

# Wet Weather Storage at Portola Pump Station

## Wet Weather Flow Management Plan Facility Plan Update

### *Sewer Authority Mid-Coastside Budget Presentation*



April 21, 2005

# Presentation

- Project Background
- Impact of a Wet Weather event on the system
- Recommended Alternative
- Project Benefits
- Conclusions

# Project Background

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- Updated Analysis of the IPS – August 2004
  - Assessed benefits of new Montara Storage Basin on management of wet weather flows within the IPS
  - Analyzed possible improvements to be located at or near Portola Pump Station to minimize wastewater overflows

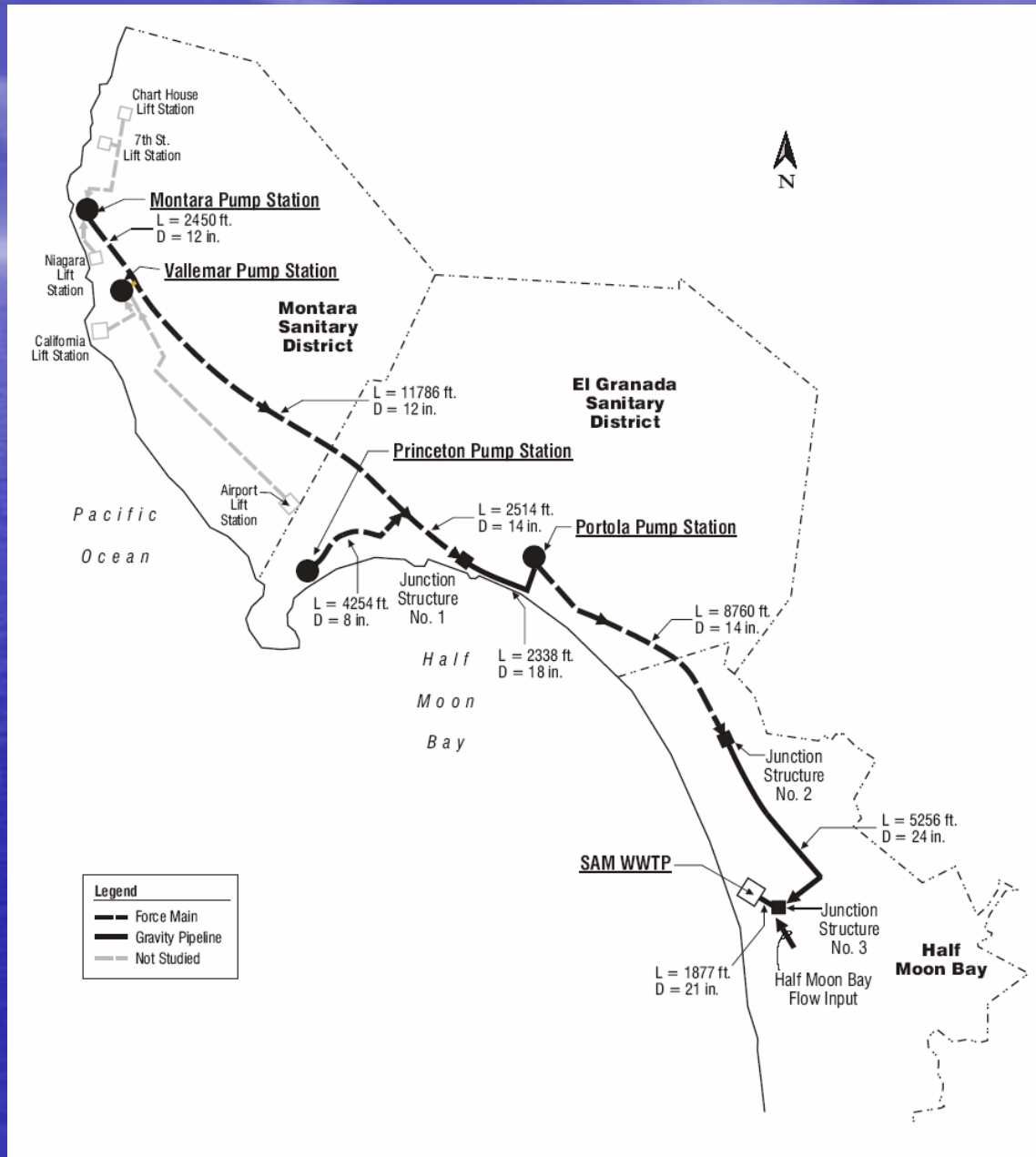
