Updates on the Naramata Water System

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Outline

- Recent system upgrades
- Capital plan and DCC update
- Future watermain replacements
- Flume replacement
- Standby power generators
- Reserve funds
- Next steps

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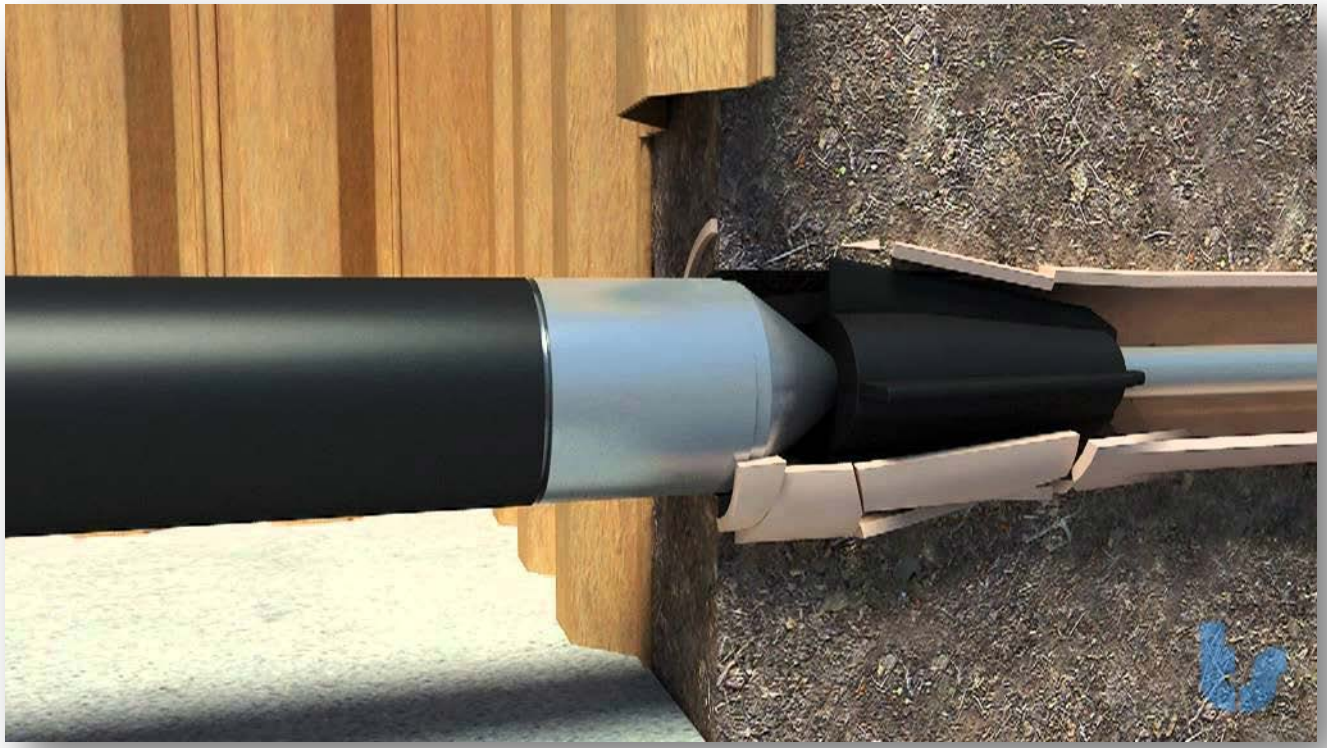
Recent System Upgrades

Recent Upgrades

- On Arawana Road up to Juniper Road
  - Critical section of pumping main to upper reservoirs – Juniper, Arawana & Stonebrook
  - 2 separate projects
    - Pipe bursting from Arawana to Juniper Road Replacements on Arawana, Spruce, Ponderosa, part of Debeck
- Hydrant Installations

