



Projects on the Gap to Gap Reach and the Naches River

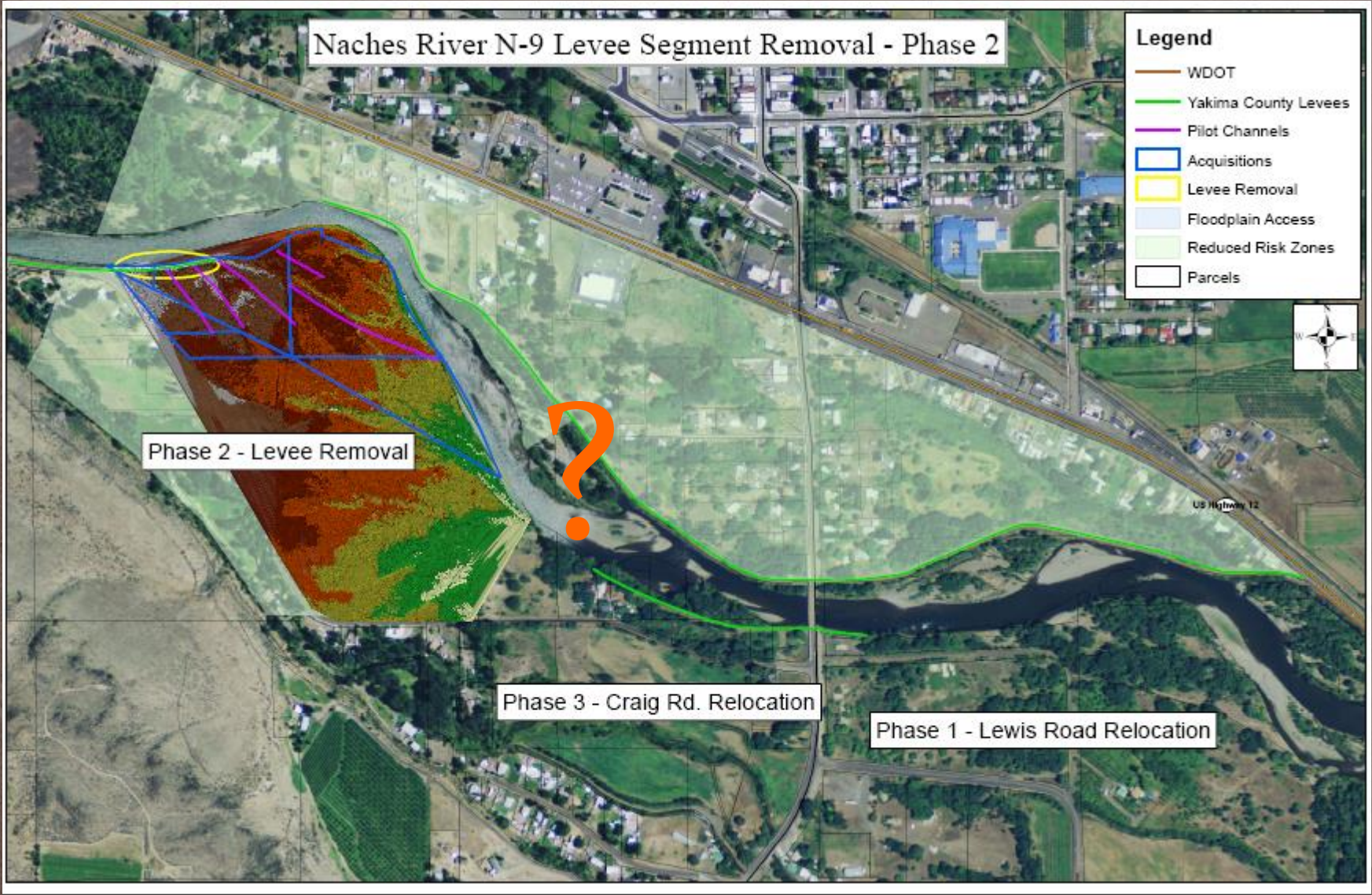
Joel Freudenthal
Yakima County Water Resources

