

# Integrated Approach to Water

Spring 2021 Update

Infrastructure Services Committee

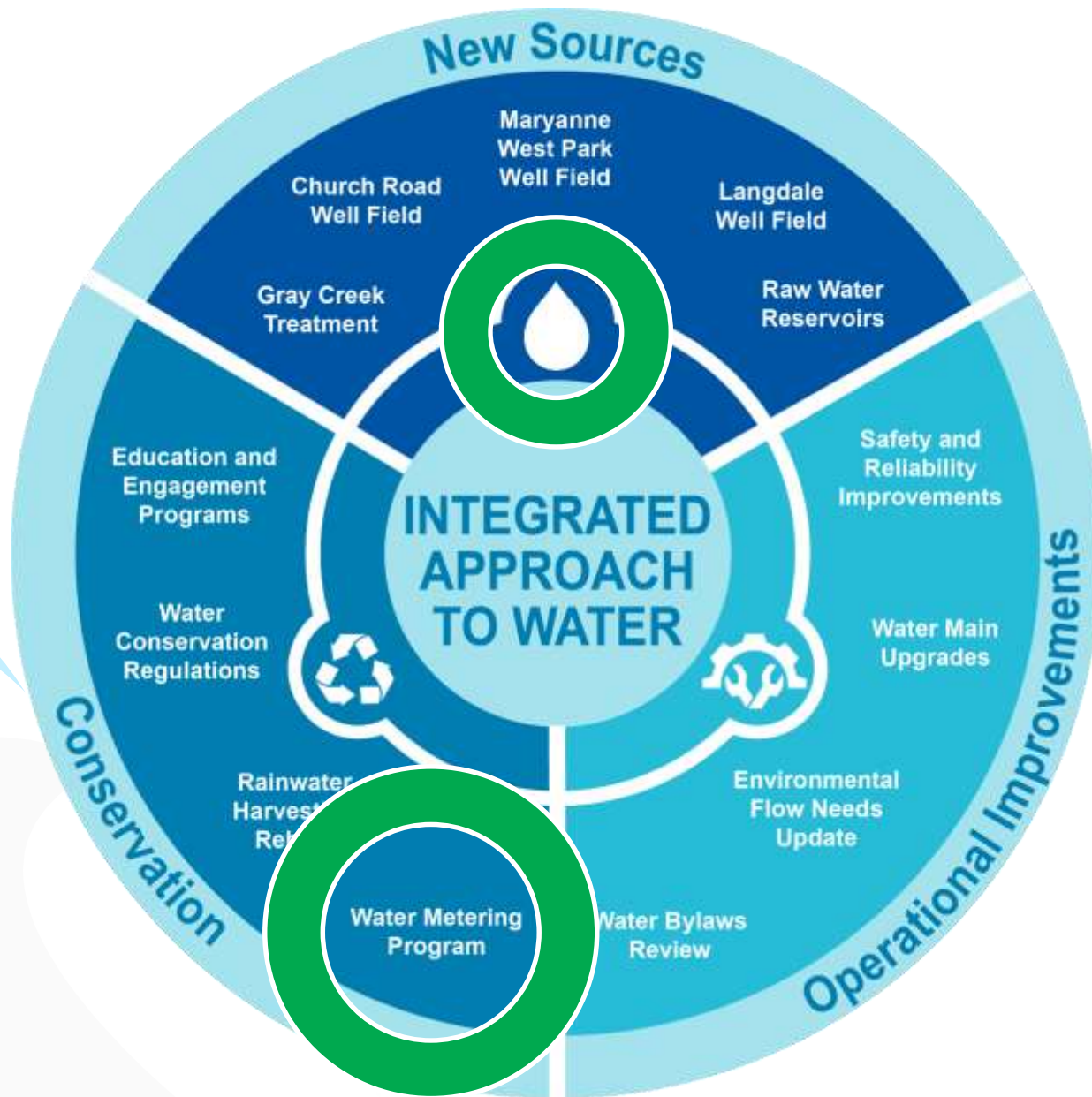
March 11, 2021



# Outline

- Integrated approach to managing water
- Water Sourcing Policy – Framework
- Water metering program
- Projections for future water demand
- Cost and value of projects





# Terms

**Water demand analysis:** planning tool for forecasting water demand using factors like historical water use, population growth, climate change and future infrastructure expansion.