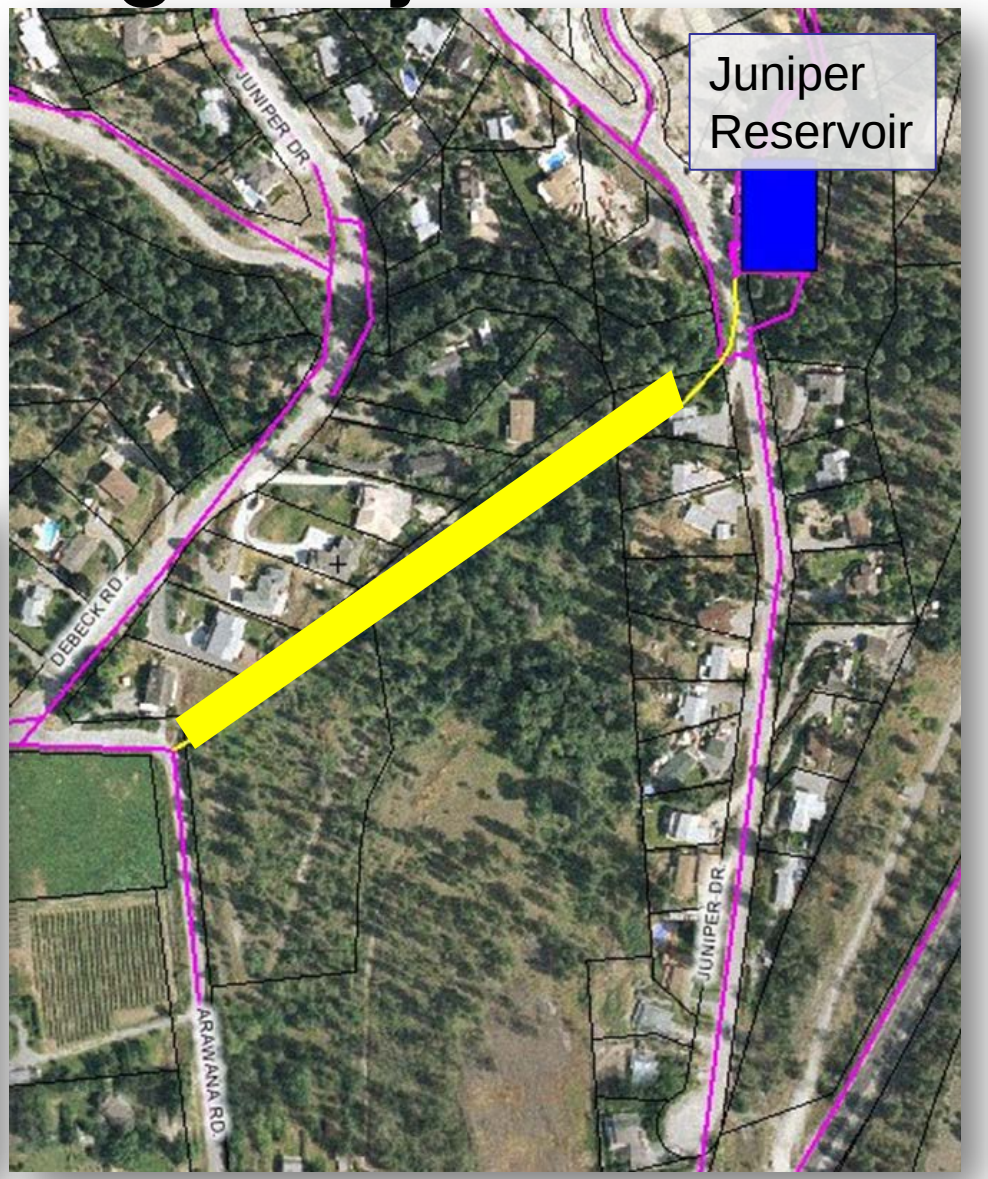
Pipe Bursting Project

- Minimal excavation required
- Existing pipe used to pull through new pipe

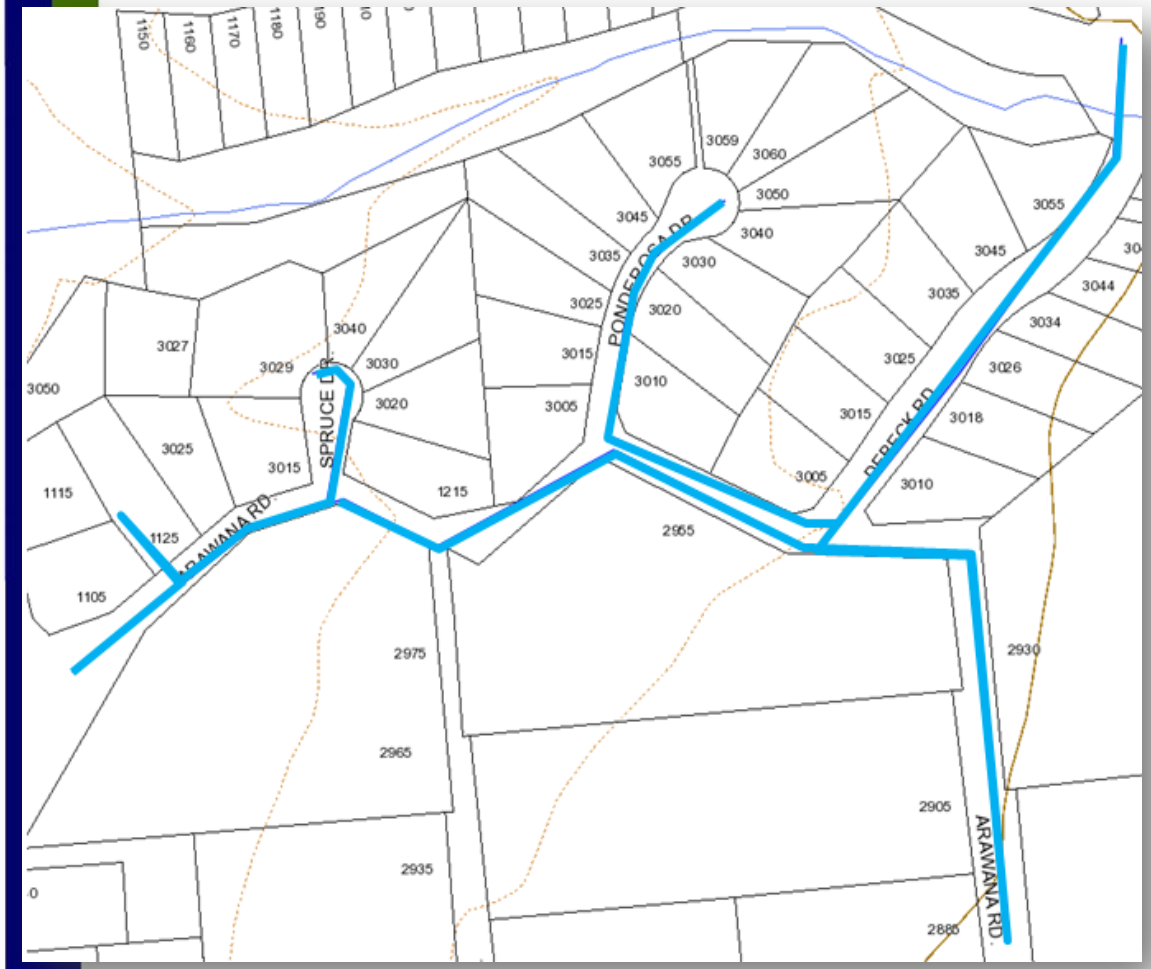


Pipe Bursting Project

- Completed July ‘14
- Approx $191k
- 280 m of new pipe



Arawana Watermain Project



- Remaining critical pumping main
- Approximately 1.1 km of pipe replaced
- Estimated at $710k

