

# Maximizing Value In Water/Wastewater Using VE

**Tips, Tricks, and Traps**

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# Today's Presentation...

- **Three Aspects:**
  - **W/WW projects and VE?**
  - **Lessons learned**
  - **Case study highlights**



**Improve the Value of Your Infrastructure Dollar!**

# Have You Ever Heard Someone Say...

- Hey, this is an old \_\_\_\_\_ plant!
- I saw this same layout in \_\_\_\_\_!
- We'll do this the same way we did it at \_\_\_\_\_!
- Hey, this is the way they always do it!
- Copying can be flattery or ...!
- We'll force fit a solution to your problem!
- VE can be used to achieve better results!

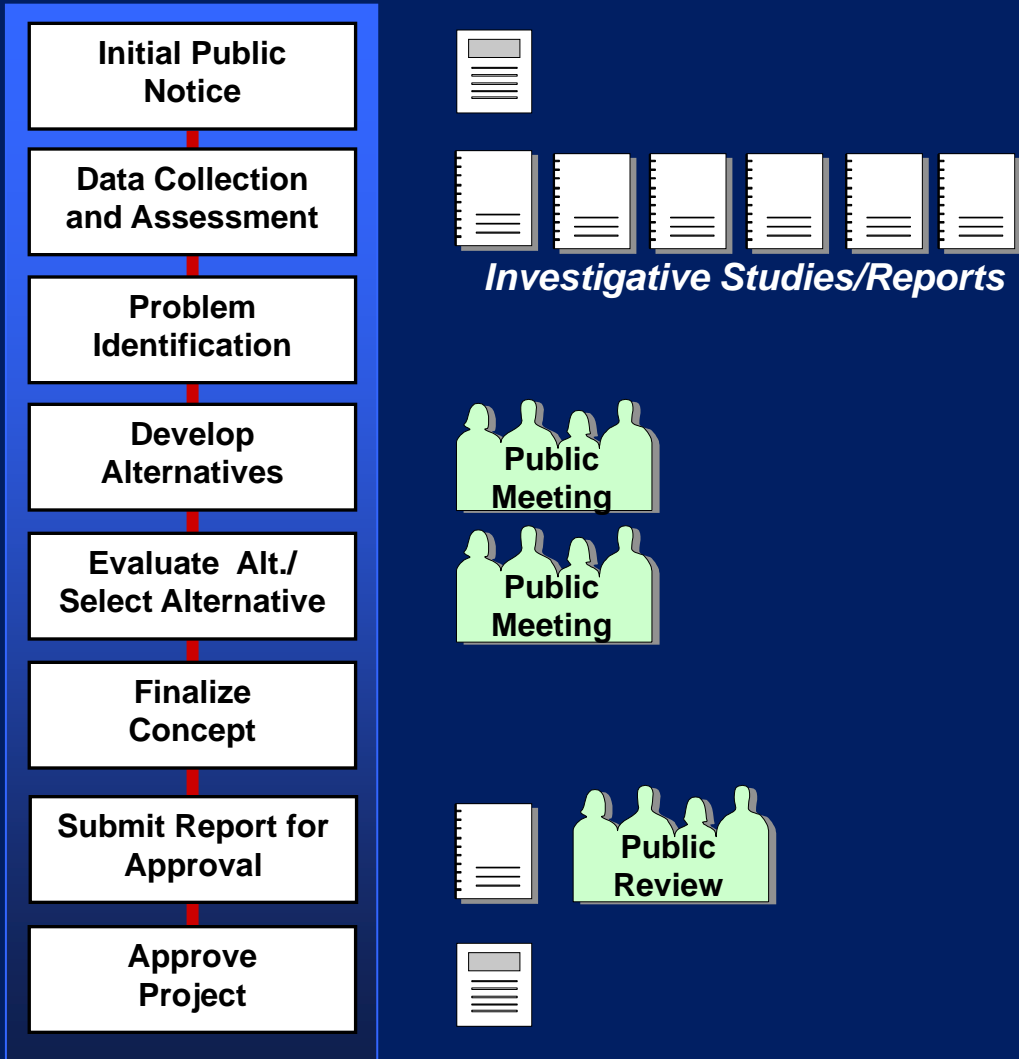
# VE and Water/Wastewater – They Fit?

