Evolution of the Sustainability Plan

This Sustainability Plan summarizes how the Treasure Island and Yerba Buena Island Redevelopment Project (TI/YBI Project) will become an exceptional San Francisco neighborhood in terms of its environmental performance and social benefits. This plan draws from several planning documents, including the Final Environmental Impact Report, Infrastructure Plan, Design for Development document, Jobs and Equal Opportunity Program, Housing Plan, Parks and Open Space Plan, Transportation Plan, and the Disposition and Development Agreement between TICD and TIDA.

In 2006, a Sustainability Plan was prepared that outlined the long term vision for the TI/YBI Project covering ten key focus areas across the triple bottom line of sustainable development: environmental stewardship, community development, and economic vitality. A series of strategic goals, objectives, strategies, and potential partners were outlined, providing a guide for subsequent planning and design efforts. The 2006 Sustainability Plan was groundbreaking in its scope and approach to sustainable development for large scale mixed-use projects, and provided an exemplary yet practical pathway to sustainability that many international projects have since followed — emphasizing the integration of sustainability into the approach to the urban plan and form and social fabric, rather than technological add-ons. At the time, the project-tailored Treasure Island Green Building Specifications included in the 2006 Sustainability Plan were unique in terms of regulations for green building, and they represented a high bar for vertical developers to achieve. In 2008 the City of San Francisco adopted its Green Building Ordinance (SF GBO), thereby codifying many of the 2006 aspirations of the TI/YBI Project.

This 2011 Sustainability Plan draws from and builds upon the 2006 Sustainability Plan, and reflects enhancements of the current integrated approach, as well as how the TI/YBI Project will exceed green standards and ordinances in certain cases. For instance, strategies related to Energy, Water, Waste, and Materials have been grouped into the Integrated Sustainable Design Chapter to reflect the synergistic relationships between them. The Sustainability Plan also updates some of the 2006 targets to respond to changes in technology, local regulations, and additional commitments made by the Treasure Island Development Authority (TIDA) and Treasure Island Community Development (TICD), the project’s Master Developer. Since 2006, California has adopted a new Green Building Standards Code (CALGreen) and the City and County of San Francisco has adopted the previously mentioned SF GBO (2008 and 2010). Both of these regulations became effective in 2011 and the increased sustainability performance required under these new codes are incorporated.

Further, in 2009, the TI/YBI Project was selected as one of 17 projects worldwide to participate in the Climate Positive Development Program led by the Clinton Climate Initiative (CCI). In this role, the TI/YBI Project will support the City’s goal of climate neutrality and endeavor to set a global example in achieving large scale urban development that is climate positive and cost effective.
This document includes both commitments and aspirations in regards to sustainability. Therefore, TICD has created a document that codifies its commitment as the master developer with regard to Land Use, Transportation & Infrastructure, Energy & Water, Building Design & Construction, Solid Waste, and Community Benefits. Please see TICD Environmental Sustainability Obligations in an exhibit to the Development Disposition Agreement (DDA) which explains these commitments in greater detail.
01 Introduction and approach
The Redevelopment of major portions of Treasure Island and Yerba Buena Island are an opportunity to create an exemplary model of sustainable living. A new urban neighborhood will be founded that incorporates best practices in smart urban design, low-impact development and green building. The 450-acre development will be transformed from a former military base into a vibrant, livable community and regional destination, where walking and cycling are prioritized and a transit-oriented lifestyle is promoted.

### Vision & Guiding Principles

The vision of the Treasure Island/Yerba Buena Island Redevelopment Plan is to add to San Francisco’s eclectic family of world-class neighborhoods, using an innovative design that embodies the city’s most desirable characteristics: walkable, compact and eclectic; economically, ethnically, and demographically diverse; sensitive to topography views and aesthetics; progressive, memorable, full of character, and proud of its history. The following Sustainability Principles were adopted by the City at the start of the planning process. They have continue serve as a guide as the project evolves in response to the extensive public input.

#### Diverse Community

The concept of community is that of a wonderfully diverse group of people working together to live healthy, fulfilling and dignified lives. By achieving equity in access to community facilities, services and environmental quality, the TI/YBI Project will foster human potential and self-reliance.

#### Thriving Ecosystems

Treasure Island and Yerba Buena Island are inextricably linked to their surrounding ecosystem—the San Francisco Bay. The sensitivity of this connection is paramount. The TI/YBI Project will minimize its environmental impact and create new naturalistic habitats and eco-corridors on the islands and protect and restore naturally occurring habitats on Yerba Buena Island.

#### Healthy Neighborhoods

Individual and community health is affected by the quality of the built environment. Clean air and clean water will be enhanced by a development that privileges bikeability and walkability, preserves open space, fosters local organic agriculture and strategically locates higher density, mixed-use development adjacent to transit centers.

### Affordable Solutions

The City and TICD recognizes the importance of partnership between public and private investment in establishing a development that is affordable, contributes to the economy of the City and creates a mixed-income community that promotes social justice and encourages local businesses to thrive.

### Global Responsibility

The TI/YBI Project recognizes and embraces its regional significance and global interconnectivity with the global community. The TI/YBI Project will assess and monitor its carbon footprint in line with internationally accepted protocols.

### Integrated Design and Lasting Beauty

The life of the built environment at Treasure Island and Yerba Buena Island will be measured over generations, not decades. By creating beautiful, intelligent, adaptable and easily maintained systems that ensure continued sustainability performance, the TI/YBI Project will withstand the test of time.

### Public Participation and Transparency

Sustainable development is built upon a process that is transparent, participatory and fully informed by social, economic and environmental values. The best plans are based on assessment of alternatives and a determination of the alternatives that best promote human and ecological health. These values guide all actions undertaken by the City and TICD toward achieving the current objectives for the Treasure Island Project.
Site Design and Land Use (Chapter 2)

**OBJECTIVES**

To create a vibrant livable community that is mixed use, dense, walkable and preserves biodiversity and open space.

**STRATEGIES**

- Maximize solar exposure and deflect wind currents
- Design a compact and balanced community
- Enhance the public realm
- Promote habitat conservation and protect local wildlife
- Protect valuable historic resources
- Enable local food production by allocating land for an urban farm
- Clean up contaminated areas to levels consistent with the plan

**TARGETS**

- Average Density: 95-105 dwelling units per net residential acre
- Access to retail services: 1/4 mile for 90% of residents
- Adaptive reuse for all buildings in the National Register of Historic Places
- 300 acres of parks and open space
- Tree canopy over 50% of available sidewalk spaces at tree maturity
- Use of native or regionally appropriate species for all new landscaping, excluding urban farm
- 20-25 acre Urban Agricultural Park

**BENEFITS**

- Expand the acreage of public parks and open space in San Francisco by 300 acres, roughly one third of Golden Gate Park
- Enable approximately 18,600 residents to benefit from sustainable, pedestrian-oriented living
- Enable the creation of the largest urban farm in San Francisco
- Most residences and commercial activity located within 15 minute walk from retail services and the transit hub
- Conceptual stormwater managed on site
- Protect and enhance 311,000 square feet of historic properties
- Provide 10-15 acres of new wetland habitat areas on Treasure Island

The foregoing principles have been used to shape the strategies for each focus area, described in the “At a Glance” Table on the following page. This table summarizes the goals, strategies and targets that are embedded into the plan, many of which that are incorporated into binding documents governing the design and build-out of the TI/YBI Project. Each of the focus areas is discussed in detail in the following chapters.
Community (Chapter 3)

**OBJECTIVES**
To foster the development of a strong, and diverse community that has access to ample opportunities for recreation, arts, and education
To undertake the redevelopment through a process built on transparency and public participation

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide high quality community facilities and amenities</td>
<td>TICD &amp; TIDA</td>
</tr>
<tr>
<td>• Provide a range of housing types for all income levels</td>
<td>TICD, TIDA, TIHDI &amp; Vertical Developers</td>
</tr>
<tr>
<td>• Offer a transition housing program for existing residents</td>
<td>TICD &amp; TIDA</td>
</tr>
<tr>
<td>• Create jobs for local residents</td>
<td>TICD, TIDA &amp; TIDH</td>
</tr>
<tr>
<td>• Actively engage the community and stakeholders during the redevelopment process</td>
<td>TICD, TIDA &amp; Vertical Developers</td>
</tr>
</tbody>
</table>

**TARGETS SOURCE**
• 303,500 square feet of community service space - Infrastructure Plan
• 75,000 square feet of neighborhood-serving retail - Infrastructure Plan
• 25% to 30% affordable housing - Housing Plan
• Provide transition housing benefits to all qualifying households - Transition Housing Rules and Regulations
• Provide 2,000 construction jobs - Employment & Contracting Policy

**BENEFITS**
• New facilities for the community may include: community center, senior facilities, youth center, public library, public performance space, sports facilities, and urban farm
• 90% of residents within 15 min walk from parks, public facilities, transit and retail
• Expand the supply of permanent affordable housing in San Francisco by 2,000 to 2,400 homes
• Support existing residents who remain on Treasure Island through its redevelopment
• Increase employment opportunities and spark local economic development through creating jobs that are filled by San Francisco residents and economically disadvantaged persons, including those who are formerly homeless

Transportation (Chapter 4)

**OBJECTIVES**
To develop a model community where the predominance of walking and cycling, complemented by clean transit service, can help achieve the objective of carbon neutrality

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide a safe and inviting pedestrian and bicycling environment</td>
<td>TICD, TIDA &amp; Local Transit Authorities</td>
</tr>
<tr>
<td>• Provide high quality, frequent and easily-accessible transit</td>
<td>TICD, TIDA &amp; Local Transit Authorities</td>
</tr>
<tr>
<td>• Implement a transportation demand management program to encourage transit use and reduce traffic and capture revenue for islands transit</td>
<td>TICD, TIDA &amp; Local Transit Authorities</td>
</tr>
</tbody>
</table>

**TARGETS SOURCE**
• 90% of population will have less than a 15 min walk to transit hub and town center - DHD
• Walkable blocks: 400’-600’ in length with mid-block passages - DHD
• 15 minute headways for ferry service during peak hours - Transportation Plan
• 7 minute headway for bus during peak hours - Transportation Plan
• Limit of 1:1 parking for residential units, up to 8,000 spaces, that are economically decoupled from the units - Transportation Plan
• 40-45% non-auto mode share - Transportation Plan
• 1 car-sharing parking space for every 200 residential units - GBS
• Accommodate potential electric vehicle charging stations in public and private areas - TICD Environmental Sustainability Obligations
• Include bicycle parking spaces for residential and commercial uses, in accordance with the DHD and GBS

**BENEFITS**
• Expand Bay Area’s bicycle opportunities by adding 10 miles of dedicated bicycle trails on Treasure Island and Yerba Buena Island
• 4 miles of new pedestrian trails and hiking trails
• New frequent ferry service provides 45 ferry trips daily during weekdays between Treasure Island and the Downtown San Francisco
• Enhanced clean bus service provides the capacity for 12,000 daily person trips to and from downtown San Francisco
• Avoids the addition of 12,000 person trips on the Bay Bridge during peak hours
• 2,800 metric tons of transit-related CO2e will be avoided per year
• Energy capacity and infrastructure to support electric vehicles as needed
• Connect to the new bicycle and pedestrian trails on the new eastern span of the Bay Bridge and preserve the option of a connection to the west span in the future, increasing the network of San Francisco Bay Trails
### Energy (Chapter 5)

#### OBJECTIVES
To conserve and reduce energy demand and create a sustainable energy supply

#### STRATEGIES RESPONSIBLE PARTY
<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>STRATEGY</th>
<th>PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce building energy demand</td>
<td>TICD, TIDA, Utility Providers, Vertical Developers &amp; Future Residents</td>
<td></td>
</tr>
<tr>
<td>Improve district-wide systems to increase efficiency</td>
<td>TICD, TIDA, Utility Providers &amp; 3rd Party</td>
<td></td>
</tr>
<tr>
<td>Generate renewable energy on-site</td>
<td>TICD, TIDA, Utility Providers &amp; 3rd Party</td>
<td></td>
</tr>
<tr>
<td>Meet demands from the grid with hydro or other non-carbon sources</td>
<td>Utility Providers</td>
<td></td>
</tr>
<tr>
<td>Enable smart grid technologies to manage renewables and demand</td>
<td>TICD, TIDA, Utility Providers &amp; 3rd Party</td>
<td></td>
</tr>
<tr>
<td>Rotate existing street grid and building orientation to decrease energy demand</td>
<td>TICD &amp; TIDA</td>
<td></td>
</tr>
</tbody>
</table>

#### TARGETS SOURCE
<table>
<thead>
<tr>
<th>TARGET</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generate a minimum of 5% peak power demand from on-island renewable sources</td>
<td>Green Building Standards Infrastructure Plan</td>
</tr>
<tr>
<td>Achieve 15% energy efficiency in infrastructure compared to lowest cost alternatives</td>
<td>Infrastructure Plan</td>
</tr>
<tr>
<td>Partner with a third party to deploy and deliver district energy and/or waste to energy services</td>
<td>Information Technology Infrastructure Plan</td>
</tr>
<tr>
<td>Use renewable energy or hydro power for 100% of the grid source power supply</td>
<td>DDA</td>
</tr>
</tbody>
</table>

#### BENEFITS
- 15% improved energy performance over Title 24 (2006), which is ~35% better than original Title 24 (2005) benchmark
- Central Utility Plant would reduce electricity consumption by 12% due to efficiency gains compared with building or unit level systems
- Natural ventilation and daylighting results in a more pleasant indoor environment
- Potential for $360 annual savings on an average California home's energy bill
- 41,000 MMBtu of energy saved per year, enough to power 885 average homes in California for a year
- 6,190 fewer tons of CO₂e emitted per year with a potential of 10,780 fewer tons emitted if all district systems and variants are implemented
- $150 in savings from water costs per residential unit per year
- 397 million gallons of water saved every year on TI/YBI. Enough to provide water to 11,800 San Franciscans for a year
- Minimizing stormwater runoff has reduced operational impacts on treatment facilities and improves the quality of water that is discharged to the San Francisco Bay
- Wetland habitat creation

### Water (Chapter 5)

#### OBJECTIVES
To achieve a sustainable water cycle by reducing potable water demand, enabling use of recycled water, and treating wastewater and stormwater on-site