Boise Cascade Levee, water in breach, 12:00

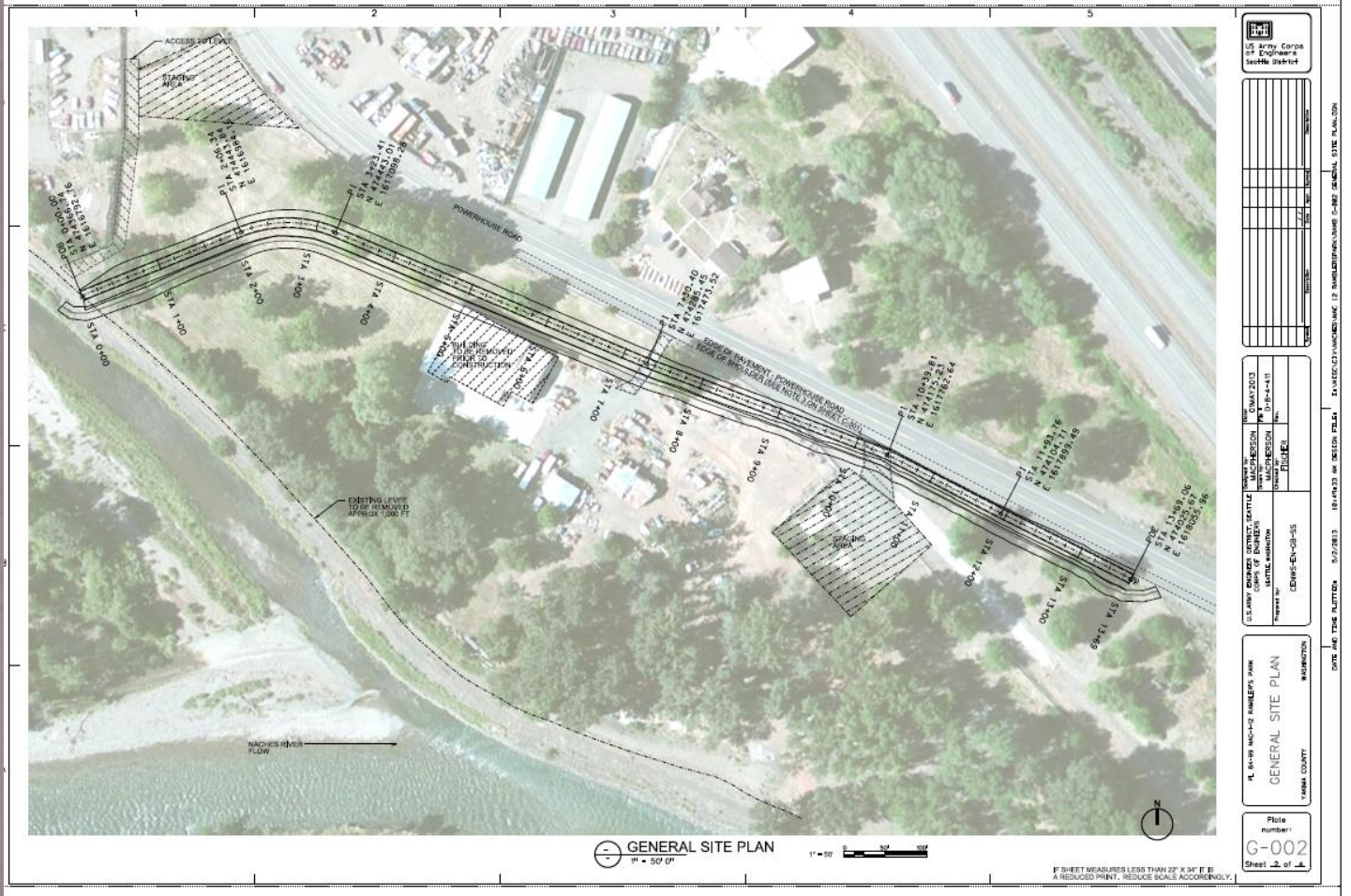
Science and Management
Conference 2015

JAN 17 2011

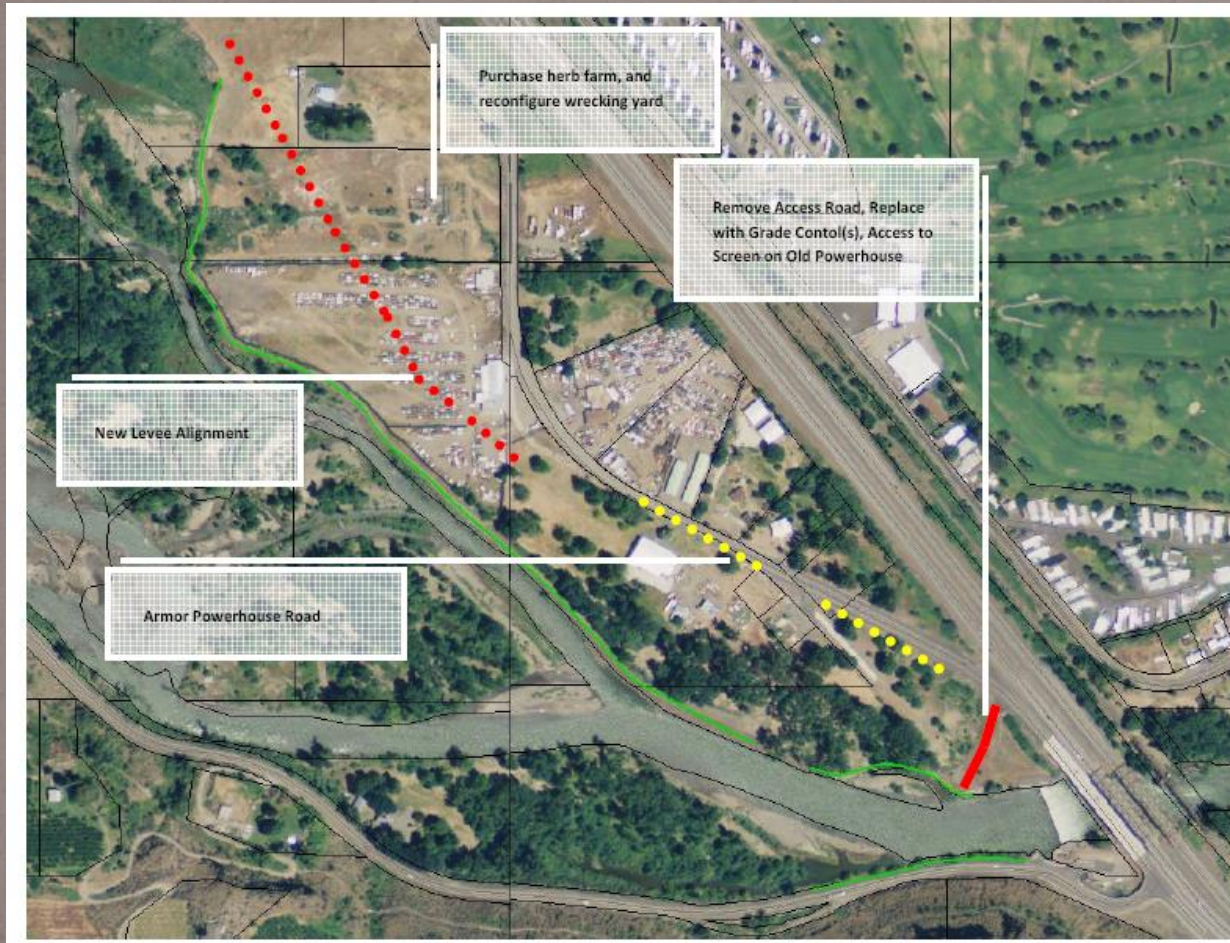
Town of Naches Levee



Ramblers Levee Setback