**Water supply deficit:** the volume of water needed to meet demand.

**Environmental Flow Needs:** the volume and timing of water required for proper functioning of an aquatic ecosystem of a stream.

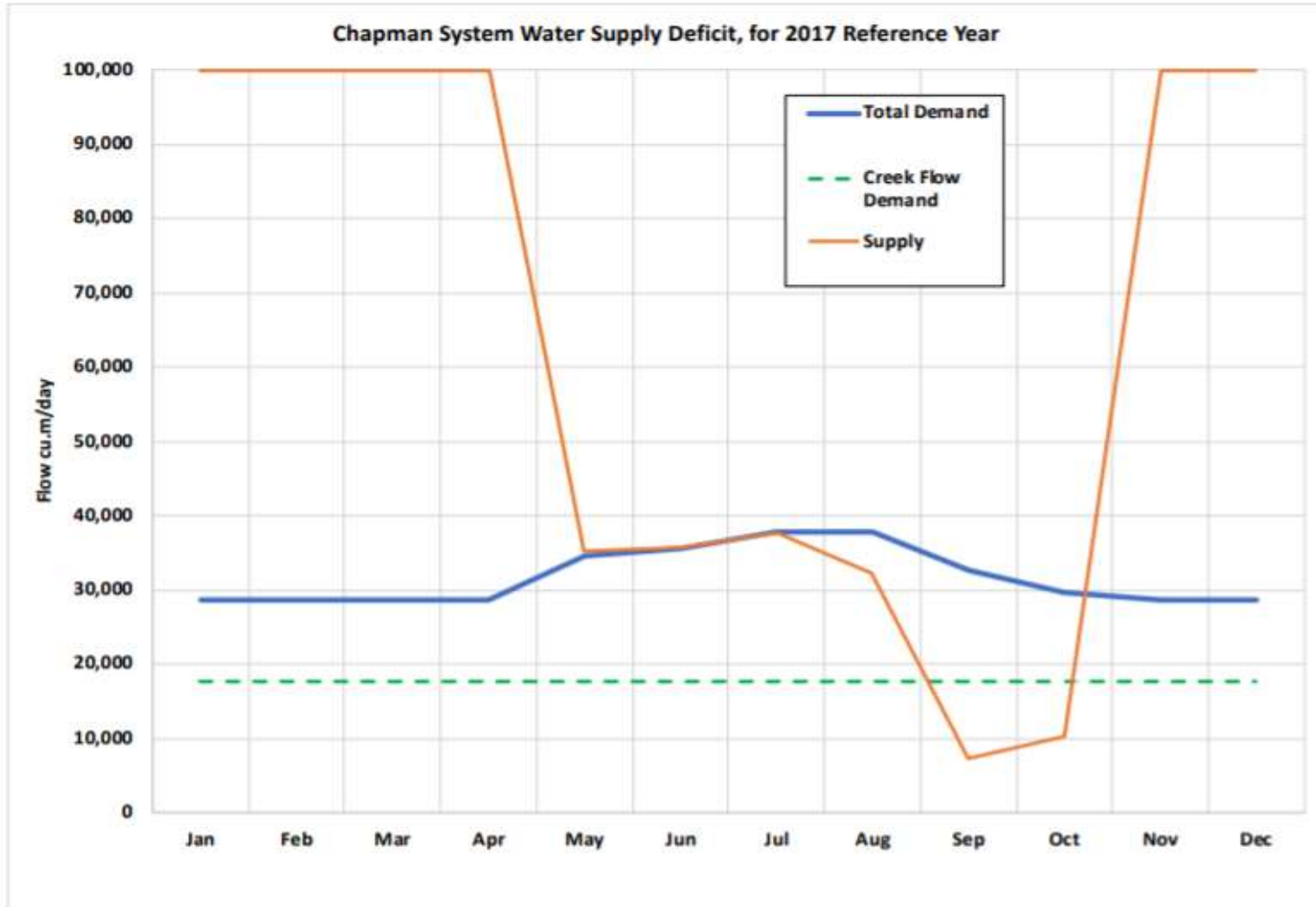


# Water Sourcing Policy - Framework

- Adopted in 2018
- Objectives
  - Avoid escalating beyond Stage 2 restrictions, except in an emergency
  - Redundancy of supply for at least one week



# Water Demand Analysis



# Water Supply Deficit

<b>Chapman Water System (million m<sup>3</sup>)</b>			
