

SAN JOSÉ/SANTA CLARA WATER POLLUTION CONTROL PLANT MASTER PLAN

TASK NO. 5
PROJECT MEMORANDUM NO. 9

CONCEPTUAL LAND USE STRATEGIES & ALTERNATIVES

May 2009

TABLE OF CONTENTS

| | |
|---------------------------------|----|
| INTRODUCTION | 1 |
| Internal Stakeholder Review | 2 |
| Land Use Workshop | 4 |
| Planning Principles | 6 |
| | |
| EXISTING LAND USE PATTERNS | 7 |
| Existing Plant Land Use | 8 |
| Adjacent Land Use Context | 9 |
| | |
| DETERMINING FACTORS | 10 |
| Operational Footprint Reduction | 11 |
| Community Context | 12 |
| Transportation | 13 |
| Micro Climate | 14 |
| Historical South Bay | 15 |
| Watershed | 16 |
| Historic Shoreline | 16 |
| Topography | 18 |
| Sea Level Rise | 19 |
| | |
| PLANNING STRATEGIES | 20 |
| Flood Protection | 21 |
| Water Patterns | 23 |
| Development Program | 26 |
| Development Concepts | 28 |
| Integrated Land Use Concepts | 31 |
| Scale Comparisons | 33 |

INTRODUCTION

The purpose of this Conceptual Land Use Strategies & Alternatives document is to record the key principles, determining factors and strategies that form the foundation for the development of the San José / Santa Clara Water Pollution Control Plant Master Plan.

The land use strategies focus on the comprehensive integration of Plant operations, natural systems, and economic development in order to achieve the overarching goals which have been defined for the Plant Master Plan:

Operational: The Master Plan aims to result in a reliable, flexible Plan that can respond to changing conditions.

Environmental: The Master Plan aims to support improved, vibrant on-site habitat and minimal impacts to the global environments.

Economical: The Master Plan aims to maximize economic benefits for its customers.

Social: The Master Plan aims to maximize community benefits.

INTERNAL STAKEHOLDER INTERVIEW

On December 4 & 5, 2008, a series of group interviews were conducted with City of San José staff. The purpose of the interviews was to identify and discuss issues, opportunities, and constraints associated with development of the land use strategy for the Plant Master Plan (the “Plan”).

The following summary highlights key topic areas and outcomes of the two-day discussion.

General Plan Update

- The General Plan Update is projecting 471,000 new residents and 170,000 new jobs by 2040.
- Specific issues and requirements relevant to the land use planning strategy have not yet been determined.
- Land use trends that may influence the General Plan Update include slow food, sustainable agriculture, community gardens, and boutique commercial farming. The Plant lands provide an opportunity to accommodate these potential uses.
- The focus for Alviso Village will be to retain its small town nature and improve its infrastructure rather than to promote growth or redevelopment.
- Sustainability is a major strategy of the General Plan. Reducing car use, promoting public transit, walking and biking, are important to achieving sustainable communities.

Transportation & Access

- Improvements for pedestrians and bicycles on Zanker Road and Los Esteros are generally considered to be a low priority given the current intensity of land use and vehicular trips.
- 2002 Bay Trail Master Plan proposed 13 miles of new trails, including a trail located on Zanker Road. Alternative routes for connections to Coyote Creek should be considered that respond to current and possible land use proposals.

- Truck traffic is expected to continue beyond the life of Zanker Road Land Fill due to the potential for new waste to energy operations. Truck traffic is generally not compatible with pedestrian and bicycle movement on Zanker Road.
- Zanker Road is an active part of the Plant's storm water system. During heavy rainfall or spills, water is conveyed from the right-of-way into the Plant.
- Future connections between Dixon Landing and Zanker Road may be possible through biosolids lagoons area.
- Traffic studies need to be prepared to determine the need for additional vehicular routes and connections, and the need for an interchange at Zanker and Hwy 237, and capacity potential through Alviso Village.
- It is unlikely that future development of the Plant will generate sufficient density to support light rail, and it is expected that bus transit will meet transit demand.
- The Water District is working on funding for an emergency port in Alviso and the City is currently reviewing the proposal.

Economic Development

- A current focus is to implement planning strategies that focus on job creation and balancing jobs and residential.
- The City's structural deficit will affect land use decisions.
- The City lacks land for heavy industrial development. It is extremely difficult to locate energy equipment manufacturers in San José due to limited land availability.
- Solar manufacturers typically require large sites to develop 400,000 sq ft (typical) facilities. The City needs to have land in order to provide incentives and to attract new users.
- Job yield from development is approximately 200 jobs / acre.
- Highway 237 frontage is attractive to retail development

but not essential for manufacturing. The City is unsure whether there is sufficient demand for retail.

- Clean-tech manufacturing enhances the City's tax base. Products which are manufactured and sold contribute to sales tax revenue. Waste to energy and biofuels may offer similar benefits.
- A major concept of the previous brainstorming workshop was to determine “what does the land express” and apply it to all aspects of the project, including economic development. Development can be conceived as a “gradient”, which transitions from the ecological systems of the Bay to the population intense Silicon Valley.
- Intensive water users should be considered given the availability of treated water from the Plant.
- It is important for the City Office of Economic Development to begin reaching out to venture capital/business stakeholders to explore opportunities at the Plant.
- There is no potable water, sanitary or storm sewers serving any of the Plant's buffer lands. This affects land value.
- Land reserved for economic development should total approximately 300 to 400 acres.

Parks & Recreation

- The City Parks Department estimates the following needs: 25 acre for softball; 20 acres for soccer; 10 acres for passive recreation. The minimum size should be 50 acres for a regional sports park.
- City Parks are provided though developer contributions.

Water Recycling & Energy

- Biofuels are currently a very popular form of alternative energy.
- Algae farms can produce bio-fuel and also provide an opportunity to sequester carbon dioxide.

- The Plant has the ability to attract investment from utility companies who can establish demonstration projects (solar, wind, etc.).
- The obvious opportunity for alternative energy is to expand the function of the Plant's digesters to generate gas. However, solar is more popular/interesting than digester gas.
- Three Burrowing Owl habitats remain in the Bay Area area, including Moffett Field, San José airport, and the Plant buffer lands.
- The City estimates that approximately 200 acres is required for an expanded owl mitigation area that meets future needs of the HCP/NCCP participating agencies.

Habitat & Natural Systems

- Over the past 10 years, the City has made considerable efforts to enhance the environment with recycled water. Stream flow augmentation (pumping recycled water into streams and rivers) is one opportunity for the Plant. Typically, water temperature difference between the stream and recycled water is a problem.
- Protected species located on Plant lands include the Salt Marsh Harvest Mouse, Burrowing Owl, and Congdon Tar Plant.
- The US Fish and Wildlife service would not necessarily like to see Pond A18 restored as a Tidal Marsh. Currently, Pond A18 is managed as a flow through pond. Intake takes in at high tide and flows out at low tide. The purpose of this system is to prevent salt buildup.
- The Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) is a regional partnership between six Local Partners (the County of Santa Clara, Santa Clara Valley Transportation Authority, Santa Clara Valley Water District, and the Cities of San José, Gilroy and Morgan Hill) and three Wildlife Agencies (the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service (NMFS-NOAA Fisheries)). The HCP/NCCP plan, currently under development, will allow for fees to be paid for mitigation. The HCP/NCCP plan will mitigate the impacts to 30 species and will likely include the Burrowing Owl.

LAND USE WORKSHOP

On January 30, 2009, the first of several land use planning workshops was conducted. The purpose of this first workshop was to review the site opportunities and constraints, and to identify and explore a wide range of plant land uses through small breakout group sessions. It is important to note that there were no major decisions anticipated or made at the workshop. Instead, a major objective was to put everyone on the same basis in terms of understanding the site, and to actively listen to ideas for opportunities for the site.

The more than 50 attendees included the master planning team and specialists in land use planning from Skidmore, Owings & Merrill, and a cross section of various City Departments and Divisions. Also, the tributary agencies and partners, including West Valley, Milpitas, Santa Clara, and Santa Clara Valley Water District were represented.

The following is a summary of the major discussion items based on meeting minutes prepared by Carollo Engineers, summaries prepared by City staff, and notes transcribed from the flip chart records of the five groups.

Overall:

- The Plant lands are large enough to accommodate the identified needs for employment lands, recreational lands, and habitat restoration.
- Need to strike a balance between creating new environments, and enhancing the beauty of existing uses.
- All the considerations in creating a sustainable land use plan need to fit together: social, environmental, economic, and technical.
- Need an economic analysis that assesses the various land uses in terms of overall economic benefit to the City, to the Plant, and to the tributary agencies.
- Phasing is important. This is a 30-year plan, and need to keep the long-term in mind.

- Opportunity for the City to create an improved transportation corridor (involving the site). There is a need for an overall comprehensive Transportation Plan.
- Need “quality development” around the Plant lands area. Need to develop good urban design guidelines (this worked in the Downtown area).

Habitat and Natural Systems:

- Water should become a major theme for the site, including integrated water features.
- Water reuse should be used on-site to the extent practicable.
- Some portions of the site should be restored and/or preserved as habitat – particularly burrowing owl habitat.
- It is important that the public have ample opportunities to view wildlife and habitat on the site (e.g. pedestrian and bike trails, the Bay Area Wildlife Museum concept, etc.), while at the same time providing the separation needed to support a healthy wildlife population.

Economic Development:

- Employment and economically sustainable development should be considered a critical element of the land use plan.
- Time to market is a factor in keeping potential tenant interests involved, therefore, the alignment on impacted lands (e.g. sludge lagoons) may be problematic. It may be possible, however, if development is phased.
- Economic development should help pay for the necessary improvements at the Plant.
- There is a preference by some participants for any development on-site to be different than the surrounding large commercial/industrial parcels. Don't want a “box development” look. Pick a style for integrating development with the “green” theme to create a positive outcome.

- Most participants seemed to like the flexibility that separate development areas on the site provided to allow for grouping of different kinds of tenants and separate themes. However, the potential additional cost for infrastructure for the separate option needs to be assessed.
- Need to consider teaming partners (e.g. university and/or corporate) to represent the best in innovation with corporate and academic research and clean technology.
- Use the availability of plant “waste” resources (e.g. recycled water, energy) as a selling point.
- Long-term leases and not sale of plant lands should be considered.
- Farmland was discussed as a potential fatal flaw land use option. May not be economical or best use on this site considering competing uses.

Shoreline and Sea Level Rise:

- In general, most participants favored either the additive or status quo scheme for land/water balance.
- Some participants favored the delta, and fingers water schemes, but not the islands and perimeter schemes.
- Staircase approach is preferred (versus abrupt “sea wall”). Lose land incrementally, and have flexibility to preserve various riparian and shoreline habitats over time.
- The need to develop a vision for the San José shoreline was discussed. This may need to happen in a broader context and should also include future planning for Newby Island landfill and potential for land swaps.
- Discussed taking algae farming off the table because of odors.
- A lot of challenges to change existing Pond A18 use due to designation as “water of the state”.

Community Development:

- Whatever is done must fit and be compatible with the communities.
- The need for recreational sports fields (e.g. soccer fields) is supported by adults, and “after work” community members. Therefore, should consider locating these close to potential businesses, so it can be easier to light them at night, and share parking, etc.
- Some form of water recreation as part of a re-envisioned shoreline, such as kayaking, is favored for the area.
- Discussed the potential to locate an equestrian facility.

