

**Presentation at  
Salem City Council Public Hearing  
August 12, 2002**

***Draft Willow Lake WWTP Facilities Plan***

**By:**

**Public Works Department**

**In Association with:**



**&**



# Our Purpose This Evening



- Present to you:
  - ◆ Summary of the recommended solution
  - ◆ Implementation plan
  - ◆ Permitting strategy
  - ◆ Financing strategy



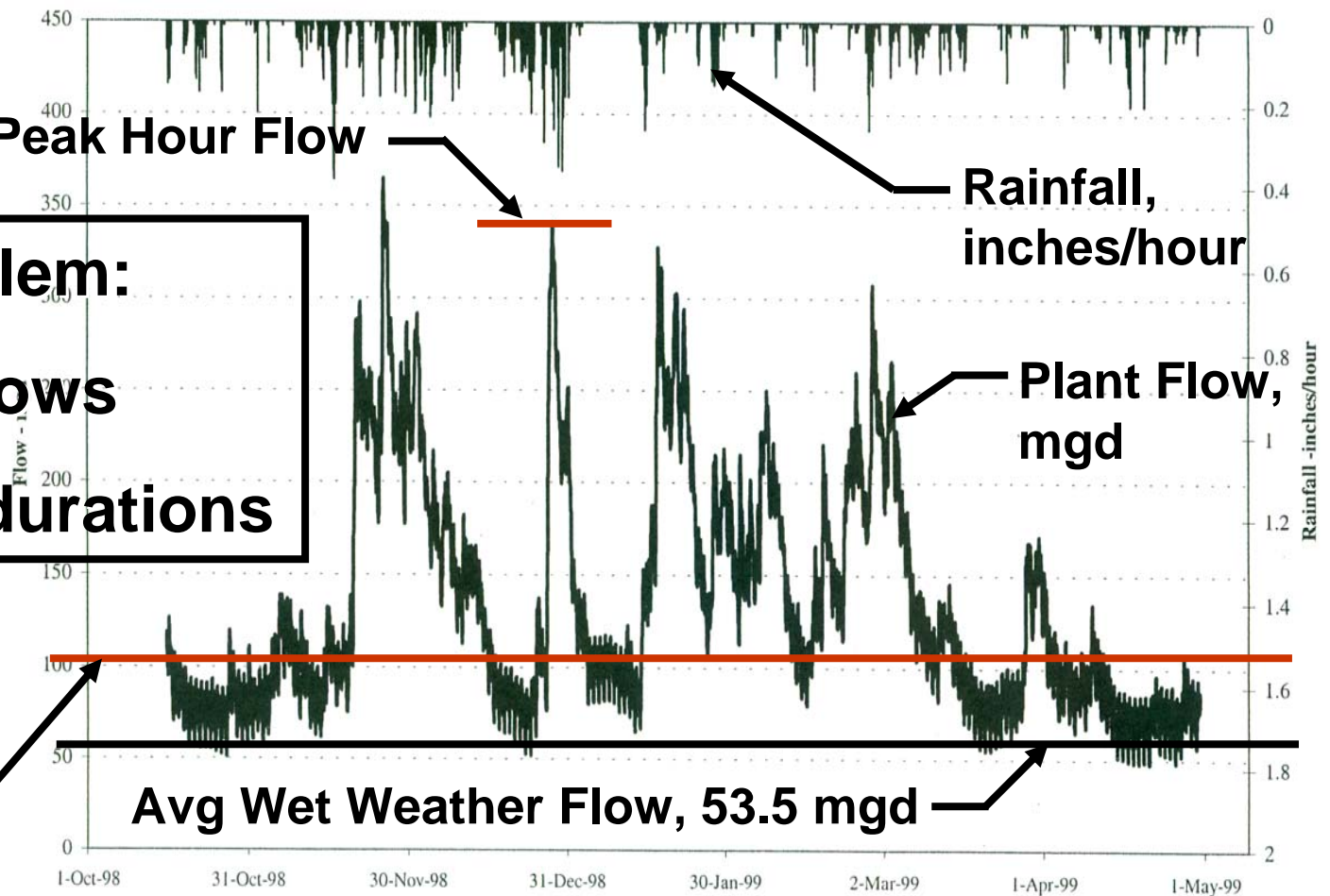
# Introductions

- ◆ Tim Gerling, Public Works Director
- ◆ Paul Eckley, Operations Services Manager
- ◆ Francis Kessler, Wastewater Services Manager
- ◆ Randy Krueger, Project Director, Black & Veatch



