City of Santa Monica SWIP: Project Overview

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Arcadis

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About Arcadis

Design & Consultancy for natural and built assets…

- Dutch roots date to 1888
- World’s oldest engineering consultancy: 231 years!
- € 3.3B revenues (2018)
- +30,000 projects
About Arcadis

...with a seamless global reach!

~27,000 people | 300+ offices | 40+ countries
About Arcadis

OUR MISSION
To create exceptional and sustainable outcomes for our clients in natural and built asset environments

OUR GOALS
- Create sustainable solutions
- Deliver exceptional outcomes
- Realize people’s potential
- Enjoy the journey

OUR PASSION
Improve quality of life and be recognized as the best
Sustainable Water Infrastructure Project (SWIP)
Sustainable Water Infrastructure Project (SWIP)

Progressive Design-Build Team

Kiewit

ARCADIS

perc water
Key SWIP Elements

Advanced Water Treatment Facility (AWTF) + Santa Monica Urban Runoff Recycling Facility (SMURRF)
## Key SWIP Elements

**Advanced Water Treatment Facility (AWTF)**

### AWTF Overview

<table>
<thead>
<tr>
<th>Capacity</th>
<th>1.0 MGD</th>
</tr>
</thead>
</table>
| Sources  | • Wastewater (~10% of City production)  
• Stormwater / urban runoff |
| Treatment| MBR → RO → UV-AOP → Cl₂ |
| Purposes | • Non-potable reuse  
• Groundwater recharge (IPR) |
Key SWIP Elements

Advanced Water Treatment Facility (AWTF) +

Santa Monica Urban Runoff Recycling Facility (SMURRF)
# Key SWIP Elements

## SMURRF Overview

<table>
<thead>
<tr>
<th>Capacity</th>
<th>0.5 MGD</th>
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<tbody>
<tr>
<td>Sources</td>
<td>Stormwater / urban runoff</td>
</tr>
<tr>
<td></td>
<td>Brackish groundwater</td>
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<tr>
<td>Treatment</td>
<td>DAF → UF → RO → UV → Cl₂</td>
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|          | Groundwater recharge (IPR) |

### RO Target Constituents:

- TDS
- PPCPs
- PFAS
SWIP Treatment Facility PFDs

**AWTF**

- MBR
- Cartridge Filters
- RO
- UV/Cl₂ AOP
- Chlorine

**SMURRF**

- DAF
- UF
- RO
- UV Disinfection
- Equalization Tank
- Cl₂
Sustainability

**Key Sustainability Features**

- Pollution control via stormwater diversion and treatment
- Beneficial use of what would otherwise be a lost resource
- Reduced external system demand
- Solar panels to harness renewable energy
- Envision certification (sustainable infrastructure)
Challenges

Key Project Challenges

★ Multiple sources with variable contributions

★ Variable quality of stormwater / urban runoff

★ Coastal brackish groundwater aquifer quality influenced by tidal cycle

★ Potential long-term increase in brackish groundwater salinity (SMURRF)

★ Minimal institutional knowledge
Thank you for your attention!

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