#### STRATEGIES RESPONSIBLE PARTY
<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>STRATEGY</th>
<th>PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce water demand</td>
<td>TICD, TIDA, Utilities, Vertical Developers &amp; Future Residents</td>
<td></td>
</tr>
<tr>
<td>Treat all wastewater on-site and enable use of recycled water</td>
<td>TICD, TIDA &amp; Utility Providers &amp; 3rd Party</td>
<td></td>
</tr>
<tr>
<td>Meet all non-potable water demands with recycled water</td>
<td>TICD, TIDA &amp; Vertical Developers</td>
<td></td>
</tr>
<tr>
<td>Construct wetlands to treat stormwater runoff</td>
<td>TICD &amp; TIDA</td>
<td></td>
</tr>
<tr>
<td>Local Best Management Practices and Low Impact Development</td>
<td>TICD &amp; TIDA</td>
<td></td>
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</table>

#### TARGETS SOURCE
<table>
<thead>
<tr>
<th>TARGET</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Consume 40% less potable water in fixtures than Energy Policy Act future performance requirements</td>
<td>GBS</td>
</tr>
<tr>
<td>Achieve an average potable water demand of 50 gallons/person/day for residential use</td>
<td>GBS</td>
</tr>
<tr>
<td>Treat 100% of waste water on-site</td>
<td>Infrastructure Plan</td>
</tr>
<tr>
<td>Recycled water and/or rainwater to meet 100% of non-potable demands (estimated 420,000 gallons/year)</td>
<td>GBS</td>
</tr>
<tr>
<td>Support all irrigation needs with recycled water</td>
<td>Infrastructure Plan</td>
</tr>
<tr>
<td>At least 10 acres of land dedicated to wetlands</td>
<td>D4D &amp; Infrastructure Plan</td>
</tr>
<tr>
<td>Treat 100% of stormwater from storms with intensities ≤0.2 inches/hour on-site</td>
<td>GBS</td>
</tr>
</tbody>
</table>

#### BENEFITS
- 45% reduction in potable water consumption compared to baseline demand
- Reduction in use of municipally supplied water to approximately 50 gallons/capita/day for residential use, which is 46% less than SF’s 92 gallons/capita/day average
- Approximately $150 in savings from water costs per residential unit per year
- 397 million gallons of water saved every year on TI/YBI. Enough to provide water to 11,800 San Franciscans for a year
- Minimizing stormwater runoff has reduced operational impacts on treatment facilities and improves the quality of water that is discharged to the San Francisco Bay
- Wetland habitat creation
Waste (Chapter 5)

OBJECTIVES
To support the diversion of waste from the landfill and to use organic waste as a resource on TI/YBI

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Minimize construction and demolition waste</td>
<td>TICD &amp; Vertical Developers</td>
</tr>
<tr>
<td>• Implement a strong-source separated recycling and composting program</td>
<td>TIDA, TIDA &amp; Recology</td>
</tr>
<tr>
<td>• Evaluate opportunities for automated waste collection</td>
<td>TIDA, TIDA &amp; Recology</td>
</tr>
<tr>
<td>• Use all organic waste to generate energy and/or produce compost</td>
<td>TIDA, TIDA, Recology &amp; Future Residents</td>
</tr>
</tbody>
</table>

TARGETS
• Recycle or salvage 75% of the non-hazardous construction and demolition debris | Infrastructure Plan & GBS |
• Maximize recycled content in infrastructure | Infrastructure Plan & GBS |
• Use concrete containing 30% or more fly ash, slag, or other fill that is recycled | GBS |
• Include bins for recyclables and compostables in all public areas | D4D & Infrastructure Plan |
• 100% organic waste generated on-island to be used for energy and/or compost | Infrastructure Plan & GBS |

BENEFITS
• Of the 16,500 tons of annual waste expected to be generated onsite, approximately 8,700 tons of organic waste is expected to be diverted from the waste stream and treated onsite |
• Anaerobic facility could generate approximately 0.23 Megawatts of energy, enough to power 150 homes |
• Approximately 110 metric tons of CO₂e would be saved per year using an automated waste collection system versus traditional truck hauling methods |

Information & Communication Technology (Chapter 5)

OBJECTIVES
To use information technology as a means to improve efficiency, monitor resource impact, and foster transparency regarding sustainability performance. To bridge the digital divide by ensuring universal access to broadband

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Empower residents to save money and make low-carbon decisions</td>
<td>TICD, TIDA, Utilities, Vertical Developers &amp; 3rd Parties</td>
</tr>
<tr>
<td>• Explore opportunities to provide universal access to high-speed internet and broadband connectivity</td>
<td>TICD, TIDA &amp; 3rd Parties</td>
</tr>
<tr>
<td>• Explore the feasibility of an integrated platform to monitor performance of the various utilities in real-time</td>
<td>TICD, TIDA, Utilities, Vertical Developers &amp; 3rd Parties</td>
</tr>
<tr>
<td>• Explore opportunities to encourage innovation, efficiency, and transparency by making non-sensitive data publicly available</td>
<td>TICD, TIDA, Utilities &amp; 3rd Parties</td>
</tr>
</tbody>
</table>

TARGETS
• Smart meters connected to every residence | Infrastructure Plan |
• 100% of households with broadband via fiber optics | Infrastructure Plan |

BENEFITS
• 10-15% additional energy and carbon savings can be attributed to changes in user behavior |
• Connects people and bridges the digital divide |
• Enables residents to better engage and participate in their community |
• Enables residents to monitor their own resource use, prioritize decisions with respect to energy use, and maximize monetary savings |

Climate Change & Resilience (Chapter 6)

OBJECTIVES
To be a global leader in climate change mitigation by minimizing Green House Gas (GHG) emissions associated with the project, while proactively safeguarding the health and welfare of the community by fostering resilience and addressing physical risks such as seismic activity and sea-level rise

STRATEGIES RESPONSIBLE PARTY

- Participate in the Clinton Climate Initiative Climate Positive Development Program TICD, TIDA, Utilities, Future Residents & City of SF
- Stabilize and elevate development areas on Treasure Island to avoid geotechnical hazards, and risks associated to sea-level rise TICD & TIDA

TARGETS SOURCE

- Carbon neutrality in operations over the long-term if economically and technically feasible DDA
- 3.2 metric tonnes of CO₂ per capita carbon footprint in 2020 including consumption, travel and embodied carbon EIR
- Use of alternatively fueled construction equipment for at least 15% of the construction fleet DDA
- Use at least 10% of building materials that have been extracted or manufactured within 500 miles of the project site GBS
- Ability to manage more than 55” of sea level rise Infrastructure Plan
- First floor and garage entrances elevated a minimum of 42” above current Base Flood Elevation GBS

BENEFITS
- 90% reduction in GHG emissions from a AB 32 2020 Target
- First floor and garage entrances elevated a minimum of 42” above current Base Flood Elevation
- Redundant water supply, including both potable water and fire fighting
- 240,000 fewer tons of carbon emitted per year. Equivalent to the sequestration capacity of 33,533 acres of California forests or 2.6% of the California State Parks system (using 7.2 metric tons of CO₂e per acre per year: Brown, et. al, Baseline Greenhouse Gas Emissions for Forest, Range & Agricultural Lands in California, 2004).

Economic Vitality (Chapter 7)

OBJECTIVES
To achieve significant levels of environmental and social performance while maintaining financial viability. To reduce development costs and risks and increasing property values and maintaining reasonable affordability to island residents

STRATEGIES RESPONSIBLE PARTY

- Generate revenue streams that create long-term positive impacts on the City’s General Fund TICD & TIDA
- Promote commercial opportunities for green businesses TICD, TIDA & Future Residents
- Provide excellent value for residents TICD, TIDA & Vertical Developers
- Explore sustainable financial mechanisms TICD & TIDA

TARGETS SOURCE

- Positive net revenue for the City’s General Fund DDA

BENEFITS
- Added revenue to the City & County of San Francisco General Fund—additional $13 million per year at build out, totaling $144 million over next 20 years (in 2010 dollars)
- 25% to 30% of homes will be affordable
- Funding mechanisms created for the following needs: Transportation operation subsidies, parks and open space maintenance, adaptive management strategies, affordable housing development.
02 A comprehensive plan for sustainability
The master plan for the TI/YBI Project represents integrated sustainable design at its best. Principles of environmental and social stewardship are embedded into the approach and permeate all the elements of the plan, from the street grid orientation and urban form to the mix of uses and green infrastructure.

TI/YBI is a carefully conceived model community, which emphasizes architectural excellence, high quality of life, and environmental conservation. It will become a strong and attractive San Francisco neighborhood and a unique regional destination. The plan for TI/YBI is the result of a participatory and transparent planning process in which a wide range of stakeholders—including City agencies, developers, and the community at large—collaborated to conceive an ambitious plan that meets the highest aspirations of San Francisco residents.

Notable Accomplishments and Awards

- 2009 Selection as a Founding Member in Clinton Climate Change’s Climate Positive Development Program (CCIs CPDP)—one of 17 international projects striving to attain carbon neutrality in operations
- 2008 Governor’s Environmental and Economic Leadership Award for Sustainable Communities
- 2009 AIA Institute Honor Award for Urban Design

Objective

To create a vibrant livable community that is mixed use, dense, compact, walkable and preserves biodiversity and open space.

Strategies

1. Maximize solar exposure and deflect wind currents
   - The Treasure Island street grid is rotated to 68° to maximize sunlight penetration into the parks, streets, and buildings. The enhanced solar exposure improves the quality of parks and open spaces and enables the use of passive energy strategies such as daylighting.
   - The non-orthogonal street grid protects streets and open spaces from the prevailing westerly winds, fostering a more comfortable outdoor environment. Landscaping and other wind breaks will also be utilized to create a more efficient and comfortable environment.
   - The grid orientation creates view corridors aligned with the San Francisco skyline and provides public and private spaces with magnificent views of regional landmarks including downtown San Francisco, the Golden Gate Bridge, Angel Island, Alcatraz, Mt. Tamalpais, and the East Bay Hills.

2. Design a compact and balanced community
   - The land use plan for the TI/YBI Project concentrates development towards the west and south sides of the island, on approximately 1/3 of the available land area, creating a compact, pedestrian-oriented environment. The densities and scale will be comparable with other San Francisco neighborhoods, but the natural setting and urban form will give Treasure Island its unique character.
   - This program for Treasure Island is based around the principle of creating a thriving, complete community with a mix of uses, from homes and parks to office space and retail. While Treasure Island will remain strongly connected to mainland San Francisco, the local retail, services, and amenities will enable residents to live, work, learn, and play on the island.
   - The proposed densities will provide the population necessary to support social, commercial, and public transit infrastructure.
   - Low density, clustered development on Yerba Buena Island will minimize impacts on the natural land form and provide new scenic amenities.

Notable Accomplishments and Awards

- 2009 Selection as a Founding Member in Clinton Climate Change’s Climate Positive Development Program (CCIs CPDP)—one of 17 international projects striving to attain carbon neutrality in operations
- 2008 Governor’s Environmental and Economic Leadership Award for Sustainable Communities
- 2009 AIA Institute Honor Award for Urban Design
Land use: Residential
Treasure Island 7,700-7,850 units
Yerba Buena Island 150-300 units
Parking maximum: 1 per unit

Land use: Hotel
Treasure Island 450 rooms
Yerba Buena Island 50 rooms
Parking maximum: 0.8 per room up to 360 spaces

Land use: Office
Treasure Island 100,000 s.f.
Parking maximum: 2 per 1,000 s.f. up to 604 spaces

Land use: New Construction Retail
Neighborhood serving 45,000 s.f.
Other retail 95,000 s.f.
Parking maximum: 2 per 1,000 s.f. up to 414 spaces

Land use: Adaptive reuse
Building 1 76,000 s.f.
Building 2 85,000 s.f.
Building 3 150,000 s.f.

Land use: Open space
totals 300 acres

Land use: Historic structures
Yerba Buena Island 75,000 s.f.
Treasure Island 236,000 s.f.

Land use: Marina
Off-island center district 400 slips

Land use: Community/Civic Centers
Treasure Island school 105,000 s.f.
Police/fire 30,000 s.f.
Misc. community facilities 15,500 s.f.
Pier 1 community center 38,000 s.f.
TI sailing center 15,000 s.f.
Museum 7,500 s.f.
Community/civic total 273,500 s.f.

Land use: Utility facilities
Wastewater treatment plant 10,000 s.f.
Corporation yard buildings at treatment plant and water tanks 4,000 s.f.
Utility facility buildings totals 14,000 s.f.
3 Enhance the public realm

- The urban form in Treasure Island will support objectives of the plan which include showcasing excellence in architectural design, providing safe and engaging pedestrian environments, nurturing vibrant and lively public spaces, and fostering an urban relationship with nature.

- The project will generate over $25 million to be invested in public arts and public art programs in the island. These resources will complement private investment in the infrastructure for performance venues.

- Each of the districts are based around the principles of sustainability and pedestrian-oriented design, but they vary in terms of the intensity of activity:
  - The Island Center District is a neighborhood in the island’s commercial core with the densest population. It is close to lively spaces, plazas, and an expanded marina and is anchored by a new inter-modal transit center.
  - The Cityside District, along the western edge of Treasure Island is one of two main residential neighborhoods and affords tremendous views of downtown San Francisco and Bay landmarks; its primary social corridors include a waterfront park and a unique pedestrian oriented public way that runs the length of the neighborhood.
  - The Eastside District, located at the southeastern corner of Treasure Island, has great views of the East Bay. Yerba Buena Island and the new span of the Bay Bridge and is the other primary residential neighborhood on the island. The social focus of this district is the Eastside Commons, a linear park that acts as a community gathering place, recreation zone and as a pedestrian connector to the Island Center.

4 Promote habitat conservation and protect local wildlife

- Yerba Buena Island is characterized by its natural form and habitat with hilly neighborhoods, a hilltop regional park and lies to regional bicycle and pedestrian trails.
- The Open Space District: hosts the Urban Agricultural Park and a range of open space elements to meet recreational and habitat conservation objectives.
- Funding for on-going operations and maintenance of the parks and open space will be provided by TICD in accordance to the forms in the Parks and Open Space plan attached to the DDA.

- The TI/YBI project seeks to protect and restore indigenous biological communities, create new habitat, maximize habitat value in developed areas, and provide opportunities for people to interact with nature.

- The TI/YBI Plan focuses development towards the west and south of the island, converting previously developed lands so that approximately 2/3 of the available land area is dedicated for parks and open space.

- In accordance with the CEQA Mitigation and Monitoring Plan, and the YBI Habitat Management Plan, the existing marine and terrestrial habitat on YBI will be protected, with special attention to sensitive plants and wildlife. Coastal bluff, coastal scrub, chaparral, grassland, and Oak woodland areas will also be restored and enhanced.

