



Water Supply Planning Value Planning Study

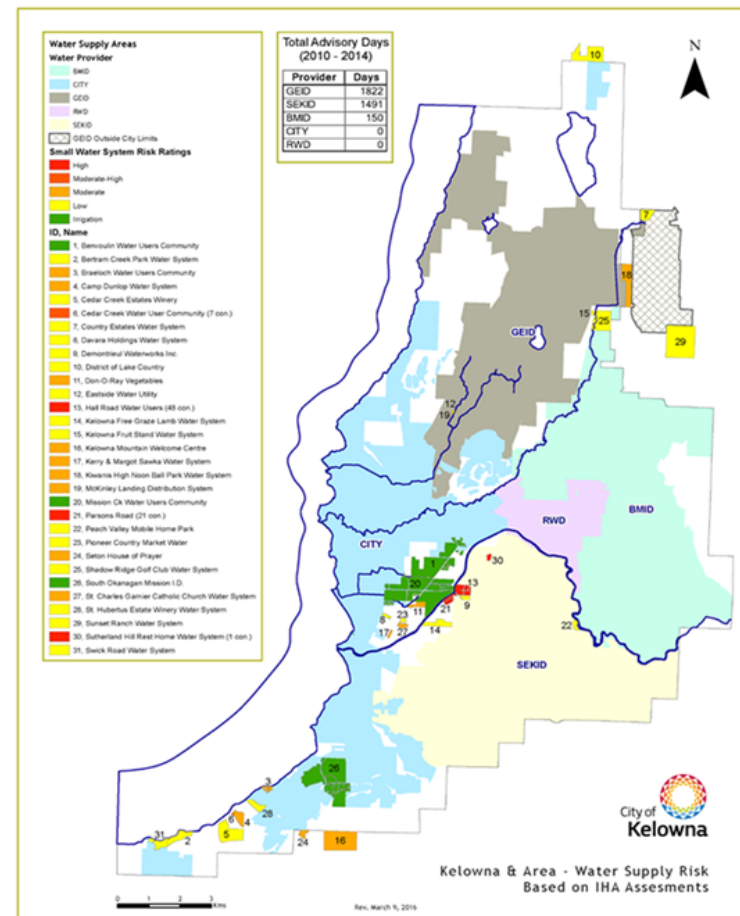
Council Presentation

February 27, 2017



Background

- ▶ Multiple water systems and water sources
- ▶ Canadian Drinking Water Guidelines not consistently met
- ▶ Rate inequity
- ▶ Water Supply has been an ongoing concern for residents
- ▶ Lack of resiliency
- ▶ City Council top priority



Background - Planning

- ▶ Many past plans for individual system solutions
 - ▶ 2012 Kelowna Integrated Water Supply Plan
 - ▶ Focused on interconnections instead of integration
- ▶ High cost for solutions
- ▶ Need for Value Planning to determine if 2012 Plan meets:
 - ▶ Best lowest cost city-wide solution
 - ▶ Public health criteria
 - ▶ Flexibility
 - ▶ Agricultural interest maintained
- ▶ VP is a requirement for government grants

Value Planning Intro

- ▶ City & SEKID cost-shared independent Value Planning of how best to supply water city-wide.
- ▶ VP Team consisted of water and infrastructure planning experts.
- ▶ Value Planning Study is now complete.
- ▶ '2017 Kelowna Integrated Water Supply Plan' Presentation

SVS Value Plan

Value Team Presentation



Ministry of
Community, Sport and
Cultural Development

2017 Kelowna Integrated Water Plan Kelowna, BC

February 27/28, 2017



AGENDA

- ▲ Introductions
- ▲ Value Process
- ▲ Guiding Principles
- ▲ Plan Objectives
- ▲ VP Study Guidelines
- ▲ Presentation of Results
- ▲ Summary



VALUE TEAM

Value Team Leader

John L. Robinson, PE, CVS-Life

Strategic Value Solutions, Inc.