# SSO Peak Characteristics

Figure 1: Total Flow 5-yr Monthly Rainfall



315 MGD Peak Hour Flow

## Keys for Salem:

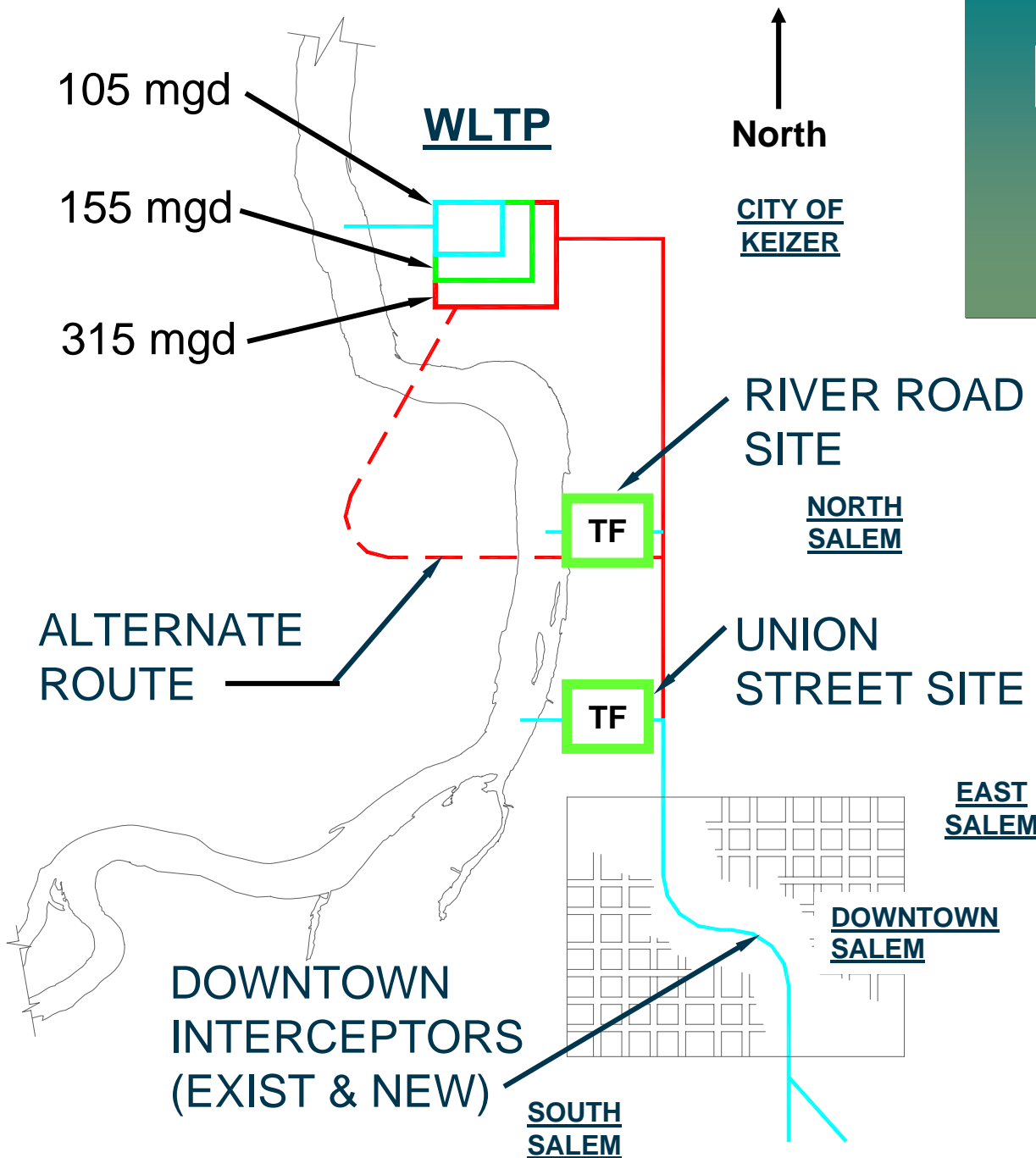
- High flows
- Short durations

WWTP P.S.  
Capacity,  
105 mgd

# History Regarding Planning and Mutual Agreement and Order (MAO) Requirements

- ◆ 1996 Salem Wastewater Management Plan
- ◆ 1998 Salem and DEQ Negotiate MAO
- ◆ 1996 Salem Wastewater Management Plan
- ◆ MAO Requirements:
  - ✓ By 2000 – Known Storm Overflows to Tributaries Eliminated (completed)
  - ✓ By 2005 – Newly Discovered Design Storm Overflows to Tributaries Eliminated
  - ✓ By 2010 – All Design Storm Overflows Eliminated
- ◆ Current Facilities Plan Extends to Planning Year 2025

# Facilities Plan Scenarios



## LEGEND

- TF** PEAK EXCESS TREATMENT FACILITY (SATELLITE)
  - EXISTING OR GIVEN IMPROVEMENTS
  - REMOTE WET WEATHER TREATMENT OPTION
  - TRANSPORT ALL FLOW TO WLTP OPTION
- MGD - PEAK CAPACITY IN MILLION GALLONS PER DAY
- WLTP - WILLOW LAKE WASTEWATER TREATMENT PLANT

# Seven Scenarios Evaluated

## ◆ Treat all flow (315 mgd) at WLTP:

1A - Full secondary treatment

1B - Split flow treatment

## ◆ Treat flows at remote sites and at WLTP:

	<u>Union St.</u>	<u>River Rd.</u>	<u>WLTP</u>
2A	160 mgd	----	155 mgd
2B	----	160 mgd	155 mgd
2C	80 mgd	80 mgd	155 mgd
2D	80 mgd	----	235 mgd
2E	----	80 mgd	235 mgd

# Recommended Plan



Reduce conveyance costs by:

- Using max capacity of existing sewers
  - Treating flows at WLTP up to sewer capacity
  - Treating remainder of wet weather flows within conveyance system



Reduce and delay expansion cost at WLTP by:

- Continuing “Select Treatment” through 2013

# Recommended Plan

## Peak Hour Flow

155 mgd WLTP

80 mgd River Rd

235 mgd Total  
(peak hour flow)

## Phase 1

West Salem  
Pump Station  
Upgrade

West Salem

Willamette River

Keizer

WLTP (155 mgd  
headworks, 75mgd  
secondary / 80 mgd  
split flow)