# Project Background

- Additional Analysis of Alternative 1A – November 2004
  - Evaluated the feasibility of using a large diameter pipeline to store wet weather flows
- Additional Analysis of Alternative 1A – January 2004
  - Estimated required storage volume required at Portola Pump Station during a 10-year, 6-hour storm.
  - Evaluated storage tank configurations

# Wet Weather Impacts on IPS

# System Model

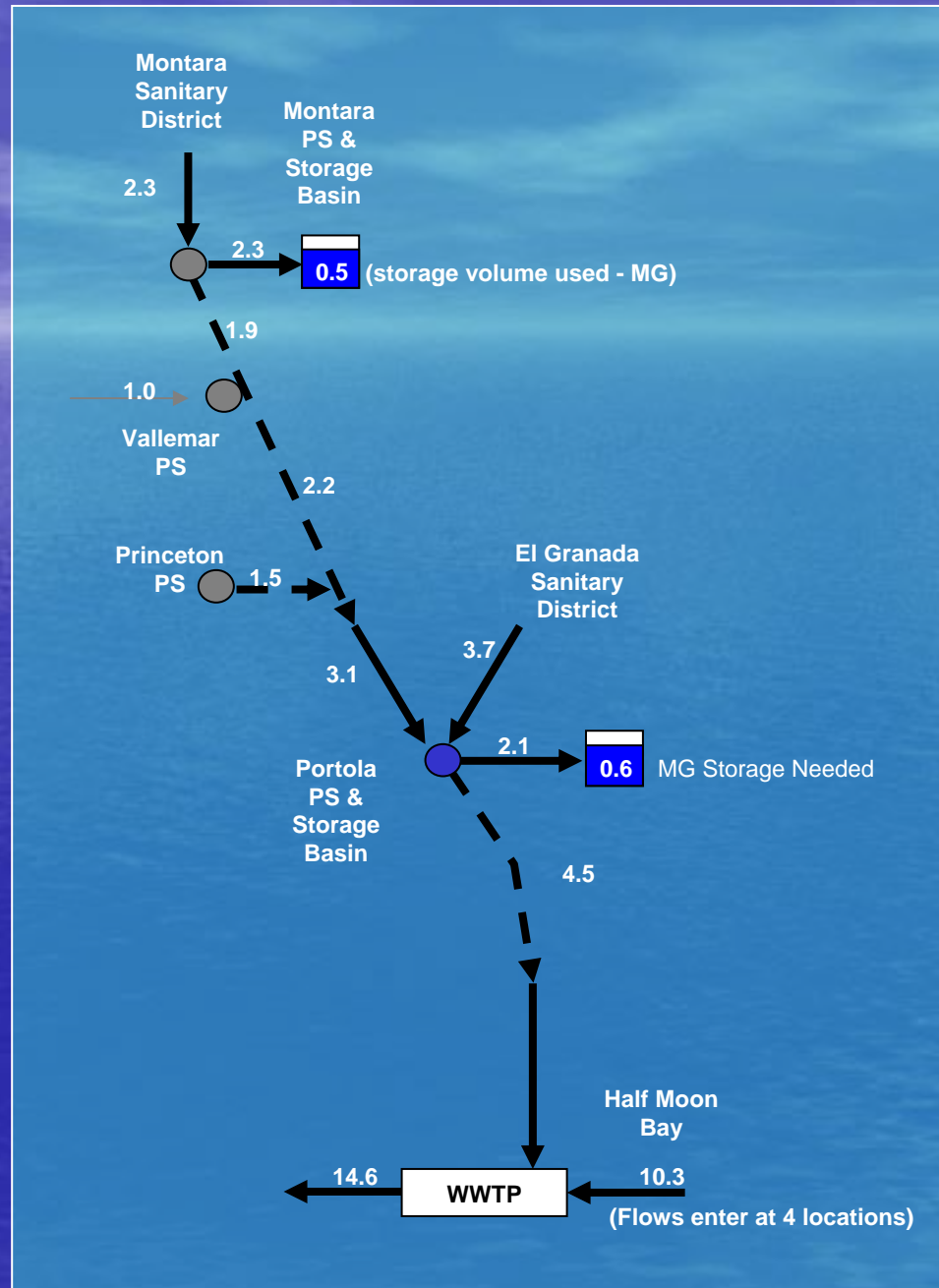
- Constructed using EPA SWMM 5
- Models sewer basins, pump stations, force mains, gravity sewers, storage basins
- Calibrated to measured flows using measured rainfall
- Used to project design storm flows