- You're thinking...

- long process
- high cost
- high risk
- possible dissatisfaction
  - Public
  - Officials



# Planning Process

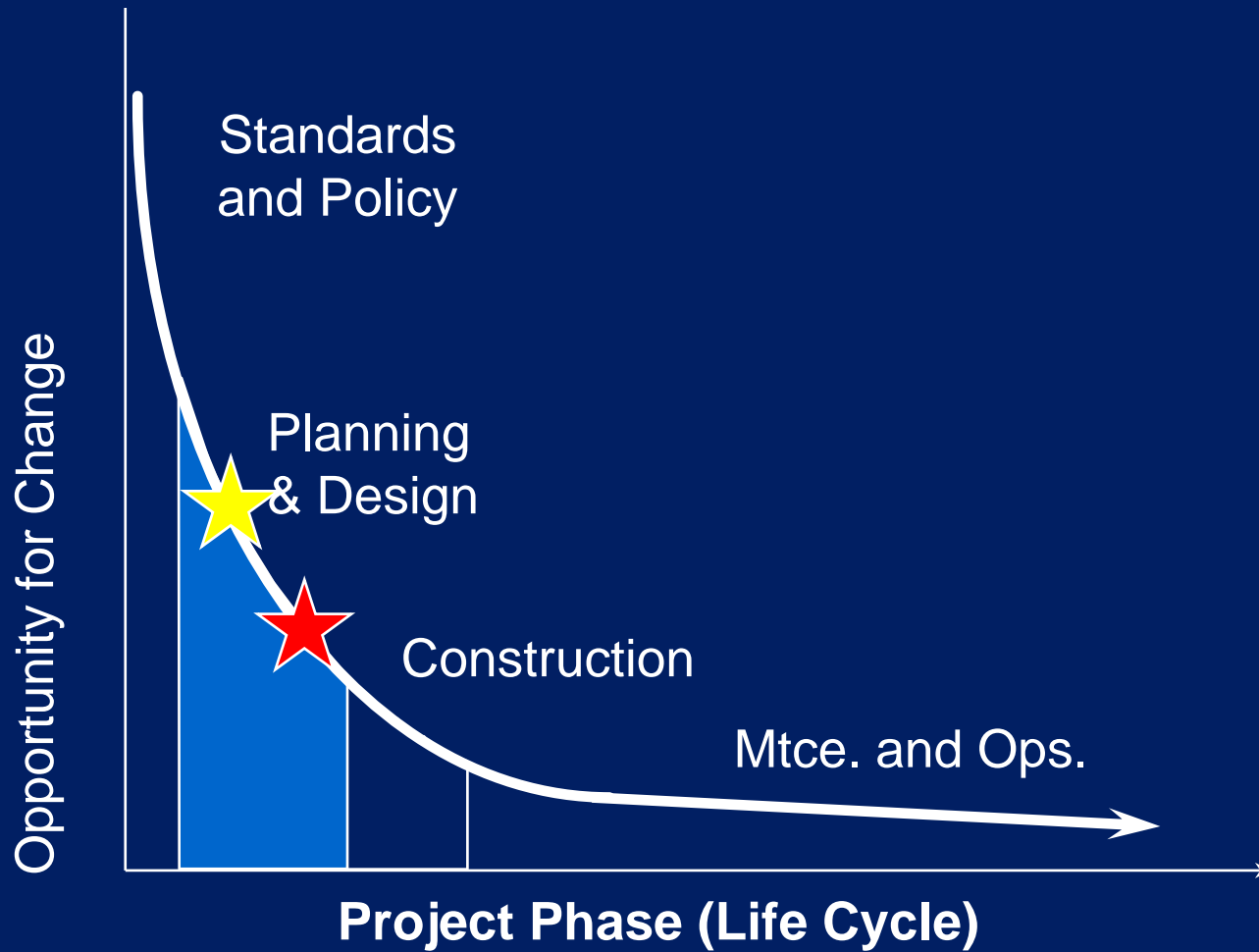


# Planning, Design, and Construction

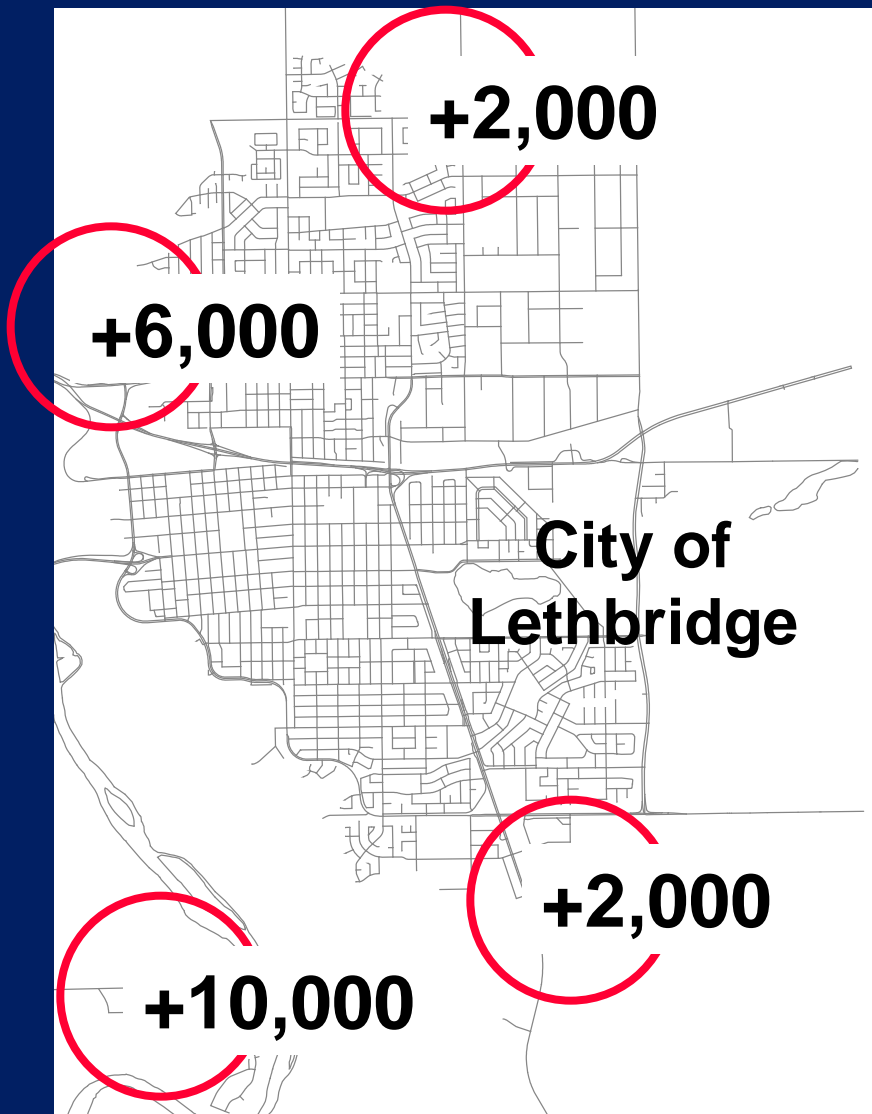
- **Consultant RFP**
  - Scope well defined
  - Experienced in “What we want”
  - No flexibility
- **Contracting**
  - Typically low bid
  - Sole source equipment
  - Tough schedules



# Influencing the Outcome



# Underground Infrastructure Master Plan



- **Growth:**
  - 70,000 (Existing)
  - Adding 20,000
- **\$91 M Master Plan**
  - Water
  - Storm
  - Sanitary