Plant Operations:

- The Plant should transition to new biosolids treatment as soon as possible. Could be 10 to 13 years (fastest), but needs to be done.
- Need to move aggressively reduce odors balanced with rate concerns. This is in response to being a good neighbor, and to what can be realized for future development.
- Economics, energy, and odor control benefits are the most important in ranking plant projects.
- The existing “public face” of the Plant needs to be improved. The Plant should be showcased along its frontage in a phased approach (e.g. new Administration building, water features, etc).
- The Plant’s main operational areas should be screened along the South side.
- Need to change the plant name. Negative connotations with the existing name. Stress the importance of a positive association.
- Most agreed that it makes sense to make the Plant a net energy producer. Wind, however, may not be compatible with site due to birds, and lack of wind opportunity.

PLANNING PRINCIPLES

The following planning principles have been derived from a process involving the assessment of existing conditions, a determination of desired future conditions, and consultation with technical stakeholders. Together, these principles are intended to guide future planning and development of the Plant.

Maintain Operational Viability

Reserve a “core” treatment process footprint that meets current and future wastewater treatment needs.

Promote a Vital and Sustainable Natural Ecology

Enhance existing and create new Bay habitat & fresh water systems to support populations of fish and wildlife, including special-status species such as the Burrowing Owl and the Salt Marsh Harvest Mouse.

Capitalize on Resources

Capitalize on natural resources including sun, wind, water & biological resources to support energy and waste reduction goals. “Water” is a major theme for the site, and is should be a component of future Plant land uses. Maintain compact development footprint to conserve valuable land resources.

Incorporate Synergistic Research and Educational Opportunities

Foster the synergy between research and teaching with facilities that promote collaboration and interaction on issues such as environmental technologies, natural science, waste management, environmental health & recreation.

Be a Good Neighbor & Create Community Benefits

Provide community amenities, including recreational, educational, and cultural, and sustainable transportation options that support existing and future resident and working populations. Provide appropriate buffer from potentially hazardous areas and activities associated with Plant operations.

Pursue Economic Opportunities

Pursue an appropriate amount of economic development opportunities that support the creation of community benefits and minimize rate increase in the future. Prioritize clean tech and other sustainable forms of non-residential mixed use development.

Protect Plant Lands from Natural Disaster

Provide appropriate protection of the Plant lands from risk associated with coastal and fluvial flooding, sea level rise, and global warming.

EXISTING LAND USE PATTERNS

The Plant occupies over 2,600 acres of land located at the southern edge of San Francisco Bay. It currently includes a diverse range of land uses that can be broadly categorized as Current Plant Facilities, Buffer Lands, Expansion Areas, and Salt Pond A18. Current Plant Facilities and Salt Pond A18 occupy over 70% of the total Plant land area.

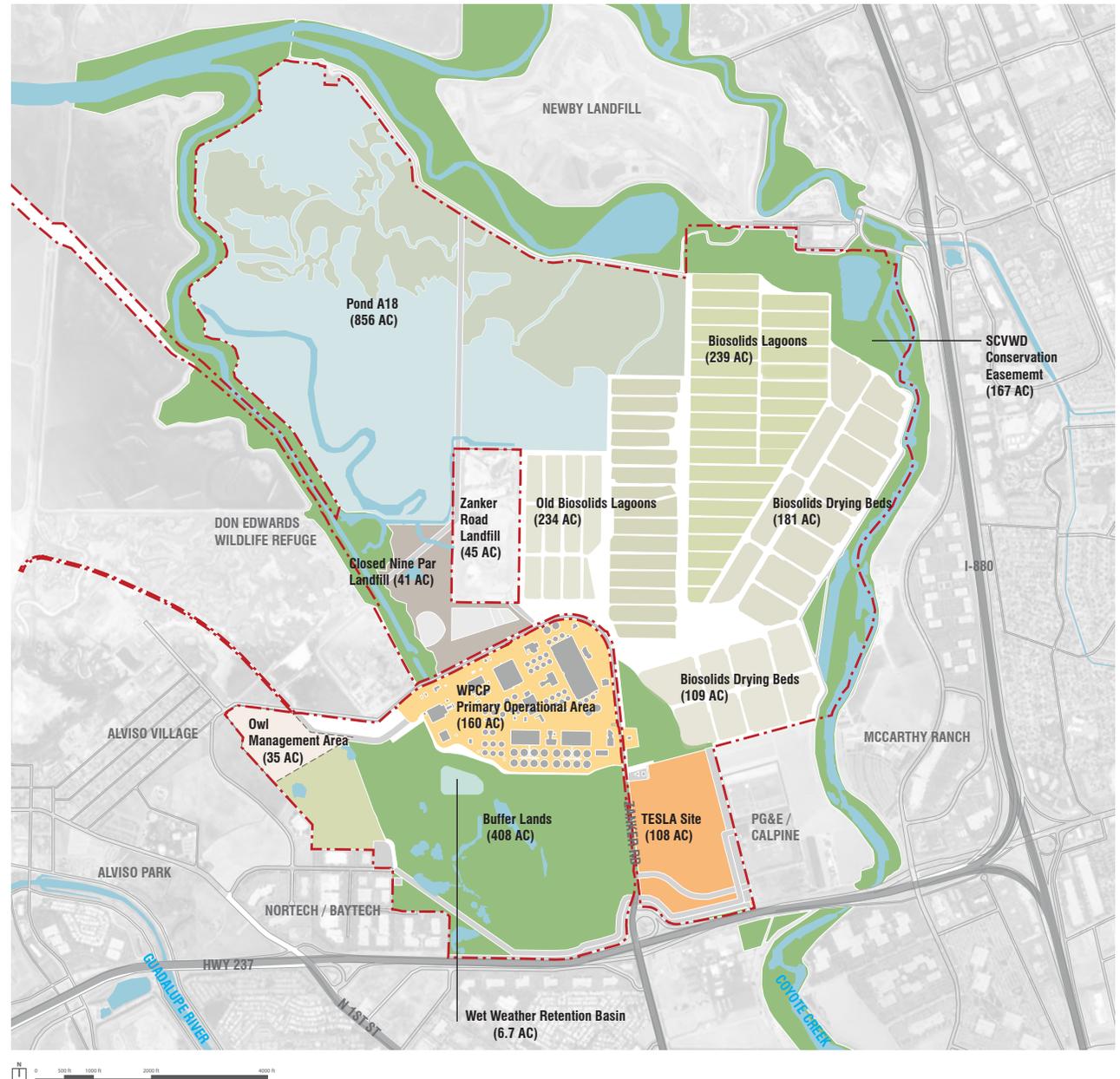
EXISTING PLANT LAND USE

Current Plant land uses are identified in the adjacent diagram and areas for each use is summarized in the following table.

| Table 1 - Existing Plant Land Uses | |
|---|-------------|
| Existing Land Uses | Area |
| Current Plant Facilities | |
| Operational Area* | 167 |
| Residual Solids Management Area | 532 |
| Old Biosolids Lagoons | 254 |
| Recycled Water Transmission Pump Station | 3 |
| SC Valley Water District Flood Control Easement | 171 |
| Municipal Water System Tank | 3 |
| <i>Sub Total</i> | 1130 |
| Buffer Lands | |
| East of Zanker Road (excluding recycling expansion area, and including Tesla Motors site) | 103 |
| West of Zanker Road | 408 |
| North of Zanker Road including Nine Par Landfill | 123 |
| <i>Sub Total</i> | 644 |
| Expansion Areas | |
| South Bay Water Recycling Expansion Area | 31 |
| <i>Sub Total</i> | 31 |
| Salt Pond A18 | |
| Salt Pond A18 | 856 |
| <i>Sub Total</i> | 856 |
| Total | 2651 |

Source: H.T. Harvey & Associates, 2007.

* Includes Wet Weather Retention Basin



ADJACENT LAND USE CONTEXT

Alviso: The Alviso area is situated west of the Plant and spans North First Street from Liberty Street to the southern boundary of the George Mayne School.

Newby Landfill: With a total area of 342 acres, the Newby Landfill is one of the largest active sanitary landfills on the shores of the San Francisco Bay. The facility is permitted to accept up to 4,000 tons of municipal solid waste per day.

Jubilee Church: Jubilee Church is located north of Nortech Parkway, at the western edge of the Plant's buffer lands.

Zanker Road Landfill and Zanker Road Landfill Wetland Mitigation Area: The Zanker Road Landfill and Zanker Materials Processing Facility are located immediately to the northwest of the current Plant Operational Area. The facility currently recycles concrete rubble, wood waste, yard waste, clean and mixed demolition debris, cardboard, gypsum, metal, and bulky items.

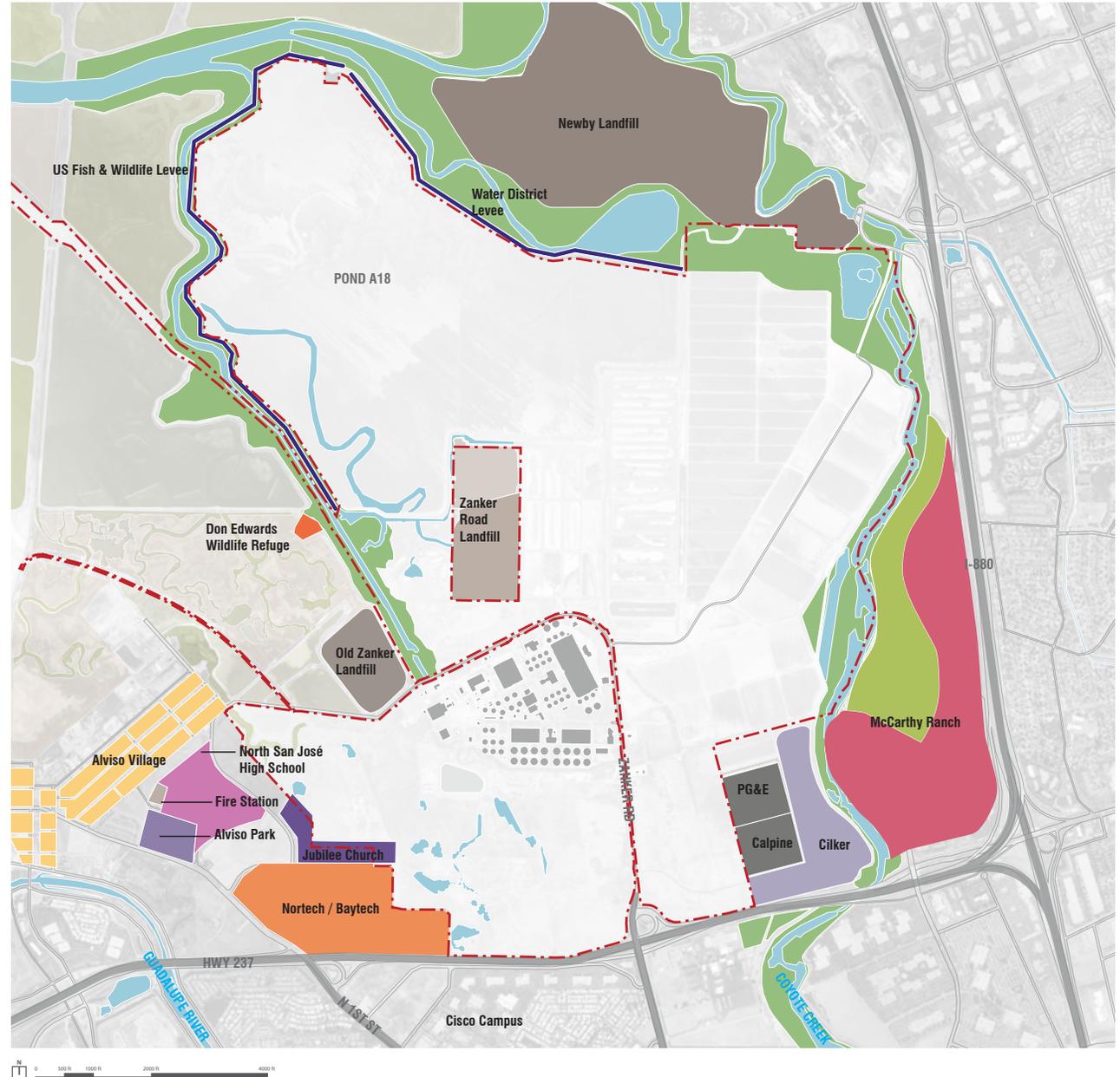
Pacific Gas and Electric Los Esteros Sub Station & Calpine Los Esteros Critical Energy Facility: The PG&E Los Esteros sub station and Calpine Los Esteros Critical Energy facilities are located adjacent to the southeast corner of the Plant site. Vehicular access to the facilities is provided via a service road that connects with Zanker Road.