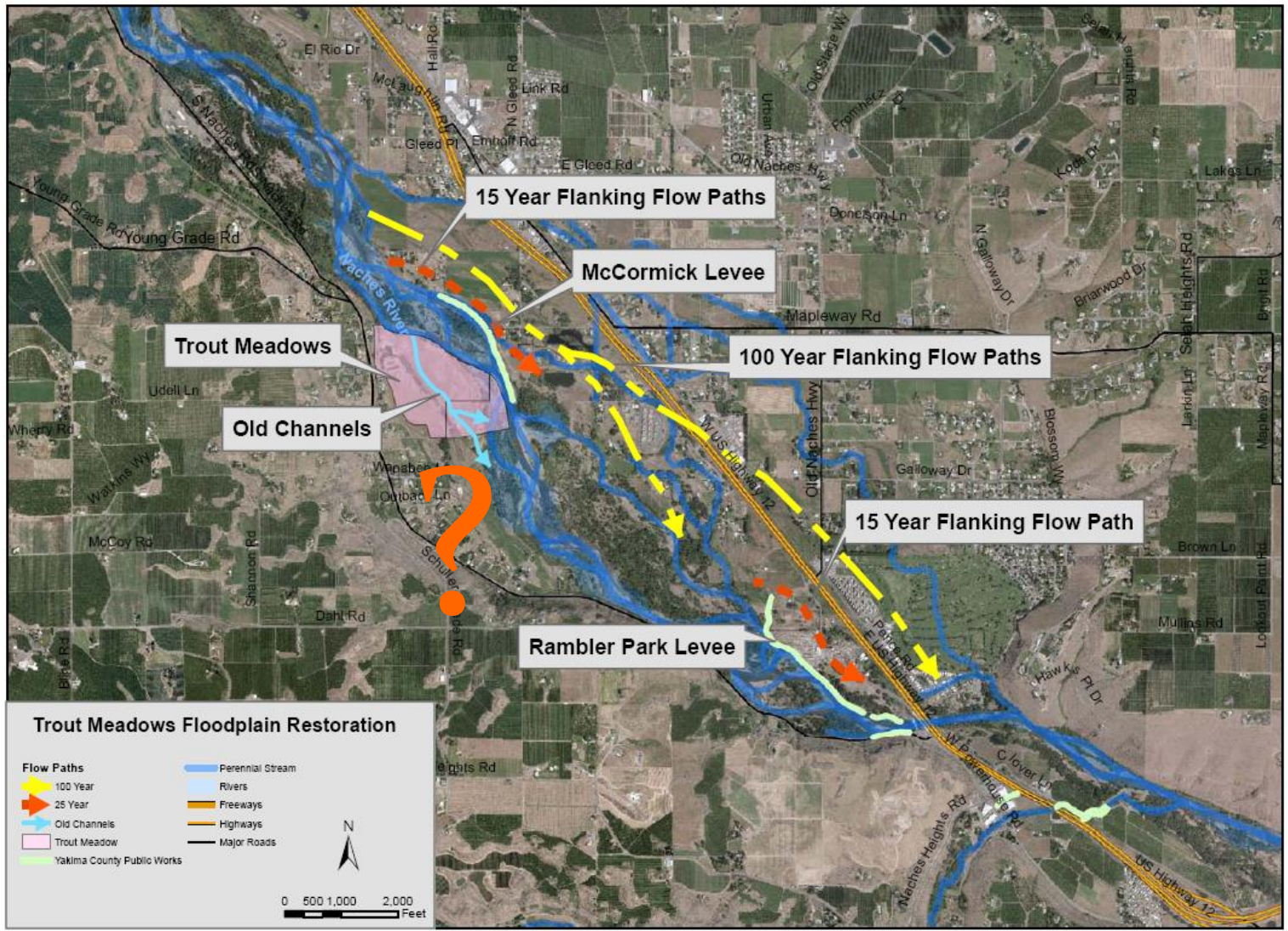
Ramblers' Phase 2



Ramblers Park Levee Reconfiguration

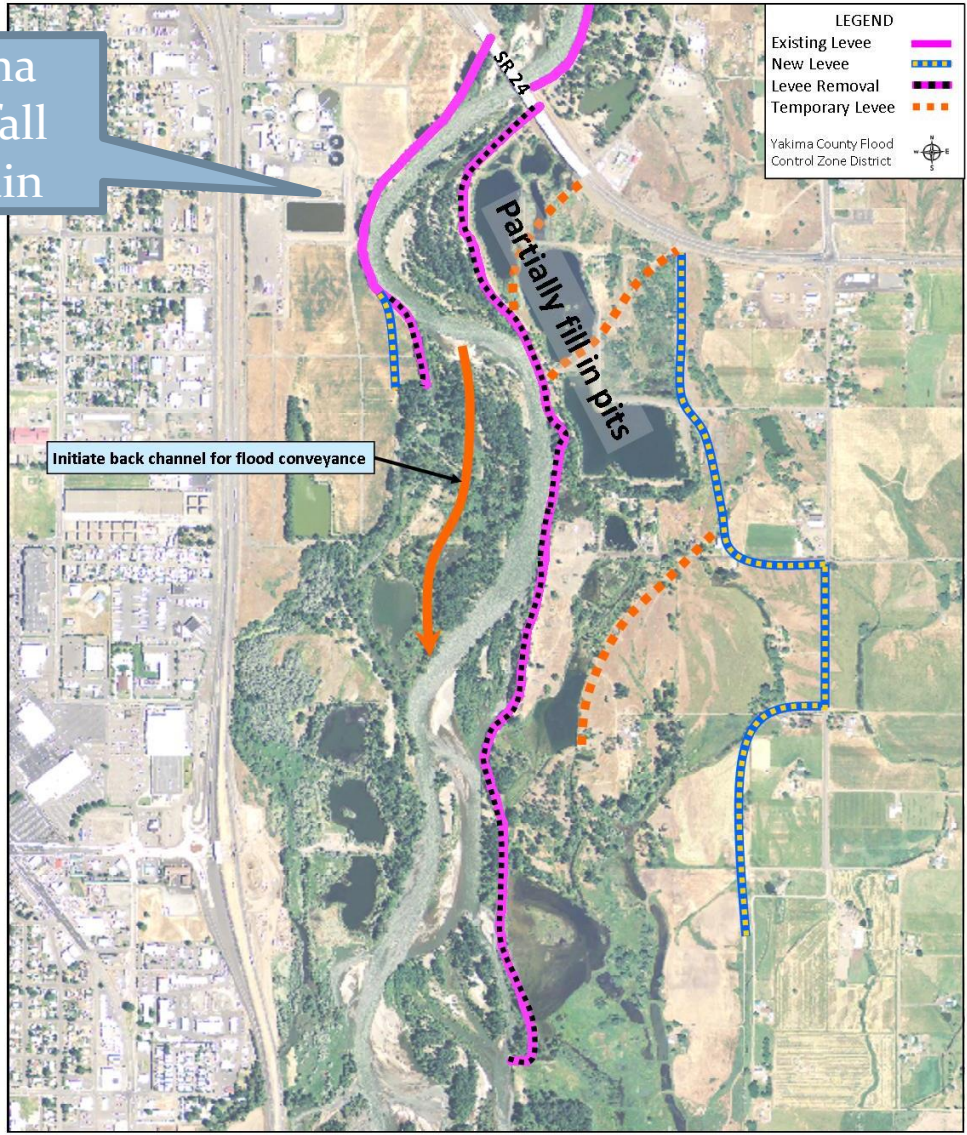
Phase 2 Actions

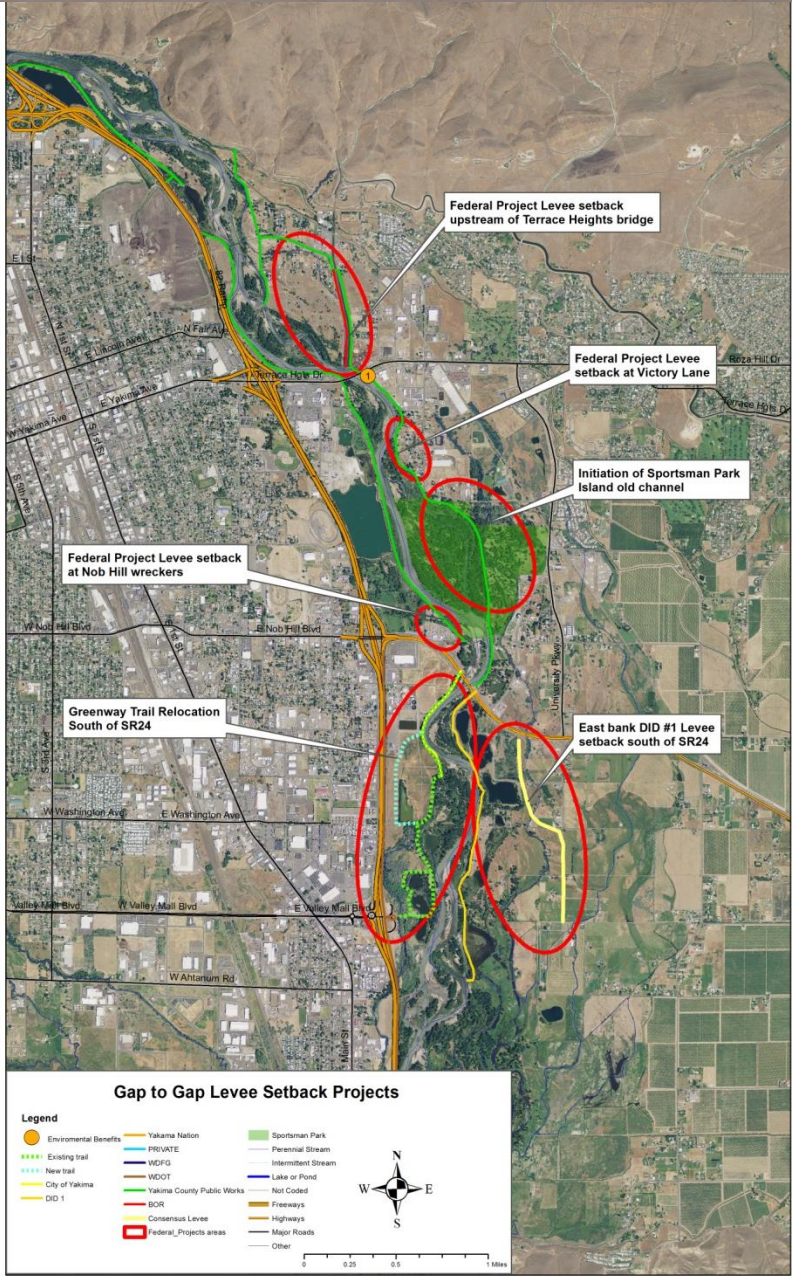
- Set back existing levee to improve main channel flood conveyance and improve sediment transport across a broad range of flood flows
- Protect Powerhouse Road Prism w/Armor
- Remove access road to increase flood conveyance