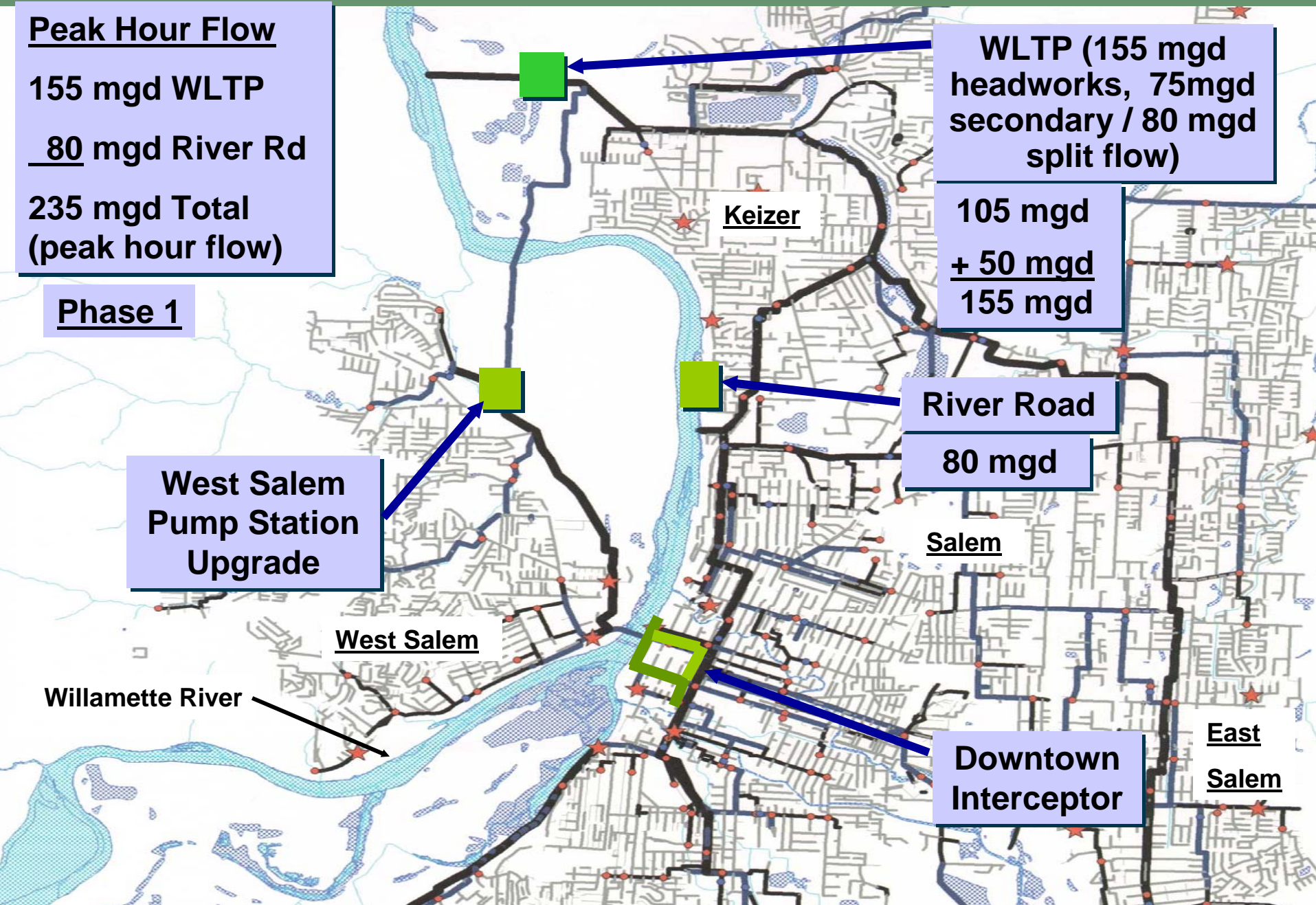
105 mgd  
+ 50 mgd  
155 mgd

River Road  
80 mgd

Salem

Downtown  
Interceptor

East  
Salem



# Recommended Plan

## Peak Hour Flow

155 mgd WLTP

160 mgd River Rd

315 mgd Total  
(peak hour flow)

## Phase 2

West Salem  
Force Main  
Upgrade

WLTP (100 mgd  
secondary / 55 mgd  
split flow)

