San Francisco's Non-potable Water System Projects

San Francisco Public Utilities Commission
May, 2014
San Francisco’s Non-potable Water Program creates a regulatory framework and streamlined permitting process for commercial, multi-family, and mixed-use developments in San Francisco to collect, treat, and reuse alternate water sources for toilet flushing, irrigation, and other non-potable uses. Established through Ordinance 195-12, adopted by the San Francisco Board of Supervisors in September 2012, this program establishes guidelines for developers interested in installing non-potable water systems in buildings and local regulations to ensure appropriate water quality standards. In October 2013, the Ordinance was amended to allow for buildings to share treated alternate water sources for non-potable applications.

In dense, urban centers like San Francisco, the use of on-site alternate water sources is a key strategy for expanding potable water savings. Alternate sources of water that can be used in a non-potable water system are:

- Rainwater – precipitation collected from roofs or other manmade above grade surfaces
- Stormwater – precipitation collected from at or below grade surfaces
- Graywater – wastewater from bathroom sinks, showers, and washing machines
- Blackwater – graywater and wastewater from kitchen sinks and toilets
- Foundation Drainage – nuisance groundwater that floods basements
- Other sources as approved by the San Francisco Department of Public Health (SFDPH)

San Francisco’s Non-potable Water Program is a collaborative program involving three San Francisco agencies: San Francisco Public Utilities Commission (SFPUC), San Francisco Department of Public Health (SFDPH), and San Francisco Department of Building Inspection (SFDBI). The SFPUC provides technical and financial assistance to assist developers through the processes for permitting, installing, and operating non-potable water systems. SFDPH regulates the water quality and monitoring requirements. SFDPH also issues operating permits and establishes reporting requirements for on-site treatment systems. SFDBI oversees the design and construction of non-potable water systems, and issues final approvals for building occupancy. Each project proponent must ensure that the project is designed and installed safely, complies with applicable laws and regulations, and is operated in a manner that causes no harm or damage to building occupants or others.

This report details developments in San Francisco that are currently operating or are in the process of installing a non-potable water system. As more of these systems are installed in San Francisco, they will be added to this report.

More information about San Francisco’s Non-potable Water Program, including a developers guidebook, is available at: www.sfwater.org/np.

If you have questions or need additional assistance, please email nonpotable@sfwater.org.
Project Description:
In the summer of 2012, the San Francisco Public Utilities Commission (SFPUC) completed construction of its new, 277,500 square-foot headquarters at 525 Golden Gate Avenue in San Francisco’s Civic Center District. The LEED Platinum building, housing approximately 950 employees, contains two non-potable water systems – a Living Machine® and a rainwater harvesting system.

The Living Machine®, treats all of the building’s wastewater, up to 5,000 gallons per day, and then distributes the treated water for toilet flushing. The system reduces the building’s potable water consumption by approximately 65% and provides an annual potable offset of approximately 1,500,000 gallons. The system utilizes a series of diverse ecologically engineered wetlands, located in the sidewalks surrounding the headquarters and in the building lobby, to treat the wastewater. This unique treatment process blends function and aesthetics – the wastewater is treated to San Francisco Department of Public Health (SFDPH) reuse standards while providing a high-profile pilot project for on-site water reuse.

The building also has a 25,000 gallon cistern to capture rainwater from the building’s roof and children day care center’s play area. The water is treated and distributed to nine irrigation zones around the building where it is used for subsurface irrigation for non-Living Machine plantings and street trees. Due to the use of water-efficient landscaping, the rainwater cistern provides more than enough non-potable water to meet all of the building’s annual irrigation demands. The rainwater harvesting system provides an annual potable offset of approximately 8,000 gallons.

Drivers for Non-potable Water Reuse:
From the beginning of the planning stage for the building, the SFPUC’s goal was to have a headquarters that demonstrated the agency’s ambitious sustainability goals and served as an example for building smart, efficient, and sustainable buildings. As a water, wastewater, and power utility, the SFPUC recognized an opportunity to demonstrate its commitment to sustainable and innovative practices in water treatment and reuse by installing low-energy, high-profile non-potable water systems at its headquarters.