- The CEQA Mitigation and Monitoring Plan includes a mitigation measure that requires every building in the project be designed to bird safe standards, considering facade design, fenestration, lighting design, rooftop design, and lighting operations. Building designs will be reviewed by a qualified biologist to ensure that it sufficiently minimizes the potential for bird strikes.

- Mitigation measures also contain strategies to protect aquatic, subsidal, and intertidal habitats, which include enforcement of responsible boating behavior and responsible use of beaches to avoid smothering of vegetation.

- Residents of both islands will play a critical role in the protection of local wildlife. As new residents move in, it is essential that they receive information about how their choices impact the rich biodiversity of the Bay. Some of the areas where residents can have a positive impact include: respecting leash laws, ensuring trash and compost bins are animal-proof, and avoiding feeding or disturbing wildlife.
5 Protect valuable historic resources
• Adaptive reuse of existing historic structures will honor the heritage of the site and contribute to the uniqueness of the development.
• Historic buildings on Treasure Island will serve as major anchors of the Island Center district, with Building 1 serving as an entry point for the island and center for retail and services that will support the adjacent intermodal transit hub.
• The Great Whales Historic District in Yerba Buena Island contains gardens and historic houses, which will be restored to enhance and highlight the site’s rich history and beauty.

6 Enable local food production by allocating land for an urban agricultural park
• The organic agricultural park at the heart of Treasure Island will serve as a main educational and recreational amenity. The 20+ acre park is intended to provide for visitors to experience farming and taste locally produced goods.
• The Urban Agricultural Park will have a series of areas for interpretation and demonstration to allow students and visitors to learn and appreciate sustainable agriculture.
• Local organic farmers and community members will have the opportunity to manage plots and create produce that satisfies TI/YBI resident's needs and market conditions.
• In nearby Building 2, grocery, food production, or food service will directly utilize the urban farm's productions.
• The park will be irrigated with recycled water, treated to the levels specified by Title 22 State standards on water quality while soils will be enriched with compost generated by organic waste generated onsite.

7 Clean up contaminated areas to levels consistent with the plan
• Substantial work has been performed by the Navy regarding identification and cleanup of contamination, which resulted from previous uses on the island. The Navy will continue to conduct remedial actions to reduce contamination to standards acceptable for all proposed development activity.
• TICD will complete additional remediation work, beyond the scope of the Navy, to ensure the safety of future residents and users of Treasure Island. This work includes removal of hazardous building materials such as lead-based paint and asbestos, and land preparation to allow for intended uses.
**Targets**

- Average density 95-105 DU/acre
- Access to retail services less than 1/4 mile for 90% of residents
- Adaptive reuse for all buildings in the National Register of Historic Places
- 300 acres of land preserved for parks, open space, and farming.
- Tree canopy over 50% of available sidewalk space at tree maturity
- Use of native or regionally appropriate species for all new landscaping, excluding urban farm

**Benefits**

- Expand the acreage of public parks and open space in San Francisco by 300 acres—roughly one third of Golden Gate Park
- Enable approximately 18,600 residents to benefit from sustainable, pedestrian-oriented living
- Enable the creation of the largest urban farm in San Francisco
- Most residences and commercial activity located within 15 minute walk from retail services and the transit hub
- Create up to 8,000 new housing units, with 25% to 30% affordable, below median income
- Protect and enhance 311,000 square feet of historic property
- Provide 10-12 acres of new wetland habitat areas in Treasure Island
- Reduce the ecological footprint of San Francisco residents. The projected ecological footprint of a future Treasure Island inhabitant is new acres per person, compared to 27 acres for other US cities

**LEED ND Gold to Platinum**

TICD has committed to achieving Gold certification under USGBC’s LEED (Leadership in Energy & Environmental Design) for Neighborhood Development (ND) Rating System, with a good faith effort to achieve Platinum. LEED ND integrates the principles of smart growth, urbanism and green building. Certification provides independent, third-party verification that the development’s location and design meet the highest levels of environmentally responsible, sustainable development.

The first LEED ND program was finalized in July 2010 and contains five point categories: Smart Location and Linkages (SLL), Neighborhood Pattern and Design (NPD), Green Infrastructure and Buildings (GIB), Innovation and Design Process (ID), and Regional Priority Credit.

**Credit Interpretation**

Points are attainable
TBD - Planning/Design related
TBD - Infrastructure related
TBD - Other
Points are unattainable
Credit Interpretation: Building Related

**LEED ND Requirements (Points)**

- Yes - 73 points (Likely to attain)
- Maybe - 29 points (Depends upon additional technical analysis or ruling from USGBC)
- No - 8 points (Either not applicable or site conditions preclude attainment)

**Appendix B**

No. of points is attainable
TBD - Planning/Design related
TBD - Infrastructure related
TBD - Other
Points are unattainable

**Figure**

- Smart Location and Linkages (SLL)
- Neighborhood Pattern and Design (NPD)
- Green Infrastructure and Buildings (GIB)
- Innovation and Design Process (ID)
- Regional Priority Credit

**Benefits**

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Based on this analysis, the TI/YBI Project is positioned to attain LEED ND Gold certification level. The detailed analysis of LEED ND credits is included in Appendix B.
03 Nurturing a vibrant and inclusive community
A diverse population—one with varied ages, lifestyles, and income levels—is at the heart of every strong neighborhood. To transform Treasure Island and Yerba Buena Island into a lively community, the plan contemplates the creation of a diverse range of housing types and amenities, designed to meet the needs of the population.

Objectives

To foster the development of a strong and diverse community that has access to ample opportunities for recreation, arts, and education.

To undertake the redevelopment through a process built on transparency and public participation.

Strategies

1. Offer a transition housing program for existing residents

- Transitioning Households are existing residents of the Treasure Island or Yerba Buena Island who reside on the Island as of the date of the DDA approval and who continuously remain residents in good standing during construction and development until they are asked to move.
- Once asked to move, Transitioning Households will be able to choose from a range of benefits, including the opportunity to rent a new unit on Treasure Island at the same or a reduced rent, the opportunity to receive downpayment assistance to purchase a new unit in the TI/YBI project, or the opportunity to take an in-lieu payment and move off-island.
- The Transition Housing program will enable existing residents to remain part of the Treasure Island community as it is redeveloped.

2. Provide a range of housing types for all income levels

- Treasure Island and Yerba Buena Island will include a diverse and inclusive community that is home to people from different income groups, ages, and lifestyles. The housing program will consist of a variety of unit types and sizes, a range of affordability, and a mixture of building structure types.
- The varied units will include studios and apartments with multiple bedrooms to meet the needs of different household types. The housing diversity will attract a varied population including singles, families with children, students, seniors, couples, and persons with special needs.
- Upon completion of residential development, 25% to 30% of all units will meet the City’s definition of affordability. These will include supportive housing, homeless, and inclusionary units for ownership or rental.

3. Provide high quality community facilities and amenities

- Housing on Treasure Island and Yerba Buena Island will be clustered around parks, transit, and amenities. Residents will be a short walk to services, amenities, shops, and restaurants.
- San Francisco is known for its charming neighborhoods, which are hubs of creativity and innovation. The island community will offer a new destination to explore. The interpretive environmental features, sport venues, parks, museums, and other amenities will support the arts and education in San Francisco and the region.
Access to community/public facilities is a key component to the fabric and health of a community. Therefore there will be a wide variety of facilities located within this single community. Many are identified to the left while a broader list includes:

- Police and fire station
- TI community center
- Neighborhood reading room, library, and computer center
- Senior/adult services
- Youth center
- Community performance space
- Bicycle storage facilities
- Health and wellness facilities
- Community gardens
- Treasure Island School
- Childcare center
- Great Park
- Environmental education center
- Regional sports/recreation facility & ball fields
- Neighborhood Parks and playgrounds
- Outdoor sports courts
- Yerba Buena Island hiking trails & Hilltop Parks
- Restored historic properties
- Sailing Center
- Multi-modal transit center
- Information center
- Urban agricultural park
- Chapel
- Grocery stores
- The Great Whites
- Other Neighborhood-serving retail
4 Create jobs for local residents

• Development of Treasure Island will result in the creation of new construction and permanent contracting and employment opportunities. The Economic and Contracting Policy for Treasure Island contains measures to direct contracts towards small businesses and jobs to priority groups such as San Francisco residents and economically disadvantaged persons, including those who are formerly homeless.

• The Economic and Contracting Policy also includes special programs to direct jobs and contracting opportunities to residents and members of the Treasure Island Homelessness Development Initiative (THDI), a key stakeholder. THDI’s Job broker program will refer candidates for construction and permanent jobs within the TVF&E Program. THDI’s job service providers will have opportunities to provide services such as grounds maintenance, janitorial, and recycling on an on-going basis; and there will be additional opportunities for THDI to create new enterprises to fulfill its mission of providing economic development opportunities for the formerly homeless.

5 Actively engage the community and stakeholders during the redevelopment process

• A extensive stakeholder engagement process has been ongoing for over a decade. Over a hundred public meetings, including presentations, work sessions, discussions, and reviews of project materials have taken place. These meetings include sessions with the Treasure Island Development Authority Board (TIDA), Treasure Island/Yerba Buena Island Citizens Advisory Board (CAB), Committees of the Board of Supervisors and other regional and state governmental and public interest organizations.

Affordable Housing Breakdown

<table>
<thead>
<tr>
<th>TYPE OF AFFORDABLE UNIT</th>
<th>TO BE DEVELOPED BY</th>
<th>AFFORDABILITY LEVELS</th>
<th>ESTIMATED NUMBER OF UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive housing</td>
<td>Treasure Island Homeless Development Initiative (THDI)</td>
<td>To be determined by TIDA &amp; THDI but generally very low income (50% AMI or less) serving formerly homeless persons and families</td>
<td>435</td>
</tr>
<tr>
<td>Inclusionary units</td>
<td>Vertical developers</td>
<td>60% of AMI for rental</td>
<td>295 - 316</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80%-120% of AMI for sale</td>
<td></td>
</tr>
<tr>
<td>Authority units</td>
<td>Treasure Island Development Authority (TIDA)</td>
<td>To be determined by TIDA, ensuring that at least 6% of all residential units are affordable to households with incomes not exceeding 50% AMI</td>
<td>1,249 - 1,670</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Affordable Units: 2,000 to 2,400</td>
<td></td>
</tr>
</tbody>
</table>

Targets

• 273,000 sq ft of community service space
• 45,000 sq ft of neighborhood-serving retail
• 29% to 30% affordable housing
• Provide transition housing benefits to all qualifying households
• 2,000 construction jobs
• 2,500 permanent jobs

Benefits

• New facilities for the community include a community center, senior facilities, youth centers, public library, public performance space, sports facilities, and urban agricultural park
• 90% of residents within 15 minute walk to parks, public facilities, transit and retail
• Expand the supply of affordable housing in San Francisco by 2,000 to 2,400 homes
• Support existing residents who remain on Treasure Island through its redevelopment
• Increase employment opportunities by generating 2,000 construction jobs and 2,500 to 3,000 new permanent jobs on the islands
• Provide sustained support for the housing and resident programs of the Treasure Island Homelessness Development Initiative

Urban Agricultural Park

Urban farms provide health and social benefits to the communities around them. In our industrialized society, city dwellers are disconnected from that food source. Organic, urban farms provide a glimpse into agricultural processes, nurturing an appreciation for the natural environment.

The Urban Agricultural Park on Treasure Island will be the largest urban farm in the Bay Area, approximately 10 to 25 acres. The park will offer educational activities, and provide a hands-on experience with organic agriculture. In addition to the educational components, a portion of the Urban Agricultural Park might be operated as a commercial farm producing suitable crops such as greens, root vegetables, or herbs that can be sold to residents on island or at other local farmers’ markets.

The Urban Agricultural Park will play an important role in closing resource loops for water and organic waste in the island. A portion of the waste water generated on the island will receive tertiary treatment so that it can be used for irrigation. Organic waste generated on the island will be composted and used to enrich the soils. Growing foods adjacent to a strong consumer base will also reduce consumption and transportation related carbon emissions.
A transportation network with a human scale
The transportation network for Treasure Island and Yerba Buena Island is designed to prioritize pedestrians and cyclists over vehicles and to encourage sustainable transit-oriented choices as part of everyday life.

A commitment to enhancing the public realm is reflected in the street design, the pedestrian and bicycle network, the enhanced transit service, and the demand management program.

Transportation measures in the plan encourage a mode shift from private autos to environmentally sensitive means of transportation. This program includes ferries, buses, electric or alternative fuel, on-island shuttles, car sharing, and a bicycle sharing program. An intermodal transit facility, located at the southwest corner of Treasure Island, serves as a gateway onto the island and as a transportation hub, providing links between all forms of transportation and connecting ferries and buses with on-island services and pedestrian routes.

The compact form and variety of amenities and services are intended to reduce discretionary vehicle trips and support the objective of creating a transit-first island community.

Objective
To develop a model transit-first community where the predominance of walking and cycling is complemented by clean transit service.

Strategies

1. Provide a safe and inviting pedestrian and bicycling environment

- The Treasure Island community is designed to allow access to essential services within a 10-15 minute walk. Pathways and streetscapes are designed to enhance the pedestrian experience.
- The design of the streets recognizes the role that streets play in social life and neighborhood comfort. Street furniture, lighting, public landscaping, and frontage design contributes to creating a walkable and bike-friendly environment that is appealing and engaging.
- Neighborhoods, parks and public spaces are connected via a pedestrian and bicycle network that invites use of an active environment that is tree-lined and wind-sheltered. A grand pedestrian boulevard, Eastside Commons, links the Transit Hub with the Eastside Neighborhood. Pedestrian streets called “mews will be an important connection within this intimate neighborhood that allows automobiles but does not encourage them.
- All streets accommodate vehicles, but many only at low or moderate volumes, and are designed with an emphasis on pedestrians and cyclists.

2. Provide high quality, frequent and easily-accessible transit

- The convenient internal transit infrastructure encourages residents and visitors to explore the islands without private vehicles.
- The on-island transit program proposed is centered around a clean/low-emission, wheelchair accessible, frequent shuttle connecting the transit hub to all of the neighborhoods.
- In accordance with LEED ND specifications, transit stops will be sheltered to buffer wind and rain, and will have seating and illumination.
- A new ferry service linking Treasure Island with San Francisco will offer frequent trips into downtown during peak hour. Expanded bus service to downtown San Francisco will operate 24 hours a day, with expanded frequency during peak hours. When combined with a bicycle, these services greatly expand the Islands’ connectivity.
- New bus service to East Bay will be provided.
- Frequent and dependable bus and ferry service, with space for bicycles, will offer visitors a scenic, efficient, and enjoyable trip to the islands.