McCarthy Ranch: McCarthy Ranch is a regional business park and shopping center located at the northwest corner of Interstate 880 and State Route 237.

Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center (DEWR): DEWR was established in 1974 as the first urban national wildlife refuge in the U.S. The DEWR is located at the end of Grand Boulevard adjacent to the Artesian Slough outfall weir.

Nortech / Baytech: Technology industries, including Cisco Systems, maintains office space at Baytech Drive and Nortech Parkway.

Cilker: Cilker Orchards owns property located between Coyote Creek and the Calpine Los Esteros Critical Energy facility.



DETERMINING FACTORS

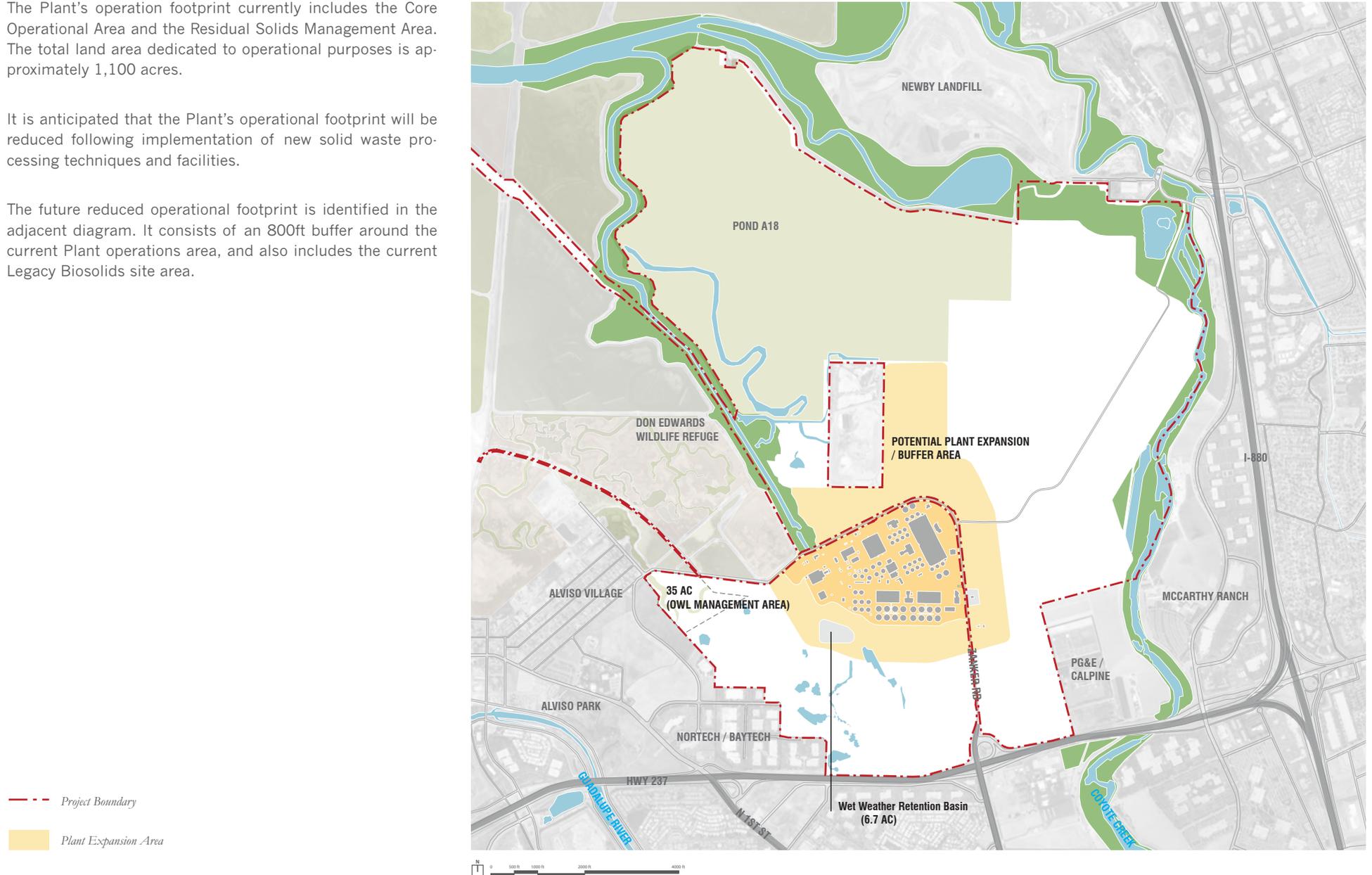
The land use plan for the Plant is rooted in an understanding of physical, operational, environmental, and ecological characteristics. The following factors are central to determining the Plant's conceptual land use alternatives: future operational footprint; community context; transportation; micro-climate; historic and modern baylands; shoreline and future sea level; and topography.

OPERATIONAL FOOTPRINT REDUCTION

The Plant's operation footprint currently includes the Core Operational Area and the Residual Solids Management Area. The total land area dedicated to operational purposes is approximately 1,100 acres.

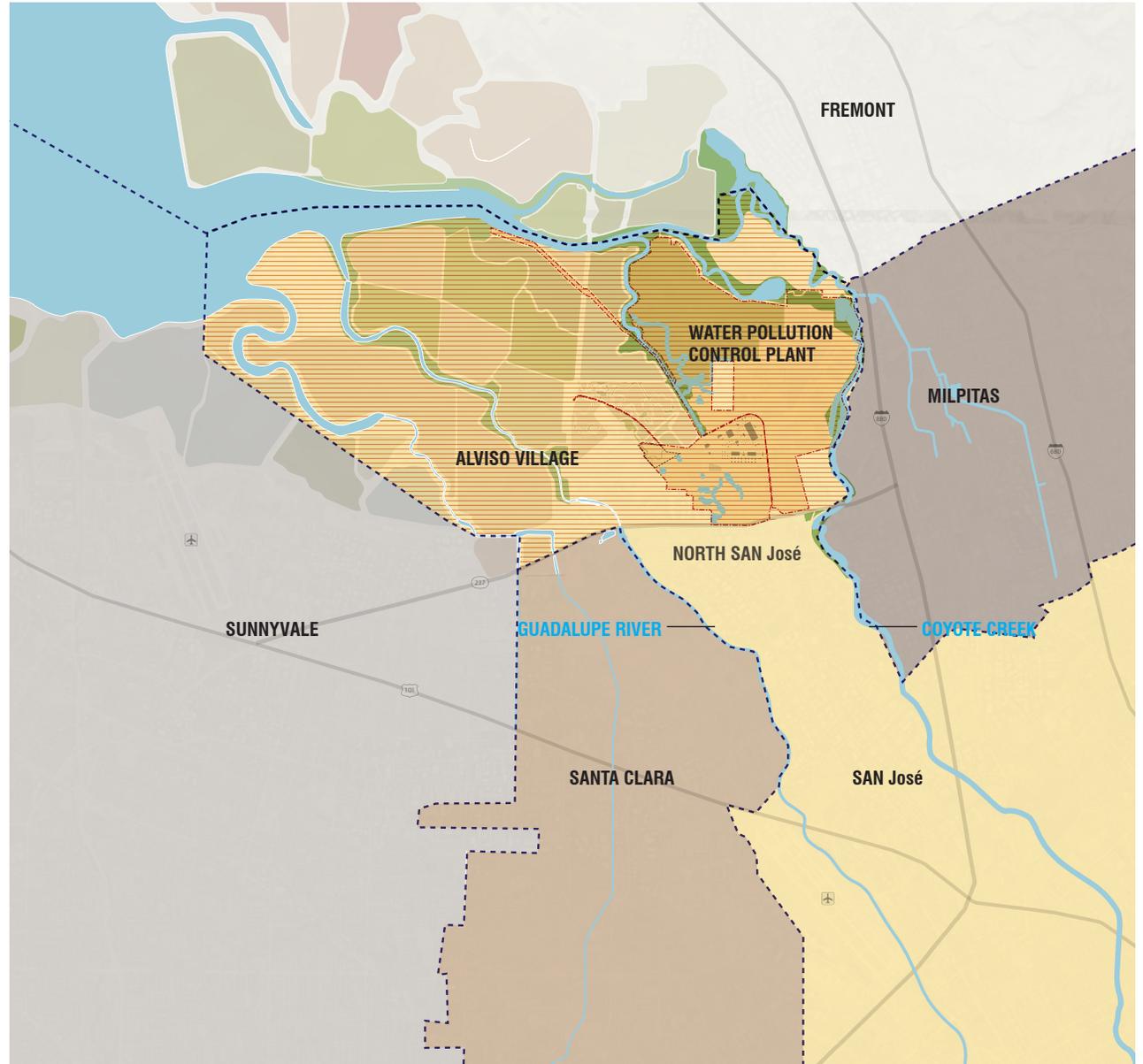
It is anticipated that the Plant's operational footprint will be reduced following implementation of new solid waste processing techniques and facilities.

The future reduced operational footprint is identified in the adjacent diagram. It consists of an 800ft buffer around the current Plant operations area, and also includes the current Legacy Biosolids site area.