Arawana Watermain Project

- All watermain work complete this week
- Paving
  - Weather dependent
- Landscaping will be completed in 2015
- Added meter pits to all connections (total 37)

Hydrant Installations

- 5 locations selected to enhance coverage
- 4 completed:
  - Near 2275 Naramata Road
  - Near 2785 Gammon Road
  - Near 940 Salting Road
  - Corner of Gulch Road & Orchard Lane
- 1 remaining to be completed:
  - Corner of Clarke Road & Gulch Road
- Cost estimated at $74k

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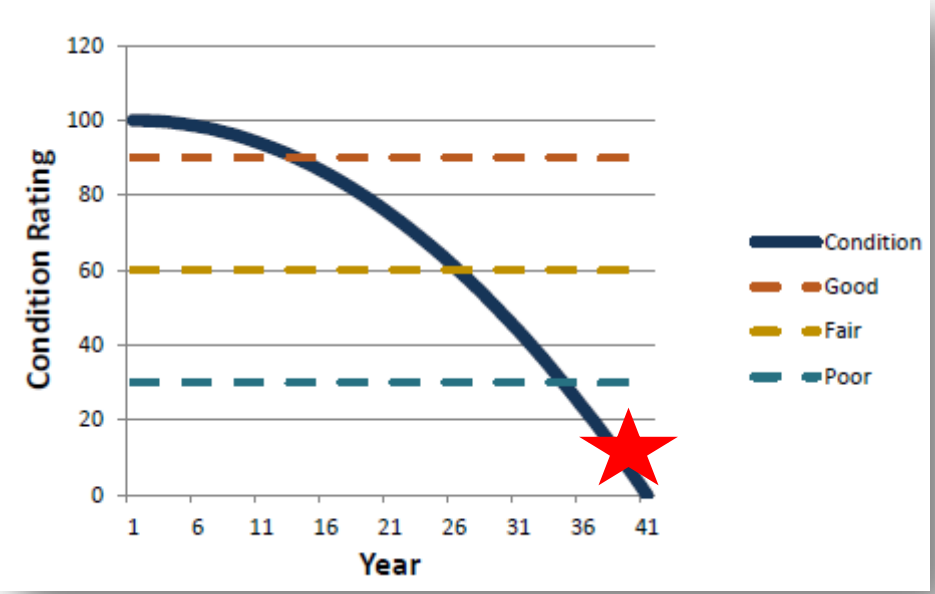
Capital Plan & DCC Bylaw