Transit Plan
- Bus trips: 334 trips per day
- Ferry trips: 46 round trips per day
- Inter-island shuttle (alternative fuel): 120 trips per day
3 Implement a transportation demand management program to encourage transit use and reduce traffic

- A Transportation Demand Management (TDM) program establishes a series of measures to incentivize alternatives to vehicular travel. Some highlights of the TDM program include:
  - Transportation Management Authority (TMA) governance structure
  - Congestion pricing program
  - Unbundling the cost of parking from the cost of housing

- Appointment of a Travel Coordinator
- Car share program
- Commuter benefits programs
- Comprehensive transit pass built into housing and hotel costs
- Free bike/bike share programs in collaboration with regional and/or on-island program
- Parking disincentives and pricing programs
- Guaranteed Ride Home program and support of other ridesharing programs
- Ramp metering
- Parking caps: 1 space per residential unit, up to 8,000 spaces, with parking spots decoupled from units themselves
- Parking will be managed, priced, and designed to reduce on-island trips and minimize impacts on the pedestrian environment. Parking maximums for all uses were established in the D4D.
- Congestion pricing will be used to charge fees to drivers who choose to use their automobiles during peak travel periods.
- To further reduce environmental impacts of vehicular travel, the infrastructure of the island will have the capacity to support charging stations for electric vehicles, as needed.

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- To further reduce environmental impacts of vehicular travel, the infrastructure of the island will have the capacity to support charging stations for electric vehicles, as needed.
Targets

- 90% of the population will be within a 15-minute walk to a transit hub and town center.
- Walkable blocks: 400’-600’ in length with mid-block passages.
- 15-minute headways for ferry service during peak hours.
- 7-minute headway for bus during peak hours.
- 40%-45% non-auto mode share during peak hours.
- Limit of 1:1 parking for residential units, up to 8,000 spaces, that are economically decoupled from the units.
- Bicycle parking provided for commercial and residential uses, in compliance with D4D.
- Where off-street parking facilities are provided, 50% of Class 1 spaces should be provided.
- Accommodate potential electric vehicle charging stations in public and private areas.

Benefits

- Expand San Francisco’s bicycle network by adding 10 miles of dedicated bicycle trails.
- 4 miles of new pedestrian trails and hiking trails.
- New frequent ferry service provides 45 daily ferry trips between Treasure Island and the Ferry Building.
- Enhanced clean bus service provides 12,000 daily person trips to downtown San Francisco.
- Avoids the addition of 12,000 person trips on the Bay Bridge during peak hours.
- 2,800 metric tons of transit-related CO2e will be avoided per year due to lessened reliance on vehicles.
- Energy capacity and infrastructure to support electric vehicles as needed.
- Connect to the new bicycle and pedestrian trails on the new eastern span of the Bay Bridge and preserve the option of a connection to the west span in the future, increasing the network of San Francisco Bay Trails.
05 Integrated sustainable design
This section of the document discusses strategies related to four essential resource areas: Energy, Water, Waste, and Information and Communication Technologies (ICT).

In general, the approach to developing sustainable infrastructure follows the hierarchy of, first, minimizing demand for resources; and, second, ensuring a sustainable supply of resources. Closed systems are incorporated to the extent possible, such that outputs from one resource stream can be inputs to another (e.g. waste sludge producing energy or recycled water reducing potable water demand).

Treasure Island will incorporate highly efficient and economical site infrastructure as part of the horizontal development and provide recycled water to residential and commercial structures. Such strategies will make it easier for the vertical developments to achieve higher levels of sustainability performance with respect to energy efficiency and water conservation; enhancing their ability to meet state and local green building performance requirements.

The strategies in this section comply, and often go beyond, California Green Building Standards (CALGreen), and the San Francisco Green Building Ordinance (SF GBO). The efficiency requirements in this section also comply with the standards required to achieve LEED ND certification. These strategies are reflected in one or more documents, which include: Infrastructure Plan, Treasure Island Green Building Specifications, Design for Development, Final EIR, and/or Disposition and Development Agreement.

The Treasure Island/Yerba Buena Island Project has been recognized for its comprehensive approach to sustainability. The infrastructure and buildings will be engineered in an integrated manner to achieve efficiency and performance. The utilities are expected to employ state of the art technology and provide an opportunity for San Francisco to showcase innovative building systems.

Above: Interconnectivity of Infrastructure Systems: Energy, Water, and Waste
Objective: To conserve and reduce energy demand and create a sustainable supply.

Minimizing energy consumption and meeting energy demand with clean energy are essential to sustainable development. Passive energy strategies and use of efficient technologies will dramatically reduce power demand and energy consumption for the TI/YBI Project. This improved energy performance will lower operational costs and enhance comfort.

All buildings on the site will meet SF Green Building Ordinance and the Treasure Island Green Building Specifications (TI GBS), which set standards for building energy performance. The site infrastructure will also maximize opportunities for efficient use of energy, including supporting electric transportation and charging. The design of the utility infrastructure will ensure that a robust power supply is provided to sustain the community’s supply through a natural disaster or an emergency.

Energy

Objective:

To conserve and reduce energy demand and create a sustainable supply.

Minimizing energy consumption and meeting energy demand with clean energy are essential to sustainable development. Passive energy strategies and use of efficient technologies will dramatically reduce power demand and energy consumption for the TI/YBI Project. This improved energy performance will lower operational costs and enhance comfort.

All buildings on the site will meet SF Green Building Ordinance and the Treasure Island Green Building Specifications (TI GBS), which set standards for building energy performance. The site infrastructure will also maximize opportunities for efficient use of energy, including supporting electric transportation and charging. The design of the utility infrastructure will ensure that a robust power supply is provided to sustain the community’s supply through a natural disaster or an emergency.

1 Reduce Building Energy Demand

- The street grid has been oriented to maximize buildings’ use of passive energy strategies such as solar orientation, natural ventilation and daylighting.
- Buildings will achieve increased levels of energy performance: 15% below Title 24 (2008). This is almost 15% more stringent than the prior commitment of 20% below Title 24 (2005) in the 2006 version of Sustainability Plan.
- The development will comply with and go beyond energy efficiency requirements specified in the SF GBO.
- The following building-level energy saving strategies are recommended:

  **Passive:**
  - Increased insulation
  - External shading
  - High performance glazing
  - Daylighting design and skylights
  - Thermal mass design
  - Natural ventilation of low & mid-rise residential
  - Parking shading

  **Active:**
  - EnergyStar appliances
  - High efficiency lighting
  - Occupancy sensors
  - High-efficiency chillers, boilers & HVAC
  - Variable-speed drives on pumps & fans

**Energy demand reduction strategies**

**Passive site strategies**
- Building orientation
- Reflective roof
- Building insulation
- External shading
- HIGH PERFORMANCE GLAZING
- DAYLIGHTING DESIGN AND SKYLIGHTS
- THERMAL MASS DESIGN
- NATURAL VENTILATION
- PARKING SHADING
- DEMAND CONTROL
- VENTILATION

**Active site strategies**
- Distributed heating and cooling
- Energy efficient infrastructure

**Passive building strategies**
- High performance glazing
- Daylighting design and skylights
- Thermal mass design
- Natural ventilation of low & mid-rise residential
- Parking shading

**Active building strategies**
- Energy Star equipment
- Variable speed pumps and fans
- Distributed heating and cooling
- Energy efficient infrastructure
- Smart grid

**Passive site strategies**
- Building orientation
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- Building insulation
- External shading
- HIGH PERFORMANCE GLAZING
- DAYLIGHTING DESIGN AND SKYLIGHTS
- THERMAL MASS DESIGN
- NATURAL VENTILATION
- PARKING SHADING
- DEMAND CONTROL
- VENTILATION

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- Distributed heating and cooling
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- Parking shading

**Active building strategies**
- Energy Star equipment
- Variable speed pumps and fans
- Distributed heating and cooling
- Energy efficient infrastructure
- Smart grid

Energy demand reduction
2 Employ district-wide systems to increase efficiency

District-wide systems can be used to replace individual building systems, which typically are less efficient. These systems may include a central utility plant (CUP), an automated waste collection system (AWCS), and a district-wide wastewater treatment plant with site-wide low impact stormwater collection. These systems are currently variants in the EIR and will require further analysis and third-party partnerships. The details of a CUP are further described below because of its significant electricity savings:

- A CUP could reduce electricity consumption by 12% below the projected consumption for certain buildings in the central core of the development. A district-wide system would also save an estimated 1.5% of space within buildings due to the elimination of heating and cooling equipment.
- A CUP could serve the core development consisting of the retail areas, ferry terminal, hotel, and high rise residential towers. These areas have an inherent energy efficiency advantage associated with synergies between residential and commercial programs. The commercial program is generally under constant cooling mode, allowing this heat rejection to be used by the hotel and residential areas for heating.
- A distributed plant scheme also could have a cogeneration system that would provide electricity in addition to heating and cooling.

3 Generate Renewable Energy On-Site

- The TI/YBI project will work with utility providers and other partners to ensure that a minimum of 5% of peak electricity demand at build out (743 kWp) will be met through on-island renewable energy generation.
- Solar Photovoltaic (PV): Approximately 1 million sq. ft. of net roof area proposed as part of the land use plan could be appropriate for rooftop solar arrays. As much as 34% (based on 14.4MWp) of the site’s electricity consumption could be met through an optimized PV solution which includes select rooftops and 20 acres of ground mounted PV arrays in open space. As a means to meet TICD’s 5% renewable energy commitment, 1.4 acres of solar PV will be needed, potentially on the roofs of Buildings 2 & 3. A solar farm of 20 acres could generate over 8 MWp.
- Solar thermal energy (STE): STE is a technology for harnessing solar energy for thermal energy (heat). Solar thermal collectors are usually flat plates used for pre-heating water for residential and commercial use. The fluid heated by the collectors is then pumped through heat exchangers to provide heat for domestic water or radiant space heating. With water heating accounting for 14%–25% of the energy consumed in a typical residential house, solar hot water can significantly reduce natural gas demand as well as building-level water heating equipment.
- Wind Power: The San Francisco Bay Area has a "moderate" wind power resource measured against other areas of the United States and small, building-level wind turbines on a vertical axis are considered feasible on Treasure Island. These would provide zero emission energy and a visible sign of sustainability.
Energy supply diagram illustrating various methods of delivering energy to Treasure Island and Yerba Buena Island.

Potential components of a smart electricity grid:

- **Optical Fiber to Schools and Restaurants**: Fiber optic network to schools and restaurants for energy distribution.
- **SOLAR READY ROOFS**: 15.5 MW potential using all 31 acres of roof area.
- **SOLAR THERMAL**: 90.9 kW thermal potential using all 31 acres of roof area.
- **SOLAR PANELS**: Potential thermal of 100%/y.
- **SOLAR READY COLUMNS & COLUMNS**: Optional solar panels on columns.
- **WASTE-TO-ENERGY**: Feedstock from WWTP, urban farm, residential, restaurant, organic waste.
- **DISTRICT HEATING & COOLING**: Potential savings of 6 MWh/year.
- **URBAN FARM**: Waste storage.
- **SOLAR FARM**: 7.4 MW potential using a 20-acre solar farm.
- **SOLAR PANELS**: 4.7 kWh/m²/day, 24 MWp max capacity.
- **SOLAR GENERATION**: Minimum PV generation of 5% of peak demand.
- **PLUG-IN VEHICLES**: 740 kWDC or ~16 Wh/yr generation using 1.4 acres of rooftop PV.
- **NATURAL GAS SUPPLY**: ~ 1 MM therms/yr.
- **ELECTRICITY SUPPLY**: 11.4 MW or ~ 58,500 MWh/yr of clean energy.
- **WASTE TO ENERGY**: 0.23 MW potential.
- **DISTRICT HEATING & COOLING**: 6 MWh/year.
- **SOLAR READY ROOFS**: 15.5 MW potential using all 31 acres of roof area.
- **SOLAR THERMAL**: 90.9 kW thermal potential using all 31 acres of roof area.
- **SOLAR PANELS**: Potential thermal of 100%/y.
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- **WASTE-TO-ENERGY**: Feedstock from WWTP, urban farm, residential, restaurant, organic waste.
- **DISTRICT HEATING & COOLING**: Potential savings of 6 MWh/year.
- **URBAN FARM**: Waste storage.

On-site renewable excess supply to grid:

- ~33,000 MWh/yr.
• Waste-to-Energy: In an attempt to fully utilize the island resources, enhanced anaerobic digestion of organic waste is a consideration. Anaerobic digestion is the process in which microorganisms break down organic material in the absence of oxygen. This process is typical in wastewater treatment plants to condense sludge while producing methane gas. Other organic waste streams such as food waste and green waste can be added to the anaerobic digester to increase methane output. This process yields three outputs: biogas, condensed compost, and condensed waste sludge. With almost 24 tons of organic waste generated daily (food waste, landscaping waste & waste water sludge), this process has the potential capacity to generate 230 kW, almost enough to power the island’s infrastructure.

• Design standards will require building roofs to enable installation of photovoltaic panels or solar thermal applications and to provide appropriate access rights to enable third party energy providers to access rooftops.

4 Meet demands from the grid with renewable energy and/or hydropower

• The TI/YBI Project is working with a local utility to ensure that the energy supplied to Treasure Island through the grid comes from clean sources, thereby significantly reducing the TI/YBI Project’s carbon footprint.

5 Employ smart grid technologies to manage renewables and demand

• With a new electric distribution system comes an opportunity to create an intelligent energy, or “smart” grid. Although the power provider will ultimately dictate the system design, Treasure Island and Yerba Buena Island would greatly benefit from a smart grid and its ability to integrate infrastructure. Such infrastructure might include a robust and flexible connection with the onsite renewable energy generators, electric car charging, or ship-to-shore ferry connection to prevent idling.

• A smart grid will give Treasure Island and Yerba Buena Island the ability to affect demand through peak shaving activities, and budget account billing. This sort of advanced infrastructure will also empower users through access to information to reduce their consumption.

Smart grid-supported car charging
**Targets**

- Generate a minimum of 5% peak power demand from on-island renewable sources such as solar PV.
- 15% greater infrastructures energy efficiency compared to lowest cost alternatives.
- Partner with a third party to deploy and deliver district energy and/or waste to energy services should they be technically and financially viable.
- Use clean energy for up to 100% of the grid source power supply.