Value Team Members

Name	Organization	Role
Don Stafford, PE, CVS-Life, FSAVE	Strategic Value Solutions, Inc.	System Planner
Cecil Stegman, AVS, CET	Strategic Value Solutions, Inc.	Cost Estimator
Thomas Lane	Arcadis	System Planner
Leon Basdekas, PhD, PE	Black & Veatch	System Planner
Jennifer Ivey, PE	Carollo Engineers	Rates/Economics
Andrew Reeder	City of Kelowna	Consultant
Kevin Van Vliet	City of Kelowna	Consultant
Ron Westlake	City of Kelowna	Project Manager
Toby Pike	South East Kelowna Irrigation District	Manager
*Rod MacLean	Associated Engineers	Consultant
*Wayne Radomske	Interior Health	WS Regulator
*Gordon Moseley	Interior Health	WS Regulator
*Mike Noseworthy	Forests, Lands, & NRO	Regulator
*Skye Thomson	Forests, Lands, & NRO	Regulator
*Alan Newcombe	City of Kelowna	Consultant
*Bob Hrasko	Agua Consulting Inc.	Consultant

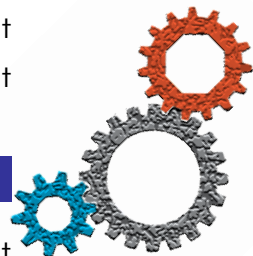
Value Team Support Staff

Amanda Rentschler

Strategic Value Solutions, Inc.