Capital Plan Summary

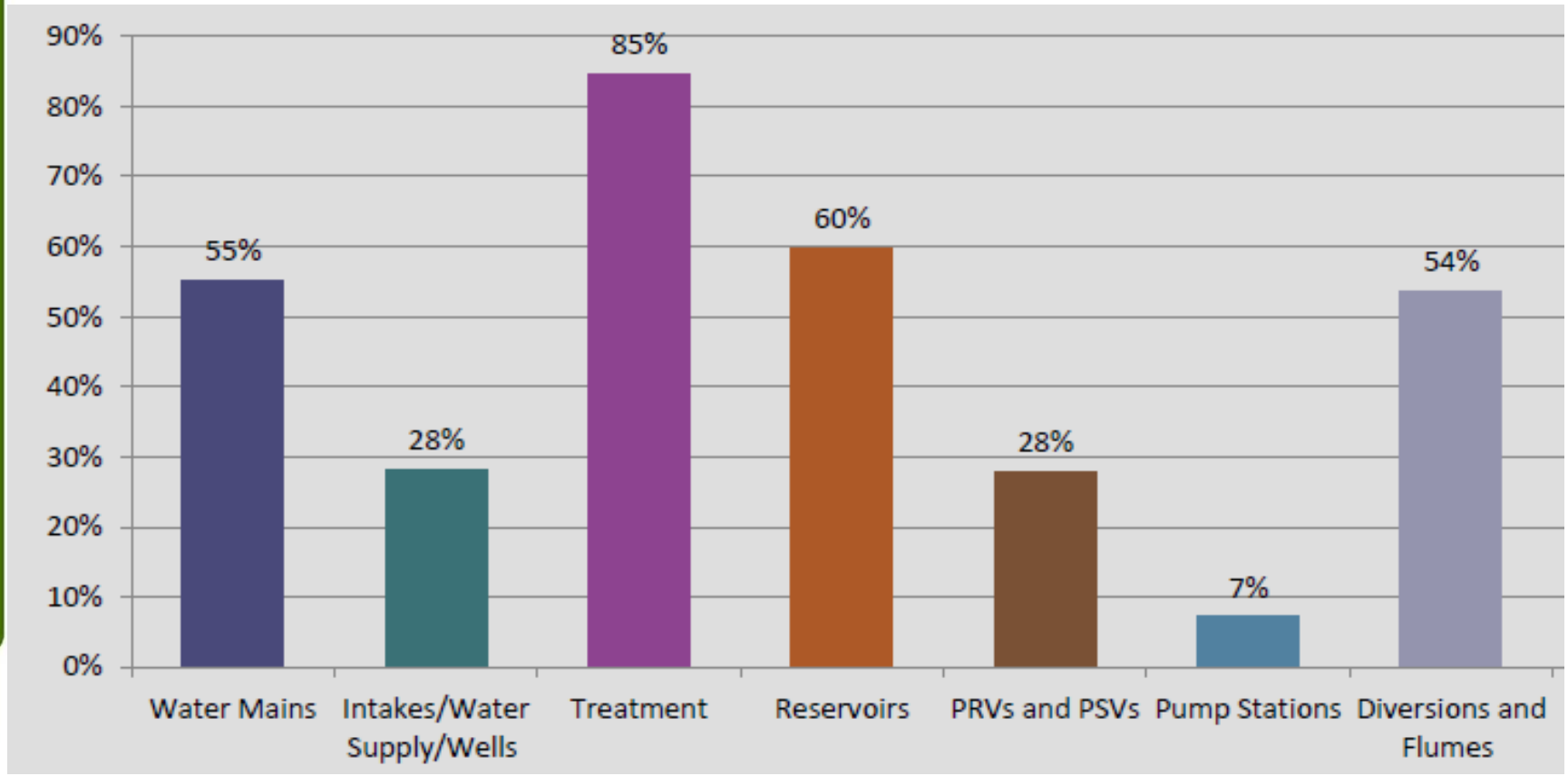
- Infrastructure assessment complete
- Previously presented in 2013
- Summary of conclusions
  - Large amount of assets will need replacement by 2019:
    Approx $6 Million

Graph represents the deterioration of infrastructure over a 40 year lifespan



Expected Remaining Life

- Priorities will be watermains, water intake, pumpstations and pressure related valves



Capital Upgrades

- Pending - final report for upgrade priority
  - List will be guide for staff
  - Listed items may move up or down
- Next potential location
  - 150m along Juniper Drive to reservoir site
  - Hyde Road (several breaks)

Examples of Asbestos Cement pipe

DCC Update & Bylaw

- DCC (Development Cost Charge)
  - Monies collected from developers to offset cost to upgrade infrastructure to accommodate needs of new development
- Draft report under review
- DCC bylaw to be written in 2015
- Additional information and discussion coming in 2015

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Flume Replacement

Flume Replacement

- Flume diverts water from Robinson Creek to Naramata Creek – 730m long
- Past requirement to maintain fish flow in Naramata Creek
- Investigating options for maintaining or decommissioning
- Upgrade cost estimated at $300k