COMMUNITY CONTEXT

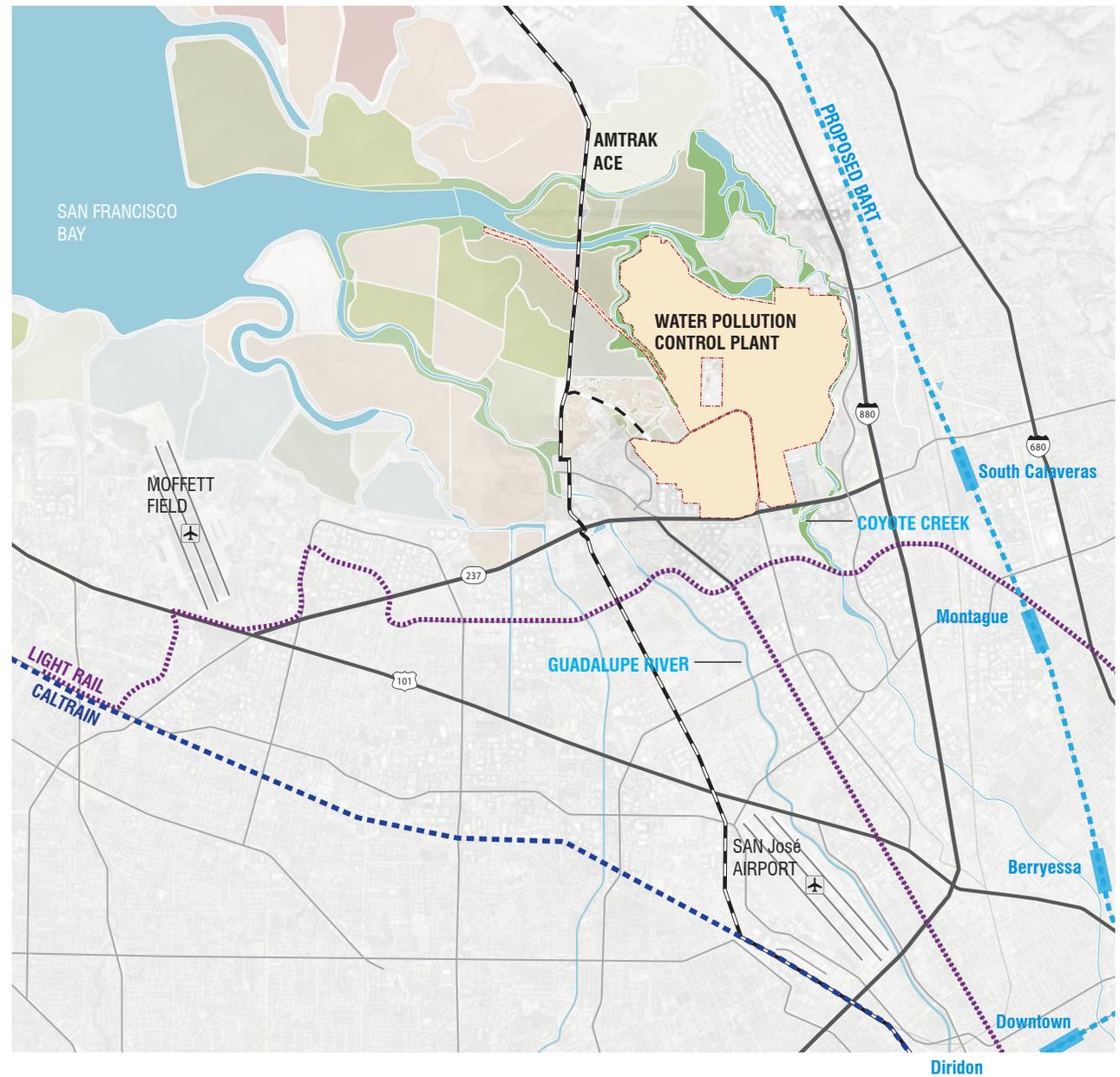
The Plant is located in Northern Santa Clara Valley on the southern edge of San Francisco Bay. The Plant is located with the City of San José and is adjacent to the communities of Fremont, Milpitas, Santa Clara, Sunnyvale. The Alviso Village is located west of the Plant. The Plan is situated within the Alviso Village planning area.



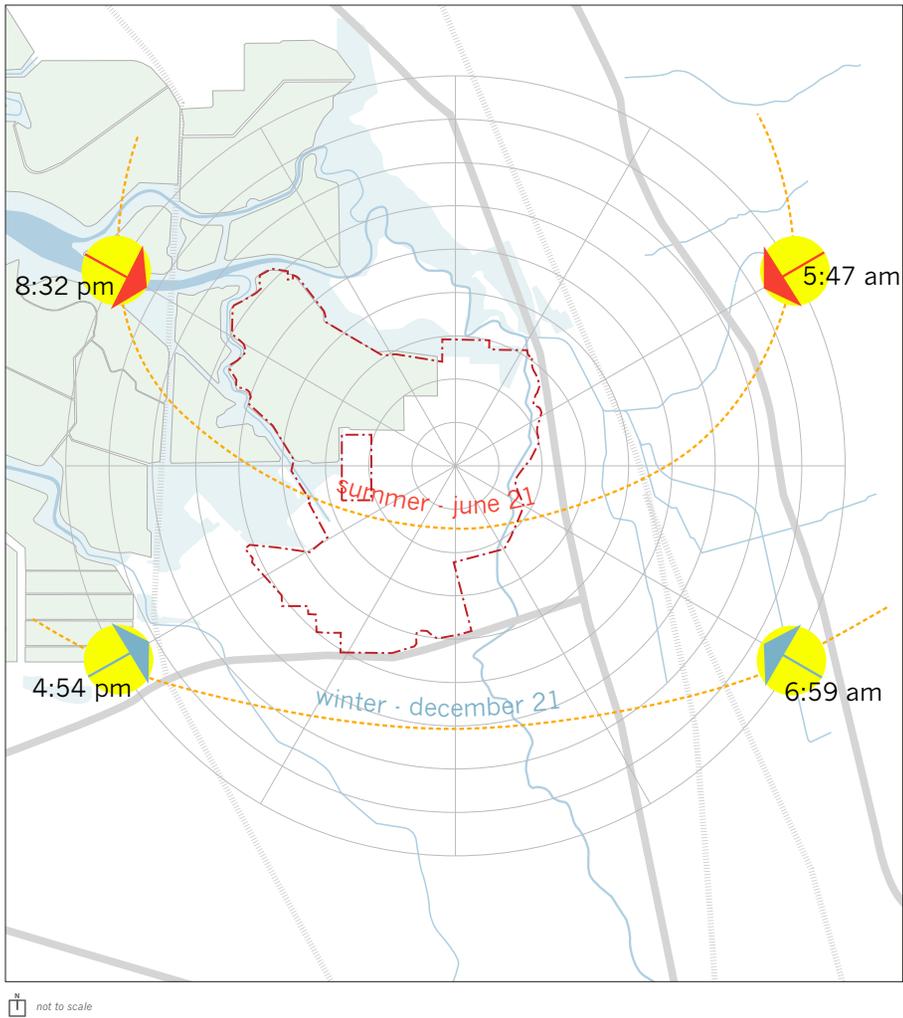
TRANSPORTATION

Santa Clara Valley Transportation Authority (VTA) is planning to extend the San Francisco Bay Area Rapid Transit (BART) system to Silicon Valley. The 16-mile BART extension would be located east of the Plant and Interstate Highway 880. The proposed South Calaveras station will be located approximately 2 miles east of the Plant.

Even though the proposed BART station and existing VTA light rail facilities are situated beyond easy walking distance of the site, shuttle or bus services can be used to provide convenient transit access. The integration of land use plan with existing and future transportation infrastructure is vital to achieving sustainable development.

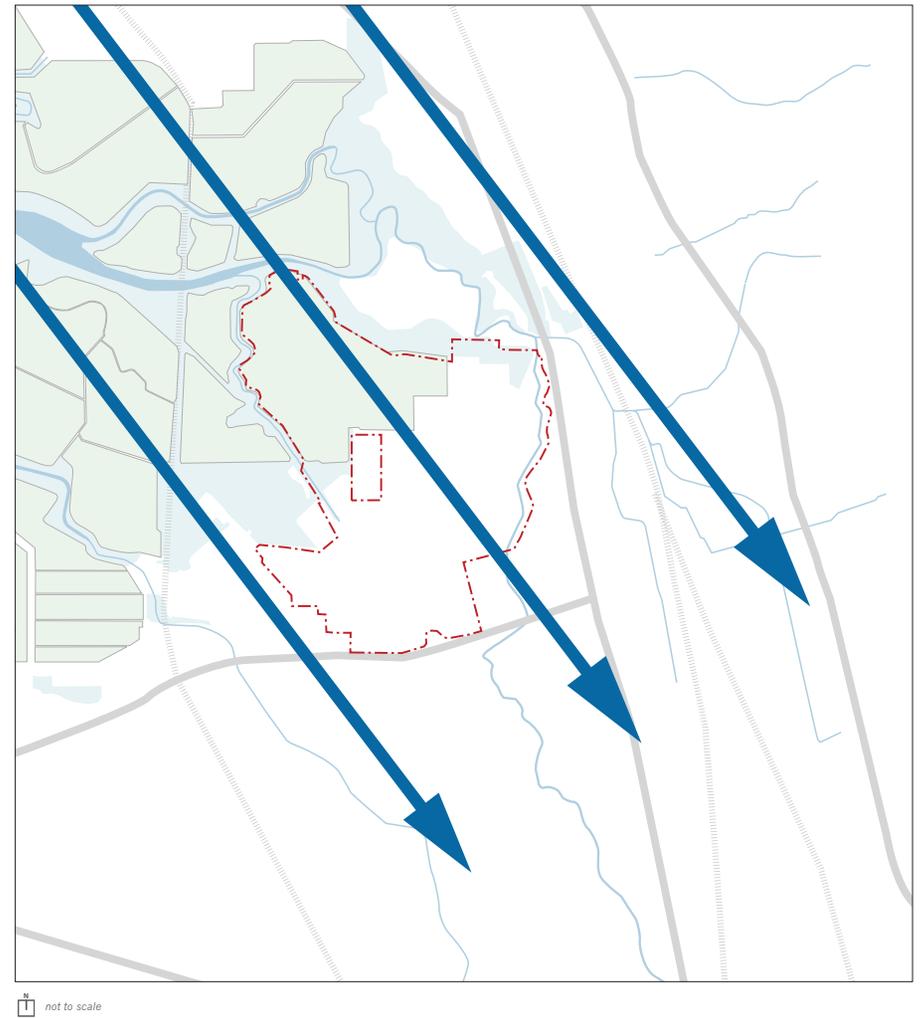


MICRO CLIMATE



Sunlight Access

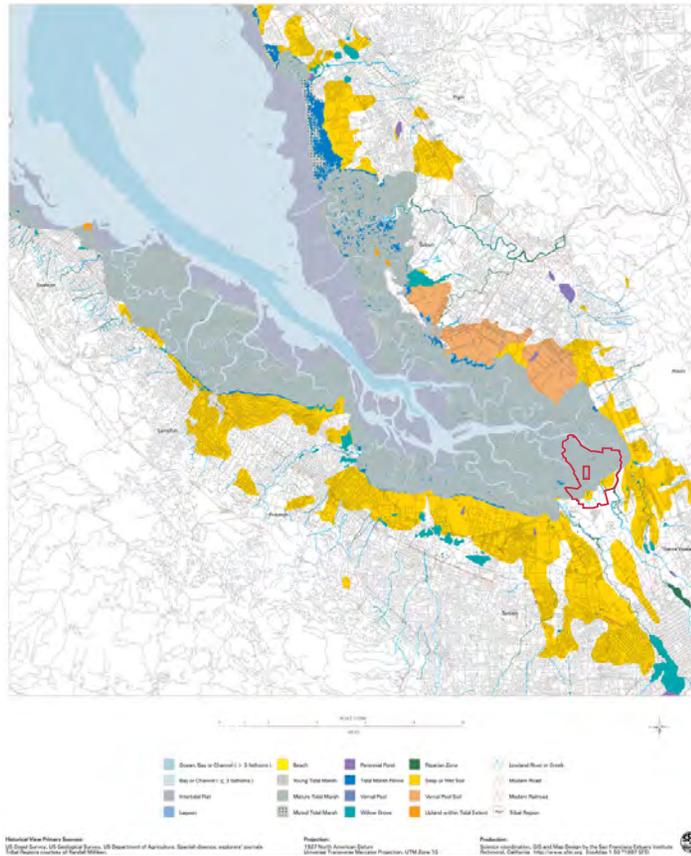
The Plant has excellent exposure to sunlight. According to the U.S. Department of Energy Solar Site Evaluation prepared for the City of San José, the large available Plant land areas are well suited for fixed, south-facing solar arrays or single- or double-axis tracking systems. There are no large buildings or other features casting shadows over any of the major potential solar areas.