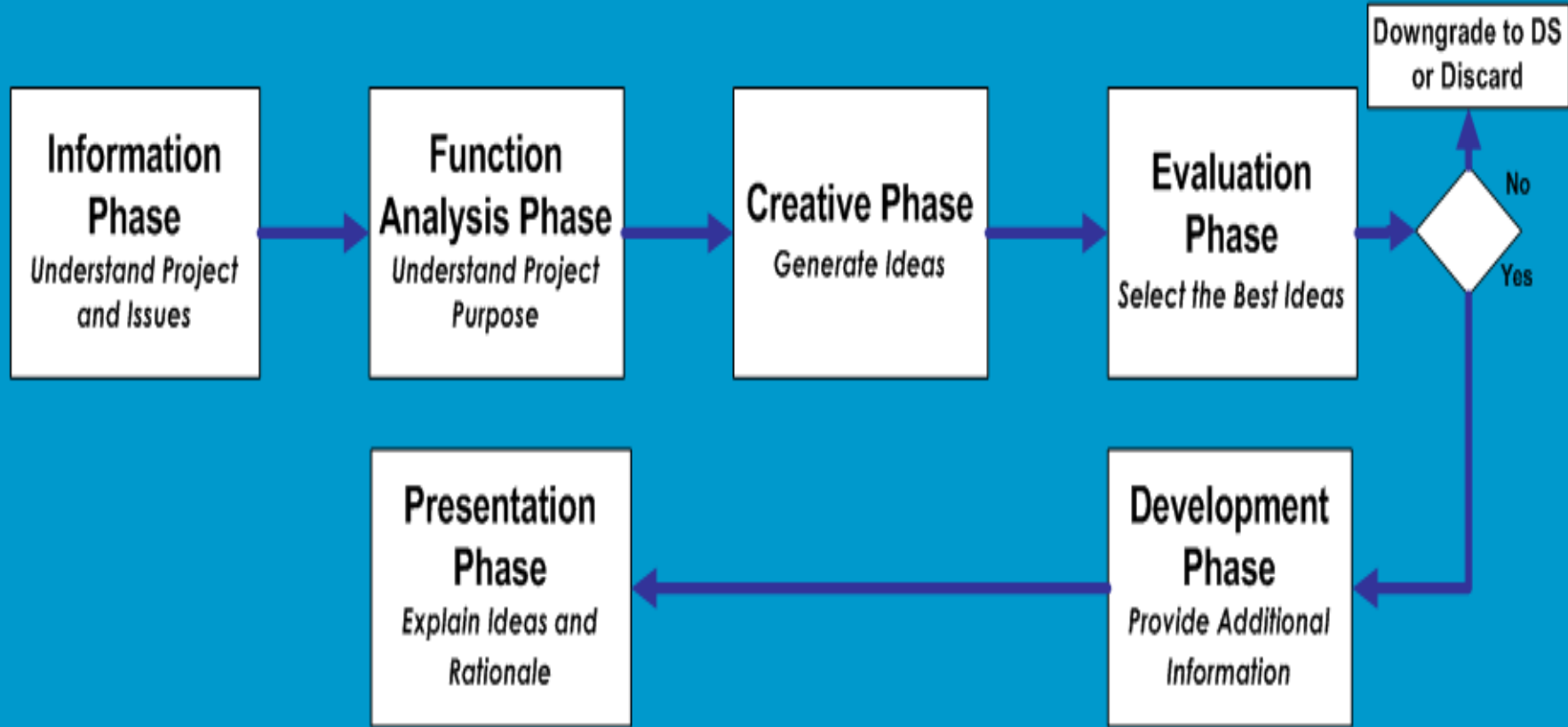
Workshop Assistant

* -Part time



THE VALUE PROCESS

Value Methodology Workshop



GUIDING PRINCIPLES

- ▲ Implement the best, lowest cost solutions
- ▲ Achieve public health standards
- ▲ Flexible from administrative and operational perspectives
- ▲ Maintain agricultural interests



PLAN OBJECTIVES

- ▲ Best technical solution for an integrated water supply plan not just an interconnected plan
 - a. Customer equity relative to costs
 - b. Consistent level of service
 - c. Consistently high water quality
 - d. Efficiency in operations and administration
 - e. Uniformity in practices and procedures
 - f. Seamless experience for all water citizen of Kelowna



VP STUDY GUIDELINES

- ▲ The technical solution will not consider system Governance
- ▲ Solutions will not be limited based on ownership of existing systems
- ▲ The Plan needs to have a 50-year long term perspective
- ▲ The Plan will be developed based on a 25-year planning period
- ▲ The Plan will have to accommodate phased implementation



Proposed Technical Plan



Construct system modifications to ensure the needed domestic water quality improvements for SEKID and irrigation supply for SOMID are addressed as an initial implementation phase of the integrated system