# Rainfall Statistics

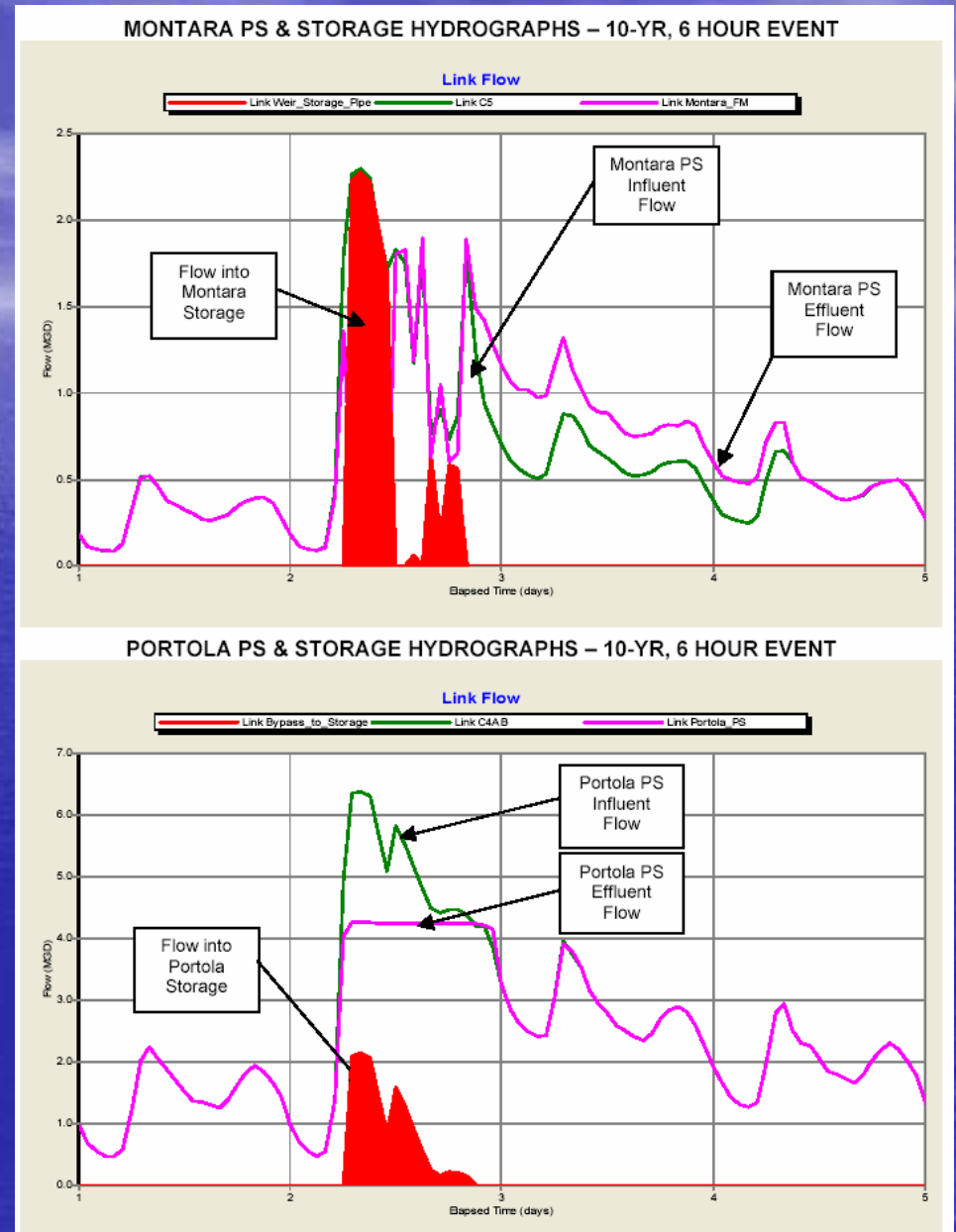
<i>Design Storm Recurrence Interval (Yrs)</i>	<i>Design Storm Probability In Any One Year</i>	<i>6-Hour Rainfall Volume (inches)</i>	<i>6-Hour Peak Intensity (in/hr)</i>	<i>24-Hour Rainfall Volume (inches)</i>	<i>24-Hour Peak Intensity (in/hr)</i>
12/29/03	---	1.62	0.35	2.96	0.50
1	99%	1.25	0.54	2.35	0.61
2	50%	1.60	0.69	3.00	0.78
5	20%	2.00	0.86	4.00	1.04
<b>10</b>	<b>10%</b>	<b>2.40</b>	<b>1.03</b>	4.50	1.17
25	4%	2.80	1.20	5.50	1.44