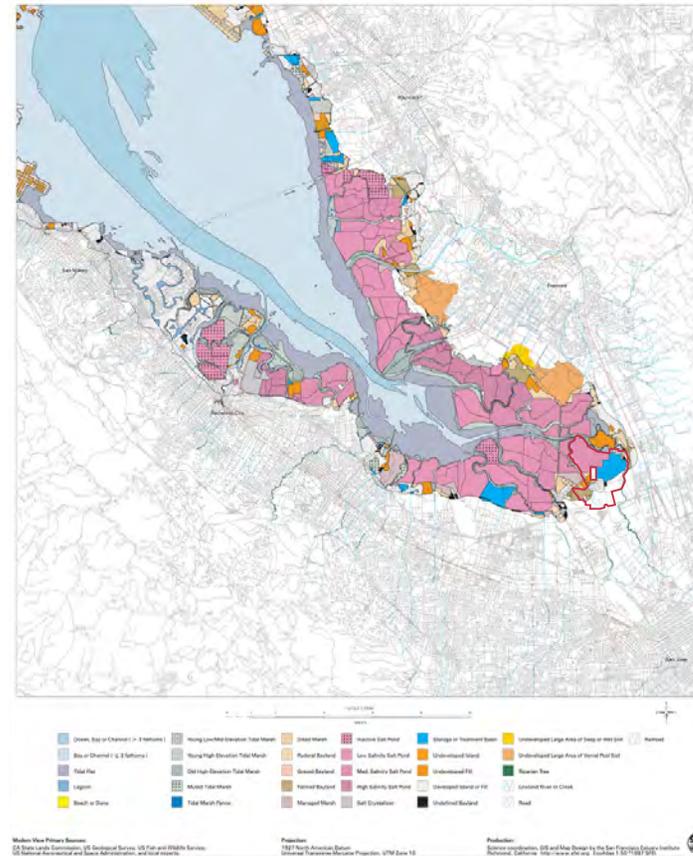
Prevailing Winds

Data collected at the San José International Airport by the Western Regional Climate Center show that the South Bay region is subject to prevailing northwest wind patterns and wind speeds range from 5.3 to 8.4 mph with an average of 6.8 miles per hour (mph). The potential for wind power is yet to be determined but it has the potential to contribute to the overall integrated on-site power generation strategy of the Plant master plan.

Historical View of South Bay Subregion
ca. 1770 - 1820
Based Upon Bay Area EcoAtlas Version 1.50pr4



Modern View of South Bay Subregion
ca. 1997
Based Upon Bay Area EcoAtlas Version 1.50pr5



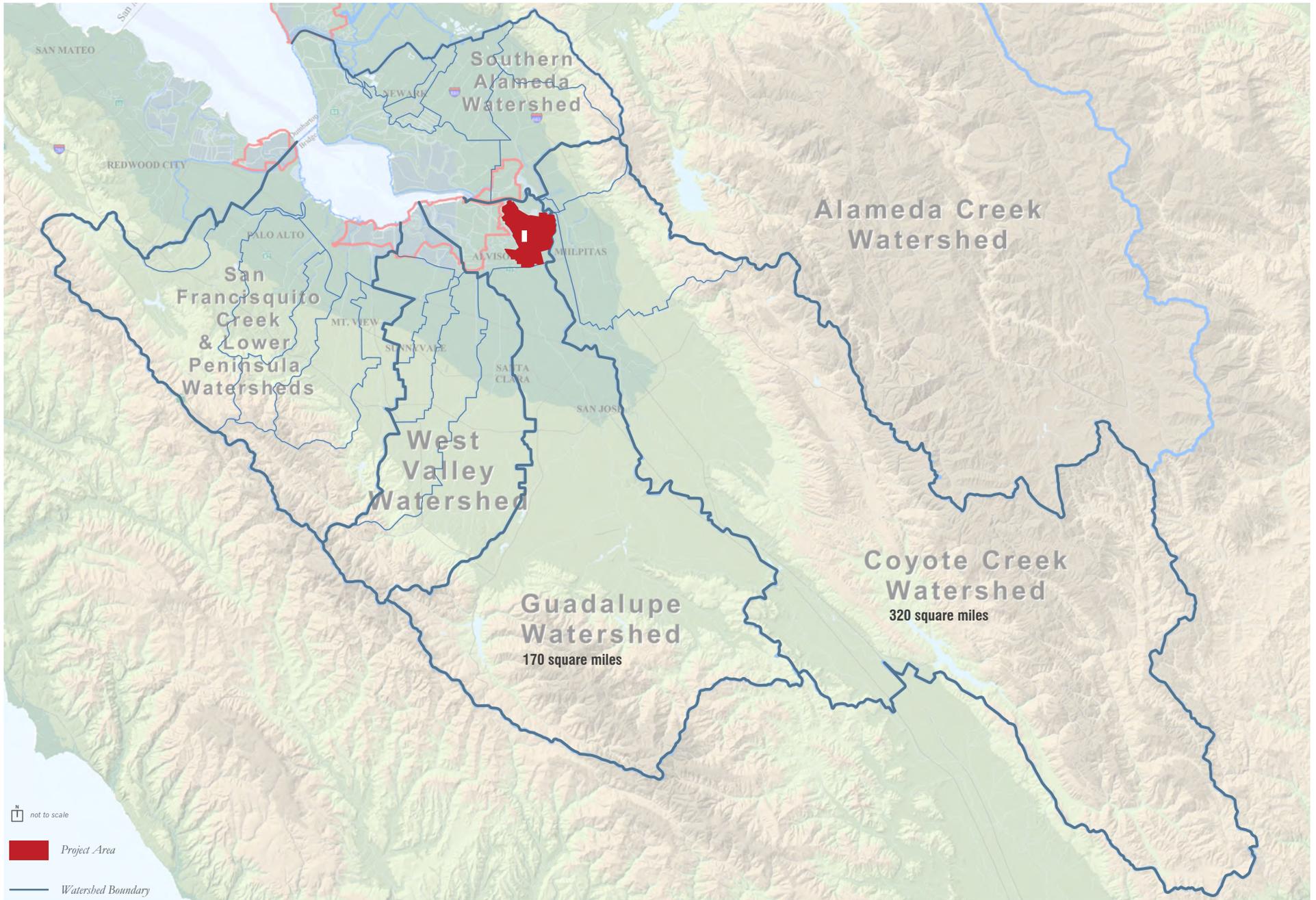
HISTORICAL SOUTH BAY

Historical mapping of the San Francisco Bay describes the bays, baylands, and adjacent habitats as they appeared approximately 200 years ago, when Europeans first arrived in the region. These historic conditions of the San Francisco Bay provide valuable insight to the potential habitat rehabilitation strategies that may be incorporated in the Plant's land use plan.

San Francisco Bay has lost an estimated 85 percent of its historic wetlands to fill or alteration. This dramatic decline in tidal marsh habitats has caused populations of marsh-dependent fish and wildlife to dwindle. It has also decreased water quality and increased local flood risks (South Bay Salt Pond Restoration Project).

Historical mapping of the South Bay Subregion ca. 1770 - 1820 identifies the Plant lands to consist predominantly of Tidal Marsh. This natural condition was modified following development of the Plant and its associated Biosolids Lagoons; Salt Pond A18; and Zanker Road Landfill.

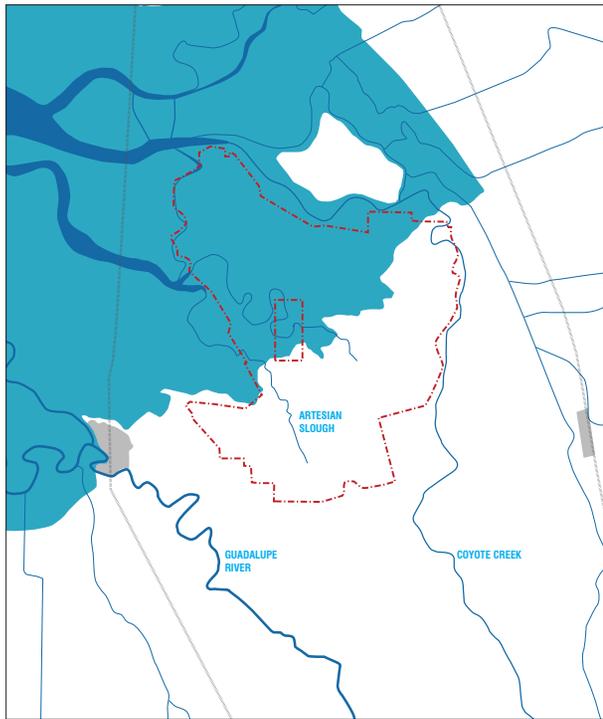
WATERSHED



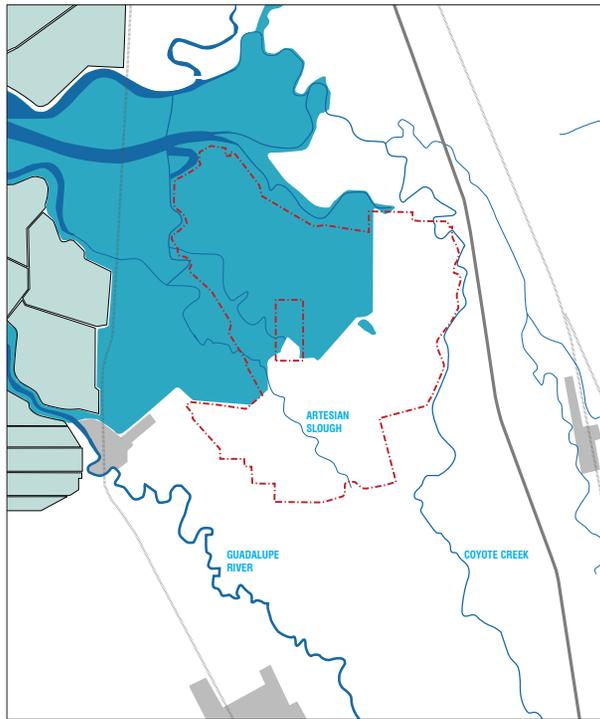
The Plant is situated at the base of two major Bay Area watersheds: the 170 square mile Guadalupe Watershed, and the 320 square Coyote Creek Watershed.