Installing the Living Machine also provided a pilot project for the San Francisco Non-potable Program, which was created by an ordinance adopted by the San Francisco Board of Supervisors in September 2012. The Living Machine became the test case for the program, providing the SFPUC, SFDPH, and San Francisco...
Department of Building Inspection (SFDBI) with a project for the agencies to test and demonstrate the ideal methods for installing, permitting, and regulating non-potable water systems.

Implementing the non-potable water systems also allowed the headquarters to obtain additional LEED points towards LEED Platinum certification. The project received an additional six Water Efficiency (WE) points and two Regional Priority (RP) points by implementing the systems.

Finally, the rainwater harvesting system allows SFPUC headquarters to fulfill the requirements of the San Francisco Stormwater Management Ordinance. The Stormwater Management Ordinance requires projects disturbing 5,000 square feet or more of the ground surface to decrease the project’s post-construction stormwater runoff rate and volume by 25% for the 2-year 24-hour design storm.

Ownership Model:
The Living Machine and rainwater harvesting system are owned, operated, and maintained by the SFPUC. The SFPUC’s lead operator for the systems is a State of California Certified Grade V Wastewater Treatment Plant Operator. The operator has received extensive training on how to operate and maintain both systems.

Project Cost:
The Living Machine, rainwater harvesting system, and their distribution piping cost approximately $1,000,000. The non-potable water systems increased the building’s total construction costs of $146.5 million by less than 1%.

Annual Operations & Maintenance Cost: TBD

Service Costs to Residents or Tenants: Not applicable

Reference: John Scarpulla, San Francisco Public Utilities Commission (jscarpulla@sfwater.org)
The Exploratorium — Pier 15

<table>
<thead>
<tr>
<th>Project Status: Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFDPH Permit Issued: Pending, NPDES Permit received from Water Quality Control Board.</td>
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</table>

<table>
<thead>
<tr>
<th>Size: 333,000 square feet</th>
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<tbody>
<tr>
<td>Alternate Water Sources:</td>
</tr>
<tr>
<td>• Rainwater</td>
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<tr>
<td>• Bay water</td>
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<table>
<thead>
<tr>
<th>End Uses:</th>
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<tbody>
<tr>
<td>• Toilet flushing</td>
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<tr>
<td>• Heating and cooling</td>
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</tbody>
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<thead>
<tr>
<th>Volume: Up to 2,364,000 gallons/year (rainwater harvesting system and Bay water heating and cooling system)</th>
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<tbody>
<tr>
<td>Potable Water Use Reduction: 30% (rainwater harvesting system only)</td>
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<tr>
<th>Driver(s): Project sustainability goals, public education, LEED Platinum Certification, and mandate (San Francisco Stormwater Management Ordinance)</th>
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<tr>
<th>System Cost: Not available</th>
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</thead>
<tbody>
<tr>
<td>Annual O&amp;M Cost: TBD</td>
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</table>

Owner: The Exploratorium

Project Description:
After spending 44 years at the Palace of Fine Arts, in April of 2013, the internationally renowned Exploratorium moved to its new 330,000 square feet of indoor and outdoor exhibit space on Pier 15. The LEED Platinum museum, host to over 1,000,000 visitors in its first year, houses more than 600 exhibits and experiences for guests to explore and tinker. The new location, literally on top of San Francisco Bay, is being called a twenty-first-century learning laboratory, and is equipped with oceanographic equipment, which measures the height and direction of tides, pollutants in the air, and the weather.

One of the core goals of the Exploratorium is sustainability. This goal is showcased throughout the museum, and has been validated with the building’s LEED Platinum designation. A major goal the museum is working towards is to become the largest net-zero energy use museum in the United States. Water conservation is also a goal of the museum. In addition to the over 78,000 square feet of solar panels, the Exploratorium utilizes Bay water in its heating and cooling system, eliminating the need for a cooling tower, thereby saving an annual 2,000,000 gallons of water. To install the Bay water system, the Exploratorium had to obtain a National Pollutant Discharge Elimination System (NPDES) Permit from the local State of California Regional Water Quality Control Board to ensure that the system would not negatively impact the aquatic life and water quality of the Bay. The Exploratorium also has to provide annual reports to the...
State to show compliance with their NPDES permit requirements.