CONCEPT

SEKID
System
Separation

KLO Connector

350 Transmission
Mains
PRV Stations
Creek Crossing
Booster Pump

Cedar Creek Capacity Upgrade

750 Transmission Mains
Stellar PS Upgrade
Cedar Pumps
Adams Reservoir Upgrade
SOMID Upgrades

CDAR CREEK
DESIGN CAPACITY
EX. 30 ML/day
ULT. 92 ML/day

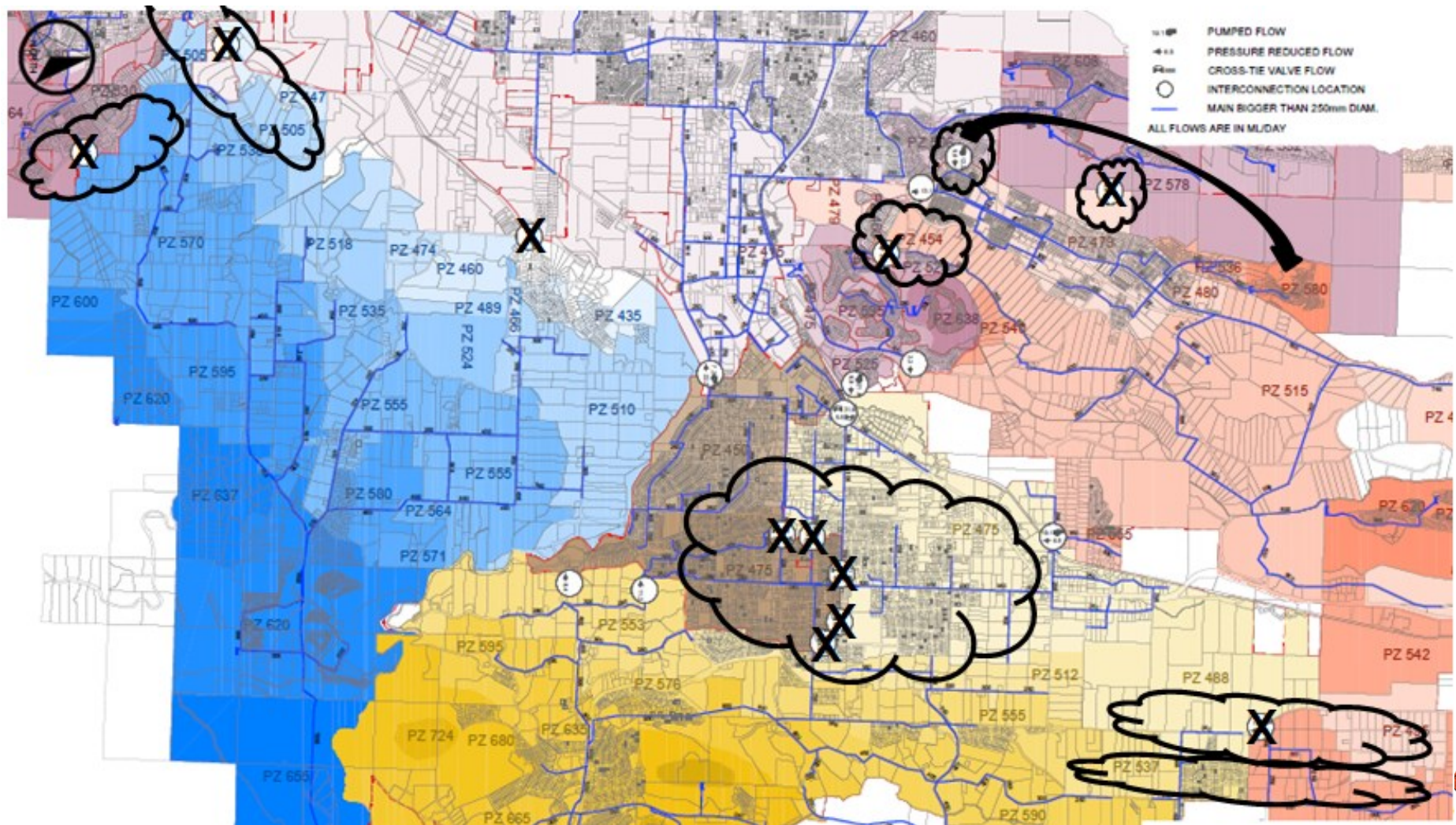
EX. 17.3 ML/day
ULT. 40 ML/day



Interconnect distribution systems city-wide to provide a consistent level of service and reliability to all water users