<b>Reduction demand (per capita)</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
<b>Baseline</b>	2.3	3.2	4.9
<b>10%</b>	1.9	2.7	4.2
<b>20%</b>	1.6	2.2	3.6
<b>30%</b>	1.2	1.8	2.9



# Water Metering Program



- Over 6,200 metered properties
- Data sharing
- Engagement and education
- Potential for alternate rate structure
- Leak detection program



# Leak Detection Program

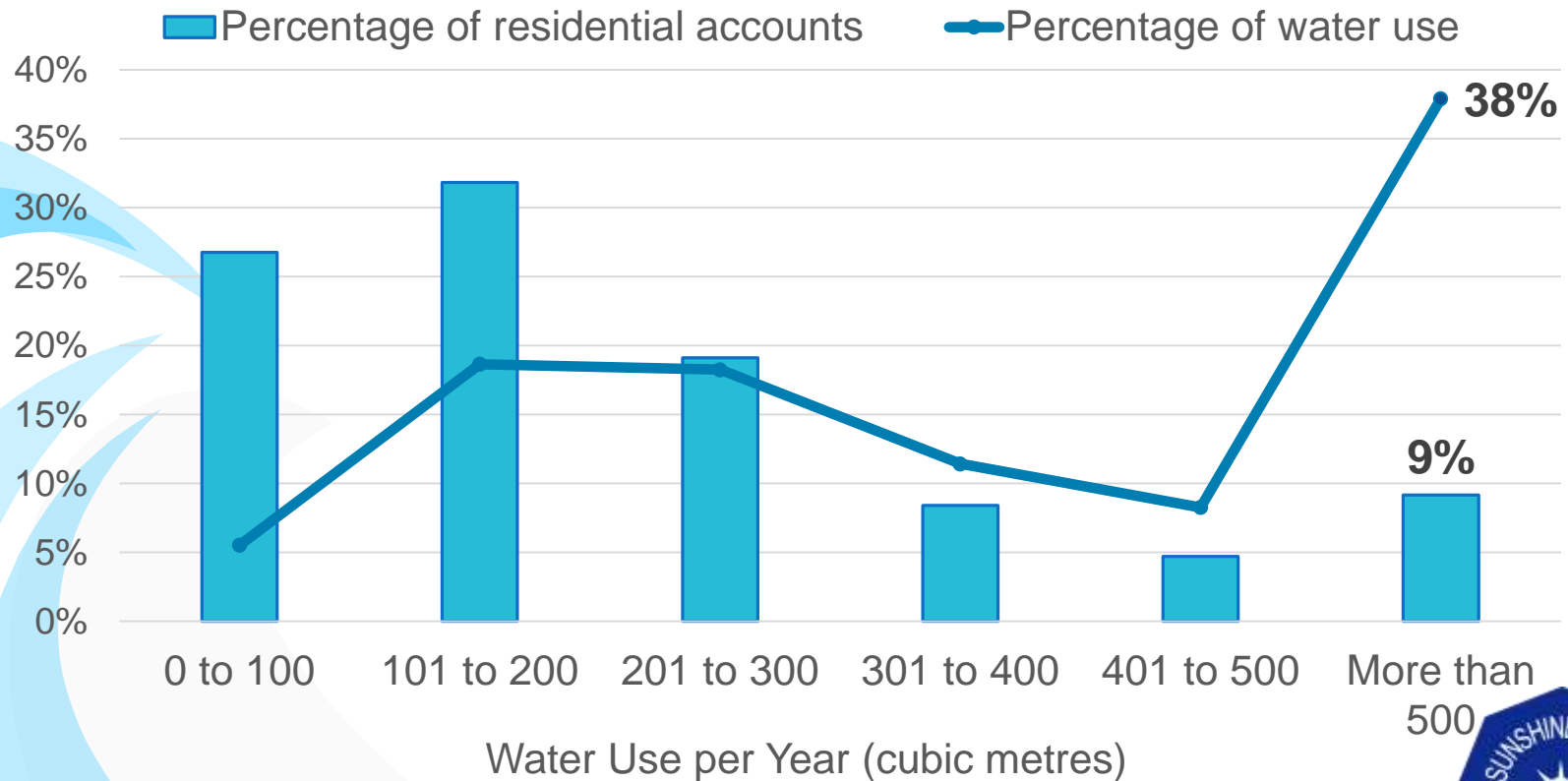
- Since 2017: SCRD supports fixing private leaks at a rate of 2 per day
- 2020: 858 properties received leak notifications
- A property with a leak uses about 4 times more water than average