Flume

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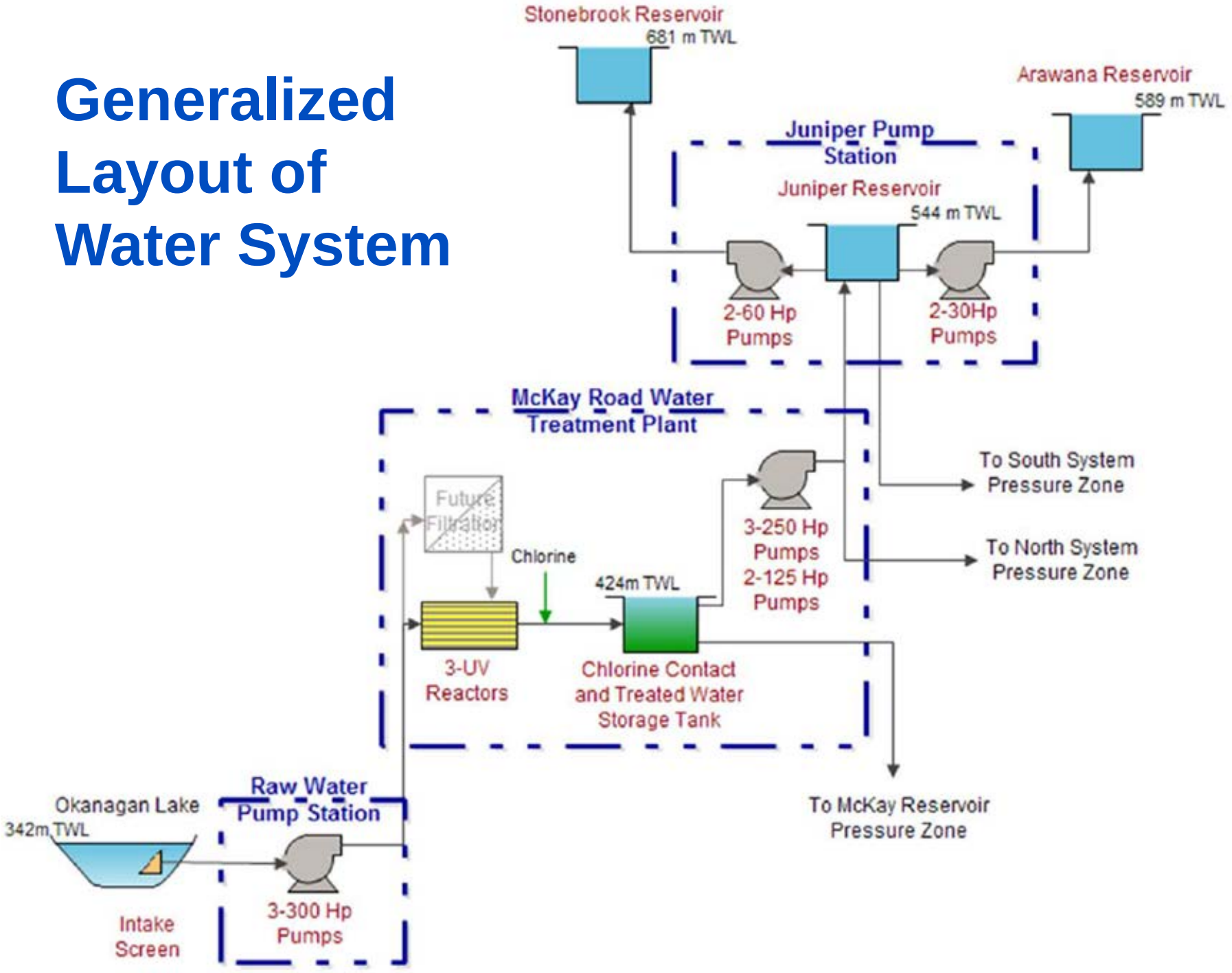
Standby Power

Standby Power Overview

- General system layout
- Why do we need it?
  - Evaluating fire risk
  - Storage requirements
  - Creek intakes
- Preliminary design
- Cost estimates