105 mgd  
+ 50 mgd  
155 mgd

River Road

80 mgd  
+ 80 mgd  
160 mgd

Salem

Union to NRR  
Interceptor

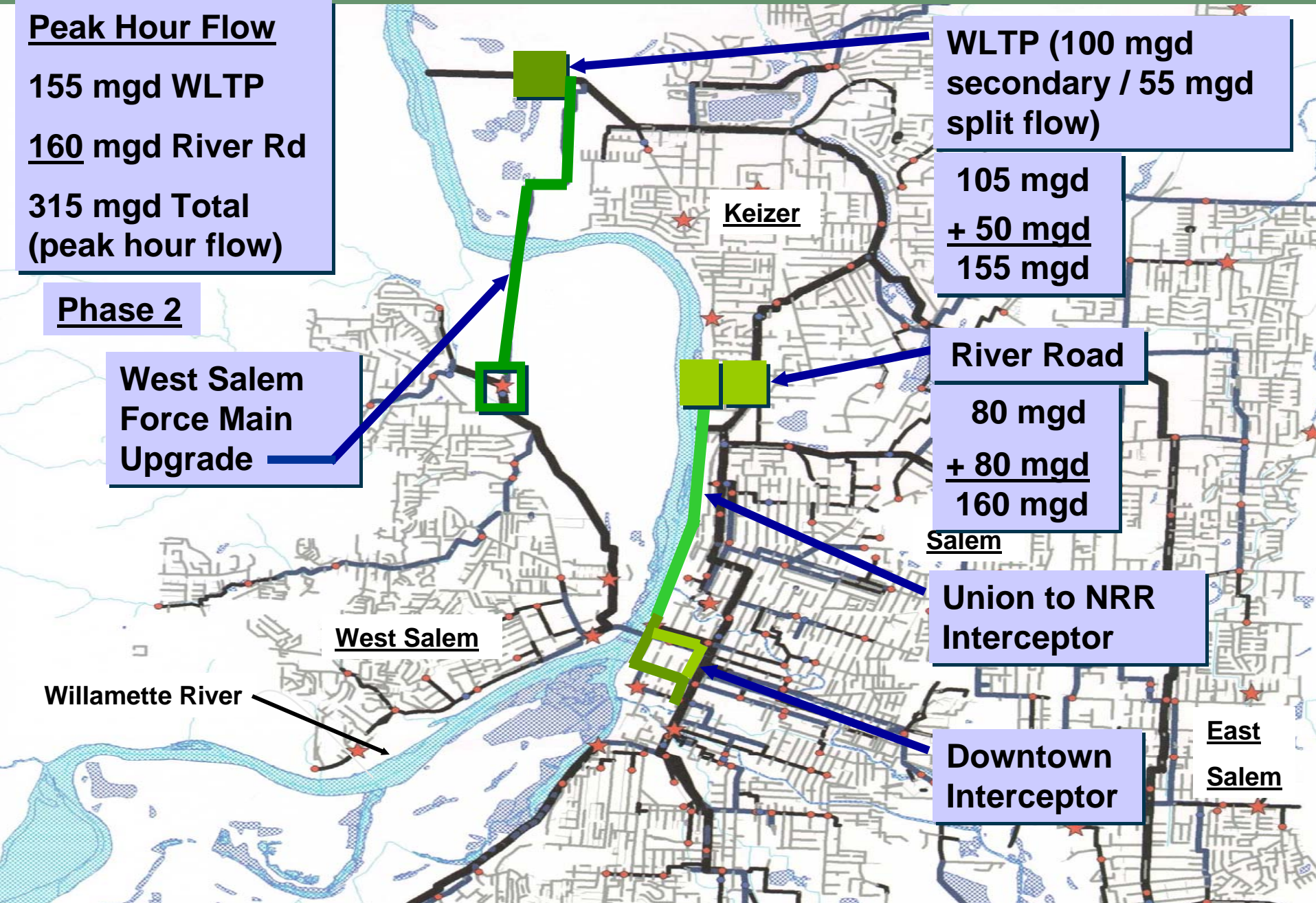
Downtown  
Interceptor

East  
Salem

Willamette River

West Salem

Keizer



# Recommended Plan

## Peak Hour Flow

155 mgd WLTP

160 mgd River Rd

315 mgd Total  
(peak hour flow)

Post 2010

WLTP (155 mgd  
secondary / 0 mgd  
split flow)