CONCEPT



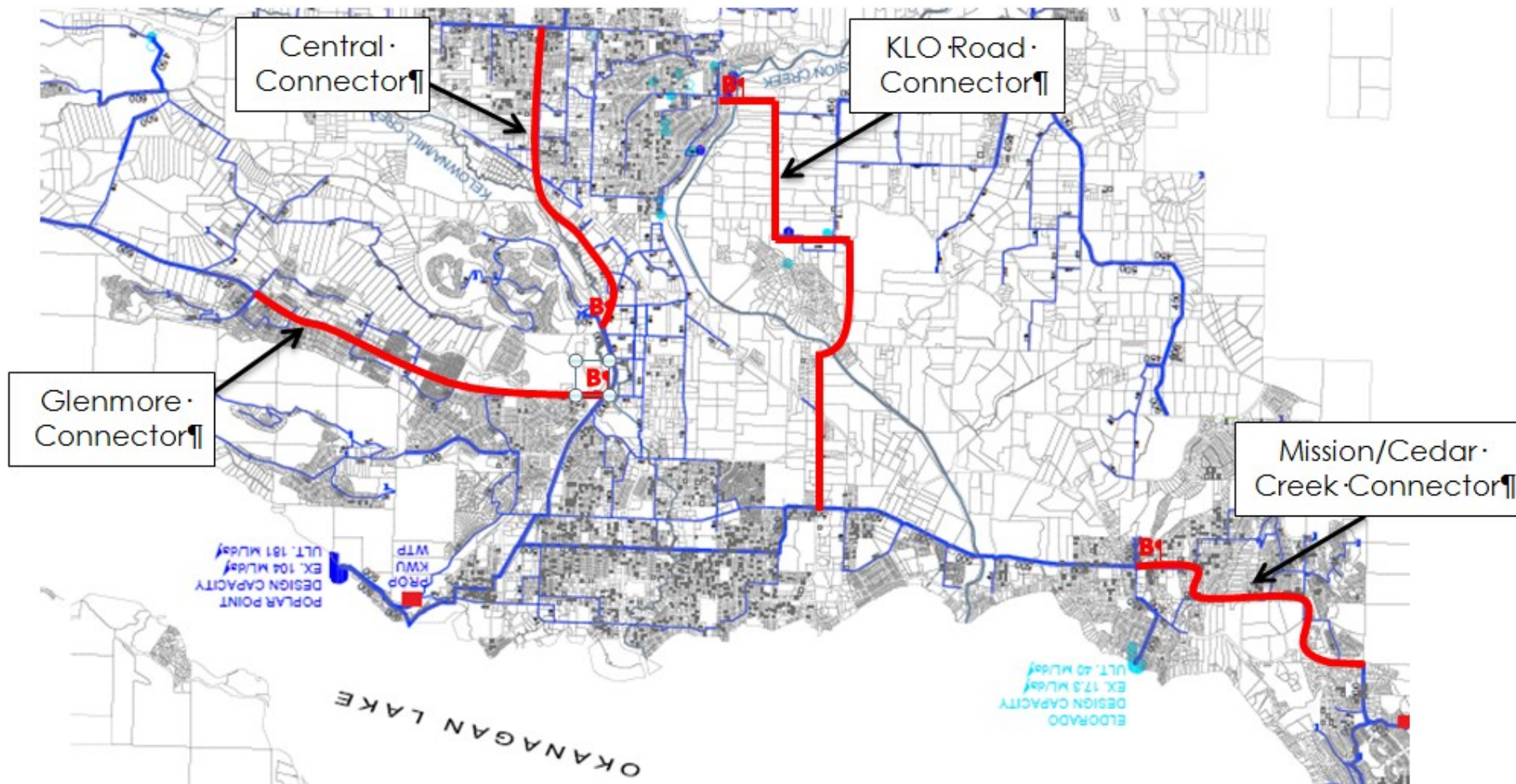
Separate domestic and agricultural water within all distribution systems



Construct a domestic water transmission system that provides redundancy and resiliency for distributing source water to supply the distribution system