# Alternative 3A: 10-Year, 6-Hour Rainfall Event - Storage at Portola PS



# Alternative 3A: Storage Hydrographs

- 10-Year, 6-Hour Storm
- Fully utilizing Storage at Montara PS
- 0.6 MG Storage Needed at Portola



The background of the slide features a serene landscape with a clear blue sky filled with wispy white clouds. Below the horizon, the surface of a blue body of water is visible, with gentle ripples and a bright reflection of light on the left side.

Recommended Alternative

# Recommended Alternative

- 10 year, 6 hour storm event was selected as design storm
- 600,000 gallons of storage is required at Portola Pump Station
- Storage Alternatives included:
  - Circular Storage Tank
  - Rectangular Storage Tank
  - Large Diameter Piping

# Recommended Alternative

- Recommendation – Construct 0.6 MG Circular or Rectangular Storage Tank at Portola Pump Station to minimize wet weather overflows of the IPS



0 200M

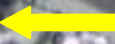
0 200yd



0.6 MG Storage Tank



Portola Pump Station

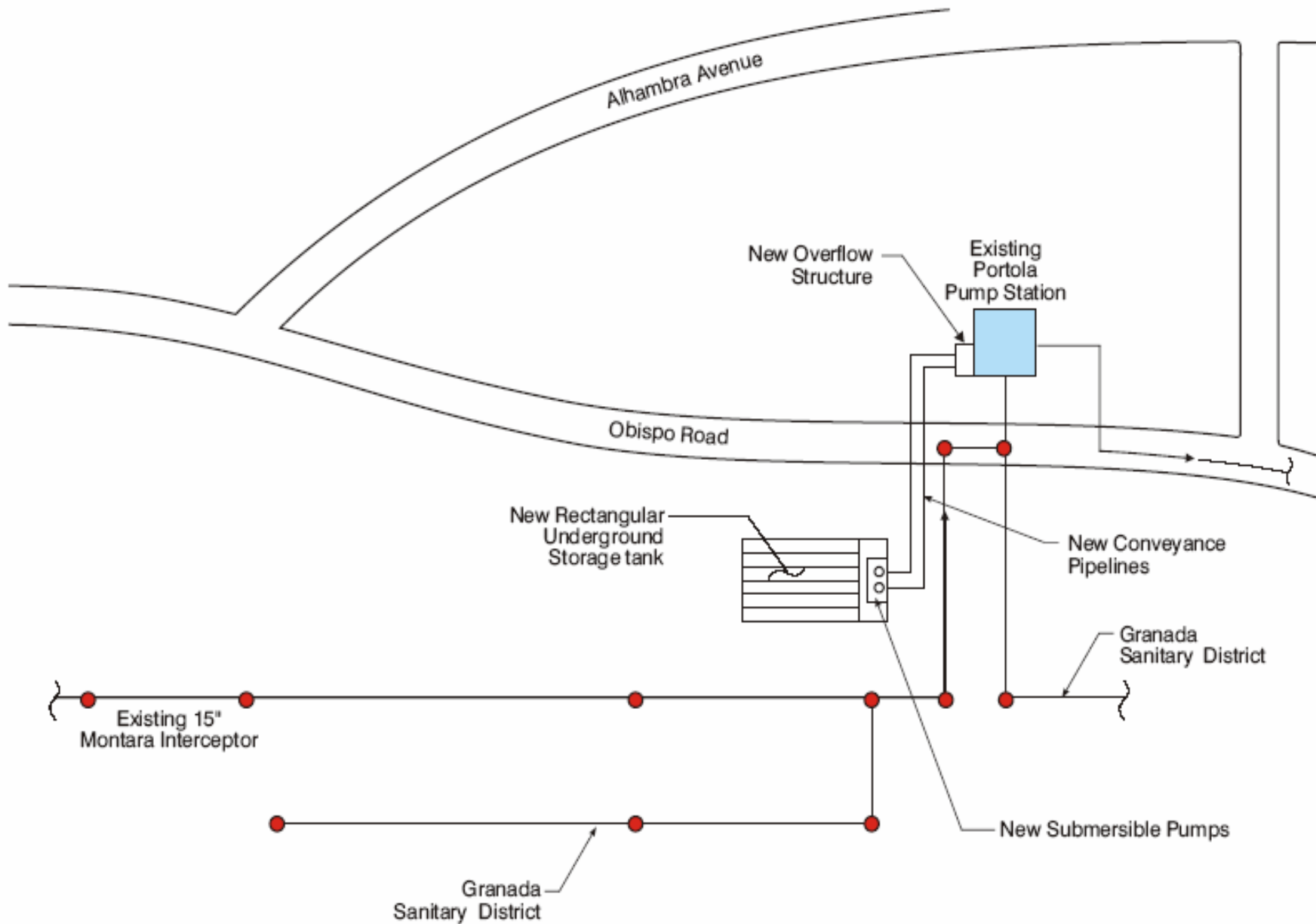


IPS Pipeline



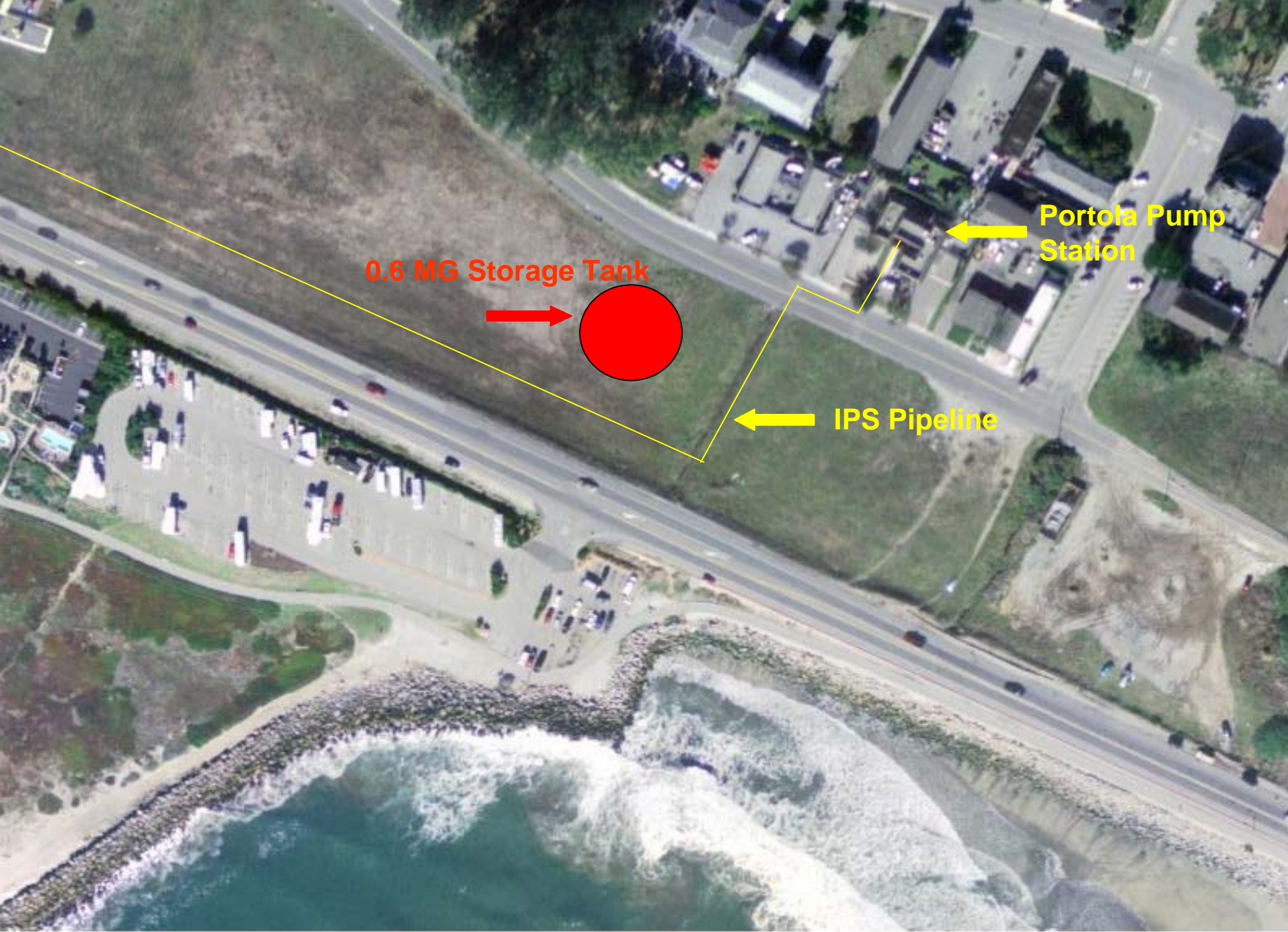
0 50 m

0 50yd

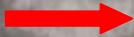