105 mgd  
+ 50 mgd  
155 mgd

River Road

80 mgd  
+ 80 mgd  
160 mgd

West Salem  
Pump Station  
& Force Main

Salem

Union to River  
Road Interceptor

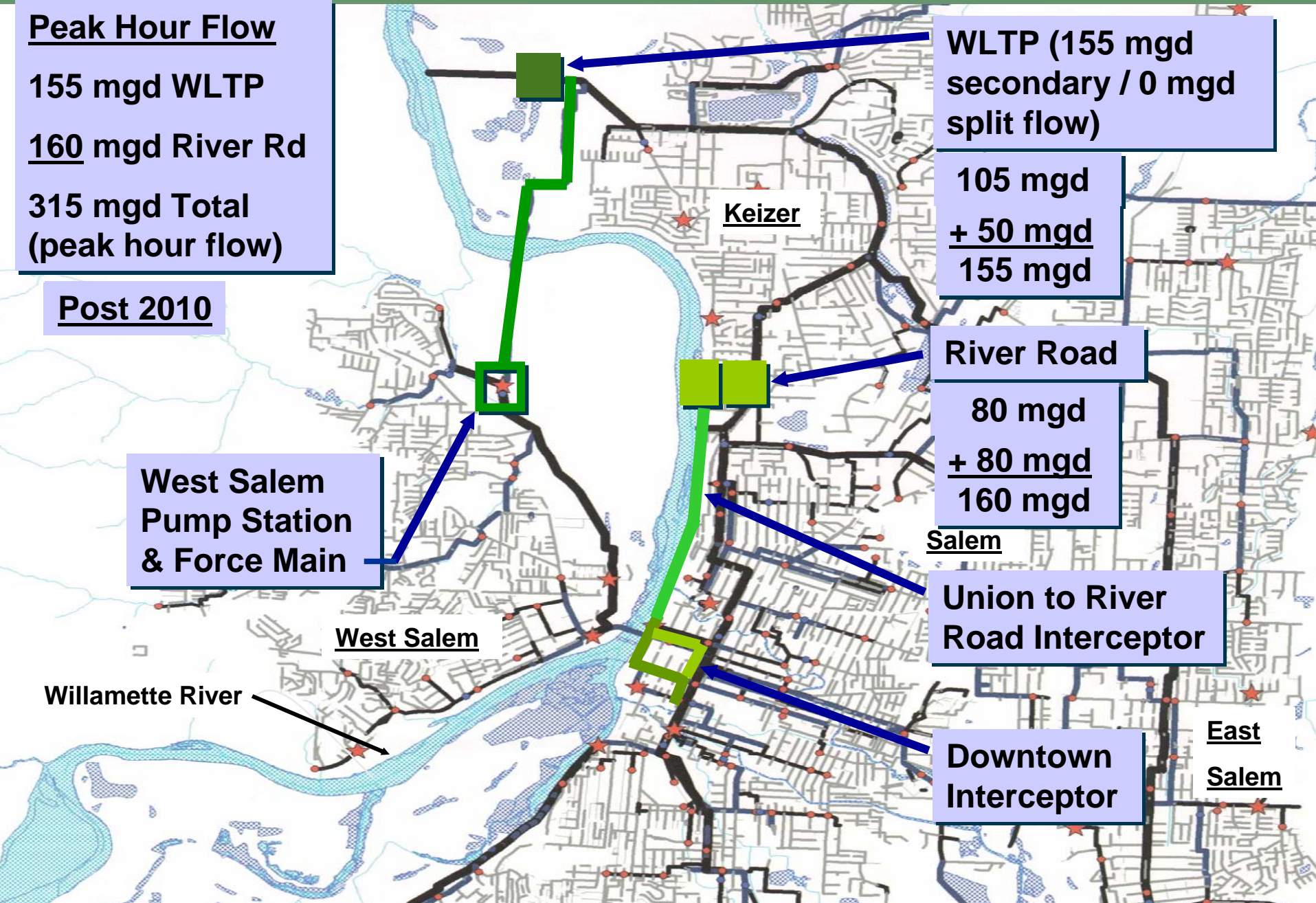
Downtown  
Interceptor

West Salem

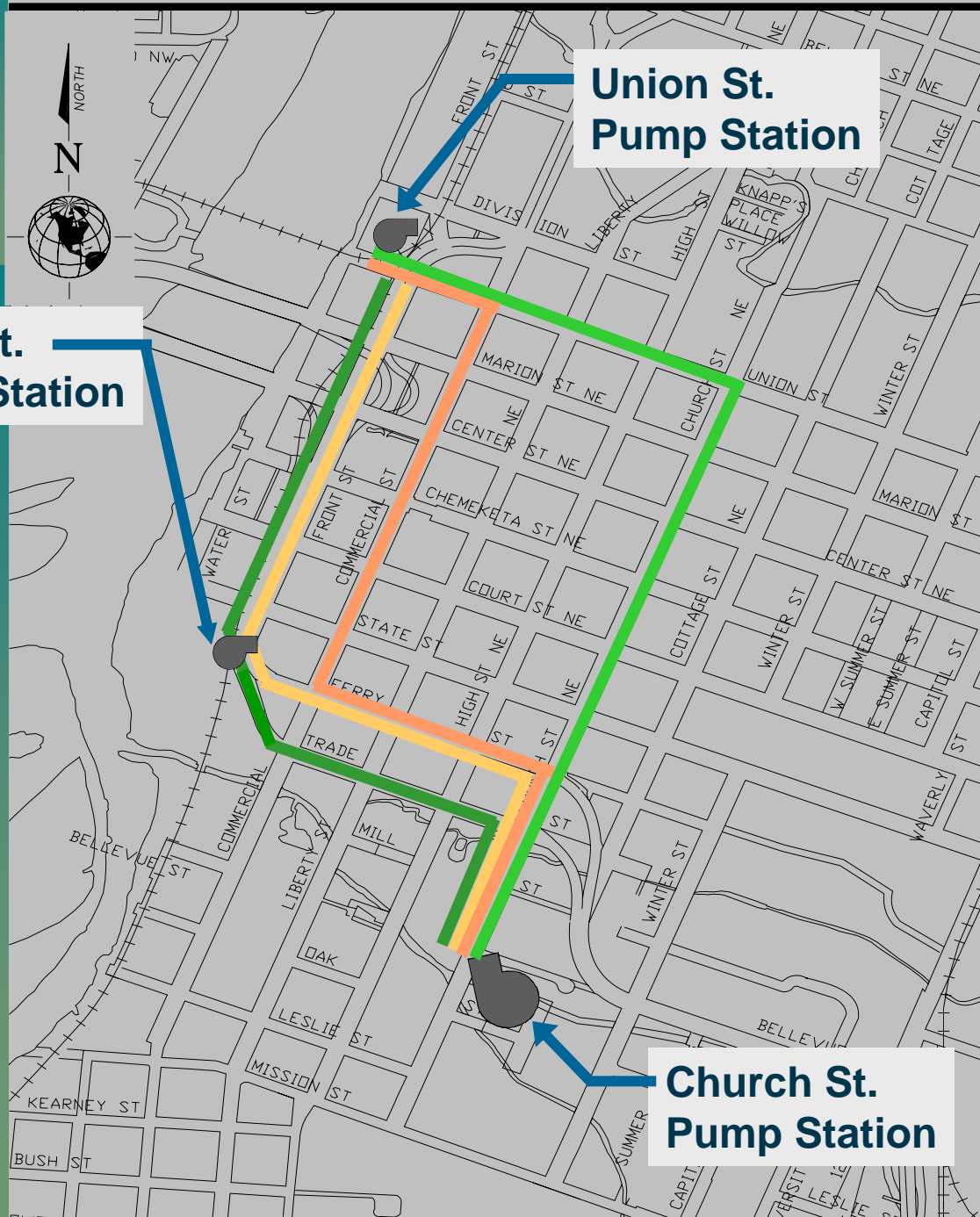
Willamette River

East  
Salem

Keizer



# Downtown Interceptor Alternatives



**Ferry St.  
Pump Station**

**Union St.  
Pump Station**

**Church St.  
Pump Station**

## Legend

-  Alternative 1
-  Alternative 2
-  Alternative 3
-  Alternative 4

*January 1, 2005  
MAO Deadline*



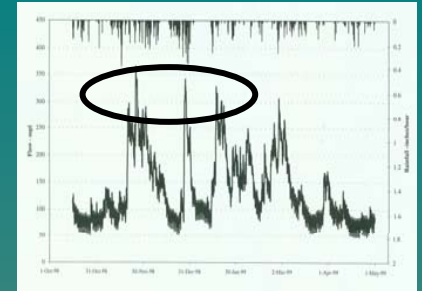
# Comparison of Scenarios 1B and 2B

Scenario	Before 2010				Post 2010	Total
	WLTP	Remote Facility	Conveyance	Subtotal		
1B	\$280.2	-----	\$58.0	\$338.2	\$69.4	\$407.6
2B	\$163.4	\$92.5	\$25.4	\$281.3	\$110.6	\$391.9