The Exploratorium also has a 38,600-gallon cistern, which captures rainwater from the roof for toilet flushing purposes. The rainwater harvesting system can save up to 364,000 gallons annually, reducing water usage by approximately 30% in a year of average rainfall. Finally, the building is equipped with high-efficiency dual-flush toilets, waterless urinals, and low-flow sensor-operated faucets—reducing water consumption by another 30%.

Drivers for Non-potable Water Reuse:
From the beginning of the design stages for the Exploratorium, two primary objectives were to have a building that demonstrated the museum’s ambitious sustainability goals and served as a localized example of how buildings can be built in response to climate change. Incorporating the Bay water heating and cooling system and the rainwater harvesting system helped to achieve these objectives.

Implementing the alternate water systems also allowed the Exploratorium to obtain additional LEED points to help the project achieve LEED Platinum certification. The project received an additional six Water Efficiency (WE) points and two Regional Priority (RP) points by implementing the systems.

Finally, the rainwater harvesting system also allows the Exploratorium to fulfill the requirements of the San Francisco Stormwater Management Ordinance. The

Stormwater Management Ordinance requires projects disturbing 5,000 square feet or more of the ground surface to decrease the project’s post-construction stormwater runoff rate and volume by 25% for the 2-year 24-hour design storm.

Ownership Model:
The Bay water cooling and heating system and rainwater harvesting system are owned, operated, and maintained by the Exploratorium.

Project Cost:
The new Exploratorium cost $220 million to build. The specific costs for the Bay water cooling and heating system cost and the rainwater harvesting system are not available. The NPDES permit from the Regional Water Quality Control Board for the Bay water heating and cooling system cost $1,943 in 2011.

Annual Operations & Maintenance Cost: TBD

Service Costs to Residents or Tenants: Not applicable

Reference: Jennifer Fragomeni, The Exploratorium (jfragomeni@exploratorium.edu)
Whole Foods Mixed-use Development — 38 Dolores Street

**Project Status:** Online

**SFDPH Permit Issued:** N/A (a rainwater harvesting project for non-spray irrigation does not need a permit)

**Size:** 195,000 square feet

**Alternate Water Sources:**
- Rainwater

**End Uses:**
- Subsurface irrigation
- Drip irrigation

**Volume:** 26,000 gallons/year

**Potable Water Use Reduction:** 26% for irrigation; 1.3% total project reduction

**Driver(s):** LEED Points, Sustainable SITES Pilot Project Certification, and mandate (San Francisco Stormwater Management Ordinance)

**System Cost:** Not available

**Annual O&M Cost:** Negligible

**Owner:** The Prado Group (Market Dolores LLC)

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**Project Description:**

In fall 2013, the Prado Group (Market Dolores LLC) completed construction on a new 195,000 square-foot mixed-use development containing 81 residential rental units and a 30,000 square-foot Whole Foods grocery store on the ground level. Targeted for LEED Gold, the development – located between Market Street, Dolores Street, and 14th Street – contains a 16,200 gallon cistern that collects rainwater from all rooftop surfaces (traditional roofs, green roof, and flow-through planters). The harvested rainwater is used to irrigate all landscaping within the development via subsurface and drip irrigation systems. The cistern is sized to hold the required average annual detention volume associated with the San Francisco Stormwater Management Ordinance design storm event, while also taking into consideration the project’s monthly irrigation demand. The project will offset an estimated 26,000 gallons of potable water annually.

The project does not have a permit from the San Francisco Department of Public Health because rainwater systems that, at a minimum, include both a first flush diverter and a 100 micron filter, and are used for subsurface irrigation, drip irrigation, or non-spray surface irrigation, do not need one.
Drivers for Non-potable Water Reuse:
The project team installed the rainwater harvesting system to meet the requirements of the San Francisco Stormwater Management Ordinance. The Stormwater Management Ordinance requires projects disturbing 5,000 square feet or more of the ground surface to decrease the project’s post-construction stormwater runoff rate and volume by 25% for the 2-year 24-hour design storm. Installing a rainwater harvesting system with a 16,200 gallon cistern enabled the project to meet these requirements.