# Underground Infrastructure Master Plan



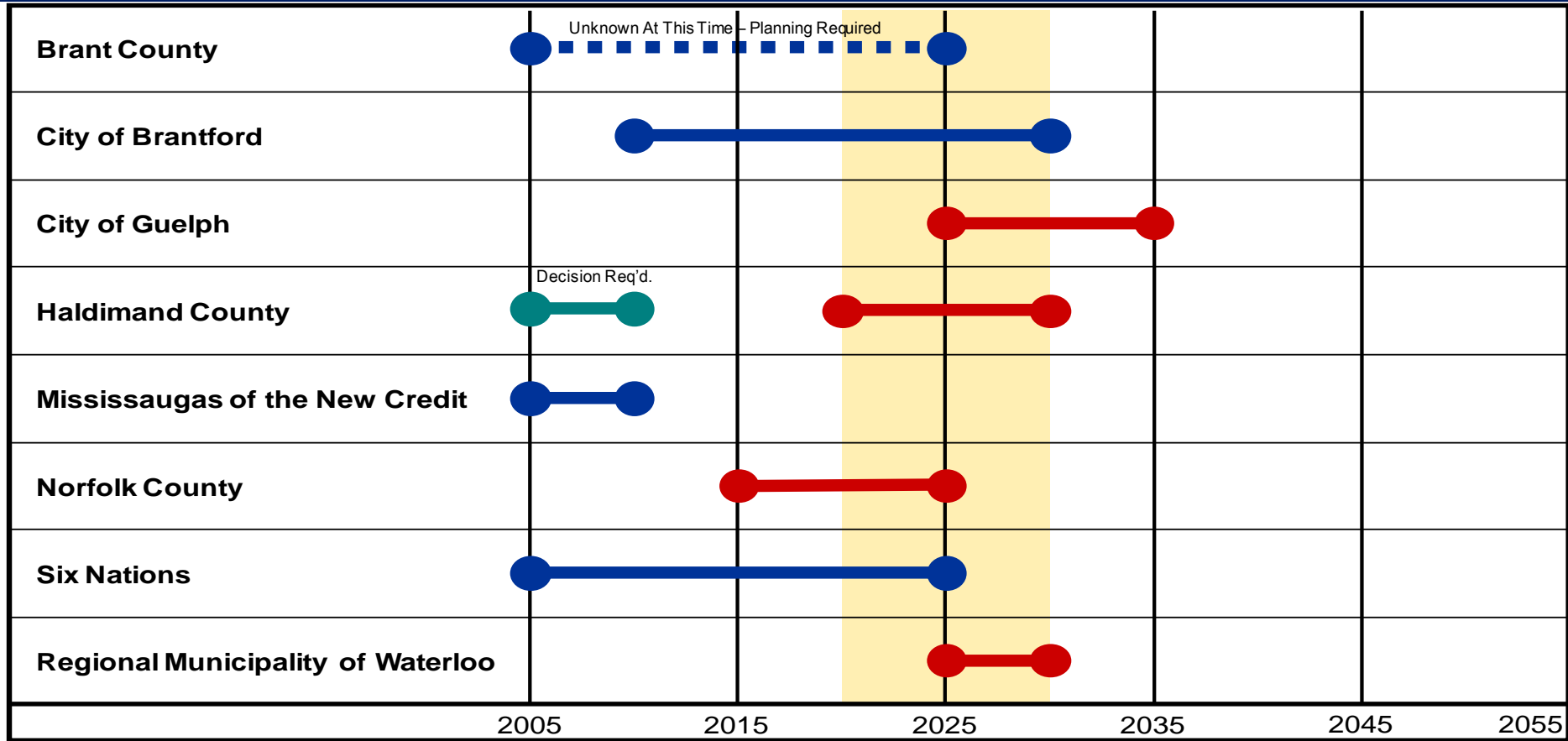
# Regional Water Supply

- **Waterloo**

- Significant growth planned
- Existing well system nearing limit
- \$1.4B 60km transmission system and plant



