SEWER SYSTEM IMPROVEMENT PROGRAM

Baker Beach Green Street

Project Overview

August 2014

San Francisco Public Utilities Commission
Agenda

1. Introduction
2. Site Analysis
3. Project Concept
4. Stakeholder Input
5. Final Design Concept
Who Are We?

San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

SEWER SYSTEM IMPROVEMENT PROGRAM

SYSTEM & SEISMIC RELIABILITY & REDUNDANCY
INNOVATIVE STORMWATER MANAGEMENT SOLUTIONS
PROTECTING OUR BAY & PACIFIC OCEAN

1. INTRO  2. SITE  3. CONCEPT  4. STAKEHOLDER  5. DESIGN
Combined Sewer System

- Stormwater collects in gutters and catch basins
- During major storms wastewater discharges to the Bay or Pacific Ocean
- Domestic sewage (sinks, showers, toilets, etc.)
- Pumped to Treatment Plant
- Transport/Storage Box

1. INTRO
2. SITE
3. CONCEPT
4. STAKEHOLDER
5. DESIGN
Green Infrastructure

1. INTRO
2. SITE
3. CONCEPT
4. STAKEHOLDER
5. DESIGN

- Permeable Pavement
- Rain Garden
- Bulb-out
- Stormwater Harvesting
- Green Roof
Early Implementation Projects

BAKER BEACH GREEN STREET

Sunset Blvd Greenway

Holloway Green Street

Chinatown Green Alley

Wiggle Neighborhood Green Corridor

Mission & Valencia Green Gateway

Upper Yosemite Creek Daylighting

Visitation Valley Green Network

1. INTRO  2. SITE  3. CONCEPT  4. STAKEHOLDER  5. DESIGN
SITE ANALYSIS
Watershed Analysis
CSD Reduction Opportunities

+ Small sub-catchment area of Richmond watershed
+ We meet environmental requirements with an average 3 CSDs per year
+ Total volume of discharges is 228,000 gals.
+ Minimal intervention can directly reduce discharges

CSD Outfall 007, Pump Station #2
Local Stormwater Challenges

+ Sediment and debris in catch basins
+ Heavy overland flow during storms

El Camino Del Mar (Lincoln Park)

El Camino Del Mar (Near Lake St)
PROJECT CONCEPT
Baker Beach Project Goals

- Demonstrate & evaluate performance-based green infrastructure technologies
- Address local stormwater issues
- Respond to community preferences with inclusive planning process
- Reduce frequency of CSDs
Green Infrastructure Opportunities

Infiltration-based stormwater management

+ Must remove water from combined sewer system
+ Good soils for infiltration

Rain Gardens

Permeable Pavements
STAKEHOLDER INPUT
Stakeholder Input

Community
+ Residents
+ Neighborhood Groups
+ Bicycle Coalition

Interagency
+ SFMTA
+ SFRPD
+ GGNRA
+ SFFD

Technical
+ Survey
+ Geotechnical
+ H&H Modeling
## Stakeholder Input

<table>
<thead>
<tr>
<th>CONCERN</th>
<th>STAKEHOLDER</th>
<th>DESIGN</th>
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</table>
| Parking (El Camino Del Mar) | + Legion of Honor  
+ 32nd Ave Neighbors | + Balance surface rain gardens with subsurface infiltration |
| Parking (Beach Terrace) | + 25th Ave Neighbors  
+ Fire Department  
+ GGNRA | + Locate Rain Garden in GGNRA land  
+ Permeable pavement on Sea Cliff Ave |
### Stakeholder Input

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<thead>
<tr>
<th>CONCERN</th>
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<th>DESIGN</th>
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<tbody>
<tr>
<td>Value Green Space</td>
<td>Neighbors</td>
<td>Use rain gardens on El Camino Del Mar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Include rain gardens on Sea Cliff Ave</td>
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<tr>
<td>Maintain Aesthetics</td>
<td>Neighbors</td>
<td>Naturalize rain gardens on El Camino Del Mar</td>
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<td></td>
<td>32ND Ave Neighbors</td>
<td>Use plants native to local area</td>
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## Stakeholder Input

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<tr>
<td><strong>Pedestrian &amp; Bicycle Safety</strong></td>
<td>+ Local neighbors + Trail users + Bicycle Coalition</td>
<td>+ Locate rain gardens at crosswalks + Uphill bicycle lane</td>
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<tr>
<td><strong>Performance</strong></td>
<td>+ Neighbors + 32\textsuperscript{ND} Ave + Sea Cliff Ave</td>
<td>+ Geotech testing + H &amp; H modeling</td>
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</tbody>
</table>
1. INTRO
2. SITE
3. CONCEPT
4. STAKEHOLDER
5. DESIGN

Performance

+ Geotechnical
+ Survey
+ H&H Modeling
FINAL DESIGN CONCEPT
Final Design Concept

El Camino Del Mar
+ Rain Gardens
+ Infiltration Galleries
+ Upsized Sewer Main

Sea Cliff Ave
+ Permeable Pavement
+ Rain Gardens
+ New Catch Basin

25th Ave N.
+ Rain Garden
+ GGNRA located
El Camino Del Mar
Plan View

LEGEND
- Bulb-outs
- Slope Stabilization
- Flow Direction
- Paver Transition
- Pipe Upsizing
- Subsurface Infiltration

Rain Garden Bulb-outs
Lands End Trail
Legion of Honor
Rain Garden Bulb-outs
Rain Garden Bulb-outs
El Camino Del Mar
Rain Garden Bulb-outs

1. INTRO
2. SITE
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4. STAKEHOLDER
5. DESIGN
El Camino Del Mar
Rain Garden Bulb-outs

Slope Stabilization

VA Hospital

BOULDER TOE PROTECTION – 3 COURSE
SCALE: NONE
El Camino Del Mar
Lands End Trailhead

Sediment Capture
Forebay

1. INTRO
2. SITE
3. CONCEPT
4. STAKEHOLDER
5. DESIGN
Beach Terrace
Sea Cliff Ave and 25\textsuperscript{th} Ave North

1. INTRO
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5. DESIGN
Beach Terrace
25th Ave North

Lands End Native Plants
(Golden Gate National Parks Conservancy)
Beach Terrace
25th Ave North

1. INTRO
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5. DESIGN
Maintenance

- Maintain our facilities
- Forthcoming MOUs with City agencies
- Monitoring
- Functioning Infrastructure
Baker Beach Green Street
Project Costs & Schedule

PROJECT BUDGET
Funding for the project has been secured.
Construction Budget = $4.5 million

PROJECT BENEFITS
*Estimated CSD Volume Reduction (H&H Model)
218,000 gals in the Typical Year*

PROJECT SCHEDULE
Scheduled to start construction Jan 2016

*Typical Year: a statistical rainfall time series developed from decades of historical rainfall data to represent a long-term average annual rainfall in San Francisco*

SYSTEM & SEISMIC RELIABILITY & REDUNDANCY  INNOVATIVE STORMWATER MANAGEMENT SOLUTIONS  PROTECTING OUR BAY & PACIFIC OCEAN

THANK YOU!

www.sfwater.org/bakerbeachgreenstreet