**Benefits**

- 15% improved energy performance over Title 24 (2008) (~35% over Title 24 (2005)).
- Central Utility Plant would reduce electricity consumption by 12%.
- Natural ventilation and daylighting result in a more pleasant indoor environment.
- Potential for $380 annual savings on an average California home’s energy bill.
- Up to 41,650 MMBtu of energy saved per year; enough to power 885 CA homes for a year.
- 6,190 fewer tons of CO2e emitted per year with a potential of 10,780 fewer tons emitted if all district systems and variants are implemented.

**Partners**

Potential partners for the energy infrastructure may include the City of San Francisco, a local utility, and third-party private partners.
Water

Objective:
To achieve a sustainable water cycle by reducing potable water demand, enabling use of recycled water, and treating wastewater and stormwater on-site.

As islands at the heart of the San Francisco Bay, Treasure Island and Yerba Buena Island have a close relation to its hydrological setting. The plan responds to this condition by respecting its natural water budget and incorporating measures to protect the Bay from pollutants. Water quality measures include local best management practices, bioswales, and wetlands for treating storm water runoff and a wastewater treatment plant with the ability of recycling waste water flows for non-potable uses throughout the island, including commercial, residential, and open space uses.

The development will have a hydrological cycle designed to minimize use of potable water and maximize the reuse of all water. Water is a precious resource, and an important part of managing the carbon footprint of development can be traced to the energy needed to heat, transport, and cool water, hence its importance in the overall sustainability strategy.

Strategies

1. Reduce water demand
   - The various green building ordinances and specifications require use of efficient fixtures, including shower heads and faucets, low-flow or dual flush toilets, and low water use laundry and dishwashing facilities.
   - Landscaped areas and open spaces will use native and low water consuming vegetation.
   - When irrigation is necessary, efficient, low-flow systems will be utilized.

2. Treat all wastewater on-site and enable use of recycled water
   - A new treatment facility will be constructed to treat all wastewater generated on the island. This facility will be sized to handle 1.3 million gallons per day, treating a portion of recycled water to levels appropriate for residential, commercial and irrigation applications.
   - All wastewater will be treated to secondary treatment standards: 30 milligrams per liter (mg/L) five-day biochemical oxygen demand (BOD5) and 30 mg/L total suspended solids (TSS).
   - All treated wastewater that is over and above the non-potable recycled water demand (estimated to be 68%) will be discharged to the Bay. This discharged effluent is projected to be 10 times cleaner than the Bay in terms of suspended solids.
   - In compliance with California Title 22 standards, the recycled water (remaining 32% of wastewater) will be further treated to tertiary levels suitable for reuse on the island for landscape and agricultural irrigation and commercial uses.
   - As part of the wastewater treatment and recycling facility, the wastewater sludge could be mixed with the organic waste in order to generate biogas, compost, and solid waste using an anaerobic, digester. Further analysis will ultimately dictate the technical and financial feasibility, but the option is being considered by the SFPUC.

Water Stepdown Chart for the TI/YBI Project Demonstrating Demand Reduction Measures
Water demand reduction strategies

- Efficient Fixtures
- Water-efficient Landscaping
- Water-efficient Irrigation
- Climate-appropriate Planting
- Water-efficient Pooling

Water supply network

- Recycled Water Treatment Facility
- Waste Water Treatment Facility
- Treated Wastewater
- Non-Potable Water (potable water for toilet flushing, cooling, irrigation, etc.)

Treated water is used for:
- Open Space Irrigation
- Residential and Commercial Irrigation
- Landscape Irrigation
- Marina Uses
- Retail and Commercial Uses

Recycled water treated to tertiary levels

Water must be treated to California Title 22 (T22) Standard. T22 requires coagulation, filtration, and disinfection of secondary effluent for re-use.

- Rainfall (23.3 in/yr)
- Reference Evapotranspiration (39 in/yr)

Effluent Water

Marina Uses

Non-Potable Water

Waste Water Treatment Facility

Recycled Water Treatment Facility

Treated Wastewater

Non-Potable Water

Rainfall (23.3 in/yr)

Reference Evapotranspiration (39 in/yr)
3 Meet all non-potable uses with recycled water

- Virtually all non-potable uses will be met with recycled water. This includes toilets and urinals in residential and commercial buildings, process water in building systems, washing down boat decks in the marina, landscape and urban farm irrigation, and cooling towers. Grey water and/or harvested rain water will also be encouraged as applicable and where feasible.

4 Construct wetlands and apply Best Management Practices to treat stormwater runoff

- The integration of stormwater management strategies into landscape design will further reduce pollution and flow of sediments into the bay.
- A new stormwater drainage system will be constructed to service the project. This collection system will be entirely separated from the sanitary sewer and will be designed to effectively treat, slow, and reduce stormwater runoff from impervious surfaces.
- The principal method for stormwater treatment will be localized best management practices (BMPs) within each district. The wetlands will treat some of the stormwater but in most areas localized BMPs, such as low impact design (LID) rain gardens and bio-swales within perimeter landscaping, will be used to capture and treat storm water.
- After treatment, the stormwater that does not infiltrate will be discharged to the San Francisco Bay. Minimum retention time will be in accordance with the California Regional Water Quality Control Board requirements. Stormwater in excess of the treatment flow, which occurs from intense rainfall events, will be collected and discharged directly to the Bay.

Benefits

- 45% reduction in potable water consumption compared to baseline demand
- Reduction in use of municipally supplied water to approximately 50 gallons per capita per day for residential use, which is 46% less than SF’s 92 gallons per capita average
- Approximately $150 in savings from water costs per residential unit per year
- 397 million gallons of potable water saved every year on TI/YBI. Enough to provide water to 11,800 San Franciscans for a year
- Minimizing stormwater runoff has the dual benefit of reducing operational impacts on treatment facilities and improving the quality of water that is discharged to the San Francisco Bay

Partners

Potential partners for the water infrastructure may include the City of San Francisco, local utilities, and third party private partners.
Waste

Objective:
To support the diversion of all waste from the landfill and to use organic waste as a resource on Treasure Island.

Recology has partnered with the City and County of San Francisco to achieve the city-wide goal of diverting 100% of the waste from the landfill by 2020.

In order to achieve that goal, Recology will implement educational programs aimed at reducing sources of waste, provide infrastructure to separate and collect waste, facilitate demolition and construction activities, and implement composting organic waste on-site.

The built environment on TI/YBI will be designed to facilitate such waste separation and minimization and may integrate an automated waste collection system (AWCS) to ease separation, collection, and transportation.

Strategies

1 Minimize construction and demolition waste
   • A comprehensive plan to divert construction, demolition, and land clearing debris from the waste stream will be implemented on Treasure Island.
   • Hazardous materials that require processing before reuse, such as steel, will be taken offsite as appropriate. Recyclable resources will be diverted back to the construction process as appropriate.
   • Demand for the materials obtained through deconstruction and demolition will be created by establishing a goal that buildings and infrastructures on the site incorporate recycled content. Typical demolition materials that are reused include:
     - Crushed concrete, for use as aggregate in road beds
     - Fly ash in new concrete
     - Timber, for use in landscaped areas
     - Steel, for reprocessing offsite
     - Green waste (clearance of non-indigenous species) for composting
   • To the extent practical, existing structures will be “deconstructed”, allowing for maximum re-use of materials.
   • Deconstruction and demolition activities will be implemented in accordance with a Construction Waste Management Plan prepared as part of implementation of each major phase.

2 Implement a strong source-separation program
   • All public areas will contain separate bins for recyclables, compostables and general waste and all buildings will have adequate space to store the three bins.
   • San Francisco’s extensive recycling program will be complemented with outreach programs focused on producer and consumer responsibility, to reach the 100% diversion target.
   • The source-separation program will be implemented with support of Recology with the purpose of maximizing the recovery of recyclable and reusable materials, and ensuring the adequate management of hazardous domestic and commercial waste. This shall include the use of waste chutes designed for equal convenience and separation
   • Waste collection on TI/YBI will be carried out through the City’s source separation and collection and segregation program in conjunction with on-island infrastructure.

3 Explore opportunities for automated waste collection
   • An automated waste collection system may be installed such that an underground network of pressurized pipes will conveniently connect each residential and commercial building to a central processing facility.
   • The technical and economic feasibility of an automated waste collection system will be further evaluated by constructing a 3D model for the site showing headers, laterals, and phasing, along with a financial analysis. The feasibility analysis will attempt to clarify all stakeholders’ risks and commitments and determine whether it would be a feasible system for a multi-phased residential project while holding costs to the customer at or below market rates of traditional solid waste collection.
   • Should AWCS not be feasible, a building-level chute system in accordance with the Green Building Ordinance will be implemented.
Automated Waste Collection System (courtesy of TransVac)

Estimated Solid Waste Generation
Road Transfer
Sewage
Sludge
Application of compost to land.
Compost: Liquid & Solid
Collection and transfer off-site by Recology.
Dry Recyclables, Residual Waste, hazardous & bulky items

Electricity and Heat
generated
Bio-gas to CHP
Anaerobic Digestion
Aerobic Composting

Water Treatment Plant
Integrated Solid Waste Management Facility &
Waste-to-Energy Plant

Potential waste network
Waste Percentage Breakdown

- Compost: 43%
- Recyclables: 53%
- Solid Waste: 4%

Use all organic waste to generate energy and produce compost

- It is estimated that 6,700 tons of organic waste will be generated by the TI/YB project annually, which could be used to generate 250kW of electricity or almost 70kW of heat to meet energy demands in the island.
- With an appropriately sized anaerobic digester and methane capture system, the organic waste streams (waste water treatment plant sludge, landscaping and farm waste, and food-based wastestreams) could be processed into biogas, generating energy and a nutrient-rich compost that will be used as fertilizer for the urban farm, community gardens, and other landscaping. Feasibility studies and third party partnerships would be vital to such a system.

Targets

- Recycle or salvage 75% of the non-hazardous construction and demolition debris
- Divert 100% of all waste from landfill by 2020
- Maximize recycled content in infrastructure
- Use concrete containing 30% or more fly ash, slag, or other fill that is recycled
- Include bins for recyclables and compostables in all public areas
- Integrate automated waste collection system if demonstrated to be viable
- 100% organic waste generated on-island to be used for energy and/or compost

Benefits

- Of the 16,500 tons of waste expected to be generated on-island per year, approximately 8,700 tons of organic waste is expected to be diverted from the waste stream and treated onsite
- Anaerobic facility could generate approximately 0.23 MW of energy, enough to power 230 California homes*
- Approximately 190 metric tons of CO2e would be saved per year using an automated waste collection system versus traditional truck hauling methods

Partnerships

Partners for the waste infrastructure may include Recology, SFPUC, the City and County of San Francisco, and other third parties.
Information & Communication Technologies (ICT)

Objective

To improve efficiency, monitor resource impact, and foster transparency through a robust, intelligent, information infrastructure.

Advanced Information and Communication Technologies (ICT) refers to the various technologies that will enable the next generation of communications and power infrastructure. These technology examples of advanced ICT are digital broadband (high capacity hard lines or wireless), smart grid, and smart meters:

- A smart grid allows the utility to actively manage the grid, employing energy generated by renewable sources when able, and the end user to better manage consumption. The result is a more sustainable energy supply that is able to adjust to peak and off-peak energy demand. Additionally, the infrastructure as a grid will thus be flexible enough to provide support for new technologies such as electric vehicles and their charging stations.
- Smart meters support the smart grid by providing real-time information about energy flows for both the utility and its customers, allowing all parties to make more informed decisions about energy use.
- High capacity and wireless broadband allows residents to access the internet at home or while mobile. This has a number of advantages such as enabling transit decisions on the go, based on real-time data, and always having the powerful aspects of the internet at your fingertips such as searching, downloading, and emailing.

Open-Data

In November 2010, the City and County of San Francisco signed the first Open-Data legislation in the country, which aims at encouraging transparency and accountability by making non-sensitive data files available to the public. The TVIB Project has the opportunity to be at the cutting edge of openness and transparency by making a good faith effort to make certain forms of data—such as aggregated energy consumption, carbon intensity, water use, or vehicular traffic—available to the public. This openness signals a strong commitment to the sustainability objectives and would enable community groups and private firms to develop services, programs, and solutions tailored to the needs of the TVIB Project.

Strategies

1. Empower residents to save money and make low-carbon decisions

   - Work with the power utility to ensure they implement a smart grid that maximizes the application of smart metering in homes and businesses.
   - Vertical developers, local utilities, or other third party providers to provide residents access to real-time utility data on a hard wired user interface or online.
   - Provide homeowner and new resident orientation on how smart meters work and how to access and respond to utility data to save money on utility bills.
2 Explore opportunities to provide universal access to high-speed internet/broadband connectivity

• Develop an ultra-high broadband and mobile network.
• Enable free (or affordable), ubiquitous Wi-Fi that is provided by the City or through the private sector.
• Provide high capacity broadband speeds to each household on the site.

3 Explore the feasibility of an integrated platform to monitor performance of the various utilities and in real-time

• Explore opportunities to engage partners in developing an integrated platform accessible through the web or mobile devices, which provides real-time information about energy use, water use, waste generated, transportation, etc.
• Explore opportunities to install and maintain digital kiosks providing real-time information about services, events, or activities on the island.
• Provide real-time transit information at transit nodes.

4 Explore opportunities to encourage innovation, efficiency, and transparency by making non-sensitive data publicly available

• Support the efforts of the City and County of San Francisco on its effort to increase openness and transparency by making data sets about resource consumption publicly available, where feasible.
• Encourage government agencies, non-profits, and private businesses to develop services and applications based on real-time data about Treasure Island.
• Increase awareness of sustainability and enable community-wide behavior change via public installations and social media platforms.

Targets

• Smart meters connected to every residence
• 100% of households with broadband via fiber optics

Benefits

• 10-15% additional energy and carbon savings can be attributed to changes in user behavior
• Connects people and bridges the digital divide
• Enables residents to better engage and participate in their community
• Enables residents to monitor their own resource use, prioritize decisions with respect to energy use, and maximize monetary savings

Partnerships

Potential partners for ICT, smart grid, and smart meters may include the City and County of San Francisco Department of Technology, educational institutions, energy intermediaries, data providers, local utilities, and other private institutions.
06 Climate change and resilience
The City and County of San Francisco and the State of California have both set long term targets for carbon emission reductions. California’s Global Warming Solutions Act (Assembly Bill 32) requires California to reduce its emissions to 1990 emission levels by 2020. San Francisco is aiming for an additional 20% reduction. The TI/YBI Project will support attainment of these goals, by focusing on reducing carbon emissions from both construction and operations.