# Household Water Use

A small number of households account for over 1/3 of residential water use.

## Residential Water Use (Properties with Water Meters)



# Water metering promotes conservation

**After water meters installed and new rate structures were implemented...**

- 65%** less water used in Canadian households
- 40%** reduced per capita water use in the Town of Gibsons between 2008-2017
- 30%** drop in summer demand in the District of West Vancouver



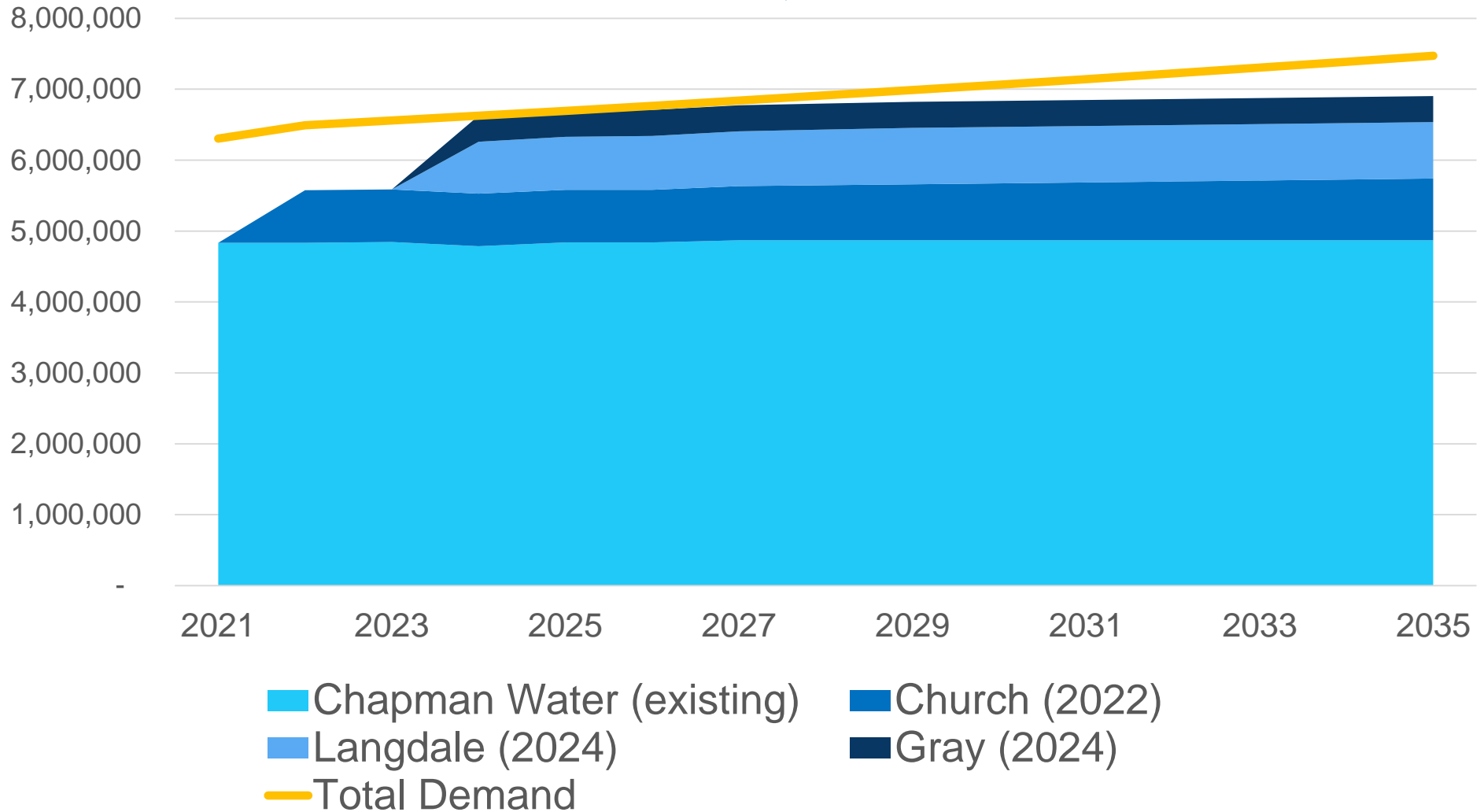
# Model Assumptions

- 2% annual population growth
- Current per capita demand 10% below 2010 baseline
- Alignment with Water Sourcing Policy –Framework (avoid escalating beyond Stage 2)
- Summer demand higher than average demand
- 6 month drought conditions
- Updated EFN Chapman Creek included
- Water metering program fully implemented
  - Pay-per-use rate structure
  - Per capita demand 30% below 2010 baseline