Gap to Gap Projects - South SR 24 Bridge

City of Yakima
WWTP, Outfall
and Floodplain







**HYDRAULIC EVALUATION AND
CONCEPTUAL DESIGN OF MITIGATION
MEASURES FOR YAKIMA RIVER
GRAVEL PIT CAPTURE**

DRAFT REPORT REVISION 1



Prepared for:



Yakima County Flood Control Zone District
128 North 2nd Street
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98901



Prepared by:
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98188-3422

May 2015

A) Planview Evolution

B) Profile Evolution

water surface profile — t0 t1 t2 t3
 bed profile — t0 t1 t2 t3

t0: pre-avulsion



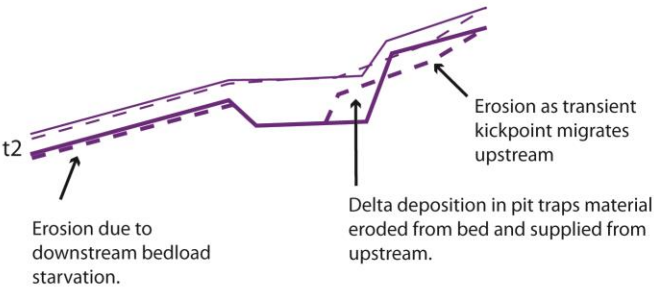
channel shortened & steepened



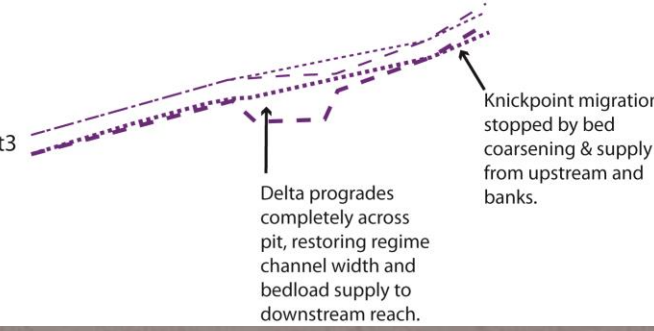
t1: at avulsion



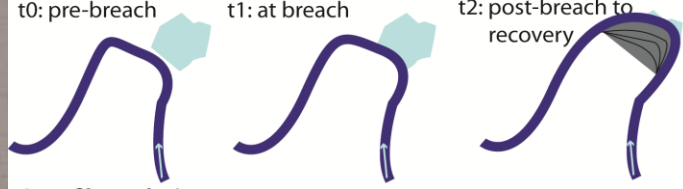
t2: avulsion response



t3: recovery

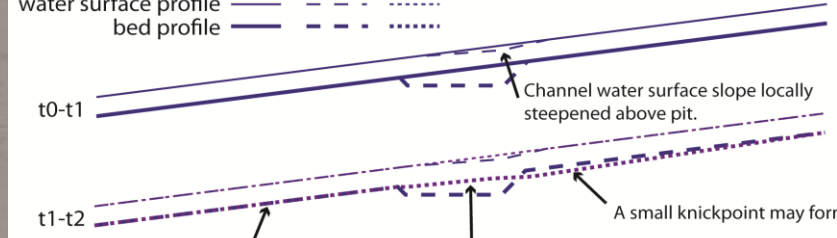


A) Planview Evolution



B) Profile Evolution

water surface profile — t0 t1 t2
 bed profile — t0 t1 t2



Some erosion possible due to reduced bedload supply to downstream reach.

A point bar forms and causes channel to migrate laterally across pit. This lengthens the channel and mitigates some of the effects of pit capture.

