Colma Creek Flood Control Zone Channel Improvement Project

San Mateo County Flood and Sea Level Rise Resiliency District & County of San Mateo Department of Public Works

Property Owner Outreach Meeting: March 17, 2020
Meeting Agenda

Colma Creek Flood Control Zone Channel Improvement Project
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1. Introductions
2. Project Location and Background
3. Project Overview and Alternatives
4. Feedback and Comments
Colma Creek Flood Control Zone Setting

Formed in 1963
Project Location and Background
Background – Past Flooding

Harley Davidson Dealership parking lot

Looking toward Harley Davidson Dealership parking lot

Parking lot on west side of channel (close to Utah Ave)

From parking lot on west side of channel looking north toward Utah Ave
Background – Past Flooding

Parking lot on west side of channel (close to Utah Ave)

Parking lot on west side of channel (close to Utah Ave)

San Francisco Bay Trail pedestrian bridge – downstream end of project reach
Project Purpose and Overview

Project Purpose - Alleviate flooding effects to adjacent lands and structures, including commercial and industrial properties, at the downstream end of Colma Creek.

Project Objectives -

- Comply with or exceed Flood Control Zone’s design criteria by conveying 50-year flow with 2’ of freeboard.
- Ensure improvements meet FEMA’s certification requirements.
- Meet FEMA’s Hazard Mitigation Grant Program funding ($3 million) requirements by addressing increased flooding hazards due to sea level rise (for 40 years) by:
  - Conveying 100-year storm event under 100-year tidal and year 2060 sea level rise projections of 2.13 feet.
- Replace culverts conveying flow to Colma Creek flood control channel to restore their function, meet design standards, and regulate tidal water inflow.
- Ensure compatibility with other regional projects focused on addressing flood protection and sea level rise effects along Colma Creek.
Hydraulic Modeling Results
No Project Inundation Extent –100-Year 12-hr Event Current State, 100-Year 12-hr Event with Sea Level Rise

100-Year Event

100-Year Event with Sea Level Rise

Hydraulic Modeling Results
Project Inundation Extent – 100-Year 12-hr Event, Current State, Utah Avenue-Navigable Slough Floodwall in Place

Source: County of San Mateo (2019). *Colma Creek Hydrology and Hydraulic Modeling Analysis*. 
Project Alternatives

- Fiber reinforced (FRP) sheet pile walls (Preferred Project)
- Steel sheet pile walls
- Concrete sheet pile walls
- Earthen embankment
Project Overview – Preferred Project

- Fiber reinforced polymer (FRP) sheet pile walls
  - 820’ long wall on West side
  - 1,420’ long wall on East side
  - Wall Height:
    - West side – 8.8-9’ aboveground
    - East side – 4.7-6.8’ aboveground
- 3 Access Gates –
  - One 4’ wide gate on West side
  - Two 12’ wide gate on East side
- Repair/replace 11 culverts with rock slope protection beneath outfalls
- Plexiglass wall along Utah Avenue bridge (downstream side) – 140’ long, 2.4’ aboveground
Sheet Pile Walls

Source: WRECO 2020
## Comparison of Sheet Pile Wall Alternatives

<table>
<thead>
<tr>
<th>Sheet Pile Wall Alternatives</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td><strong>FRP</strong></td>
<td>Lightweight, long life span, cost-effective, retains existing habitat mitigation site, involves less noisy construction equipment</td>
<td>None</td>
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<tr>
<td><strong>Steel</strong></td>
<td>Lightweight</td>
<td>Susceptible to corrosion, greater construction and maintenance costs</td>
</tr>
<tr>
<td><strong>Concrete</strong></td>
<td>Require little maintenance</td>
<td>Heavier in weight, larger excavation footprint for foundation, eliminate existing habitat mitigation site, greater construction and mitigation costs</td>
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FRP Sheet Piles – Rendering on East Side

Source: WRECO 2019
FRP Sheet Piles – Rendering on West Side

Source: WRECO 2019
FRP Sheet Piles – Rendering on West Side Parking Lot

Source: WRECO 2019
Plexiglass - Rendering at Utah Ave Bridge

Source: WRECO 2019
Earthen Embankment Alternative

Source: WRECO 2020
Earthen Embankment Alternative -
Approximate Dimensions at Utah Ave looking downstream

Source: WRECO 2020
Earthen Embankment Alternative -
Approximate Dimensions of Berm at Parking lot on West side of Channel and East Side of Channel

Source: WRECO 2020
Feedback and Comments