**Figure 1**  
**ALTERNATIVE 3A-1 – PLAN VIEW**  
**SEWER AUTHORITY MID-COASTSIDE**

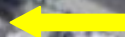
Not to Scale



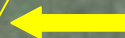
0.6 MG Storage Tank



Portola Pump Station

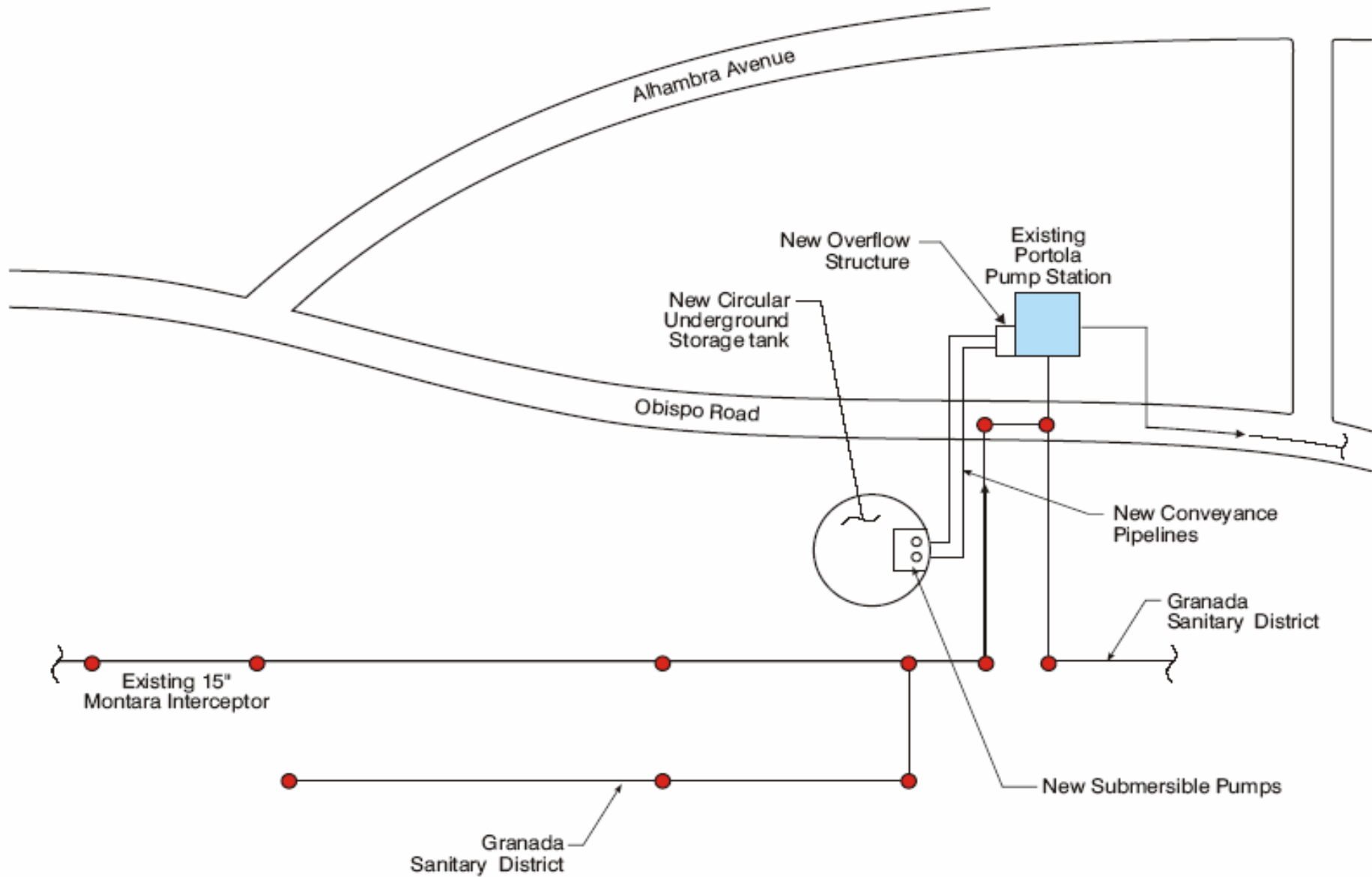


IPS Pipeline



0 50 m

0 50yd



**Figure 2**  
**ALTERNATIVE 3A-2 – PLAN VIEW**  
**SEWER AUTHORITY MID-COASTSIDE**

Not to Scale

# Preliminary Cost Comparison of Storage Tank Costs at Portola Pump Station

<b>Item</b>	<b>Alternative 3A-1 0.6 MG Rectangular Storage Tank</b>	<b>Alternative 3A-2 0.6 MG Circular Storage Tank</b>
<b>Total Construction Cost</b>	<b>\$2,782,000</b>	<b>\$2,870,000</b>
<b>Engineering, Legal, and Administration</b>	<b>501,000</b>	<b>517,000</b>
<b>Reserve for Change Orders</b>	<b>139,000</b>	<b>144,000</b>
<b>Project Subtotal</b>	<b>\$3,422,000</b>	<b>\$3,531,000</b>
<b>Land Acquisition</b>	<b>\$200,000</b>	<b>200,000</b>
<b>Total Project Cost</b>	<b>\$3,622,000</b>	<b>\$3,731,000</b>

The background is a smooth blue gradient, transitioning from a lighter blue at the top to a darker blue at the bottom. A bright sun flare is visible on the left side, creating a white and yellow glow that fades into the blue. The overall effect is clean and professional.