The project also installed the rainwater harvesting system to obtain LEED points to help the project achieve LEED Gold Certification. Additionally, the project was designed and certified as a Sustainable SITES Pilot Project, which also was a driver for installing the system. Sustainable SITES certification is given to projects that use sustainable practices that enable built landscapes to support natural ecological functions by protecting existing ecosystems and regenerating ecological capacity where it has been lost.

Ownership Model:
The rainwater harvesting system is owned, operated, and maintained by the Prado Group (Market Dolores LLC), which owns the development and leases the commercial spaces and residential units to tenants.

Project Cost:
The total hard cost for the project was $48 million. The contractor did not break out the cost of the rainwater harvesting system as a discrete item.

Annual Operations & Maintenance Cost:
The cost to operate and maintain the rainwater harvesting system is negligible.

Service Costs to Residents or Tenants:
There are no service costs to the commercial or residential tenants for use of the rainwater.

Reference: Jon Yolles, The Prado Group (jyolles@pradogroup.com); Eric Girod, BKF Engineers (egirod@bkf.com)
Project Description:
PG&E’s recently remodeled San Francisco Service Center Garage is the first PG&E building to earn LEED Platinum certification. The 145,000 square-foot facility, located at 2270 Folsom Street, was originally constructed in 1929. It is primarily used to house gas and electric service vehicles, with some office and shop space. PG&E remodeled the building to improve customer safety and to transform the building into a modern, environmentally-sustainable facility.

One unique challenge that the project design team and general contractor, CB2 Builders, dealt with was how to sustainably manage nuisance groundwater from a nearby underground stream. Understanding that the building is located in an area with high groundwater and had been ejecting nuisance foundation drainage to the sewer to maintain structural integrity, the design team proposed to capture and treat this water for toilet flushing purposes instead of diverting it to the sewer. By using foundation drainage to flush toilets, the project reduces potable water consumption by approximately 81% and provides an annual potable offset of 170,000 gallons.
Drivers for Non-potable Water Reuse:
Managing the nuisance groundwater in a sustainable manner was the primary driver for installing the non-potable water system. The system also contributed eight LEED points towards the LEED Platinum certification: six Water Efficiency (WE) points and two Regional Priority (RP) points.

Ownership Model:
The entire facility, including the foundation drainage treatment and reuse system, is owned, operated, and maintained by PG&E.

Project Cost:
TBD

Annual Operations & Maintenance Cost:
TBD

Service Costs to Residents or Tenants:
Not applicable

Reference: Nick LaFollette, CB2 Builders (nick@cb2builders.com)
San Francisco Public Safety Building — 1245 Third Street

Project Description:
The 300,000 square-foot Public Safety Building (PSB) project is a City and County of San Francisco facility that consists of a new six-story building and the rehabilitation of Fire Station #30. The PSB facility will house the Police Headquarters, the relocated Southern Police Station, and the new Fire Station #4. The renovated space in the former Fire Station #30 will provide a community meeting space and offices for the San Francisco Fire Department (SFFD) Arson Task Force.

The PSB will be capturing, treating, and reusing multiple alternate water sources using two separate non-potable water systems. The first non-potable water system will treat a combined flow of graywater and condensate drainage for toilet flushing purposes. The proposed system will provide enough treated non-potable water to cover all of the building’s toilet flushing demand, reducing the building’s annual potable water demand by approximately 333,000 gallons.