OPERATIONAL FOOTPRINT REDUCTION

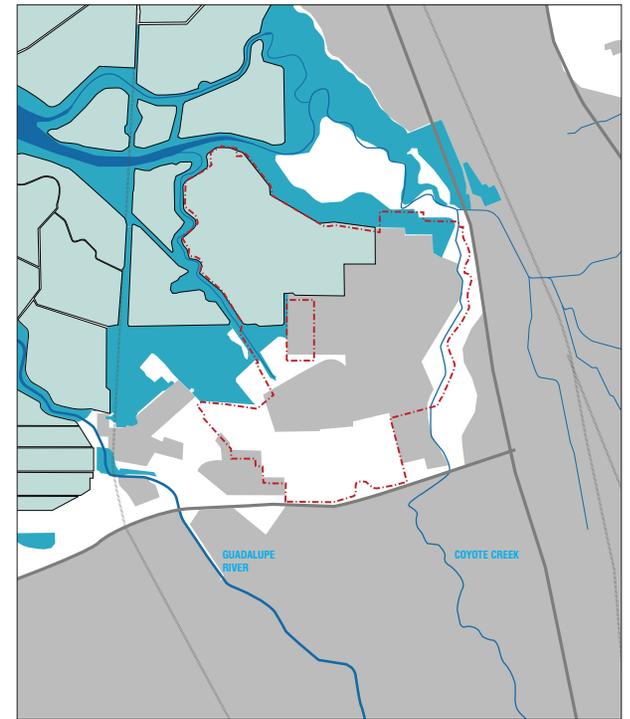
Historical mapping identifies the natural relationship of Bay water to the Plant lands. Plant lands were partially situated under Bay water in 1899. The shoreline was modified following the establishment of the Plant Biosolids Lagoons; development of levees associated with Salt Pond A18; and development of Zanker Road Landfill.



1899



1953



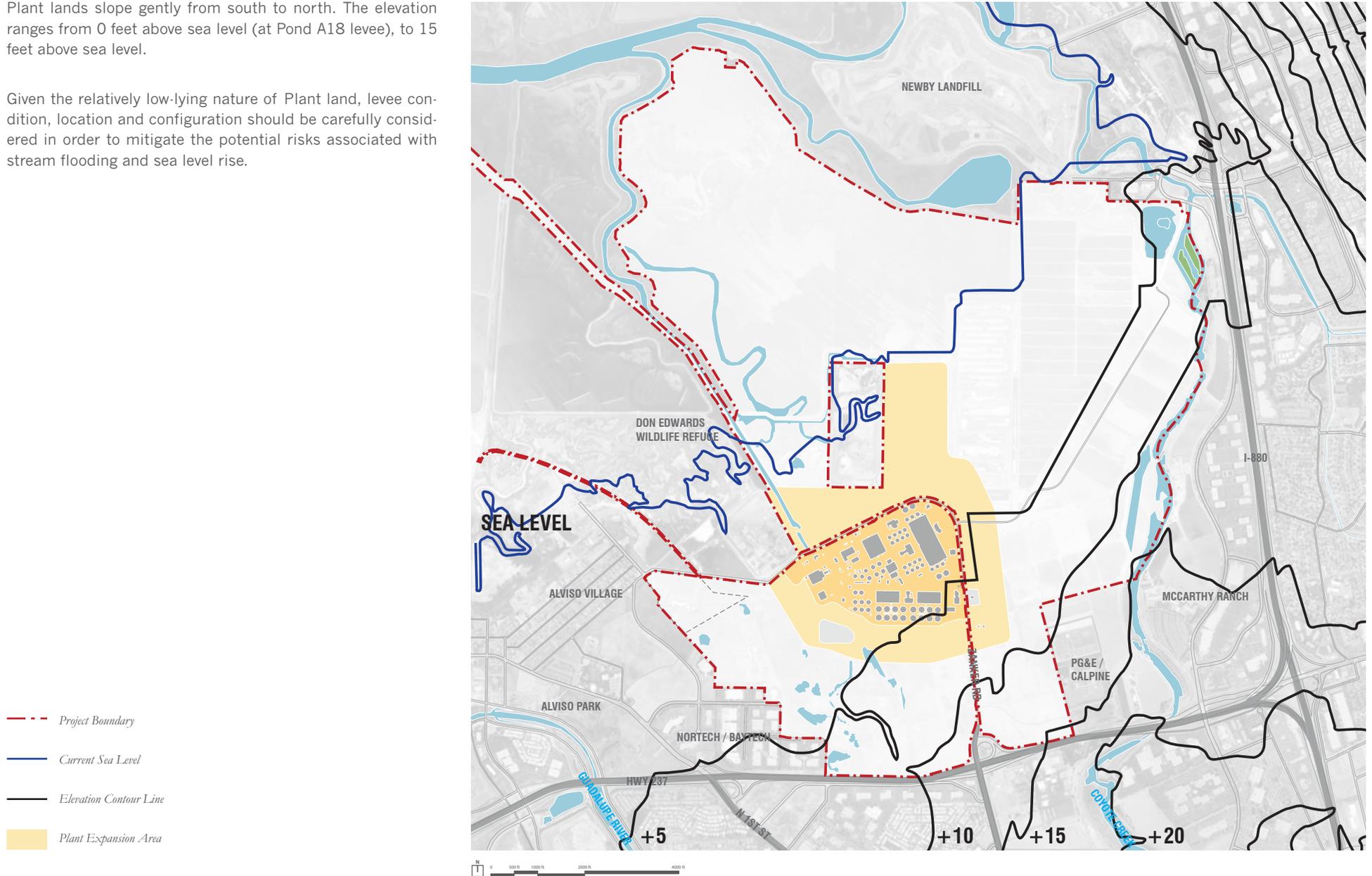
Current

-  Project Boundary
-  Historic Bay Water Level

TOPOGRAPHY

Plant lands slope gently from south to north. The elevation ranges from 0 feet above sea level (at Pond A18 levee), to 15 feet above sea level.

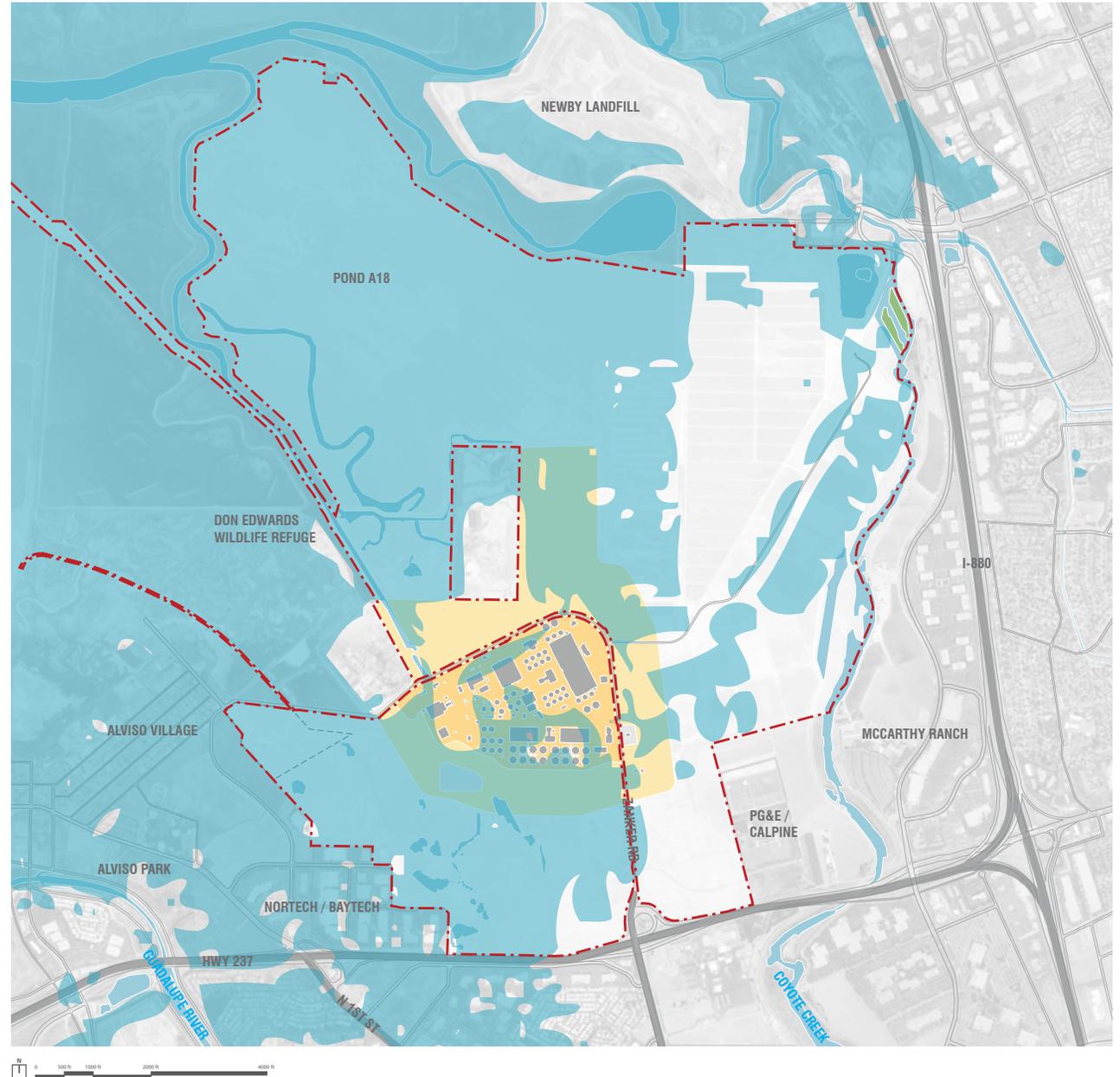
Given the relatively low-lying nature of Plant land, levee condition, location and configuration should be carefully considered in order to mitigate the potential risks associated with stream flooding and sea level rise.



SEA LEVEL RISE

Sea level is predicted to rise based on global warming trends through the foreseeable future. According to the climate change data provided by the Bay Conservation and Development Commission (BCDC), historical records show that sea level in San Francisco Bay has risen 7 inches over the past 150 years. The Intergovernmental Panel on Climate Change and the 2006 California Climate Action Team are projecting that mean sea level will rise between 7 and 23 inches by the year 2100 (IPCC 4AR, 2007). The California Climate Change Center estimates that mean sea level will rise between 4 and 35 inches by 2100. According to BCDC and the Ocean & Coastal Resource Management (OCRM, under NOAA), the impacts of relative sea level rise in the San Francisco Bay could be more extreme in the southern and northern reaches of the Bay, where land has subsided to below mean sea level. Mean sea level (MSL) rise models show that an 11.8-inch rise in sea level would shift the 100-year storm surge-induced flood event to once every 10 years. In addition to these predictions, an Independent Science Board (under the auspice of CalFed) has peer-reviewed studies estimating a rise in MSL of 20 to 55 inches by 2100. The Pacific Institute has also recently released a report showing impacted area maps and estimates of inundation.

