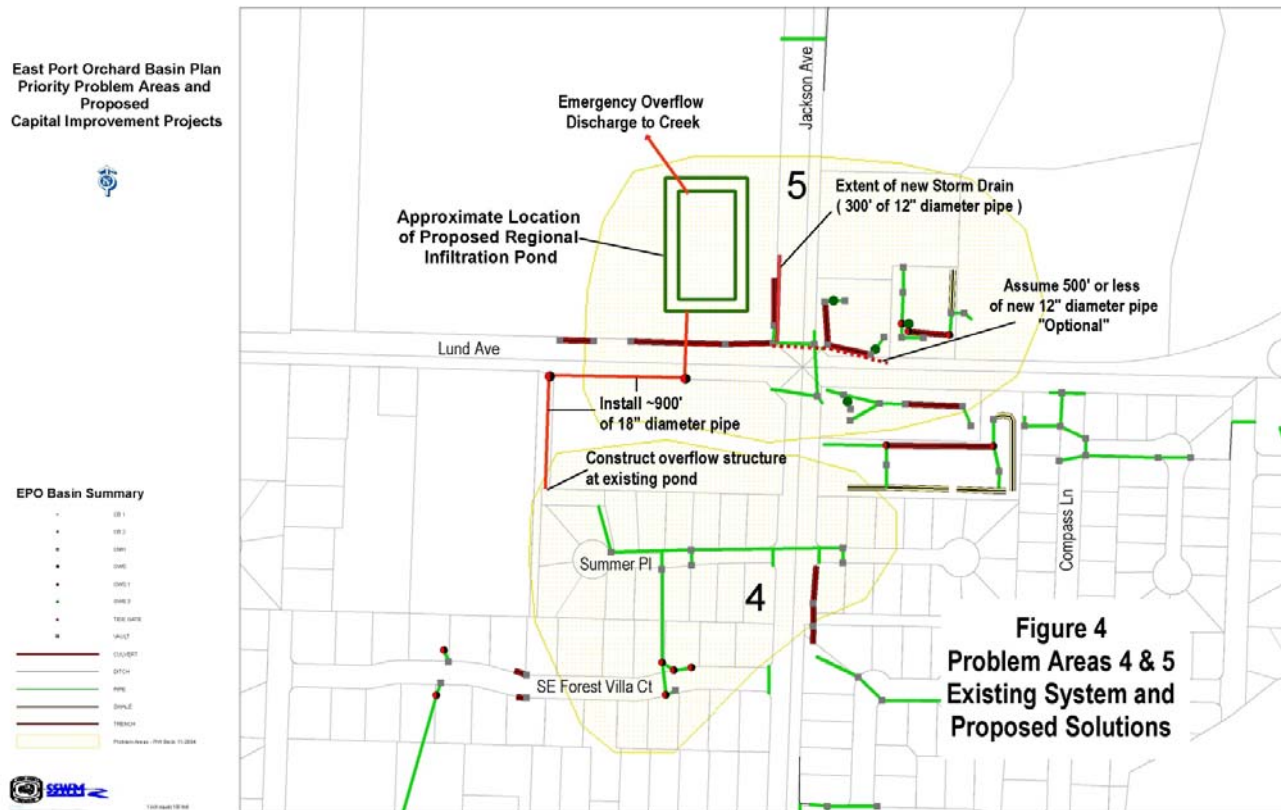
# #4 – Forest Villa Ct

- Solution – Regional infiltration pond



# #5 – Jackson/Lund

- Problem Description – Road and parking lot flooding





# #5 – Jackson/Lund

- Solution
  - Regional infiltration pond as in solution to #4
  - Local storm drain improvements as necessary

East Port Orchard Basin Plan  
Priority Problem Areas and  
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Capital Improvement Projects



EPO Basin Summary

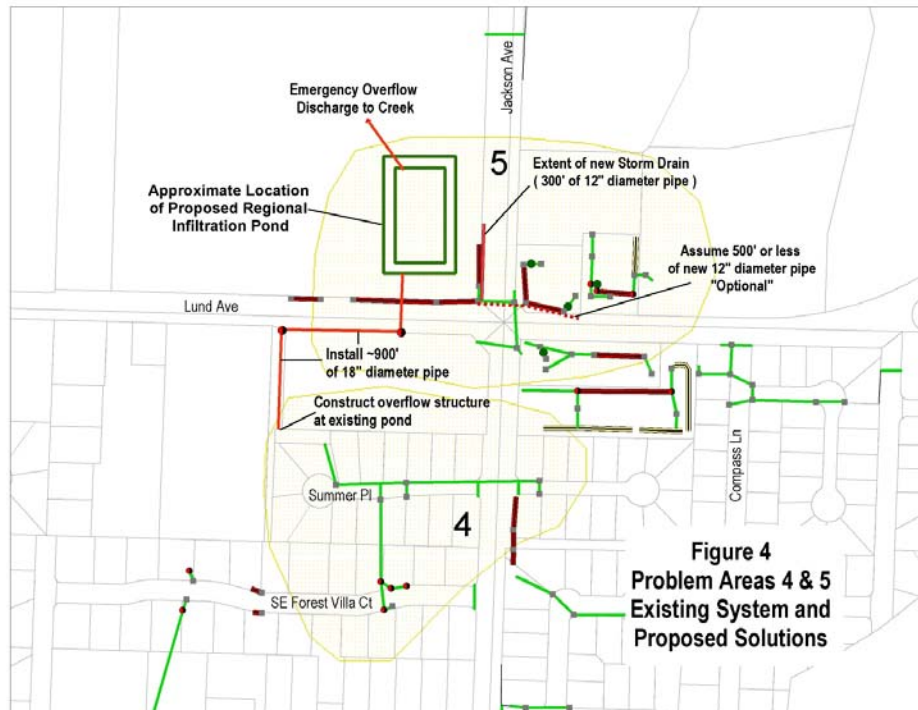


Figure 4  
Problem Areas 4 & 5  
Existing System and  
Proposed Solutions

# #6 – Pine Tree Drive

- Problem Description – Street and yard flooding



# #6 – Pine Tree Drive

- Problem Assessment

- Most pipes have adequate capacity for 10-year event
- A few pipes appear undersized although reported flooding is more frequent than limited pipe capacity would indicate





# Summary of Recommended Solutions and Preliminary Cost Estimates

<i>Problem Area</i>	<i>Proposed Solution</i>	<i>Estimated Cost</i>
1*	Lincoln Avenue SE	NA
2	Lincoln Avenue SE 100 feet north of McKinley Place SE – Drainage Improvements	\$76,000
3	Harris Road SE south of SE Lund Ave - Drainage Improvements	\$693,000
4	SE Forest Villa Court – Regional Pond at Jackson Ave SE and SE Lund Ave and Drainage Improvements	\$644,000
5	Jackson Ave SE and SE Lund Ave Intersection – Drainage Improvements	\$122,000
6	SE Pine Tree Drive at SE Juniper Court and Sequoia Street SE – Drainage Improvements	\$180,000
	Total:	\$1,715,000

\*No capital improvement project recommended at this time.

# Next Steps