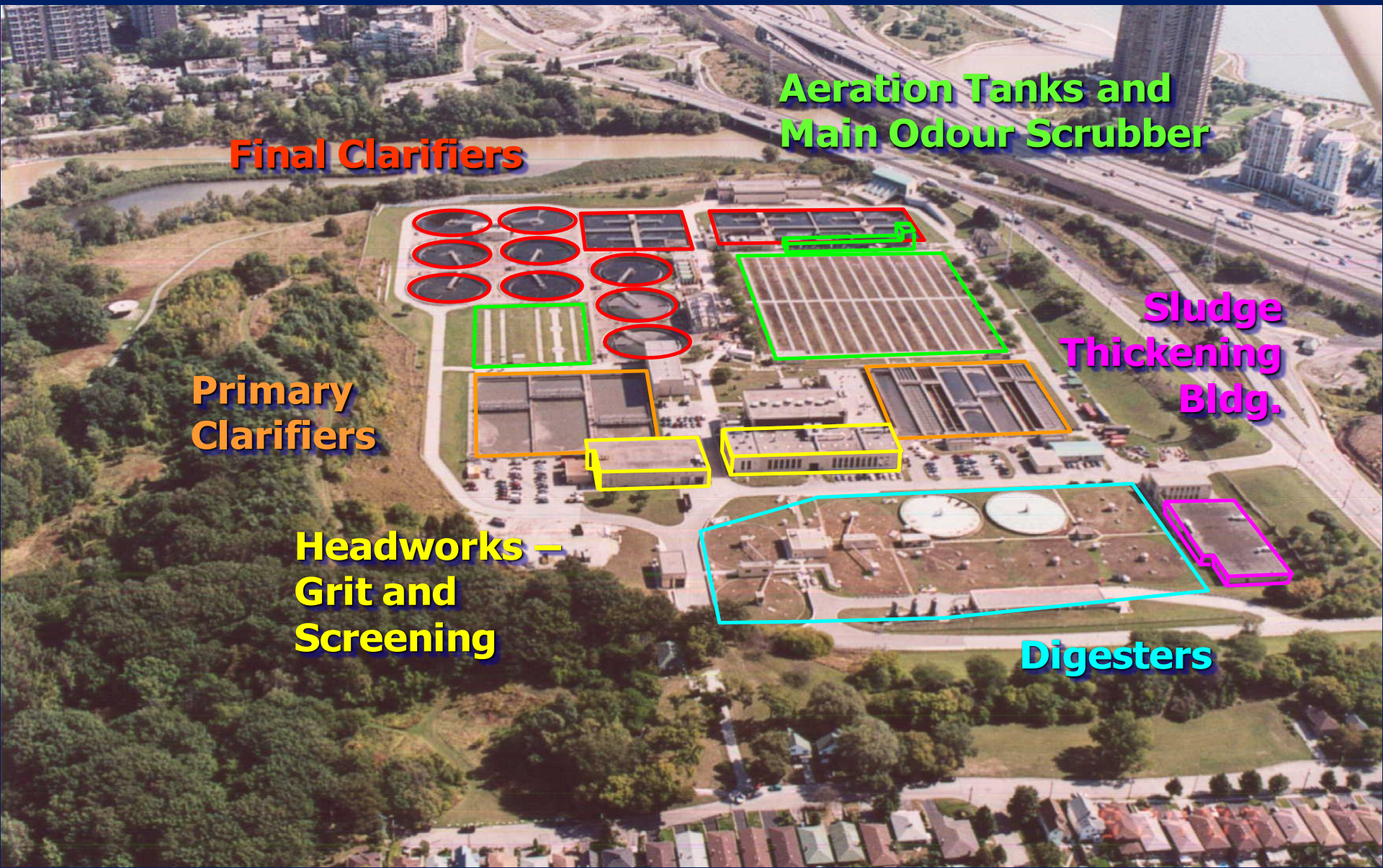
# Regional Water Supply



- Legend**
- Decision Needed to Confirm Water Strategy (Early-Late)
  - Motivation - Water Quality (Early-Late)
  - Motivation - Water Quantity (Early-Late)
  - Anticipated Infrastructure Delivery (Early-Late)