The building will also have a rainwater harvesting system that will collect rainwater from the building’s roofs and convey it to a 44,500 gallon cistern in the basement. The rainwater will be filtered and disinfected, then used for subsurface irrigation and as make-up water for the closed-loop cooling tower system. The cistern will always maintain a minimum

Project Status: Under construction (estimated completion summer 2014)
SFDPH Permit Issued: No
Size: 300,000 square feet
Alternate Water Sources:
• Graywater
• Condensate drainage
• Rainwater
End Uses:
• Toilet flushing
• Irrigation
• Cooling tower make-up
Volume: 748,000 gallons/year
Potable Water Use Reduction: TBD
Driver(s): LEED points and mandate (San Francisco Stormwater Management Ordinance)
System Cost: TBD
Annual O&M Cost: TBD
Owner: City and County of San Francisco
water volume of 24,000 gallons in order to ensure a 96-hour emergency reservoir for cooling tower make-up. The system will offset an estimated 415,000 gallons of potable water annually.

Drivers for Non-potable Water Reuse:
The City and County of San Francisco requires all new public buildings to achieve LEED Gold certification. Installing the two non-potable water systems provides the PSB project an additional eight LEED points, thus helping the project achieve LEED Gold certification.

The project team is also installing the rainwater harvesting system to meet the requirements of the San Francisco Stormwater Management Ordinance. The Stormwater Management Ordinance requires projects disturbing 5,000 square feet or more of the ground surface to decrease the project’s post-construction stormwater runoff rate and volume by 25% for the 2-year 24-hour design storm.

Ownership Model:
The City and County of San Francisco is the owner of the non-potable water systems and will be responsible for assigning appropriate personnel to operate and maintain them.

Project Cost:
The construction cost for the two systems is still being determined by the PSB project team. The total cost for the PSB project is $239 million. The Earthquake Safety and Emergency Response Bond which was passed by voters in June 2010, is funding the project.

Annual Operations & Maintenance Cost:
TBD

Service Costs to Residents or Tenants:
Not applicable

Reference: Samuel Chui, Department of Public Works (samuel.chui@sfdpw.org)
Project Description:
The 283,940 square-foot Market Street Place, scheduled to open in 2015, is a brand new, six-level retail center with 91,870 square feet of subgrade parking located at 945 Market Street. Situated between 5th and 6th Streets, the center contains an 18,300 gallon cistern which collects rainwater from a 48,000 square-foot roof. The cistern is sized to hold the required average annual detention volume associated with the San Francisco Stormwater Management Ordinance design storm event. Treatment for the rainwater will be provided by a Water Control Corporation RW-Series Skid Mounted Water Reclamation Packaged System consisting of 25 and 5 micron filtration followed by ultraviolet (UV) disinfection. After treatment and disinfection, the harvested rainwater will be used for cooling tower make-up and to flush 54 toilets and 18 urinals. The system will offset an estimated 446,000 gallons of potable water annually, reducing the project’s potable water use by approximately 12%.

Drivers for Non-potable Water Reuse:
The project team installed the rainwater harvesting system to obtain the LEED innovation in design credit of 40% potable water use reduction.
The project team is also installing the rainwater harvesting system to meet the requirements of the San Francisco Stormwater Management Ordinance. The Stormwater Management Ordinance requires projects disturbing 5,000 square feet or more of the ground surface to decrease the project’s post-construction stormwater runoff rate and volume by 25% for the 2-year 24-hour design storm. Installing a rainwater harvesting system with an 18,300 gallon cistern enables the project to meet these requirements.

Ownership Model:
The rainwater harvesting system is owned by CRP/Cypress Market Street LLC, who will contract a building management firm for operation. The contracted building operator will operate and maintain the system.

Project Cost:
TBD

Annual Operations & Maintenance Cost:
TBD

Service Costs to Residents or Tenants:
There are no service costs to the commercial tenants for use of the rainwater.

Reference: Phillip Alexander, Randall Lamb (PAlexander@RandallLamb.com); and Kathy Kwong, Gensler (Kathy_Kwong@Gensler.com)
**Project Description:**

Located in the South of Market neighborhood in San Francisco, the 69,000 square-foot Bill Sorro Community, is a 100% affordable housing development. The project will demolish an existing building in favor of a nine-story, 85 foot tower with 67 affordable family apartments, restaurant, retail, and community space. Scheduled to open in 2016, the new project is proposing to install a 3,000 gallon cistern to collect rainwater from an 8,800 square-foot roof. The cistern is sized to hold the required average annual detention volume associated with the San Francisco Stormwater Management Ordinance design storm event. Treatment for the rainwater will consist of particulate filters to remove the suspended solids and ultraviolet (UV) disinfection prior to being distributed throughout the building for toilet flushing purposes. The system will offset an estimated 45,000 gallons of potable water annually, reducing the project’s potable water use by approximately 10%.