The Wrath of God Scenario

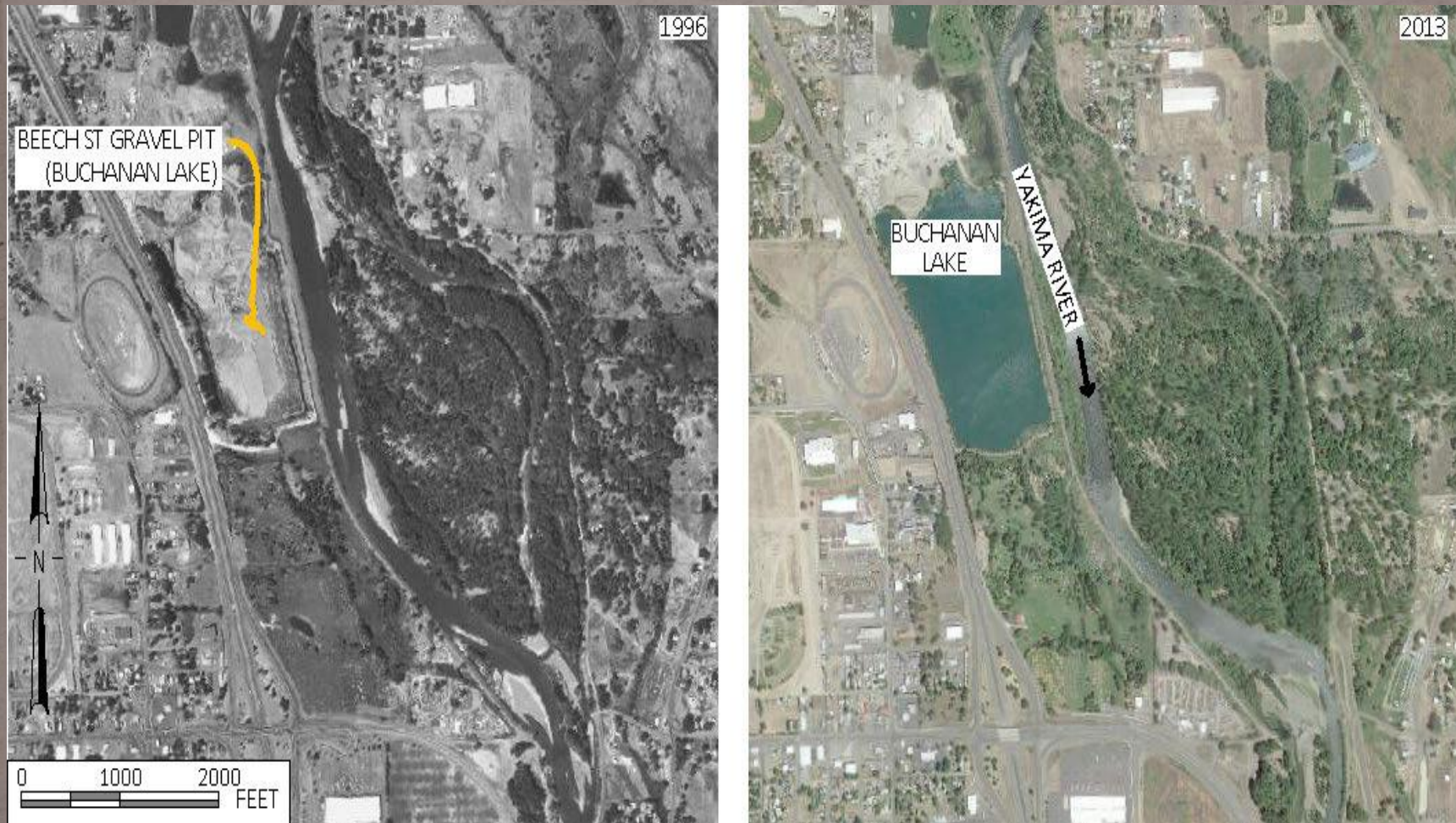
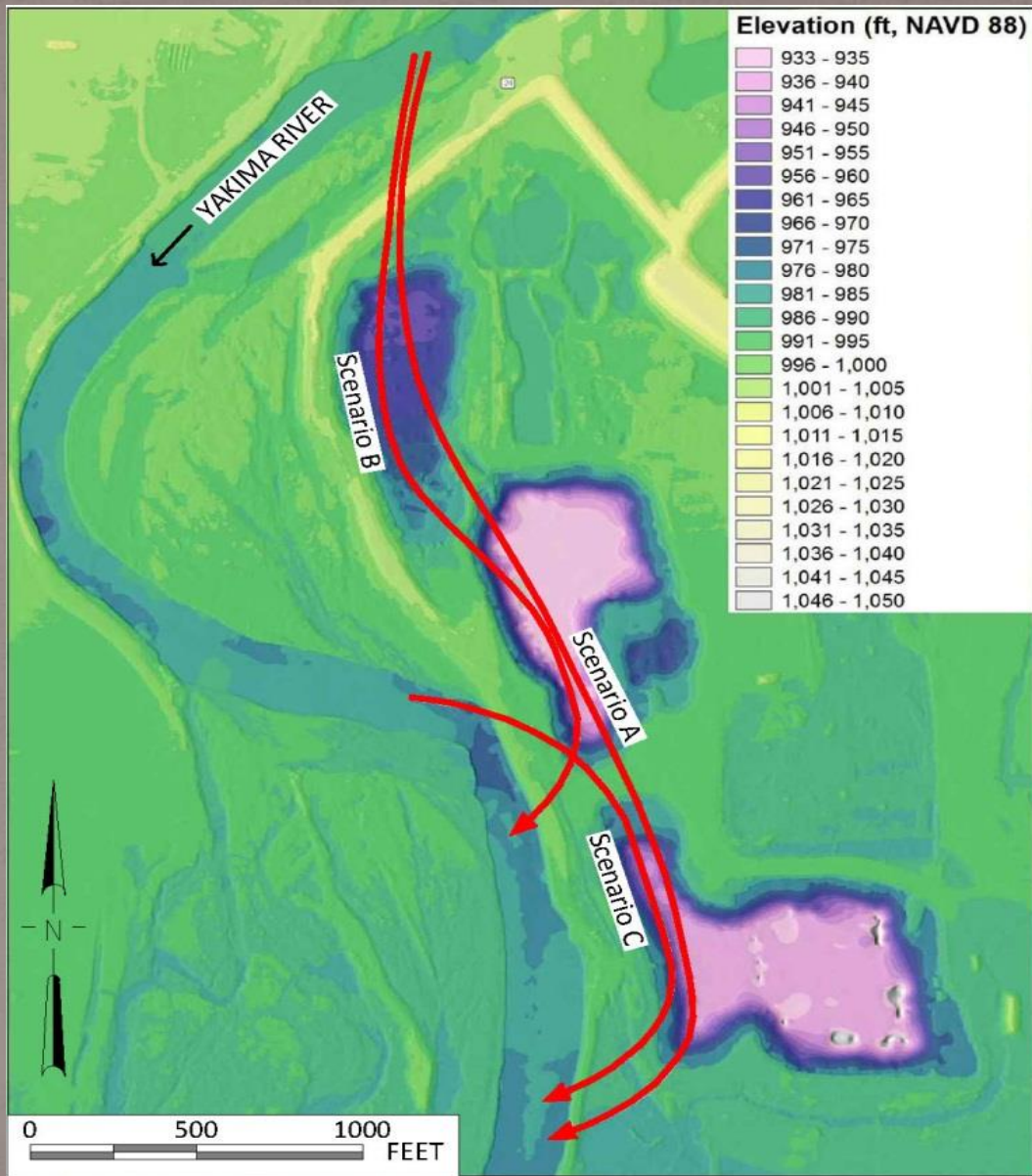