**NGVA Water Supply Strategy VP Study**  
**Anticipated Needs Model**  
**Exhibit ES.1**

# Humber Bay WWTP



**Final Clarifiers**

**Aeration Tanks and  
Main Odour Scrubber**

**Primary  
Clarifiers**

**Sludge  
Thickening  
Bldg.**

**Headworks –  
Grit and  
Screening**

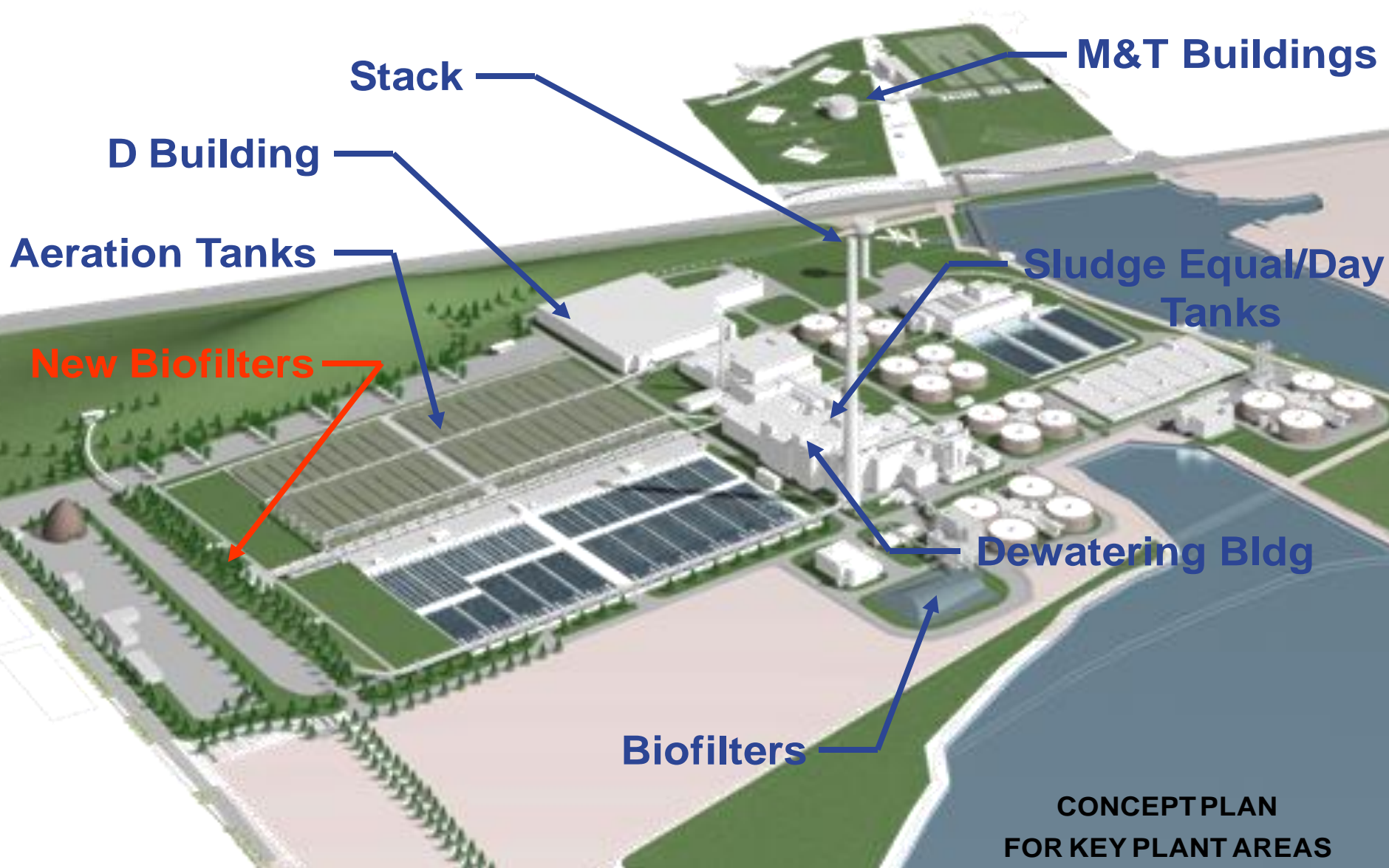
**Digesters**

# Ashbridges Bay WWTP

- **\$400M plant upgrade**
  - Odour control
  - Capacity



# Ashbridges Bay WWTP



# Coquitlam WTP UV

- **\$103M Upgrade**
  - LEED® Silver
  - Expanded ozone system
  - Added UV system