The project is also located in a designated recycled water use area under San Francisco’s Recycled Water Use Ordinance, and therefore will be plumbed to be ready for the eventual use of SFPUC recycled water for toilet flushing when rainwater is not available.
Drivers for Non-potable Water Reuse:
The project team will install the rainwater harvesting system to meet the requirements of the San Francisco Stormwater Management Ordinance. The Stormwater Management Ordinance requires projects disturbing 5,000 square feet or more of the ground surface to decrease the project’s post-construction stormwater runoff rate and volume by 25% for the 2-year 24-hour design storm. Installing a rainwater harvesting system with a 3,000 gallon cistern enables the project to meet these requirements. Another driver for implementing the rainwater harvesting system is to meet project sustainability goals, include exceeding the San Francisco Green Building Ordinance GreenPoint Rated system for multi-family buildings.

Ownership Model:
Mercy Housing California (MHC) is the owner/developer of the Bill Sorro Community. The City and County of San Francisco owns the land under the building, so there will be a ground lease for the land with the City and County of San Francisco. MHC will assign staff with the appropriate backgrounds from their maintenance team to be responsible for operating and maintaining the rainwater harvesting system. Maintenance staff will be trained by the system manufacturer at the completion of the construction for continued operation and maintenance. The basic operations, inspection schedule, and routine preventative maintenance of the non-potable rainwater collection system will be covered during this initial training.

Project Cost:
The total cost for the rainwater harvesting system is estimated to be approximately $280,000.

Annual Operations & Maintenance Cost: TBD

Service Costs to Residents or Tenants:
There are no service costs to the tenants for the use of the rainwater.

Reference: Sharon Christen, Mercy Housing California (schristen@mercyhousing.org)
**Project Description:**
The Transbay Transit Center plans to capture, filter, and reuse graywater and stormwater through green infrastructure systems. Treated stormwater and graywater will supply about 3.5 million gallons of non-potable water for toilet flushing each year and will meet 25% of the building’s annual flushing demand. While the actual volume of non-potable water will vary seasonally depending on available stormwater, the water reuse system in combination with water-efficient fixtures is expected to reduce annual potable water demand by 49%, or about 12 million gallons (33,000 gallons per day), and sewage conveyance by 50% over a LEED baseline building.

Given that the project is located in a designated recycled water use area under the City’s Recycled Water Use Ordinance, dual-plumbing will be required for eventual use of SFPUC recycled water. Irrigation uses at the Transbay Transit Center will be supplied with potable water from the SFPUC until municipal recycled water becomes available.
Drivers for Non-potable Water Reuse:
Pelli Clarke Pelli Architects submitted the winning proposal in a design competition held by the Transbay Joint Powers Authority for the Transbay Transit Center project. Pelli Clarke Pelli pursued a unique design that included elements such as reduced water use and a vegetated 5-acre Roof Park. Regulatory requirements were implemented at the time of design development, notably the SFPUC's Stormwater Design Guidelines (SDG), which require the project to manage a portion of stormwater runoff on site. Complying with the SDG meant that the project would need to incorporate stormwater storage, and using this storage for a water reuse system helped make the SDG requirements more achievable. Although the vegetated Roof Park was conceived as a community amenity, the design team looked for opportunities to utilize it more effectively as green infrastructure to capture, retain, and use stormwater.

Ownership Model:
The Transbay Joint Powers Authority (TJPA) is responsible for the design, development, construction, and operation of the new Transbay Transit Center and its associated facilities. The TJPA is a regional government entity created by state law to exercise the joint powers of its authority members: the City and County of San Francisco, the Alameda–Contra Costa Transit District, the Peninsula Corridor Joint Powers Board, and the California Department of Transportation.