Generalized Layout of Water System



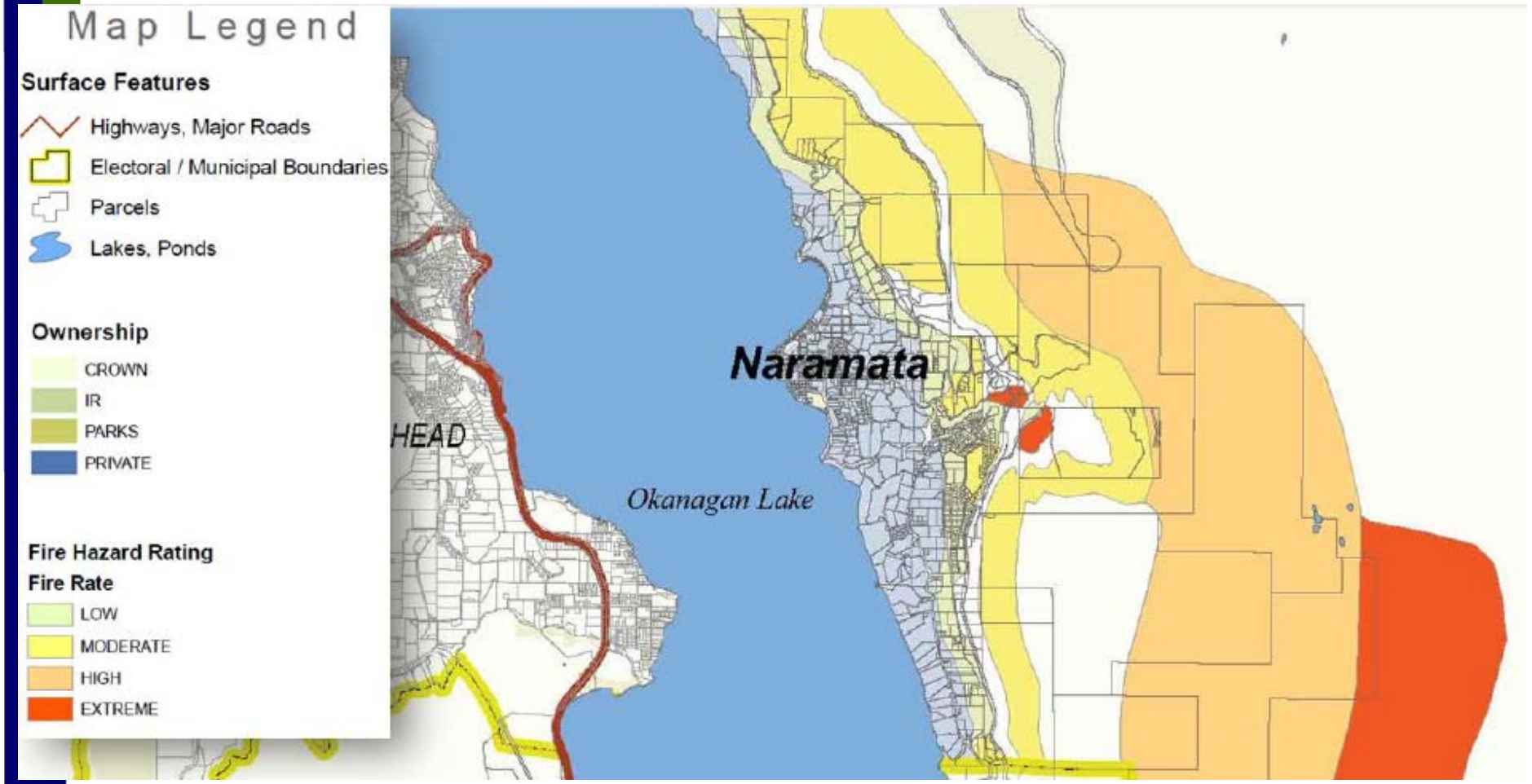
Why do we need it?