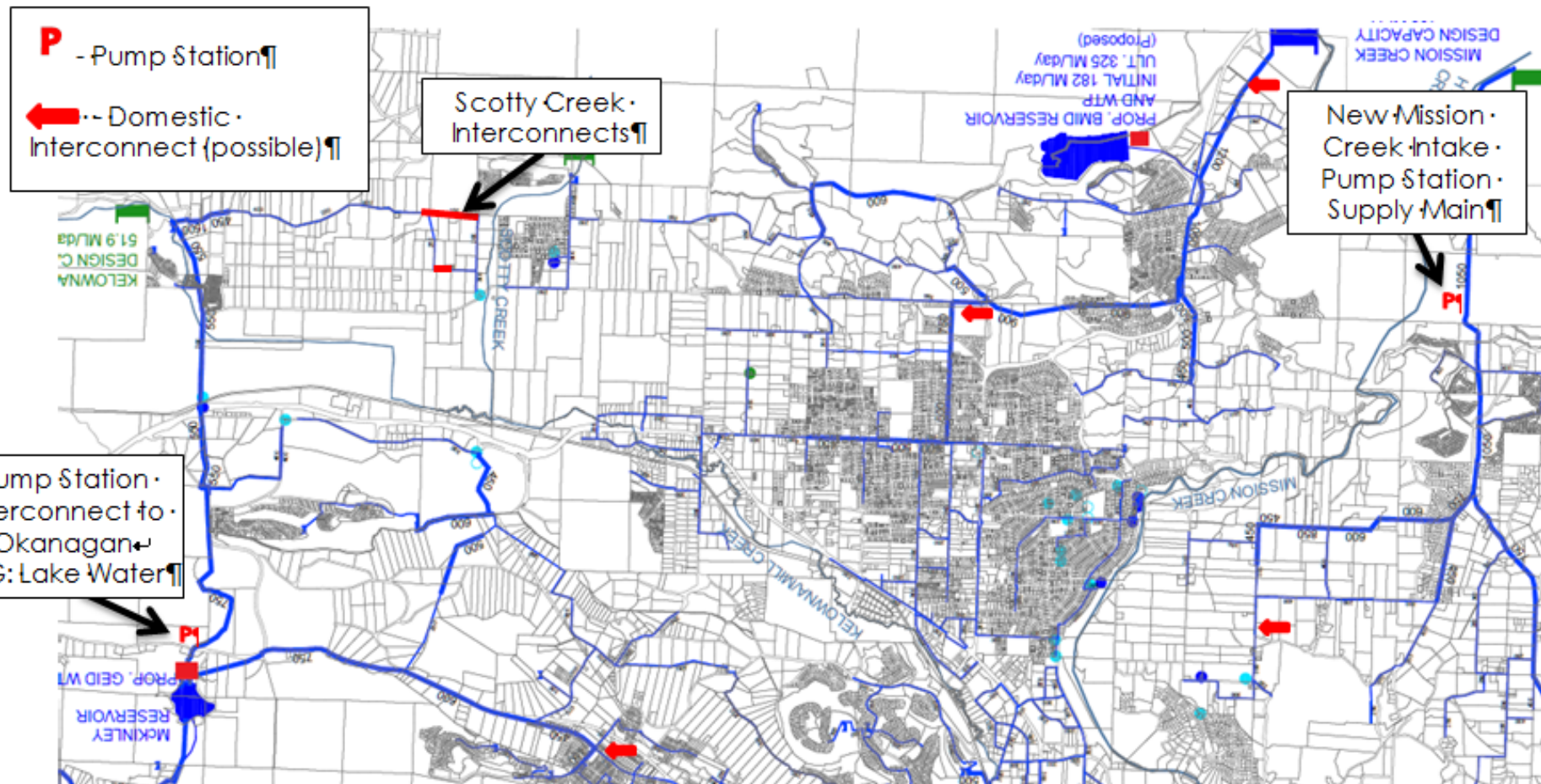
CONCEPT



Construct an agricultural water transmission system that provides redundancy and resiliency for distributing source water supply the distribution system



CONCEPT



Develop long term strategies and contingency plans for anticipated changes in water supplies and demands