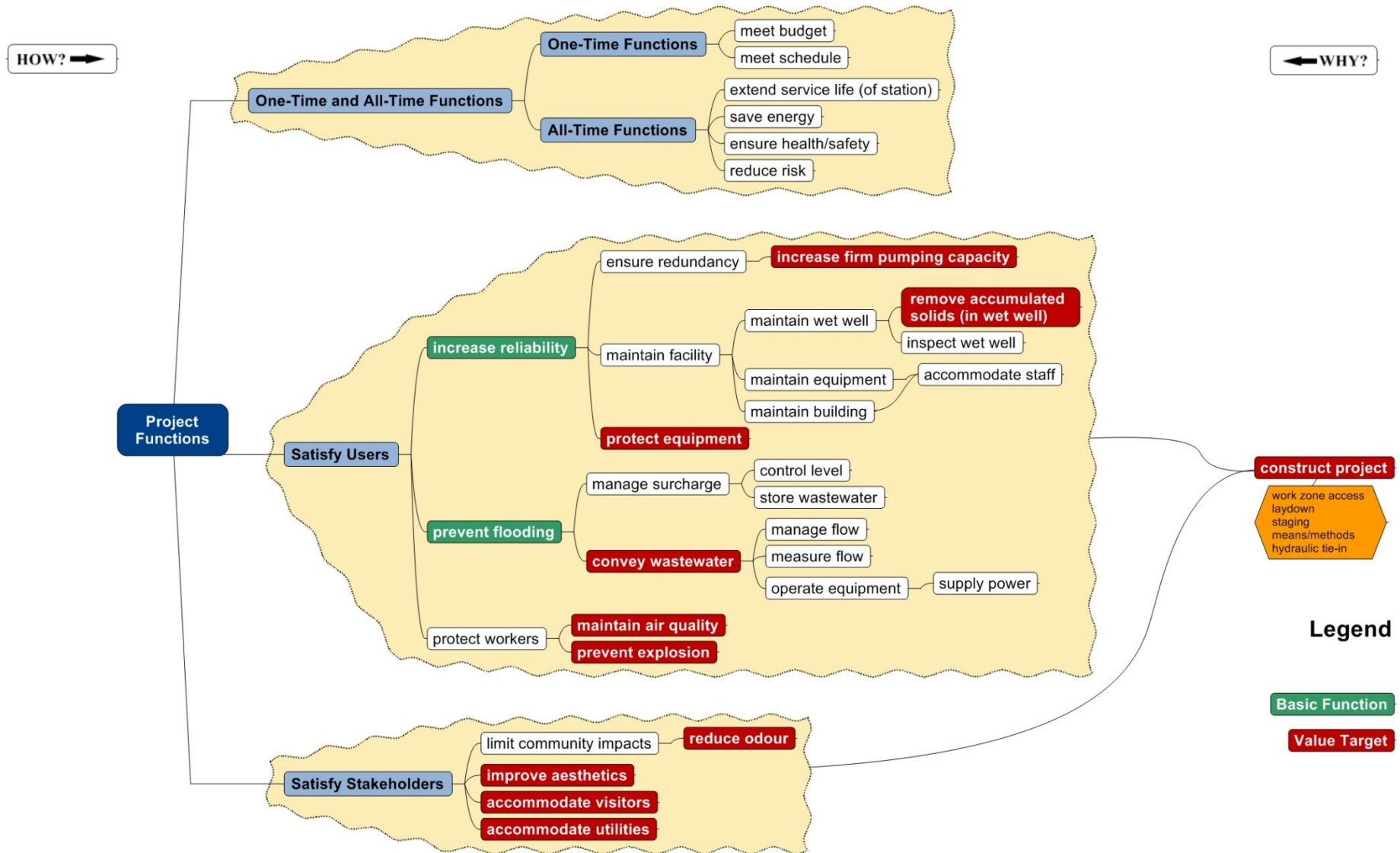


# Woodward Avenue WWTP – RWWPS

- **\$90M replacement of raw wastewater pumping station**
  - Flooding
  - Capacity
  - Redundancy