- Costs shown are project costs in millions of dollars.
- All costs are in 2001 dollars at ENR CCI of 6300.

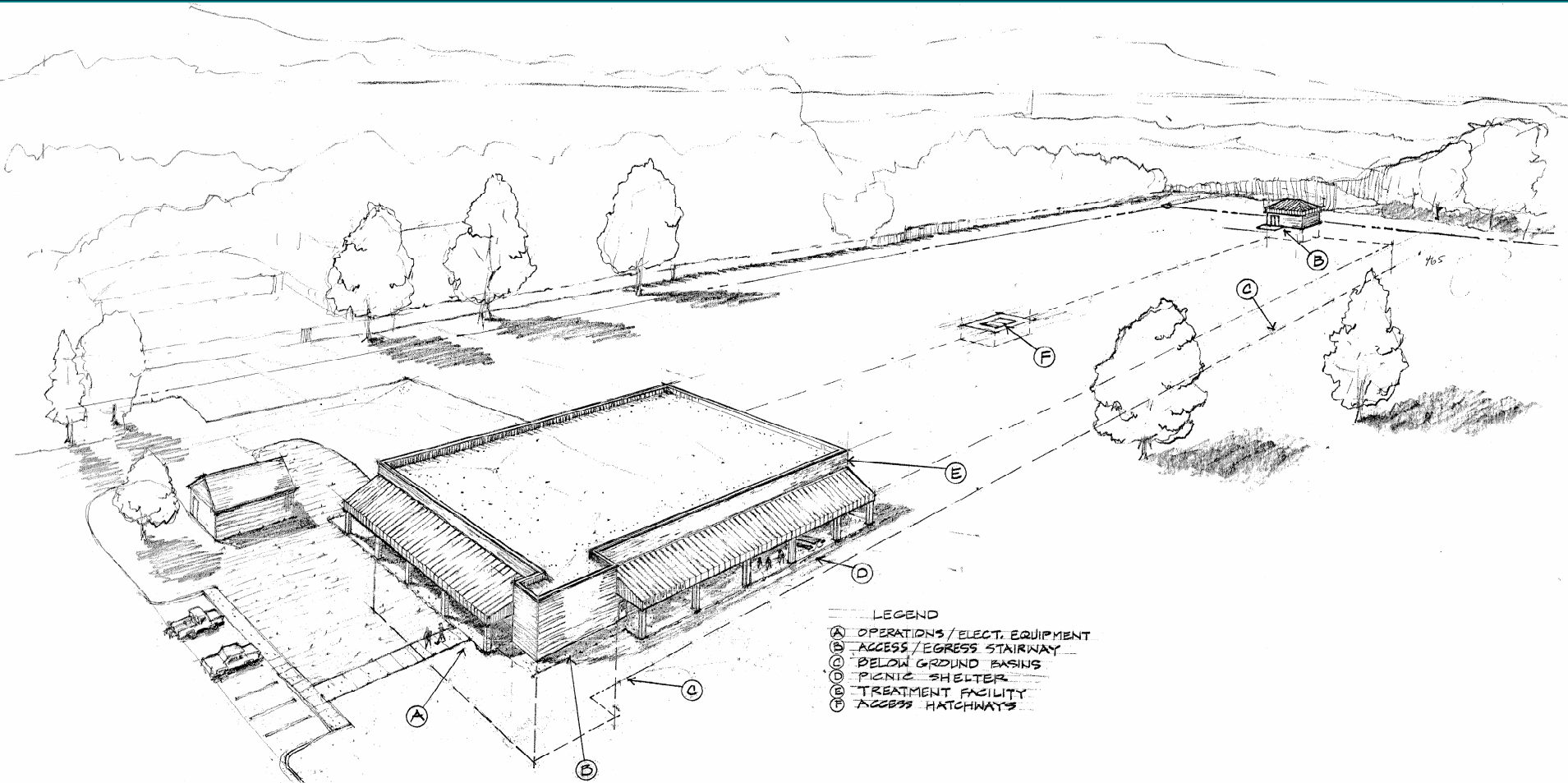
# River Road Park Concept

- Facility used infrequently for short durations during wet weather events
- Bury majority of treatment facility
- Provide odor control, noise abatement, and visual screening
- Joint Park Improvement Project



“Park’s Board has given their approval for joint use concept”