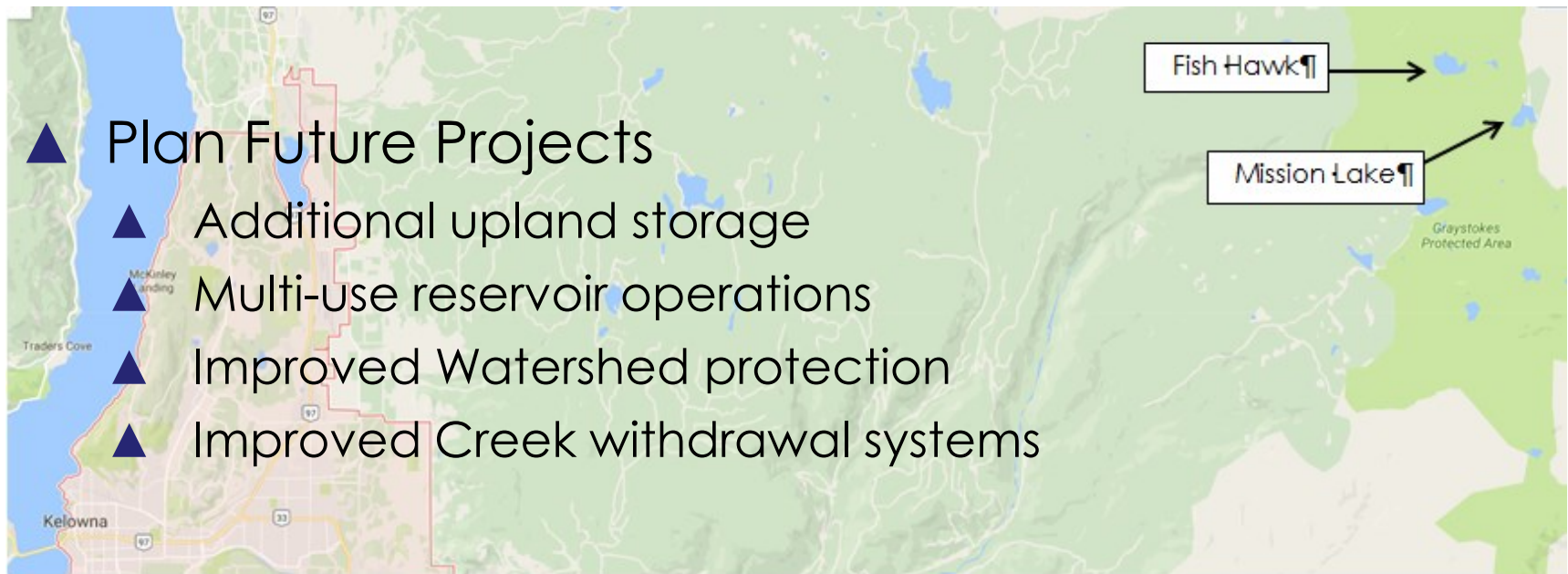


▲ Track Important Data

- ▲ Climate changes
- ▲ Demand and supply
- ▲ Raw water Quality

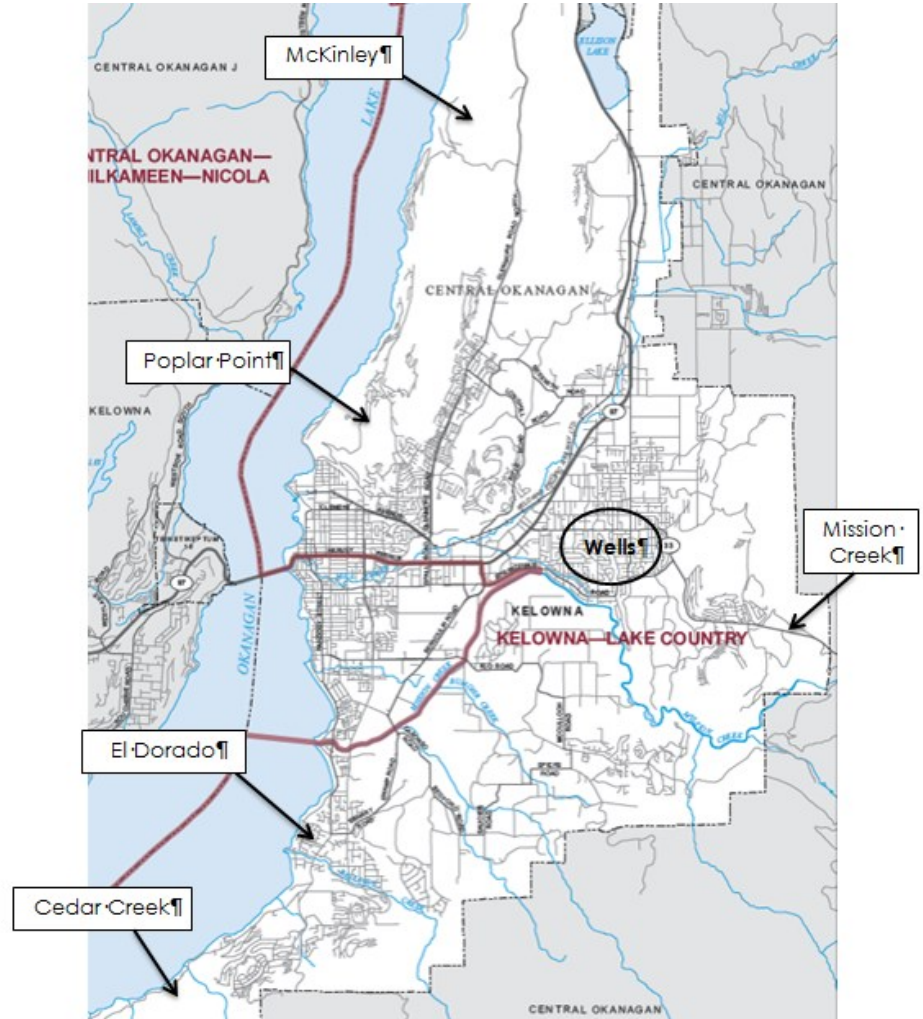
▲ Plan Future Projects

- ▲ Additional upland storage
- ▲ Multi-use reservoir operations
- ▲ Improved Watershed protection
- ▲ Improved Creek withdrawal systems



VP Element #7

Develop an implementation strategy for future filtration or advanced water treatment requirements



Implementation



Perform advance work to support further planning and design of an integrated water system

- ▲ Evaluate the Blending of Supplies
- ▲ Build an Integrated Water System Model
- ▲ Jump Starts Consolidated Asset Management



Develop a strategy for funding and allocation of costs that assures customer equity

- ▲ Prioritize recommended capital improvements
- ▲ Complete asset valuations for systems
- ▲ Identify and develop revenue sources



Develop a change management plan to facilitate the successful implementation of the integrated water supply plan



Change Management Plan

1. Identify the issue
 - ▲ Governance of the integrated system
 - ▲ Operation of the integrated system
 - ▲ Communication of the implementation plan
2. Prepare for change (plan and communicate)
3. Manage the change
4. Measure the change
5. Improve the change



Governance of integrated system

- ▲ Agricultural advisory committee