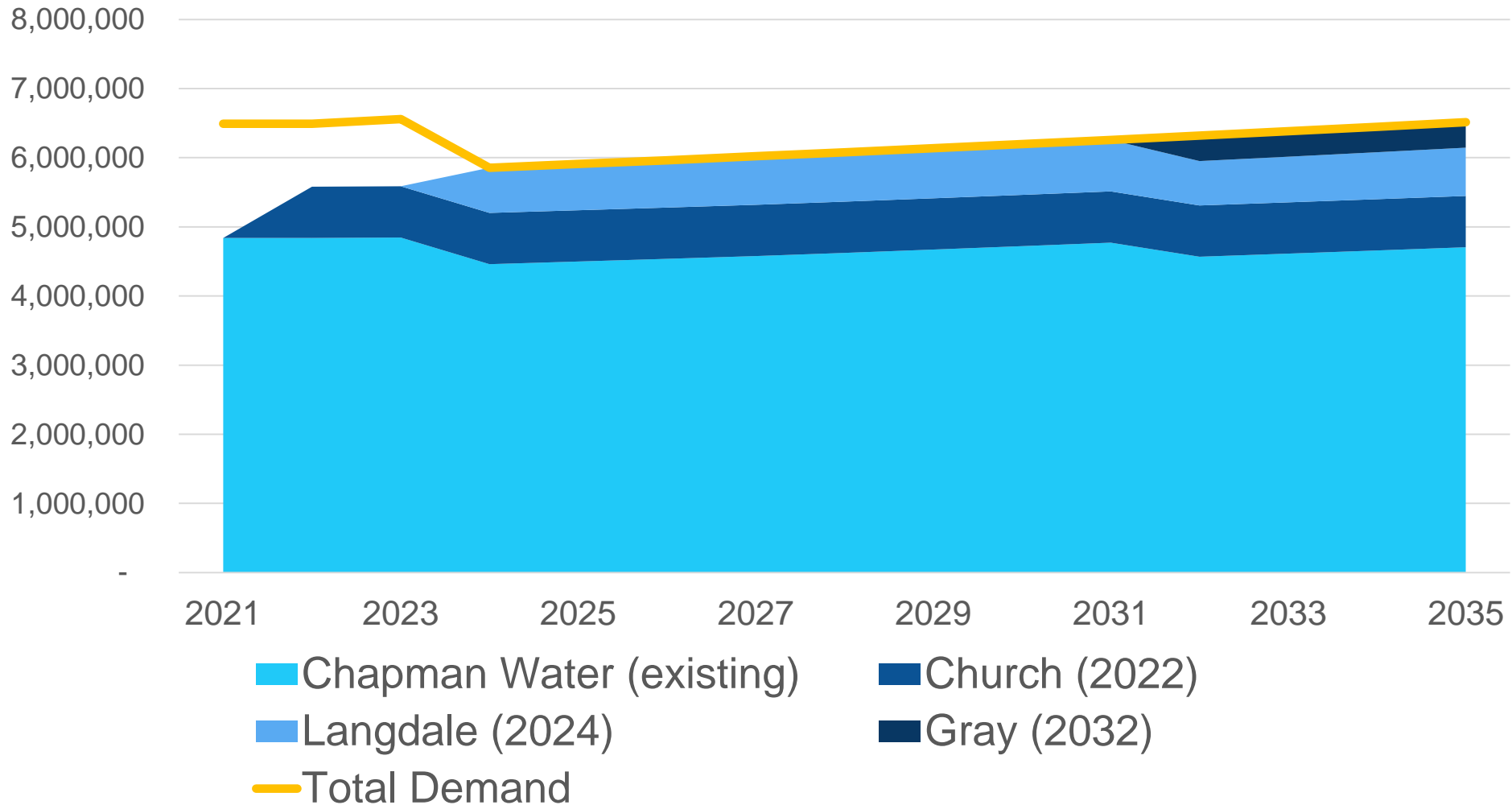
# Total Water Demand and Supply

Status Quo



# Total Water Demand and Supply

Water Metering Fully Implemented in 2024



# Comparison of two scenarios

## Status Quo

- 2026: New source needed
- WSD without a new source
  - 2035: ~ 570,000m<sup>3</sup>
  - 2050: ~ 1,810,000m<sup>3</sup>