# Possible Building Concept



NORTH RIVER ROAD PARK SITE  
PEAK EXCESS FLOW TREATMENT FACILITY  
PUBLIC WORKS DEPARTMENT, SALEM, OR

AERIAL PERSPECTIVE  
VIEW FROM NORTHEAST

# River Road Park - Concepts



Concept A

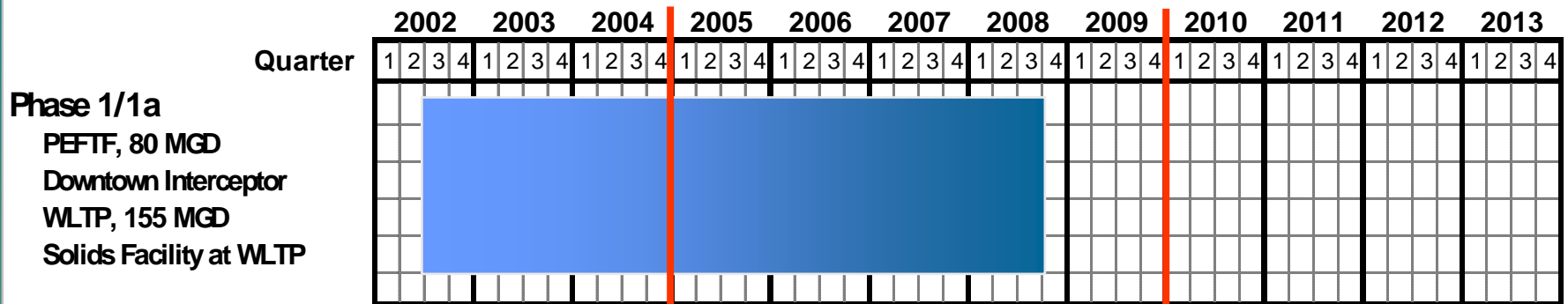
Concept B

Concept C

# Community Outreach Program

- ◆ Stakeholder Interviews
- ◆ Three Community Workshops
- ◆ Numerous Informational Newsletters & Articles
- ◆ Presentations to Neighborhood Associations throughout Salem, Keizer, and Marion County
- ◆ Numerous Presentations and Meetings with Salem Water/Wastewater Task Force (Plan Endorsement given 06-27-02)
- ◆ Presentation to Salem Chamber of Commerce
- ◆ Two Presentations to City of Keizer City Council
- ◆ Two Presentations to Salem Parks Department