# Woodward Avenue WWTP - RWWPS



# Lessons Learned - Tips, Tricks and Traps

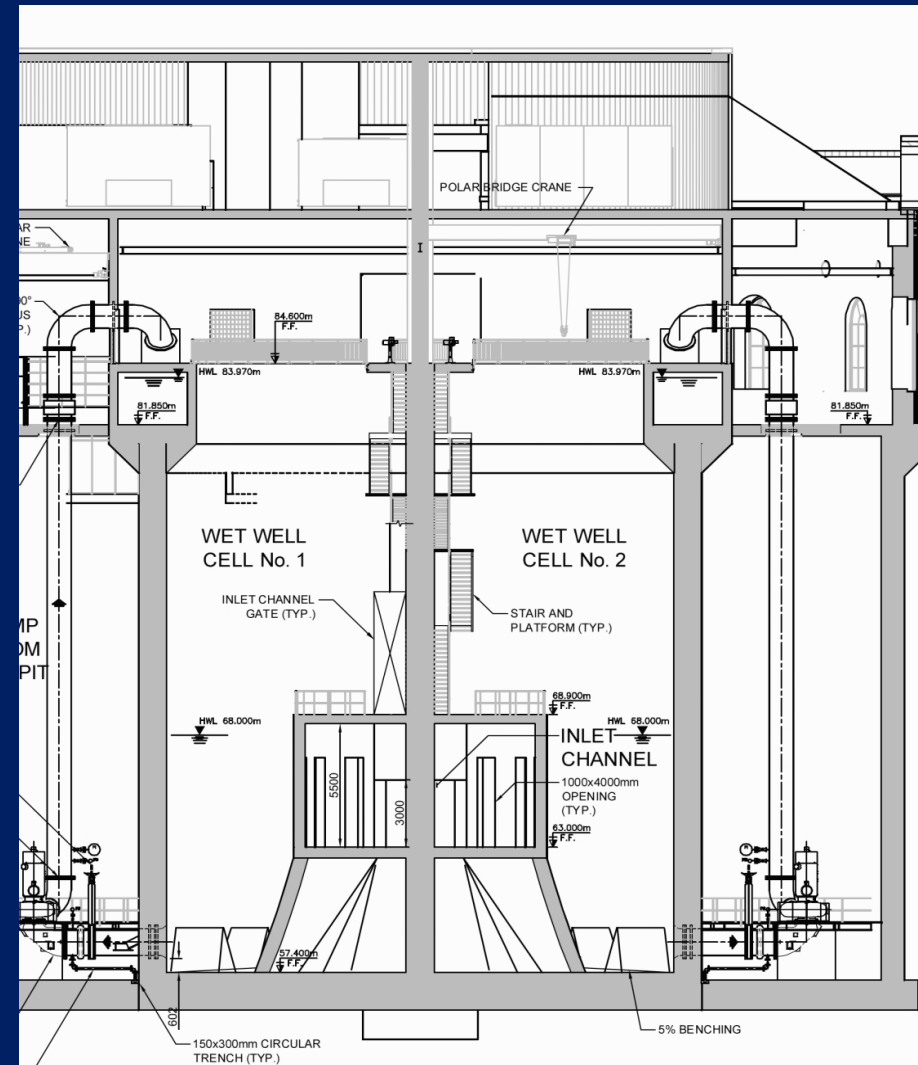
- **Timing is everything**

- Early

- Planning tool
- Identifying options

- Mid-Way

- Optimizing
- Phasing/staging



# Lessons Learned - Tips, Tricks and Traps

- EA is a framework not a noose
  - Include details **needed** for approval
  - Maintain concept flexibility
  - Separate out pre-design activities



# Lessons Learned - Tips, Tricks and Traps

- **Plan for VE upfront**
  - Include in schedule
  - Allocate resources
    - In RFP
    - Funding
  - Assume you'll need it... until you don't



# Lessons Learned - Tips, Tricks and Traps

- **Owner decides**
  - Project team does legwork
  - Get involved (really)
  - Balanced assessment of VE idea
  - Don't abdicate responsibility to others



# Summary...

- **Three Aspects:**
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**Tax**

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