- ▲ Integrated system by-laws
- ▲ Uniform metering and billing procedures
- ▲ Uniform water restriction policy



SUMMARY of VP ELEMENTS

Technical Plan Elements		Cost (mil.)
1	Build first phase transmission and resolve SEKID and SOMID water quality issues	\$67.8
2	Interconnect domestic distribution systems	\$5.6
3	Separate domestic and agricultural water in all distribution systems	\$41.9
4	Complete a City-wide domestic water transmission system	\$96.1
5	Complete a City-wide agriculture and fire flow transmission system	\$21.6
6	Implement long-term adaptation strategy	\$46.6
7	Construct filtration when required	\$108.3
Implementation		
8	Evaluate supply blending, develop system model and asset management plan	
9	Develop an equitable funding and cost allocation strategy	
10	Develop a change management plan to implement the integrated water plan	\$6.7
Total (does not include No. 6, which is beyond the planning horizon)		\$348.0



Next Steps

▶ Short Term

- ▶ CWWF grant application
 - ▶ South East Kelowna Irrigation District
 - ▶ South Okanagan Mission Irrigation District
 - ▶ Potential for 5 small systems to integrate
- ▶ Mixing & system modeling
- ▶ Phase 1 detailed engineering

▶ Long Term

- ▶ Additional detailed engineering work
- ▶ Area based planning
- ▶ Long-term financing strategy
- ▶ Collaboration with Key Stakeholders



Questions?

For more information, visit kelowna.ca.