Figure 10: Buchanan Lake-Sportsman's Park reach 1996 to 2013



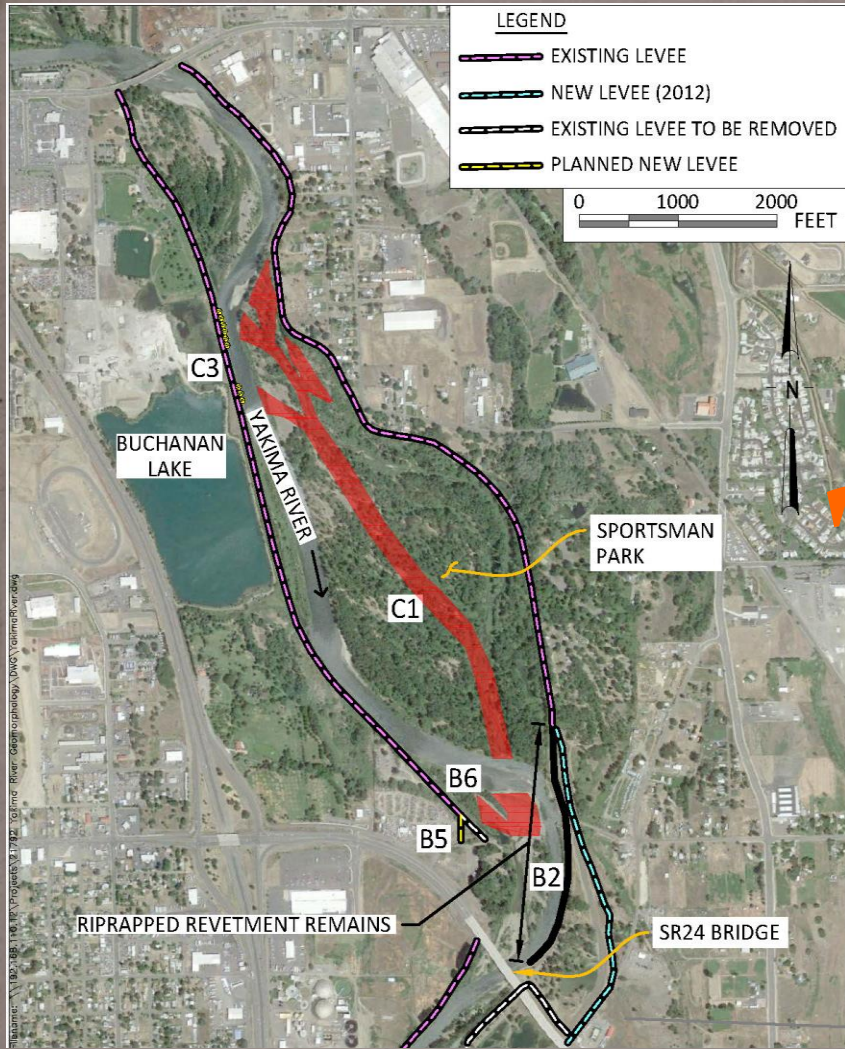


Figure 48: Mitigation measures in northern reach

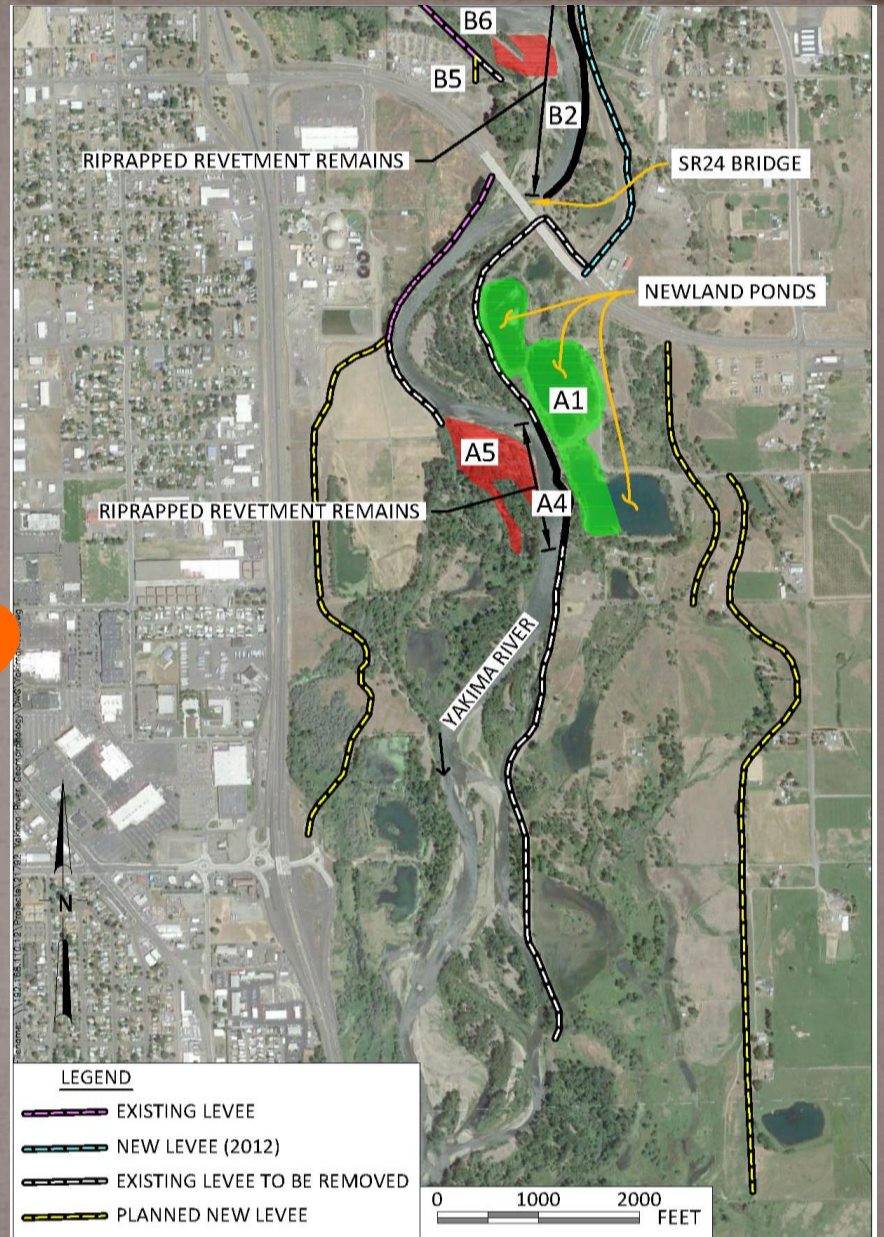


Figure 49: Mitigation measures in southern reach

FCZD Budget Projection

	2014	2015	2016	2017	2018	2019	
Beginning Balance							
Cash & Cash Equivalents	\$ 1,558,637	1,558,637	1,558,637	1,558,638	1,449,968	1,523,968	
Projected Revenue							
Beginning Fund Balance							
Taxes	1,327,353	1,340,626	1,354,032	1,367,572	1,381,248	1,395,000	
Grants (Includes Corps & BOR contrib)	8,032,248	8,205,861	8,380,363	8,554,866	8,729,369	8,903,871	
Interest	13,638	13,638	13,638	13,638	12,687	13,335	
From Reserves	430,871	231,329	308,479	29,321			
Misc							
	5,185,136	4,848,654	8,058,312	2,365,331	1,473,935	1,488,395	
Projected Expenditures							
Administration	job code fc10	476,268	481,031	488,247	495,570	503,004	510,549
Planning (General)	job code fc20	363,006	368,639	370,296	373,999	377,739	381,517
FCZD Projects (mapping)	job code fc 30	64,321	25,000	30,000	30,000	30,000	31,218
FCZD Studies (up to NEPA)	job code fc40	100,000	10,000	30,000	30,000	30,000	30,000
Maintenance (FCZD Structures)	job code fc50	41,300	45,050	48,989	48,408	49,880	51,356
FCZD Capital Improvements	job code fc 90	1,718,751	1,436,933	6,688,323	1,083,592	1,083,592	1,083,592
Capital (Land)							
Ending Fund Balance							