Treasure Island has been selected as a Priority Development Area (PDA) by the Association of Bay Area Governments (ABAG). This designation signals the strategic importance of the island for the wider region. Given its strategic location near employment centers in downtown San Francisco and Oakland, and the quality transit offered, Treasure Island will play an important role in helping the Bay Area achieve its objective of reducing GHG emissions.

Objective
To be a global leader in climate change mitigation by minimizing Green House Gas (GHG) emissions associated with the TI/YBI Project, while proactively safeguarding the health and welfare of the community by fostering resilience and addressing physical risks such as seismic activity and sea-level rise.

Carbon Footprint
The TI/YBI Project’s carbon footprint is reduced by the dense and compact urban form which encourages walking, cycling, and public transit. Furthermore, the integrated design of infrastructures and buildings will reduce the demand for energy, water, and waste—key contributors to the carbon footprint.

The TI/YBI Project is a founding member of the Clinton Climate Initiative’s Climate Positive Development Program (CCI CPDP) —one of only 17 international projects participating. The program was established in May, 2009, in partnership with the US Green Building Council, to address the pressure resulting from rapid urban growth and climate change by establishing a new global benchmark for sustainable development. CCI has established a goal of each project achieving climate positive status (better than carbon neutral) over the life of the TI/YBI Project. TCD is helping to develop the carbon accounting protocol and is pilot testing the methodology for establishing a roadmap to carbon neutrality. This protocol will establish the carbon accounting standards for other international projects to follow. The TI/YBI community will demonstrate that climate positive operations are achievable in a cost-effective manner, as long as the City and other stakeholders, such as the residents and power utilities, work together to achieve this goal.

In addition to mitigating the impacts of carbon emissions, the TI/YBI Project must also be prepared to respond and adapt to potential effects of global climate change, such as sea level rise and extreme weather events. The TI/YBI Infrastructure Plan (geotechnical, stormwater and grading sections) addresses sea-level rise and seismic risks by stabilizing the perimeter of the island and re-grading development areas to elevate them above the flood plain. This ensures that Treasure Island will be a safe, healthy, and secure environment for future residents, businesses, and visitors.
Strategies

1. Strive for Carbon Neutrality in Operations

- Achieving carbon neutrality is an ambitious goal that requires rigorous accounting and comprehensive, long-term solutions involving multiple stakeholders. Treasure Island’s analysis of its carbon footprint has been conducted in accordance with CCI protocols, and will be refined through continual stakeholder engagement. 11 emissions sectors are discussed below in regards to their relative contribution to the overall footprint:

- Construction (operational) – These emissions result from the use of electricity and fossil fuels for operation of construction equipment, as well as for transportation of construction workers to the site. Optimizing construction techniques for efficiency of earth-moving work and site grading can result in reducing carbon emissions from construction.

- Sequestration and Land Use – Because the development is an infill project, developed area will be converted into vegetated open space. Open space is capable of sequestering carbon emissions from the atmosphere through uptake by vegetation as well as through soil sequestration of carbon. By leaving 65% of the site as open space, requiring street trees, and allocating land for a farm, the TI/YBI Project will maximize the carbon sequestration potential of the site.

- Transportation – Transportation on and off the island contributes significantly to the community’s carbon footprint due to the use of fossil fuels. As such, a transportation strategy has been prescribed (see Chapter 4) that significantly reduces fossil fuel combustion as a means to reduce carbon emissions. These carbon reductions are primarily addressed in three ways: facilitation of a car-free lifestyle, a mode shift away from automobile use and decarbonization of all transit, especially public methods. An on-island, electric shuttle is a specific example of how these approaches are combined. What remains to be addressed is the carbon intensity of public transit. Despite an increase in transit ridership—and subsequent reduction in automobile-related emissions—low carbon public buses and ferries should be used to the extent they are technically and financially feasible. Local and regional transit authorities will thus significantly affect project emissions. The CCI Climate+ Standard indicates a 40% allocation factor to account for off-island trips, so that the development project only accounts for a portion of the emissions. This approach is intended to reflect a portion of emissions for which the development has direct control.

- Building Energy – Site-wide energy use for buildings and infrastructure is often the focus of carbon reduction strategies. The energy used to light, heat, and otherwise run the community results in significant carbon emissions at the source of energy production. As such, energy conservation and efficiency are particularly important methods to reduce demand and Chapter 5 outlines specific strategies for energy efficiency. Additionally, the carbon intensity of the energy supply affects the emissions associated with each kWh of electricity used, or each gallon of fuel combusted. Treasure Island is working with local utilities to ensure a supply of emissions-free energy.

- Percent of US Average per Capita Emissions

<table>
<thead>
<tr>
<th>Baseline</th>
<th>California</th>
<th>San Francisco</th>
<th>AB 12 2020</th>
<th>TI/YBI 2020</th>
<th>TI/YBI 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>20.0 tCO2e/capita</td>
<td>13.5 tCO2e/capita</td>
<td>12.5 tCO2e/capita</td>
<td>16%</td>
<td>7%</td>
</tr>
<tr>
<td>California</td>
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<td>48%</td>
<td>16%</td>
</tr>
<tr>
<td>San Francisco</td>
<td>12.5 tCO2e/capita</td>
<td>63%</td>
<td>63%</td>
<td>48%</td>
<td>16%</td>
</tr>
<tr>
<td>AB 12 2020 Target</td>
<td>2020 Target</td>
<td>2020 Target</td>
<td>2020 Target</td>
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</tr>
<tr>
<td>TI/YBI (CCR)</td>
<td>TI/YBI (CCI)</td>
<td>TI/YBI (CCI)</td>
<td>TI/YBI (CCI)</td>
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<td>TI/YBI (CCI)</td>
</tr>
<tr>
<td>9.6 tCO2e/capita</td>
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<td>3.2 tCO2e/capita</td>
<td>20.0 tCO2e/capita</td>
<td>13.5 tCO2e/capita</td>
<td>12.5 tCO2e/capita</td>
</tr>
</tbody>
</table>

*Numbers do not account for consumption and travel-related emissions*
- Construction (non-operational) – Treasure Island aims to reduce its construction emissions by reusing and repurposing as much material as possible to replace needed fill, which will potentially come from locally sourced excavation projects, to reduce the demand for construction and transport-related fuel, and to reduce the embodied carbon of materials through reuse and sourcing of local materials made from recycled content and manufactured in a low carbon fashion.

- Consumption (Food) – Over the operating life of the TI/YBI Project, consumption of food by residents is one of the biggest contributions to carbon emissions associated with the community. Consumption (production, manufacturing, distribution, and use of food) is often omitted from carbon accounting due to its complexity, but the TI/YBI Project, in accordance with CCI, is developing a protocol that would account for it. Consequently, the community will take action by reducing its consumption patterns through inclusion of an urban farm and planning for a mix of uses that encourage local, sustainable options. The emissions below business as usual are to be considered credits.

- Renewable Energy – Treasure Island has a significant opportunity to generate renewable energy on island and thus offset its energy-related emissions (outlined in the further detail in the energy section of Chapter 5). The primary method for renewable energy generation on TI is through solar photovoltaics (PV), but solar thermal and wind power will also be considered. Depending on the level of implementation, solar PV could offset anywhere from 1% to 8% of the island’s carbon footprint, at today’s PV cell efficiencies. The minimum objective is to offset 5% of peak power using 1.7 acres of rooftop solar; the maximum objective would include 20 acres of land and all 31 acres of rooftops. These offsets will gradually reduce as the electricity being offset becomes less carbon intensive as is expected.

- Travel – Although air travel plays a significant role in the carbon footprint of residents, and it is included in the comprehensive accounting of the CCI protocol, there is little that the TI/YBI Project can do to minimize this, except through education and provision of virtual conferencing facilities for common use. The emissions below business as usual are to be considered credits.

- Financial Carbon Offset – Carbon offsets provide a cost-effective means to reduce GHG emissions in the atmosphere as a last resort, by taking an emissions reduction or sequestration activity in an unrelated project, and applying the “credits” to the current project. Offsets are only allowed on CCI projects if they are traded from other participating projects.

- Waste – Emissions from waste are largely due to the methane generated in a landfill through anaerobic breakdown of waste materials. Additional sources of carbon emission include transportation of waste from the development to the waste management facility, with a significant portion of the emissions due to idling during waste pick-up at individual locations. The TI/YBI Project is considering the implementation of an automated waste collection system to minimize emissions from waste collection and hauling, and will encourage reuse and recycling of materials.

- Water – Emissions from water consumption result from the energy needed to treat and convey water. Because the SFPPC watershed is a gravity fed system with minimal treatment requirements and is powered by hydro power, the resulting emissions from water are quite low, representing only 0.03% of the carbon footprint.

- Infrastructure – The emissions from infrastructure include uses such as landscape maintenance, site lighting, and traffic signals. The electricity-based emissions associated with these uses include hydropower and consequently are very carbon-efficient. Therefore the maintenance activities typically associated with fossil fuels will be evaluated to determine whether electric equipment can be used instead. Additionally, the SFPPC and DPW are considering LED streetlights.

- Without this, the community’s carbon footprint would likely increase by more than 20%. The community’s remaining carbon emissions are largely due to the natural gas used to heat its buildings.
Above: TI/YBI Project Carbon Footprint for Typical Operating Year, CCI Protocol

2 Participate in the Clinton Climate Initiative Program
- The TI/YBI Project has joined the Climate Positive Development Program and is working with CCI, USGBC, and the City and County of San Francisco to strive to reduce its direct and indirect carbon emissions to below zero.
- As a participant in the program, TICD will help develop the protocol for rigorous accounting from all of the contributing sectors, including transportation, energy, construction, and operations. TICD will also prepare a balance sheet of carbon debts and credits, which accounts for the total emissions over time and demonstrates how they will be offset in a transparent manner. A roadmap to a climate positive state will also be prepared, demonstrating the pathway of reductions necessary over time, and responsibility for those emissions (government, developer, power provider, or resident).
- The information will be used to understand impacts and contributions by various stakeholders over time, and the relative impact of construction versus operations. This will inform policy and other mitigation actions beyond construction.

3 Stabilize Treasure Island to avoid geotechnical hazards and mitigate risks associated with sea-level rise
- Treasure Island faces liquefaction risks due to the materials and methods used for its original construction. TICD will take measures to prevent and mitigate these risks in development areas on Treasure Island.
- The geotechnical approach is based on the need to elevate the interior of Treasure Island in anticipation of sea-level rise and the desire to reduce damage to improvements during seismic events, extreme weather event, or storm surges. This approach consists of three parts:
  - Densification of sandy soils throughout the development area to minimize earthquake induced settlement.
  - Implementation of both active and passive strategies that will raise development areas and enable adaptive management to protect against more than 55" of sea-level rise.
  - Densification of the perimeter and causeway to ensure it is seismically stable and to provide protection against overtopping under extreme weather conditions.

4 Ensure Water Supply by Providing Redundant Infrastructure
- An existing SFPUC potable water line will continue to be the primary source of supply for Treasure Island/Yerba Buena Island. To ensure a robust water reserve and protect the community in case of emergency, a secondary water supply will be provided by the East Bay Municipal Utility District via a new line on the eastern span of the Bay Bridge.
- Onsite water storage for both fire and consumption purposes will be provided such that 2.43 million gallons of supply are available in case of emergency.
- Provision of water storage on Yerba Buena Island equal to two days average potable water demand plus four hours of fire flow
- Ability to protect against 55" of sea level rise
- First floor and garage entrances elevated a minimum of 42" above current Base Flood Elevation
- Use alternative fueled construction vehicle for at least 15% of the construction fleet
- Use at least 10% of building materials that have been extracted or manufactured within 500 miles of the site

Benefits
- 86% reduction in GHG emissions from the AB 32 2020 Target
- Overall geotechnical improvement of the island, improving island-wide stability during seismic events
- Redundant water supply, including both potable water and fire fighting
- 180,000 tons of carbon saved per year compared to AB32 Target. Equivalent to the sequestration capacity of 25,000 acres of California forests* or 2% of the California State Parks system

*7.2 metric tons of CO2e per acre per year from Brown, et. al, Baseline Greenhouse Gas Emissions for Forest, Range, and Agricultural Lands in California, March 2004

Targets
- Carbon neutrality in operations during the life of the project, timeframe for achieving it has yet to be determined
- 3.2 metric tonnes of CO2e per capita (total residential and employment population) carbon footprint in 2020. For purposes of comparison, it is projected to be 1.3 metric tonnes per capita without consumption, travel, or embodied carbon included; this is 86% better than the current AB 32 2020 Target of 5.6 metric tonnes per capita.
- Provision of water storage on Yerba Buena Island equal to two days average potable water demand plus four hours of fire flow
- Ability to protect against 55" of sea level rise
- First floor and garage entrances elevated a minimum of 42" above current Base Flood Elevation
- Use alternative fueled construction vehicle for at least 15% of the construction fleet
- Use at least 10% of building materials that have been extracted or manufactured within 500 miles of the site

Agricultural Lands in California, March 2004
Pathway to Carbon Neutrality

The CCI (Climate Positive Development) Program has partnered with KTH University in Sweden to update the Greenhouse Gas Emissions (GHG) accounting protocol, data collection documents and companion files, in order to create a uniform approach to establishing a climate change baseline for large scale development projects. Treasure Island, along with Pedra Branca in Brazil and Stockholm Royal Seaport in Sweden, are piloting this uniform methodology that will be rolled out globally.

Typically, carbon emissions from development projects are assessed on an annual basis by looking at emissions from a typical operating year. Developing a strategy to achieve carbon neutrality, however, will require consideration of the full life cycle of the project, from construction through 50 or even 100 years. This life cycle approach is central to the CCI philosophy: carbon emissions can be cost effectively abated over time, allowing for changes in technology, economics, education, awareness, and behavior. Once a roadmap is constructed—accounting for emissions over the lifecycle of the project—stakeholder contributions can also be allocated over time. For example, developers typically have more responsibility for the footprint in the early part of the project lifecycle when construction is underway. However, during later years of operation, residents and the power utility play a much greater role in responsibility for emissions from the project. This type of analysis helps to inform policy, mitigation measures, and accountability for emissions, in order that all stakeholders can take responsibility for their contributions to the life cycle footprint of the development.

The carbon roadmap presents a visual representation of how the various sectors of the carbon footprint change over time. Elements above the x-axis are direct emissions such as energy use, construction activities, and water conveyance. Elements that are below the x-axis are considered credits, or offsets of emissions, and include sectors such as solar electricity generation, carbon sequestration by open space, and/or credits established under the CCI protocol whereby the project carbon profile benefits of the community performs better than what is considered business as usual.