# Project Benefits

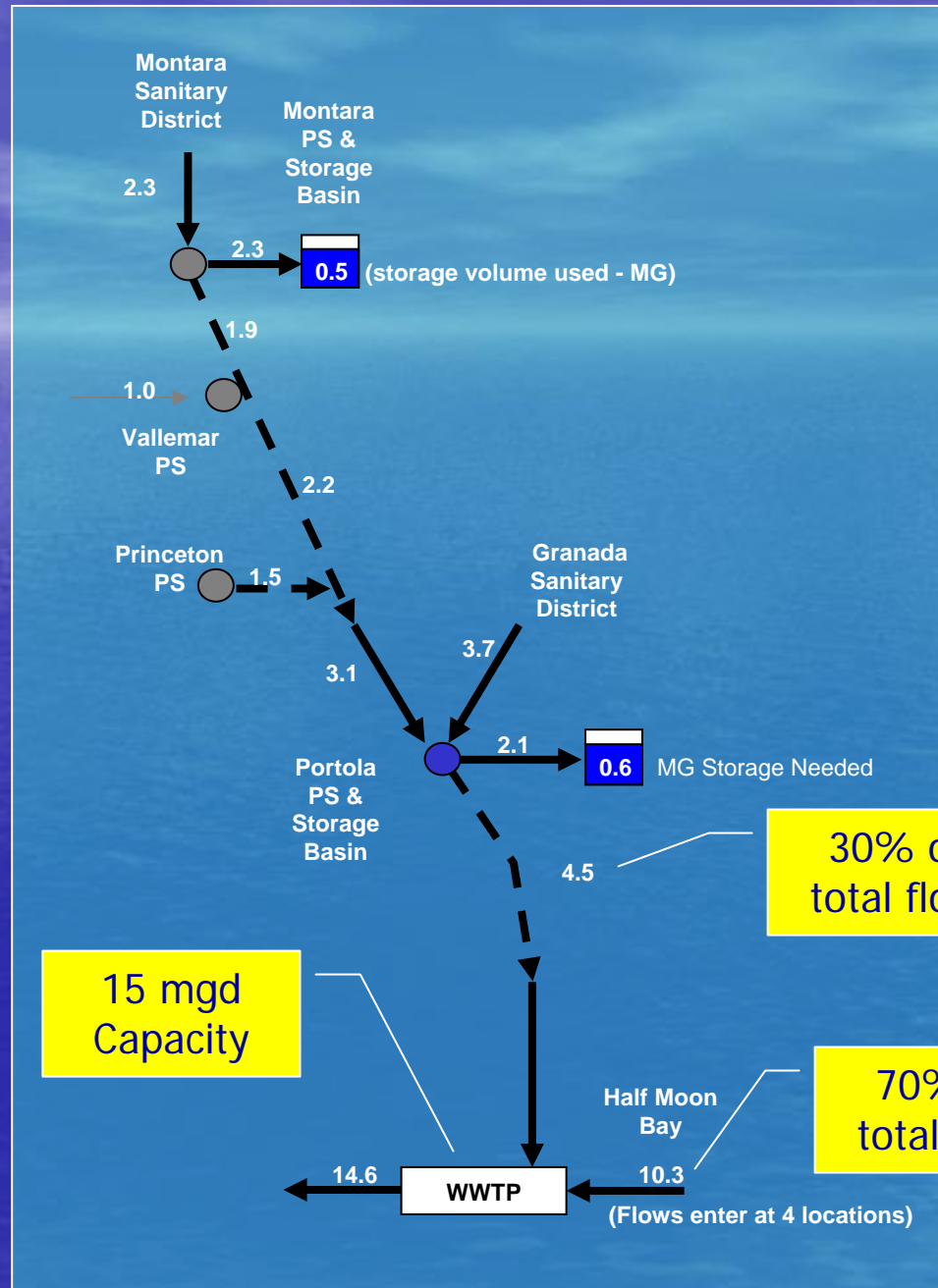
# Benefits of Recommended Alternative to SAM Member Agencies

- Local Storage at Portola Pump Station minimizes sewer system overflows to the ocean
- Provides relief of wet weather flows throughout the IPS
- Reduction in risk from regulators
- Reduction in risk from third party lawsuits

# Alternative 3A: 10-Year, 6-Hour Rainfall Event

- 0.6 MG Storage at Portola PS

With this alternative, HMB can contribute up to 70% of the total flow during a storm event.





Questions?