	5,185,136	4,848,654	8,058,311	2,474,011	1,399,925	1,419,642	
Projected Excess (Short Fall) Revenue				(1,300,000)	74,016	68,753	
Adjustments							
(Increase) Decrease in Accounts Receivable							
Increase (Decrease) in Accounts Payable							
Total Adjustments							
Ending Cash Balance							
Reserves							
Committed Reserves (Flood Recovery)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,000,000)	
Assigned Reserves (CDE Lease)	(568,128)	(337,809)	(29,321)				
6 Mos. Operating Cash Flow	(600,000)	(600,000)	(600,000)	(600,000)	(600,000)	(600,000)	
Available Cash Balance	\$ (410,492)	(379,169)	(70,689)	(156,492)	(16,074)	(7,247)	
Fixed Costs							
Indirect Costs	# 38,908.80	40,854.24	42,896.95	45,041.80	47,293.89	49,658.58	
Purchasing Services	312.90	328.55	344.97	362.22	380.33	399.35	
Information Services	40,749.45	42,786.92	44,926.27	47,172.58	49,511.21	52,007.77	
GIS	66,510.15	69,815.66	73,327.44	76,993.81	80,843.50	84,885.68	
Rent-Facilities	35,299.95	37,064.95	38,918.19	40,864.10	42,907.31	45,052.68	
Liability Insurance	4,986.45	5,238.77	5,497.56	5,772.44	6,061.06	6,364.11	
Dept. of Security	3,598.45	3,736.37	3,923.19	4,119.35	4,325.32	4,541.58	
Computer Rental	2,600.00	2,730.00	2,866.50	3,009.83	3,160.32	3,318.33	
Phone	684.05	728.75	768.19	803.45	843.62	888.80	
Total Fixed Costs	193,550	203,301	213,866	224,140	235,347	247,116	

Questions