The allocation of responsibility for emissions over time is shown below. These concepts will be further refined as the CCI carbon protocol is fine tuned upon completion of the pilot phase.
07 Affording sustainability and economic viability
A solid financial plan, founded on a public-private partnership, anchors the bold vision for Treasure and Yerba Buena Islands. The development program has been balanced so the costs of providing municipal services to the island do not negatively impact the City’s general fund but add over $10 million per year upon build out. The mix of revenue-generating residential, commercial and retail uses are scaled so that public services and facilities are funded by project generated tax and revenue streams.

Without thoughtful planning, the relative isolation of Treasure Island and Yerba Buena Island could make for increased service costs relative to mainland San Francisco; however, financial mechanisms are being structured to mitigate fiscal impacts and to assure a stable, ongoing source of funding to sustain the quality of life on the island.

Details about the economic development strategies are available in the "Fiscal Analysis of the Treasure Island Redevelopment Project", and the "Financing Plan and Transaction Structure," and further financial strategies are being explored to support the economic leg of the triple bottom line.

**Objectives**

Maintain financial viability of the TI/YBI Project without sacrificing environmental and social performance.

To reduce development costs and risks while increasing property values and maintaining affordability to Island residents.

**Strategies**

1. **Redevelopment should have long-term positive impact on the City’s general fund**

   - In implementing the TI/YBI Project, the City and County of San Francisco has teamed with experienced and committed private sector partners who bring decades of experience in large-scale master planned communities. These entities leverage their relative financial, technical, and community-building capabilities with their shared interest in seeing the rebirth of Treasure Island/Yerba Buena Island.
   - Attached to the Development and Disposition Agreement (DDA) is the Fiscal Impact Analysis. Included in the analysis are the various revenues generated primarily through taxes and expenditures that support various community services and facilities. The net revenue (not including restricted, non-general fund revenue) by 2030 is projected to be almost $144 million (2010 dollars).

2. **Promote commercial opportunities for green businesses**

   - Provide a population density that will provide the critical mass needed to support a range of new, local businesses, especially those engaged in sustainable commerce.
   - This community will promote businesses that meet the environmental, social, and economic needs of the community. The urban and solar farms are two examples of businesses that may provide local access to sustainable resources (food and energy) at competitive prices.
   - Neighborhood-serving businesses such as markets, restaurants, and hotels will utilize the island’s green, efficient infrastructure to keep costs down.

3. **Provide excellent value for residents**

   - Residents from all socioeconomic levels will be able to live rich and full lives. The addition of this new supply of residential properties in San Francisco will create many opportunities for potential homeowners and renters.
   - 25% to 30% of the homes will be available to low- and moderate-income households.
   - Homes on Treasure Island and Yerba Buena Island will contribute to the building of an ecologically responsible community. The value of these properties is strengthened because of their proximity to jobs, the island’s self-sufficiency, and its supportive green infrastructure which provides access to affordable resources.
4 Explore sustainable financial mechanisms

- The TI/YBI Project has the opportunity to capitalize on innovative financing for sustainable interventions in the built environment to support renewable energy generation and energy efficiency. Such new mechanisms could include Property Assessed Clean Energy (PACE), in which a homeowner receives a loan from the government to purchase solar photovoltaics, and the loan is paid back through property taxes; Power Purchasing Agreements (PPA), in which a third-party owner and operator of a solar installation under the terms of an agreement with a utility to purchase the renewable power generated; and Clean Revolving Funds, in which the community can participate in sustainable investments in renewable energy or energy efficiency projects.

- By utilizing innovative financing mechanisms—such as implementing a District Green Revolving Fund or creating an island-run Energy Services Company (ESCo)—there will be opportunities to improve environmental performance in a manner that is cost neutral. The TI/YBI Project will be able to leverage its economies of scale, physical independence, and state-of-the-art infrastructure systems to encourage additional investment that drives energy efficiency and renewable energy generation without sacrificing economic prosperity.

Targets

- Long term positive impact on the City and County of San Francisco’s General Fund
- Partnership to create a local green bank or establish a relationship with an existing area green bank

Benefits

- Added revenue to the City and County of San Francisco General Fund—additional $1.3 million per year at build out, totaling $14.4 million over the next 20 years (in 2010 dollars)
- 25% to 30% of homes will be affordable
- Within the DDA, several funding mechanisms have been created for the following reasons:
  1. Transportation operating subsidies
  2. Parks and open-space maintenance
  3. Adaptive management strategies
  4. Affordable housing development
TI/YBI Energy Service Company (ESCo)

Energy service companies (ESCos) are third party, private firms that have proliferated to meet the need for financing alternative energy services. In the past five years, ESCos have focused on building level opportunities: financing the installation of solar panels, maintaining the solar asset, and entering into power purchase agreements to recoup their investments from the renewable energy generated. ESCos are now quite common in the energy efficiency market—financing retrofits to existing buildings and/or conducting commissioning services. The ESCo typically fronts this capital for the studies and engineering improvements and subsequently enters into a performance based guarantee with the owner in order to recoup their investment from the energy savings.

Beyond the building, ESCos are beginning to work at a neighborhood or regional scale to serve multiple customers and amplify the energy generation and/or energy savings potential. ESCos will act as intermediaries between the utility and a group of customers—thereby aggregating demand, rewarding conservation and ensuring a green supply of power at a competitive price.

A Treasure Island ESCo could enable the Island to act as one customer to the power provider creating economies of scale. Leveraging the information available through the Island’s smart grid and meter network, the ESCo could negotiate competitive rates for the Island and manage usage and billing. The ESCo would also be able to ensure the cleanliness and reliability of the energy delivered to TI through purchase agreements and investment in additional on-Island renewable energy. A Treasure Island ESCo would also have the ability to influence demand by implementing behavioral incentives such as dynamic pricing or budget accounts that pass savings back to the user. This helps create a culture of sustainable practices and choices in energy use and carbon mitigation.

This concept has been proven by Kraft and Kultur, a firm in Sweden that specializes in providing innovative energy solutions, and is one of many ESCo options that may enhance uptake of renewable energy and prove advantageous for the TI/YBI community.

Potential partners for implementation would include:
- Private Energy Service Companies
- Utility Providers
- Renewable Energy Providers
- Smart Grid/Meter Providers

Solar Community Farm

Over the past decade, significant steps have been made in advancing new models for renewable energy financing. The Bay Area has played a pioneering role in this process with programs such as Berkeley’s FIRST program (Financing Initiative for Renewable & Solar Technologies) and Power Purchase Agreements.

One of many models to be considered is the concept of a community-based solar farm. The concept, which was conceived in San Francisco, enables any community member or business to own a plot of solar PV in a ground mounted solar farm. The lease-to-own financing mechanism—similar in structure to a car lease—operates through an extended bill credit whereby the local resident/investor purchases the solar PV panels over time, while receiving a monthly credit on their energy bill for the energy their solar panel produces. This concept is being pilots in Davis, California, with significant investment had already been made to enable solar gain through tree cover. This was found to be incompatible with rooftop solar PV. Located offsite, a solar farm can be sited in an optimal location for solar exposure.

Such a model opens up the solar energy market to those who do not own homes or have a suitable roof or open space to install their own solar panels. In Davis, the investment is cost competitive to buying energy from the local power provider, with the added benefit of it being clean. It also results in ownership of an income producing asset that the investor can transfer at will at prevailing market prices.

Treasure Island has over 51 acres of combined ground and structural space suitable for solar PV installation, which could produce or be implementing 20% (or 24MWp) of the Island’s electric demand. If each of the 8,000 residential units proposed on the TI/YBI Project owned an equal share of a solar plot, it would be 24.8 MWp per plot resulting in an annual electricity bill by $135,000. Increasing the on-Island renewable energy generation capacity could be the single most important action needed to achieve the goals of carbon neutrality for the Island. Implementing a solar farm, whereby the entire TI/YBI community could be investors and owners of the solar PV, and reap the benefits of the energy produced, could be the most economically viable and socially equitable way to introduce large scale uptake of solar on Treasure Island.

Potential partners for implementation of community based solar farms include an energy provider/facilitator, the City of San Francisco, and local utilities.
08 Implementation and monitoring
The current building permit approval process will function as a gatekeeper for the City to verify that required green building standards are being incorporated into both land development and building design applications. In addition, TIDA will ensure compliance with green building commitments and strategies identified in this Sustainability Plan that exceed City requirements.

Phasing

The redevelopment of Treasure Island and Yerba Buena Island is expected to be undertaken in five major phases. Pursuant to the Developer’s Disposition and Development Agreement (DDA) between TIDA and TICD, TICO will follow the implementation process defined in the Design Review and Document Approval Procedure (DRDAP). The DRDAP sets forth the procedure for submitting, reviewing, and approving the designs, plans and specifications for the infrastructure and Vertical Improvements. In general, the Developer will submit an application for the development of each Major Phase. These applications will include illustrative concept plans for utilities and transportation improvements. Following a Major Phase application, the Developer will submit applications for one or more Sub-Phases, which will include, among other things, construction documents for utilities and transportation improvements planned for the Sub-Phase and shall correspond to improvements to be provided with the applicable subdivision map. Each phase of land development will provide the new infrastructure necessary to serve the associated Sub-Phases. Considerations have been made to ensure that there are services, recreational amenities, and affordable housing proportionate to market rate development during each phase. The phasing diagram and table to the right illustrate the phasing plan for the TI/YBI Project.

The sustainable performance of each island will gradually be improved as the project progresses. The infrastructure and vertical development will be coordinated such that capacity and performance are appropriately matched; this includes upfront development of the multimodal transit center. Although a majority of the acreage of open space will be realized later in the development, neighborhood-level open space such as pocket parks will be developed alongside their vertical counterparts. The affordability of residences will also be held near the project’s 30% target throughout the phases.
Implementation and verification

Achieving the long-term sustainability objectives set out for the TI/YBI project is enabled by a core land plan that addresses a large portion of the desired goals. By creating a land plan that responds to local climatic conditions, constructs efficient infrastructure and transportation systems, and promotes social benefits, the project will be embedded with a high level of sustainability in its operations and community services. Up-to-date sustainability performance criteria will be reflected in future design guideline changes for the site by updating the Design for Development document and/or YBI Green Building Specifications (YBI GBS) as appropriate. A collaborative effort among the Developer, partner agencies, community stakeholders, residents and visitors will also be required, as many of the sustainability strategies hinge on future actions that need to be undertaken by these partners. This collaborative, multi-stakeholder effort will ensure continually advancing levels of sustainability achievement.

Design standards and guidelines and green building specifications

Design standards and guidelines are included in the Design for Development. These guidelines include specifications and criteria related to both horizontal and vertical development, and incorporate LEED-ND measures and the TI/YBI GBS. These Specifications provide additional requirements to vertical development beyond what is current regulation. The Design for Development serves as an important tool in ensuring that the development is responsive to the sustainability commitments, strategies and goals outlined in this Plan, while ensuring high quality public real is developed.

Flexible, adaptable approach

Technologies that have been incorporated into the TI/YBI Project are deemed to be feasible at present, both from an economic and technical point of view, as well as providing strong benefits relative to costs. It is recognized that as development of Treasure and Yerba Buena Islands moves forward, new technologies and techniques may emerge which could make it more economical or practical to implement alternative or improved sustainability strategies. As the redevelopment plans for the TI/YBI Project move forward, sustainability technologies, proposed and emerging, will be evaluated to assess their feasibility and applicability to the project.

New sustainable technologies will be implemented, if they are shown to support the environmental objectives of the plan and have no negative impact on project’s ability to finance the level of public benefits described in the Development Plan.

Role of Partners

Many agencies will collaborate with TICD and TIDA to deliver on the sustainability vision for Treasure Island/Yerba Buena Island, such as the Department of the Environment, the San Francisco Public Utilities Commission, Mayor’s Office of Emergency Services, Department of Public Works, Municipal Transit Authority, Water Emergency Transportation Authority, AC Transit, and any others. In addition, other parties, such as private enterprises, utilities, foundations, and other stakeholders will be brought in to complement the sustainability investments to be made by TIDA and TICD.
Measuring, reporting, and verifying sustainability progress

Verifying Sustainability Progress

Periodic measurement and disclosure of sustainability performance is an important part of being accountable to stakeholders. Sustainability achievements at Treasure Island and Yerba Buena Island can be measured by TIDA at milestones in the project (such as between major phases), and biannually thereafter, and the results disseminated to the public.

Some of the critical metrics that will be important to measure to determine the success of the project after build-out include those related to energy and water use, carbon emissions, transportation impacts, provision of affordable housing and public facilities, and job creation.

The City of San Francisco is committed to transparency and accountability and will attempt to make the project’s performance publicly available. In this way, independent organizations, and interested stakeholders will be able to collaborate in monitoring attainment of the TI/YBI Project’s sustainability objectives.

LEED ND Third Party Certification

The US Green Building Council (USGBC) will evaluate and certify the sustainability achievements of the TI/YBI project under its LEED rating system for neighborhood developments (LEED ND). The LEED ND categories include Smart Location and Linkage, Green Infrastructure and Buildings, and Innovation in Design. USGBC will review documentation prepared by TICD and its design team for a minimum of 68 credits needed to achieve the Gold certification level. As the master developer, TICD is responsible for Stage Two of the LEED ND certification process; the City will be responsible for the final, Stage Three certification after build-out.

Mitigation and Monitoring Plan

As required by the California Environmental Quality Act (CEQA), an Environmental Impact Report for the TI/YBI Project has been prepared and is pending certification in April, 2011. As part of the CEQA process, a Mitigation and Monitoring Plan has been prepared, which identifies timing, mechanisms for compliance, and permitting responsibilities. A number of regulatory agencies will be involved to verify that the mitigations in the EIR are carried out to completion; however ultimate responsibility will lie on TICD.
The following spreadsheet includes credits required under the July 2010 LEED for Neighborhood Development Rating System. It highlights the source document which will be used to document compliance for each credit during the certification process. At present, following a technical assessment, it is estimated that the TI/YBI Project can achieve 73 points. 8 points are deemed to be infeasible or not applicable at this time.

This puts the project solidly into the “Gold” certification range. 29 additional points are possible, but require further research to make a determination. With further effort, if 7 of these possible points are achieved, the project can attain Platinum.