-  Project Boundary
-  Potential Flood Zone
-  Plant Expansion Area



PLANNING STRATEGIES

Planning and design strategies have been developed to address specific issues and elements of the Plant lands, including the need for enhanced flood protection, integration of sustainable water patterns that create amenity value and opportunities for habitat restoration, and a development program that meets community and economic development needs. Integrate land use concepts have been developed to demonstrate the various ways which plant operations, water systems, recreation, and economic development can be combined to achieve a comprehensive and synergistic land use pattern.

FLOOD PROTECTION

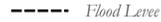
Existing Conditions

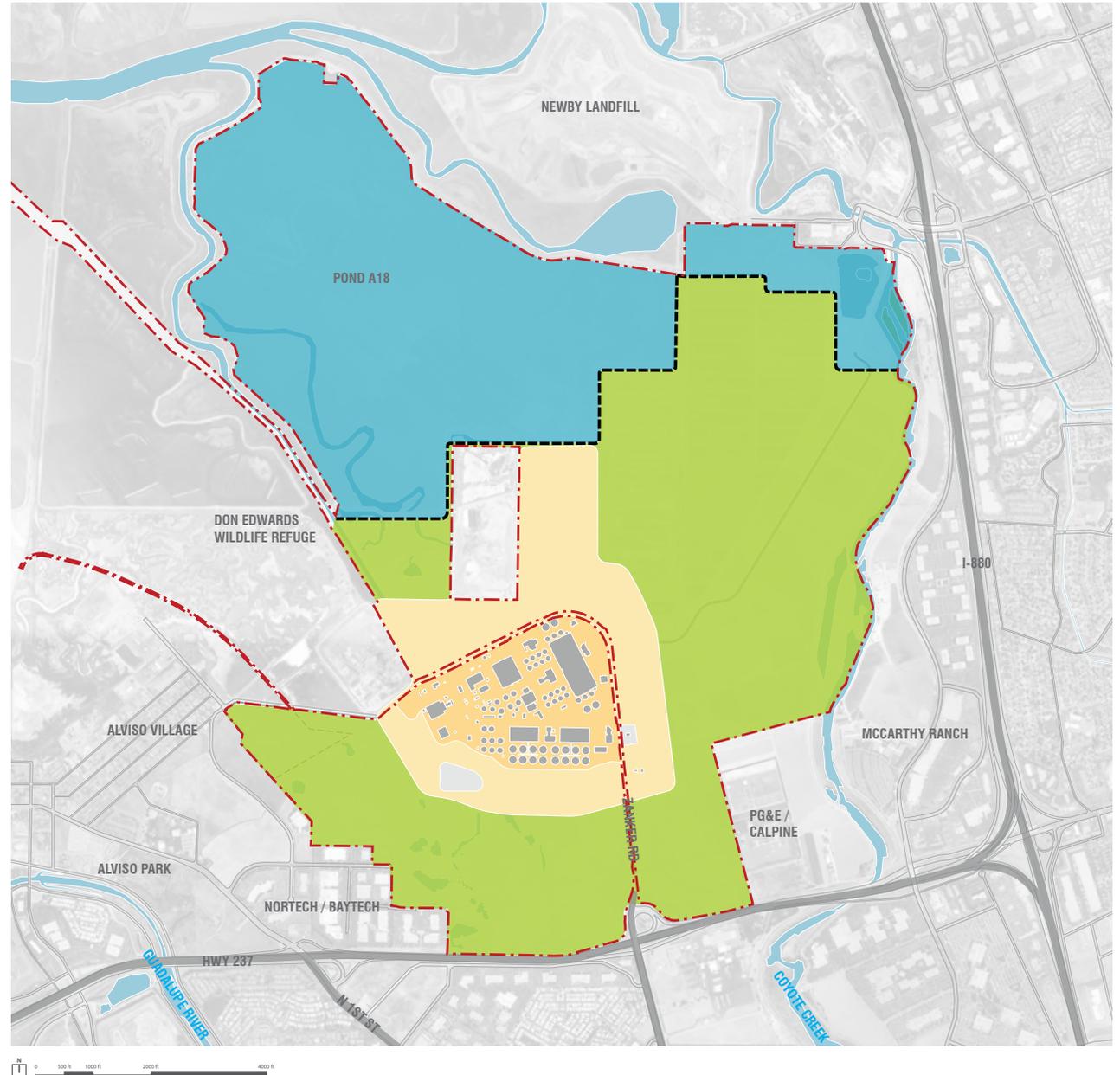
The following coastal and / or fluvial flood protection strategies are currently provided for Plant lands:

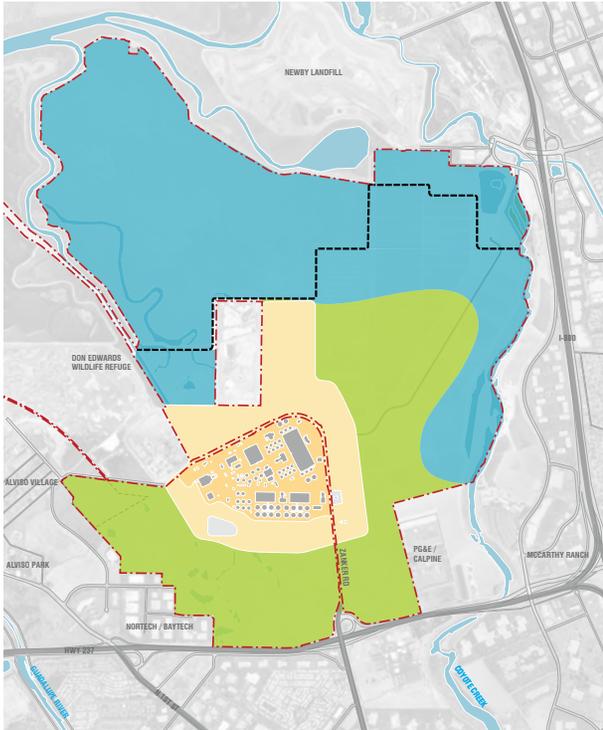
- Pond A18 provide flood detention which lessens the potential for coastal flooding
- A levee is situated at the western and southern perimeter of Pond A18
- Lower Coyote Creek Flood Control Project includes a flood bypass channel in Coyote Slough to divert water from a 100-year fluvial flood event.

Concept

In order to meet Federal Emergency Management Agency (FEMA) standards for flood protection, and to address potential sea level rise impacts, improvements to the Plant's flood control system for is required. These improvements may also create additional opportunities for alternative uses of Plant lands following implementation of new solid waste processing techniques and facilities.

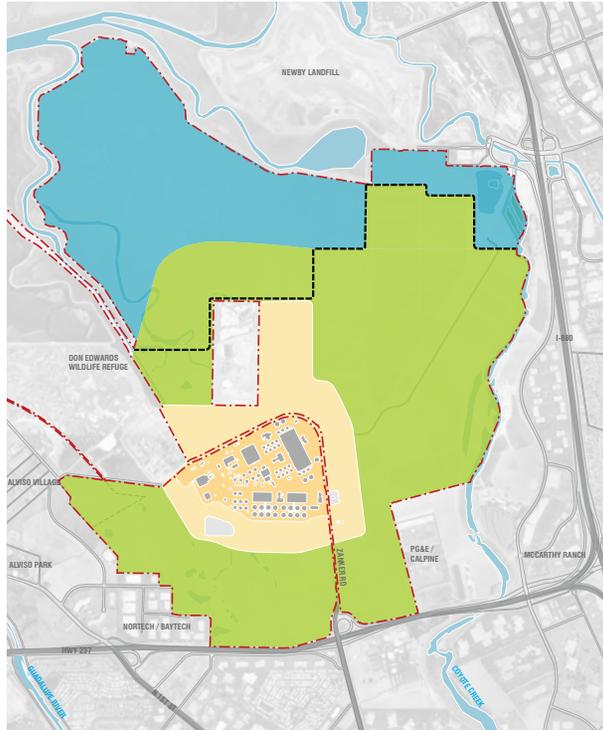
-  Project Boundary
-  Flood Levee
-  Plant Expansion Area
-  Bay Habitat Zone
-  Upland Habitat Zone





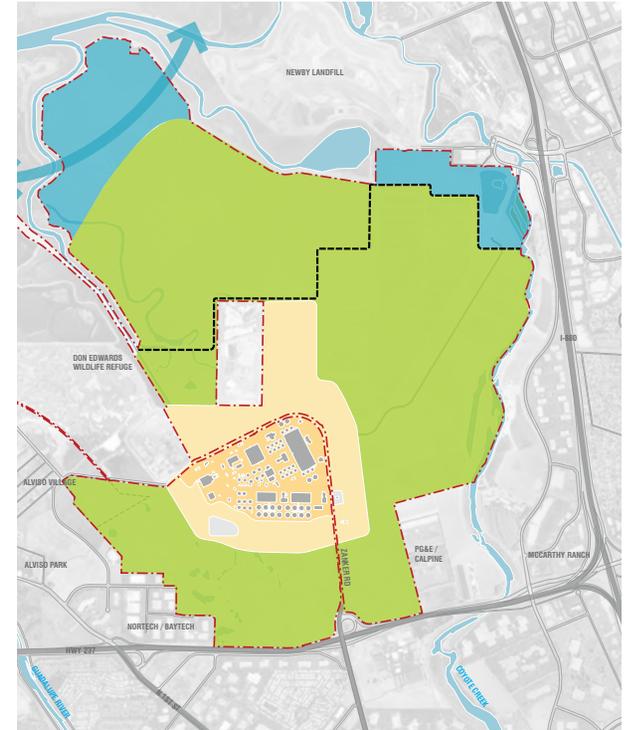
Subtractive

The subtractive concept envisions removal of the existing Pond A18 levee and the establishment of a new levee (or equivalent flood protection mechanism) that is located within the Biosolids Lagoons. The subtractive approach is intended to facilitate the creation of additional bay area habitat by allowing a greater proportion of the site to be situated beneath the current sea level. Plant lands situated under water may include the northern areas of the current Biosolids Lagoons, Coyote Creek riparian corridor, and land situated between the Zanker Road Land Fill and Don Edwards Wildlife Refuge.



Additive # 1

The first additive concept would also require removal of the existing Pond A18 levee. A new levee (or equivalent) would be established within Pond A18. This would increase the amount of “dry” upland area that may be utilized for habitat creation and / or economic development purposes.



Additive # 2

The second additive concept envisions the establishment of a new flood protection levee located towards the northern edge of Pond A18. This concept would maximize the amount of upland area that is available for habitat creation and / or economic development purposes. This concept could also allow for restoration of a smaller area of tidal marsh that is compatible with the objectives of the South Bay Salt Pond (SBSP) Restoration Project to restore wildlife habitat, provide flood protection, and provide wildlife-oriented public access.