## Metering completed with pay-per-use rates

- 2039: New source needed
- 2050: WSD ~735,000m<sup>3</sup> without new source



# Capital Costs

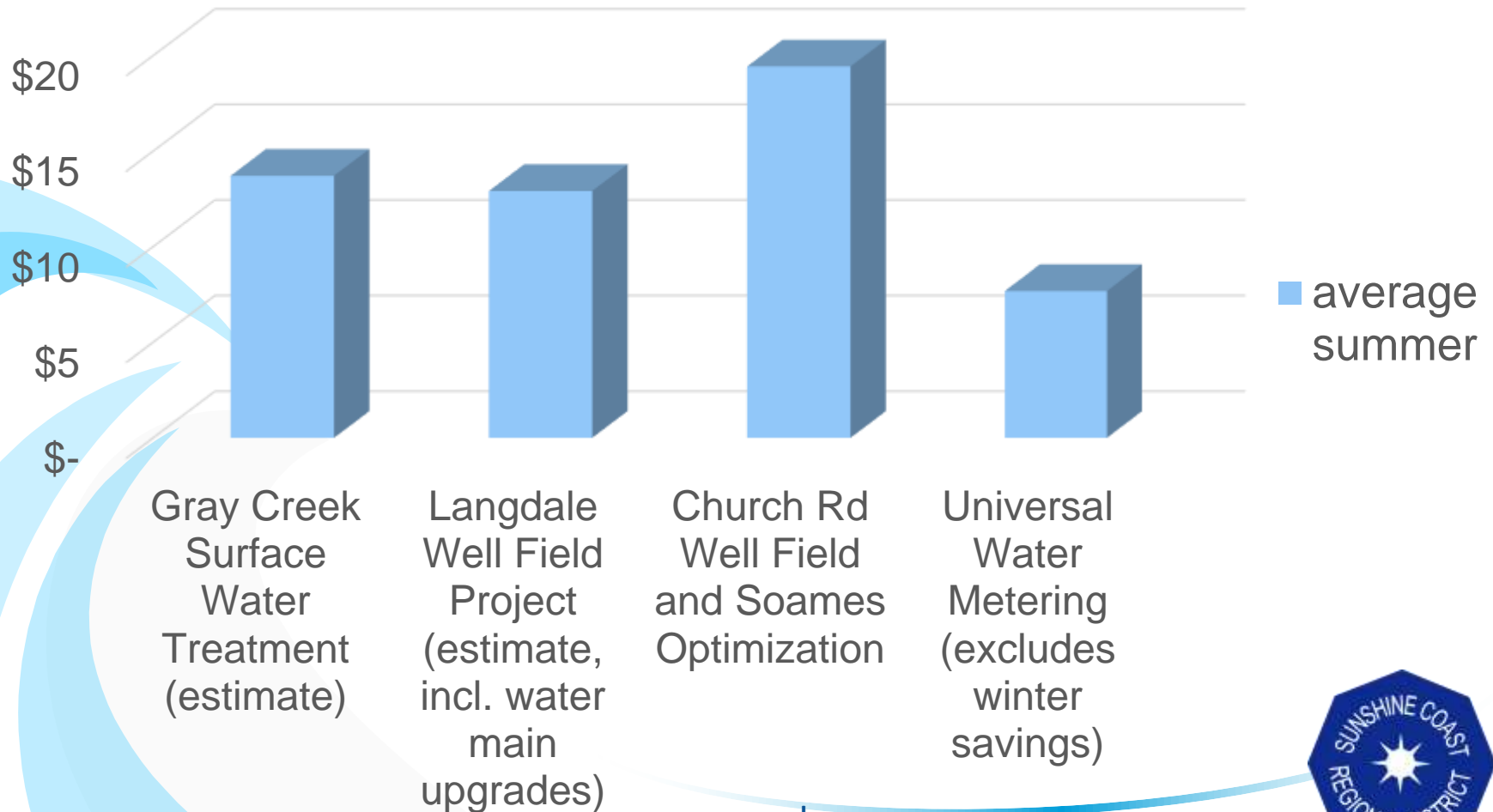
Project	Capital Cost (million)
Gray Creek Surface Water Treatment Upgrade (preliminary estimate)	\$2.5
Langdale Well Field (preliminary estimate, incl. water main upgrades)	\$5.2
Church Road Well Field (detailed estimate)	\$7.13
Phase 3 Water Meter Installations (Chapman System)	\$7.25





# Capital Costs - continued

Capital Cost / m<sup>3</sup> in 2035



# Operational Cost Considerations

## Groundwater

Staff

Maintenance

Chemicals

Electrical costs

Year-round  
operation

## Metering Program

Staff

Maintenance

Reduced treatment  
and distribution

Deferred capital

# Next Steps

- Develop and implement water supply projects
- Water Metering Program
  - Phase 3 installations AAP scheduled in Spring/Summer 2021
  - Continue implementing existing program (leak notifications, online data access)
- Implement 2021 Public Participation Plan
  - Incl. Let's Talk Water events in April and May



Thank you

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