<table>
<thead>
<tr>
<th>Date last updated:</th>
<th>October 26, 2010</th>
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</thead>
<tbody>
<tr>
<td>Project Name: Treasure Island/Yerba Buena Island Redevelopment</td>
<td>Project Totals</td>
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<td>Certfied 47 to 64 Points: Silver 31 to 50 Points: Goal 65 to 79 Points: Platinum 80 to 106 Points</td>
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</table>

<table>
<thead>
<tr>
<th>Credit Intent</th>
<th>Possible Pts</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Location &amp; Linkage Credit Intent</td>
<td>Possible</td>
<td>Planning/Design Action Needed Infrastructure Action Needed Need in Green Building Specification Credit Interpretation Required Other Action Needed</td>
</tr>
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<td>Pre 1 Smart Location (b)</td>
<td>Option 2: Site with Affiliated Species &amp; Ecological Community: Habitat Conservation Plan</td>
<td>27</td>
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<tr>
<td>Pre 2 Imperiled Species and Ecological Communities</td>
<td>Option 2: Site with Affiliated Species &amp; Ecological Community: Habitat Conservation Plan</td>
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</tr>
</tbody>
</table>

*The credits have been evaluated with respect to the land plan, infrastructure plan, and transportation plan and are designated as being “Achievable”, “Not Achievable”, or “Requiring Further Action”.*

The spreadsheet includes a credit intent column, which summarizes the objective behind the LEED credit. It also highlights the source document which will be used to document compliance for each credit during the certification process. At present, following a technical assessment, it is estimated that the TI/YBI Project can achieve 73 points. 8 points are deemed to be infeasible or not applicable at this time.

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### C4-4: Bicycle Network and Storage

<table>
<thead>
<tr>
<th>Option: 4 Projects Available</th>
<th>Smart Location &amp; Linkage</th>
<th>Continuous</th>
<th>Maintain FVMS</th>
<th>Reference</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-D4D: Figure 1.3.3: Bicycle Facilities Framework</td>
</tr>
</tbody>
</table>

#### Land Use

<table>
<thead>
<tr>
<th>Location Type</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
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<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
</tr>
</thead>
</table>

#### Infrastructure Action

<table>
<thead>
<tr>
<th>Location Type</th>
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<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
</tr>
</thead>
</table>

#### Planning/Design

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<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
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</thead>
</table>

#### Other Action Needed

<table>
<thead>
<tr>
<th>Location Type</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
<th>Option: See on Table T6.b: Bicycle parking spaces for commercial uses.</th>
</tr>
</thead>
</table>

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**Legend:**
- **M:** Maintenance Plan
- **D:** Draft EIR
- **E:** EIR
- **F:** Final EIR
- **SP:** Sustainability Plan
- **RFC:** Redevelopment Framework
- **SFGBO:** San Francisco Green Building Ordinance
- **A:** Agricultural Land Conservation
- **T:** Taxonomy
- **C:** Credit Interpretation

---

**References:**
- D4D: Figure 1.3.3: Bicycle Facilities Framework
- D4D: Table T6.b: Bicycle parking spaces for commercial uses.
### Neighborhood Pattern and Design

<table>
<thead>
<tr>
<th>Credit</th>
<th>Possible Pts</th>
<th>Reference</th>
</tr>
</thead>
</table>

#### Walkable Streets

- **A**: Principle Functional Entries
- **B**: Building/Row Street Ratio
- **C**: Continuity Sidewalks
- **D**: Street Openings

Promote transportation efficiency, including reduced vehicle miles traveled (VMT) and land uses that support public health by providing safe, appealing, and comfortable street environments that support public health by reducing vehicular injuries and encouraging daily physical activity.

**Credit Interpretation**

- D4D: 1.4: Places
- D4D: T5.2 - Sustainable Building Design
- EIR: II.24 - Building Heights

### Compact Development

**Option 2**: All Other Projects

Encourage development in existing areas to conserve land and protect farmland and wildlife habitat. Promote livability, walkability, and transportation efficiency including reduced vehicle miles traveled (VMT). Improve public health by reducing vehicular injuries and encouraging daily physical activity.

**Credit Interpretation**

- D4D: Figure 1.3.c: Best Soil Capacity
- D4D: Figure 1.3.d: Setback Plan
- D4D: T5.4: Engaging the Public Realm
- D4D: T5.4.5: Pedestrian Scale (Standard)
- D4D: T2.5: Specific Street Design Layouts
- EIR: S.2: Proposed Development Plan
- EIR: II.16: Development Plan Characteristics

### Connected and Open Community

**Option 1**: Projects with Internal Streets

Projects that have high levels of internal connectivity and are well connected to the community at large. Encourage development that enhances transportation efficiency through pedestrian and transportation improvements. Improve public health by encouraging daily physical activity.

**Credit Interpretation**

- D4D: Figure 1.3.j: Street System Framework
- D4D: Figure 1.3.i: Best Soil Capacity

---

**Legend**

- **CR 1**: Walkable Streets
- **CR 2**: Compact Development
- **CR 3**: Connected and Open Community

**Pre 1**

- **Plan A**: Continuity Sidewalks
- **Plan B**: Effective Pedestrian Access
- **Plan C**: Low-Density Development

**Pre 2**

- **Plan A**: Continuous Landscaping
- **Plan B**: Compact Design
- **Plan C**: Traffic Calming

**Pre 3**

- **Plan A**: Pedestrian Orientation
- **Plan B**: Multimodal Transportation
- **Plan C**: Public Space Development

**Pre 4**

- **Plan A**: Transit Oriented Development
- **Plan B**: Sustainable Building Design
- **Plan C**: Water Conservation

---

**Note**: The above text includes details on how to interpret and implement credits related to neighborhood pattern and design, focusing on walkable streets, compact development, and connected and open communities. Each credit is associated with specific goals to promote transportation efficiency, livability, and public health through strategies such as reduced vehicle miles traveled, pedestrian safety, and daily physical activity.
<table>
<thead>
<tr>
<th>Point Status</th>
<th>Neighborhood Pattern and Design</th>
<th>Credit Index</th>
<th>Framework Plan</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Mixed-Use Neighborhood Center</td>
<td>No options available</td>
<td>Cluster diverse land uses to accessible neighborhood and regional centers to encourage daily activities that reduce vehicle miles traveled (VMT) and reduce automobile dependence, and support car free living.</td>
<td>4 - D4D: 1.3 Places. EIR: Figure 1.3.m - Transportation Service Framework. D4D: Figure IV.ER: Proposed Transit Circulation Plan.</td>
</tr>
<tr>
<td>5 2</td>
<td>Mixed-Income Diverse Communities</td>
<td>Option 1: Clustering housing within walkable distances and providing pedestrian and low-car options for transportation</td>
<td>Promote socially equitable and engaging communities by enabling people from a wide range of economic levels, household sizes, and age groups to live within a community.</td>
<td>7 - D4D: 1.2IL - Citizen and Resident Access. EIR: S.3: Proposed Development Program. D4D: Table 6.b: Bicycle parking spaces for residential uses.</td>
</tr>
<tr>
<td>1 0 3</td>
<td>Reduced Parking Footprint</td>
<td>No options available</td>
<td>Design parking to increase the pedestrian protection of projects and minimize the adverse environmental effects of parking facilities. Reduce public health risks by encouraging safe and healthy physical activity associated with walking and bicycling.</td>
<td>1 - D4D: 1.9 Parking and Loading. EIR: Figure II.9: Proposed Shuttle Routes. D4D: Figure T6.g: Enlarged Curb Cuts Plan.</td>
</tr>
<tr>
<td>2</td>
<td>Street Network</td>
<td>No options available</td>
<td>Provide communities that are physically well-connected within and beyond development projects. Encourage the design of projects that promote a variety of transportation modes and pedestrian amenities, and facilitate more walkable environments, improve public health by encouraging safe and healthy physical activity and reducing the negative impacts of indoor vehicle emissions.</td>
<td>2 - D4D: Figure 1.3.j - Street System Framework.</td>
</tr>
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<td>Point Status</td>
<td>Neighborhood Pattern and Design</td>
<td>Credit Level</td>
<td>Action Plan</td>
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<tr>
<td>--------------</td>
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<td>-----------</td>
</tr>
<tr>
<td>Pre 1</td>
<td>Neighborhood Schools</td>
<td>1</td>
<td>Yes, Point</td>
<td>Pre 1</td>
</tr>
<tr>
<td></td>
<td>No options available</td>
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<td></td>
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<tr>
<td>Pre 2</td>
<td>Tree-Lined and Shaded Streets</td>
<td>2</td>
<td>Yes, Point</td>
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<tr>
<td></td>
<td>No options available</td>
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<td></td>
<td></td>
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<tr>
<td>Pre 3</td>
<td>Local Food Production</td>
<td>1</td>
<td>Yes, Point</td>
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<td></td>
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<tr>
<td>Pre 4</td>
<td>Community Outreach and Involvement</td>
<td>2</td>
<td>Yes, Point</td>
<td>Pre 4</td>
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<tr>
<td></td>
<td>No options available</td>
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</tbody>
</table>

**Points Reference**

1. **Green Infrastructure and Buildings**
   - **Credit Intent**
     - Possible
   - **Possible Points**
     - 1
   - **Pts References**
     - D4D: Figure 1.3.q: Green Infrastructure
     - EIR: 11.18- Proposed Development Plan

2. **Green Infrastructure and Buildings Credit Intent Possible**

3. **Credit Interpretation**
   - Building Specification Required
   - Other Action Needed

4. **Other Action Needed**
   - Building Specification Required
   - Other Action Needed

**Additional Notes**

- **Construction Activity Pollution Prevention**
  - **Credit Intent**
    - Possible
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Green Water Demand**
  - **Credit Intent**
    - Possible
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

**Notes**

- **Certified Green Building**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Minimum Building Water Efficiency**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Minimum Building Energy Efficiency**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Community Outreach and Involvement**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Local Food Production**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Tree-Lined and Shaded Streets**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description

- **Neighborhood Schools**
  - **Possible Points**
    - 1
  - **Pts References**
    - Draft SB-00: Project Description
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<tr>
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<th>Appendix</th>
<th>Reference</th>
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<tr>
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<td>Certified Green Buildings</td>
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<td>D-2 Building Energy Efficiency</td>
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<td>D-1 Water-Efficient Landscaping</td>
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</table>

**Certified Green Buildings**

- **Cypher 2**: Projects of All Sizes
  - Encourage the design and construction of buildings to utilize green building practices.
  - **Reference**: EIR: v4 Table 4-4: Estimated Water Demand with”-

**Building Energy Efficiency**

- **No options available**

**Building Water Efficiency**

- **No options available**

**Water-Efficient Landscaping**

- **Projects of All Sizes**
  - Reduce impacts to natural water resources, and reduce burdens on local potable and wastewater systems.
  - **Reference**: EIR: v4 Table 4-2: Treasure Island Redevelopment Project Estimated Water Demand -'Draft SFGBO: Prepare outdoor water use budget

**Existing Building Reuse**

- **No options available**

**Market site sustainability in Design and Construction**

- **Projects of All Sizes**
  - Reduce existing non-touristic tree canopy, native vegetation, and service trees.
  - **Reference**: BD+C Sustainable Sites Credit 6.1 (quantity) or 6.2

**Stormwater Management**

- **No options available**

**Heat Island Reduction**

- **Projects of All Sizes**
  - Reduce heat islands to minimize impacts on microclimate and human and wildlife habitat.
  - **Reference**: TY.6.8- Cool roofs.
<table>
<thead>
<tr>
<th>Point Status</th>
<th>Green Infrastructure and Buildings</th>
<th>Credit</th>
<th>Potential Source</th>
<th>Reference</th>
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<tbody>
<tr>
<td>YES, Point</td>
<td>Solar Orientation</td>
<td>1</td>
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<tr>
<td></td>
<td>Option 1: Block Orientation</td>
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<td>-NOI 3.1, Building Orientation- Use solar energy to reduce the adverse environmental impacts associated with fossil fuel energy production and use.</td>
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<td>On-site Renewable Energy Sources</td>
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<td>Cr 11</td>
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<td>-Encourage on-site renewable energy production to reduce the adverse environmental and economic impacts associated with fossil fuel energy production and use.</td>
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<td>Distinct Heating and Cooling</td>
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<td></td>
<td>Key options available</td>
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<td>-Encourage the development of energy-efficient neighborhoods by evaluating district heating and cooling systems and the benefits of advance energy-related controls.</td>
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<td>Infrastructure Energy Efficiency</td>
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<td>-Reduce adverse environmental impacts from energy use by operating public infrastructure.</td>
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<td></td>
<td>Wastewater Management</td>
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<td>Cr 14</td>
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<tr>
<td></td>
<td>Key options available</td>
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<td></td>
<td>-Reduce pollution from wastewater and encourage water reuse.</td>
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<tr>
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<td>Recycled Content in Infrastructure</td>
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<td>Cr 15</td>
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<tr>
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<td>Key options available</td>
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<td>-Reduce the intake of wastewaters deposited in streets. Prioritize the proper disposal of nonhazardous wastes.</td>
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<td>Solid Waste Management</td>
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<td>Key options available</td>
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<td>-Reduce the volume of waste deposited in streets. Prioritize the proper disposal of nonhazardous wastes.</td>
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<td>Light Pollution Reduction</td>
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<td>Cr 17</td>
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<td></td>
<td>Key options available</td>
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<td></td>
<td>-Select light trespasses from project sites, reduce light trespasses to increase light sky access, improve nighttime visibility through glare reduction, and reduce adverse impacts on wildlife environments.</td>
</tr>
</tbody>
</table>

### Regional Priority Credit

<table>
<thead>
<tr>
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<th>Green Infrastructure and Buildings</th>
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<tbody>
<tr>
<td>YES, Point</td>
<td>Innovation and Exemplary Performance</td>
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<td>Leave Accredited Professional</td>
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<td>-Support the integrated planning and design required for a LEED for Neighborhood Development project and address the requirements of the LEED for Neighborhood Development Rating System.</td>
</tr>
</tbody>
</table>

### Innovation and Design Process

<table>
<thead>
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<th>Point Status</th>
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<td>-Auditor qualifications (2 points)</td>
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### Additional Information

<table>
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<tr>
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<th>Reference</th>
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<tr>
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<td>Housing &amp; Jobs Proximity</td>
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<td>-Provide incentives for the achievement of credits that address geographically specific environments, social equity, and public health priorities.</td>
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<td>Mixed-Use Districts</td>
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<td>-Provide incentives for the achievement of credits that address geographically specific environments, social equity, and public health priorities.</td>
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<td>Street Network</td>
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<td>-Provide incentives for the achievement of credits that address geographically specific environments, social equity, and public health priorities.</td>
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<td>-Provide incentives for the achievement of credits that address geographically specific environments, social equity, and public health priorities.</td>
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<td>Stormwater Management</td>
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