# Implementation Plan

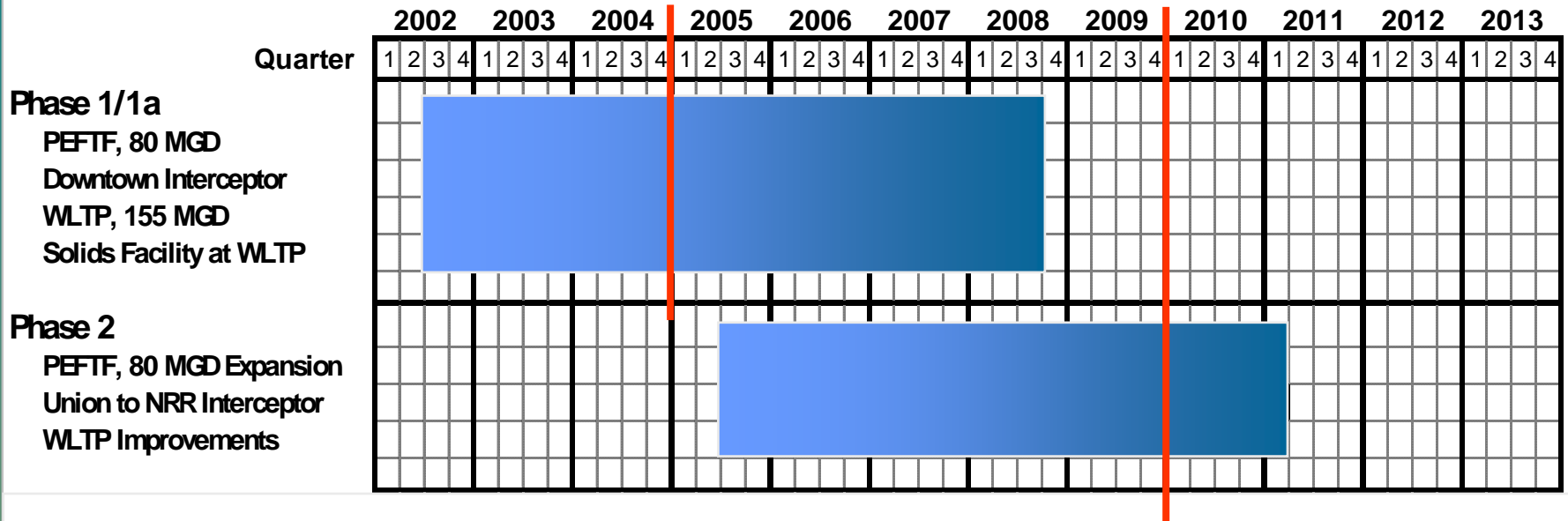


## MAO Compliance:

Downtown Interceptor - January 1, 2005

Remaining Improvements – January 1, 2010

# Implementation Plan

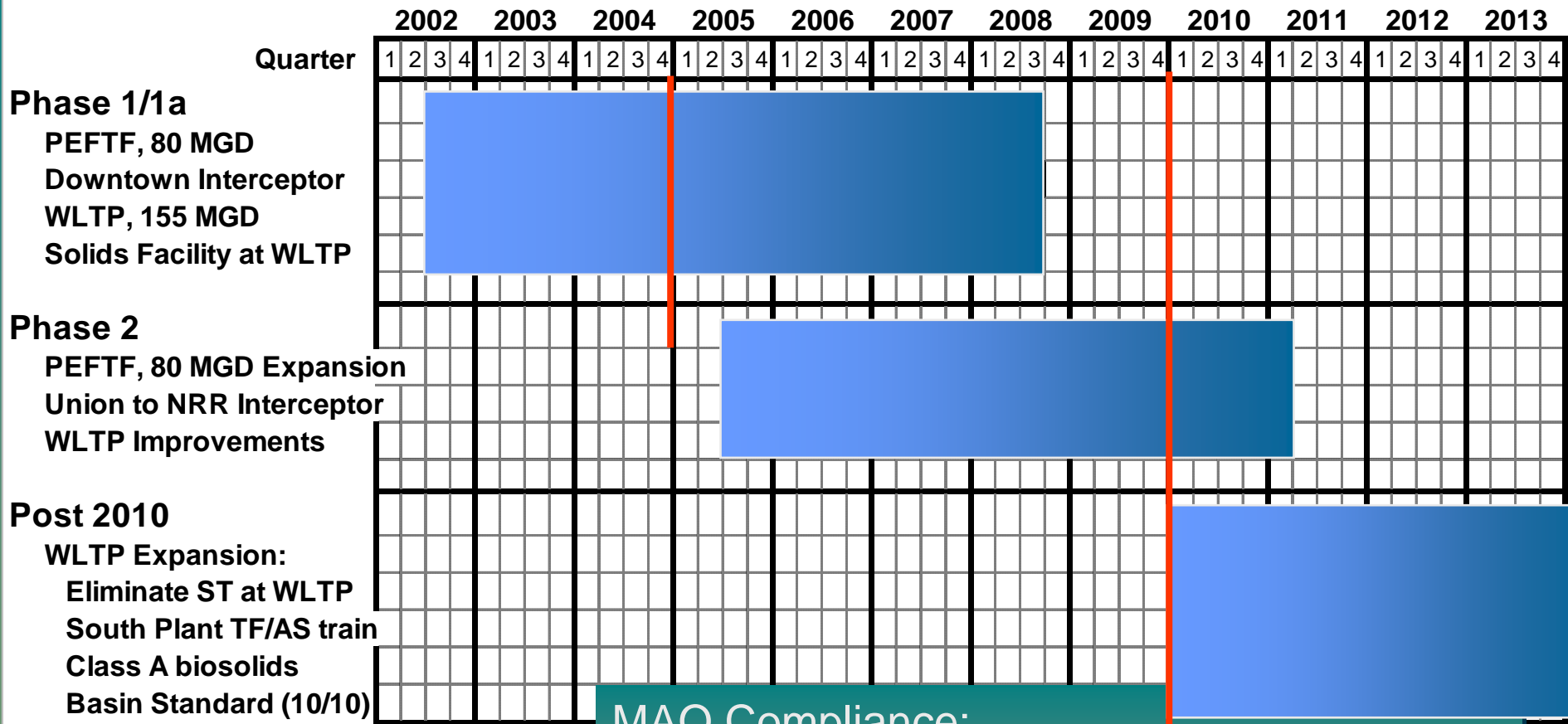


## MAO Compliance:

Downtown Interceptor - January 1, 2005

Remaining Improvements – January 1, 2010

# Implementation Plan



MAO Compliance:

Downtown Interceptor - January 1, 2005

Remaining Improvements – January 1, 2010

# Permitting Wet Weather Treatment Facilities

- ◆ First of its kind in Oregon
- ◆ Frequent contact with DEQ staff
- ◆ Received letter from DEQ confirming:
  - remote wet weather treatment OK
  - non-biological treatment OK
- ◆ 08-07-02 DEQ gave conceptual approval to Facilities Plan
- ◆ Pilot testing:
  - Provide design data and info to team
  - Verified treatment performance to DEQ



# Next Steps to Regulatory Approval

- ◆ Complete pre-design
- ◆ Resolve permitting issues in parallel with pre-design:
  - Effluent limits
  - Monitoring/reporting
  - Mass load increase
  - Permit coordination between Willow Lake and Remote Treatment Facility
- ◆ Goal - Obtain permit prior to major spending



# Plan Financial Advantages

- ◆ Savings of approximately \$40 million over alternative to convey and treat all flow at Willow Lake WWTP
- ◆ Opportunity to phase improvements over longer time period
- ◆ Reduce rate increase slope
- ◆ Delay initial bond sale

# Financial Plan Comparison

Fiscal Year	Existing Financial Plan (1996 Master Plan)			Recommended Alternative 2B		
	Capital Cost	Bond Name	Annual Sewer Rate % Increase	Cash Flow (future dollars)	Bond Amounts (future dollars)	Annual Sewer Rate % Increase
02 - 03	-----		8.90%	\$ 4,944,000	-----	8.90%
03 - 04	\$ 91,635,000	K	8.90%	\$11,139,450	-----	8.90%
04 - 05	-----		8.90%	\$15,079,633	-----	8.90%
05 - 06	\$129,867,000	L	8.90%	\$36,691,587	-----	8.90%
06 - 07	-----		8.90%	\$95,060,474	\$120,800,000	8.00%
07 - 08	\$ 66,356,000	M	8.90%	\$40,358,968	-----	8.00%
08 - 09	-----		8.90%	\$43,783,510	\$127,900,000	8.00%
09 - 10	-----		8.90%	\$93,740,986	-----	8.00%
MAO Subtotal	\$287,858,000		8.90%		\$248,700,000	
Beyond 2010			8.90%		\$123,023,900	

# What's Next?

- ◆ Water/Wastewater Task Force gave their endorsement on 06-27-02
- ◆ Planning Commission Public Hearing ▲ August 20, 2002
- ◆ City Council deliberation/adoption ▲ August 26, 2002
- ◆ Permit negotiations with DEQ ▲ 2002/2003
- ◆ Begin design work on Downtown Interceptor, Remote Plant, and WLTP Improvements