- Fire hazard risk
  - Interface zone
- Storage requirements

Existing Fire Risk

- Moderate, high & extreme hazard areas within or adjacent to Naramata
- Extreme hazard areas
  - located in upper area near Stonebrook and Arawana reservoirs
- 2006 Fire Underwriters Report
  - Recommended standby power be provided
  - 2007 upgrade project initially included but were removed due to inadequate budget

Fire Hazard Mapping



Water Availability

- Ensure water availability for fire suppression purposes
- Power frequently turned off in wildfire event
- Current water supply when power off
  - Storage in reservoirs
  - Standby gravity creek sources

Reservoir Storage

- Requirements based on
  - Land use
  - Balancing maximum demands
  - Fire suppression purposes
  - Emergency storage for allowing time for staff to respond to situations
- Stonebrook & Arawana reservoirs
  - Services about 20% of system demands
  - Sufficient capacity

Reservoir Storage

- McKay & Juniper reservoirs
  - Service about 80% of total system demands
  - Deficient in balancing, fire flow and emergency storage requirements
  - Rely on pumping infrastructure for peak demands and fire flows
  - During periods of high demand
    - Pumps operate continuously

Starting Creek Intakes

- Intake bypass gate closed
- Setting pond cleared of sediment and filled
- Set up chlorination system – Chlorine gas
- Begin filling transmission main & flush
- Introduce water to distribution system
- Naramata Dam adjusted - increase water
- To start one intake:
  - 4-6 hours for 2 operators

Creek Intake Sources

- Significant operational challenges
  - Boil water notice required
  - Chlorine cylinders brought in (restricted in fire)
  - Clean out sediment – need excavator onsite
  - Access to intakes restricted during fires
  - Creeks can carry fire retardants from fire zone
  - Extensive disinfection and flushing of system
  - Lower than Stonebrook reservoir

Creek Intake Sources

- Requirements for Continued Maintenance
  - Settling ponds
    - Cleaned out of accumulated sediment
    - Extensive concrete repairs
  - Upgrade some piping
  - Dosing meter for chlorine required at one site

Standby Power Design

- Completed Preliminary Design Report
  - Sizing requirements
  - Evaluate options
  - Siting considerations
  - Storage versus pumping requirements
  - Cost estimates
- Detailed Design 90% complete

Standby Power

- Three generators required - $1.18 Million
  - Raw water pumpstation
    - $506,000 ($50k in extra sound dampening)
  - McKay treatment plant
    - $506,000
  - Juniper reservoir & pumpstation
    - $166,000
- Estimates include generators, electrical, instrumentation, and site work (excavation, fencing, retaining walls, etc)

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Capital & Twinning Reserve Funds

Capital Reserves

- Created as a reserve bylaw
  - Bylaw No. 1788, 1997
- Included in the general water charge of $802.64 per year ($200.66 quarterly)
  - Capital reserve contribution estimated at $262 per year per property ($65.50 quarterly)
  - Typically $250,000 per year contributed

Twinning Reserve

- Created as a reserve bylaw
  - Bylaw No. 2355, 2005
- $131 per year ($32.75 quarterly)
  - Total - $125,000 per year
  - Typical residential: 10-12% of utility bill

Reserve Funds

- Estimated funds available at end of 2014:
  - Capital Reserve: $ 830k
  - Twinning Reserve: $1.35 Million
- Twinning Reserve
  - When reserve is no longer required it may be transferred into another reserve if:
    - Service area is the same
    - Properties are the same
  - Process – completed in another 6 months

Future of Twinning Reserve

- When reserve is no longer required it may be transferred into another reserve if:
  - Service area is the same
  - Properties are the same
- Process – in progress
  - Estimated completion in another 6 months

Next Steps

- Completion of capital upgrade plan
  - Prioritize for replacement
- DCC Bylaw development
- Transfer of Twinning Reserve to Capital Reserve & renamed on quarterly bills
- Generator installations ??

Questions??

- Please contact us anytime with questions

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