Project Cost:
The water reuse system is being funded as part of the larger Transbay Transit Center Program. As a large public project, the Program receives funding from diverse local, regional, state, and federal sources. The first phase of the Program is fully funded at a cost of $1.89 billion. Federal funding includes a $171 million Transportation Infrastructure Finance and Innovation Act (TIFIA) loan, in addition to a $400 million federal economic stimulus grant. The TIFIA loan will be repaid by a variety of grants, land sale proceeds, lease income from acquired right-of-way parcels, and other one-time revenue generation opportunities.

Annual Operations & Maintenance Cost:
TBD

Service Costs to Residents or Tenants:
Tenants of the Transbay Transit Center will not have access to non-potable water for reuse, as all of the graywater and stormwater captured will be treated and used for toilet flushing in the public spaces of the Transbay Transit Center terminal, which are operated by the owner (TJPA). Because the TJPA will use all of the treated graywater and stormwater, there is no pricing structure.

Reference: Claire Maxfield, Atelier Ten (Claire.Johnson@Atelierten.com)
Future Non-potable Projects in San Francisco

Future Projects:
SFPUC staff continues to receive applications from developments proposing to implement non-potable water systems. Staff also regularly meets with project teams interested in integrating systems into future developments. The following is a list of projects in San Francisco that are proposing to implement non-potable water systems in the future:

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Alternate Water Source(s)</th>
<th>End Use(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>181 Fremont Street</td>
<td>Graywater</td>
<td>Toilet Flushing</td>
</tr>
<tr>
<td>University of San Francisco</td>
<td>Rainwater</td>
<td>Cooling</td>
</tr>
<tr>
<td>Broadway Affordable Housing</td>
<td>Rainwater</td>
<td>Toilet Flushing</td>
</tr>
<tr>
<td>45 Lansing</td>
<td>Rainwater</td>
<td>Toilet Flushing</td>
</tr>
<tr>
<td>350 Mission</td>
<td>Rainwater</td>
<td>Irrigation, Toilet Flushing, Cooling</td>
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<tr>
<td>SFMOMA</td>
<td>Rainwater, Condensate Drainage</td>
<td>Irrigation, Toilet Flushing, Cooling</td>
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<td>55 9th Street</td>
<td>Rainwater</td>
<td>Irrigation</td>
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<tr>
<td>Transbay Tower</td>
<td>Rainwater</td>
<td>Irrigation, Toilet Flushing</td>
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<tr>
<td>Alta Laguna</td>
<td>Rainwater</td>
<td>Irrigation</td>
</tr>
<tr>
<td>Moscone Convention Center</td>
<td>Foundation Drainage</td>
<td>TBD (District-scale)</td>
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<tr>
<td>NRG</td>
<td>Foundation Drainage</td>
<td>Steam loop (District-scale)</td>
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<td>St. Anthony’s</td>
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<td>250 4th Street</td>
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<td>333 Brannan</td>
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<td>Pier 27</td>
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<td>Mission Street Hotel</td>
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<td>340 Fremont</td>
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<td>Toilet Flushing, Cooling</td>
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<td>Mission Street Movie Theatre</td>
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<td>Irrigation</td>
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<td>Botanical Garden Nursey Center</td>
<td>Rainwater</td>
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<td>Hunters View (Phase 3)</td>
<td>Stormwater</td>
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<td>CPMC: St. Luke's</td>
<td>Rainwater</td>
<td>Cooling</td>
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<tr>
<td>CPMC: Cathedral Hill</td>
<td>Rainwater</td>
<td>Irrigation, Cooling</td>
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<tr>
<td>CPC: Van Ness MOB</td>
<td>Rainwater</td>
<td>Irrigation</td>
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<tr>
<td>535 Mission Street</td>
<td>Rainwater</td>
<td>Irrigation</td>
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</table>
The 181 Fremont Street project is proposing to install a graywater system for toilet flushing (image courtesy of Heller Manus Architects)

The Alta Laguna project is proposing to capture and treat rainwater for irrigation (image courtesy of BAR Architects)