WATER PATTERNS

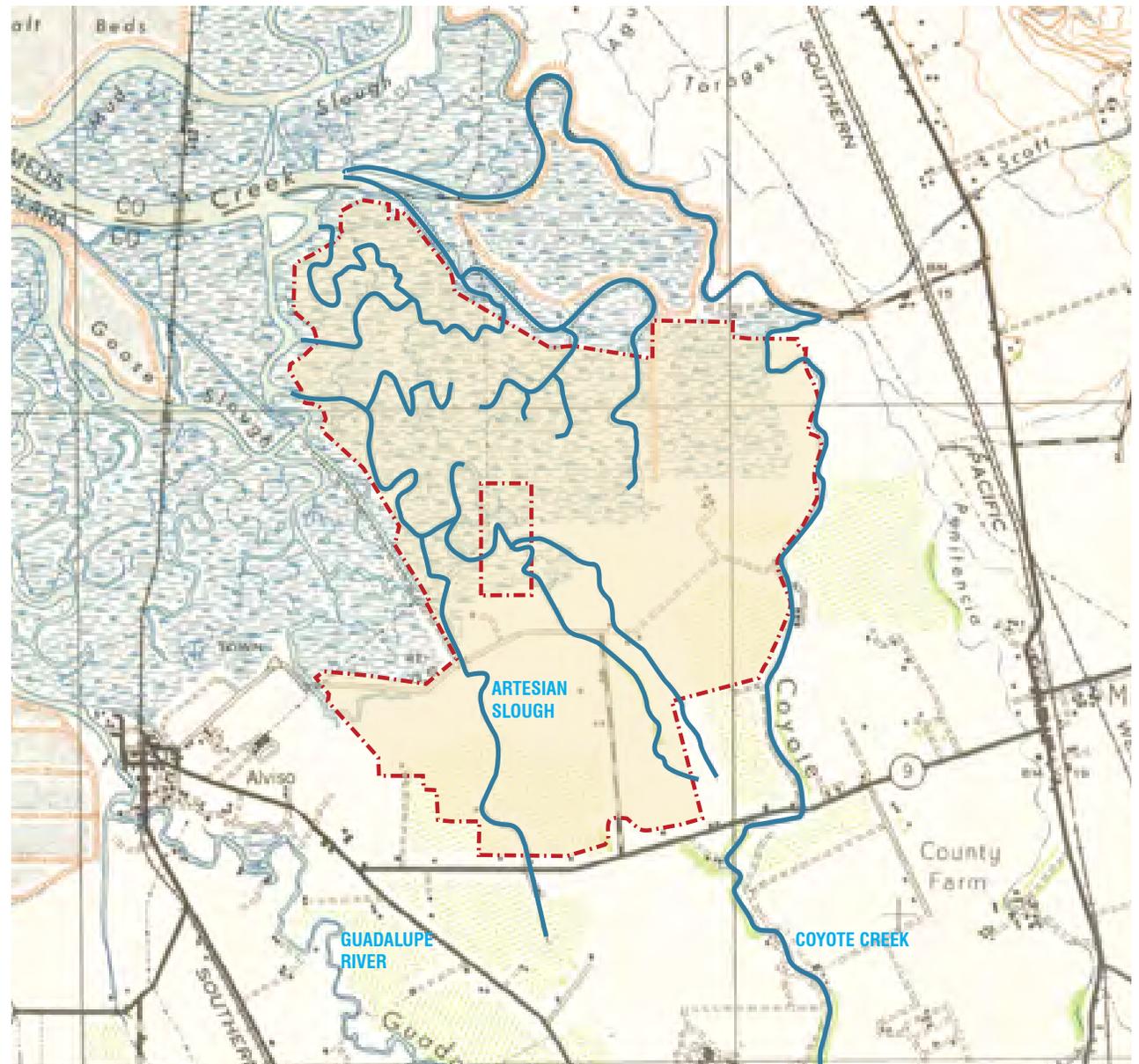
A major conclusion from the Technical Advisory Group (TAG) meeting held in November 2008 was that the Plant Master Plan must consider issues beyond wastewater treatment, including potential uses of the site, and the role of the Plant and the site in the watershed.

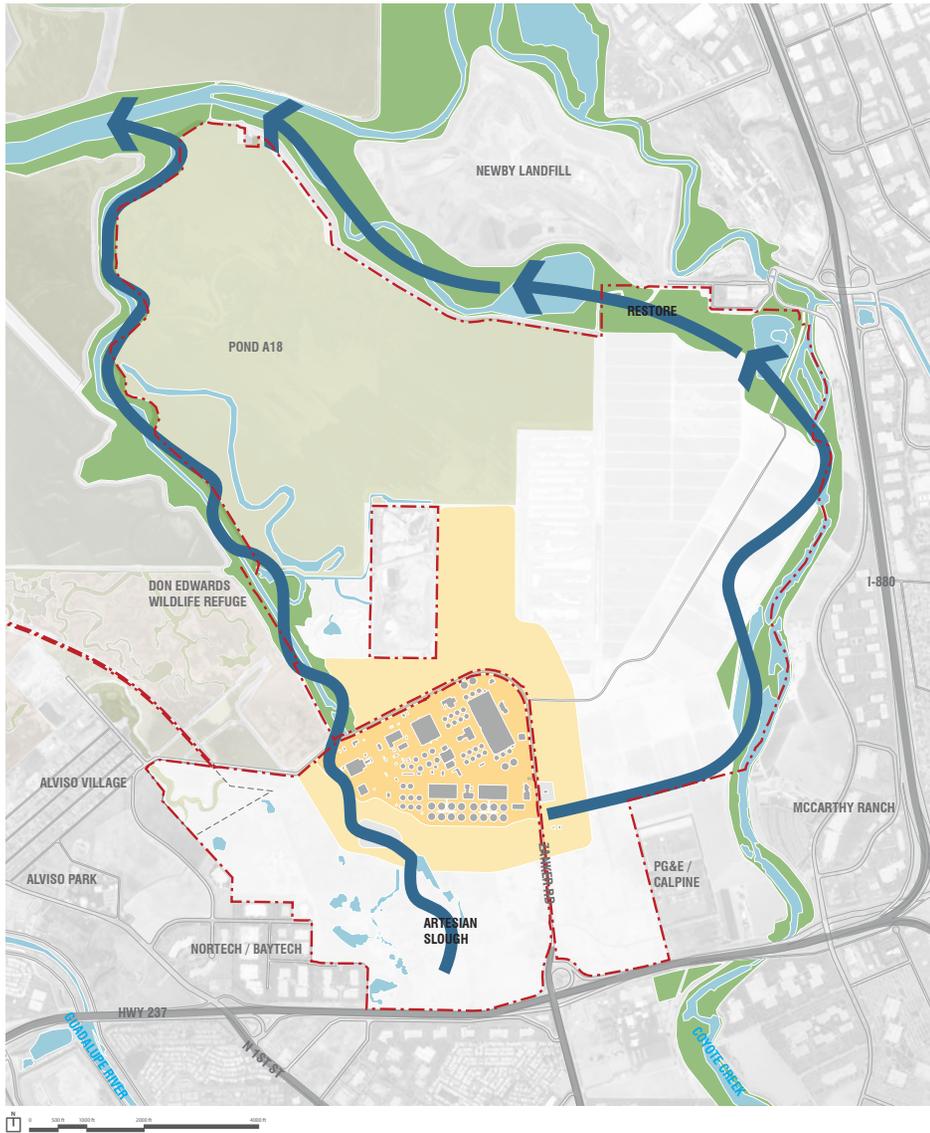
Historic mapping c.1942 identifies a number of waterways (sloughs or channels) that drained from the Plant site and discharged into San Francisco Bay.

Development of the Plant, Zanker Road Landfill, and Pond A18 has disrupted the flow of these historic waterways. The Artesian Slough is the only remaining historic waterway.

The Plant treats on average ~120 million gallons per day (mgd) (1998 to 2007) of wastewater. Of this ~17 mgd is recycled, and the remainder is discharged to the San Francisco Bay via the Artesian Slough.

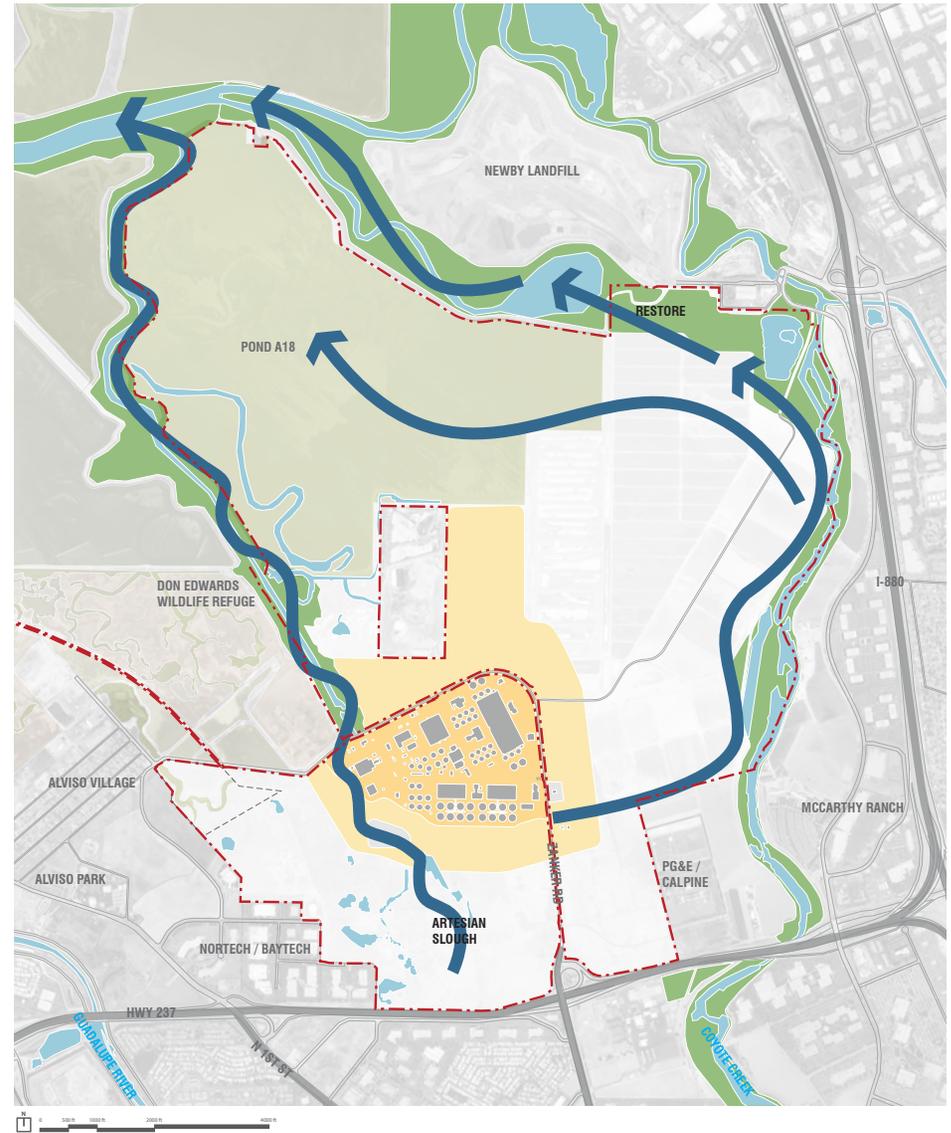
As discussed during internal stakeholder interviews, treated water may be used for stream augmentation and habitat restoration.





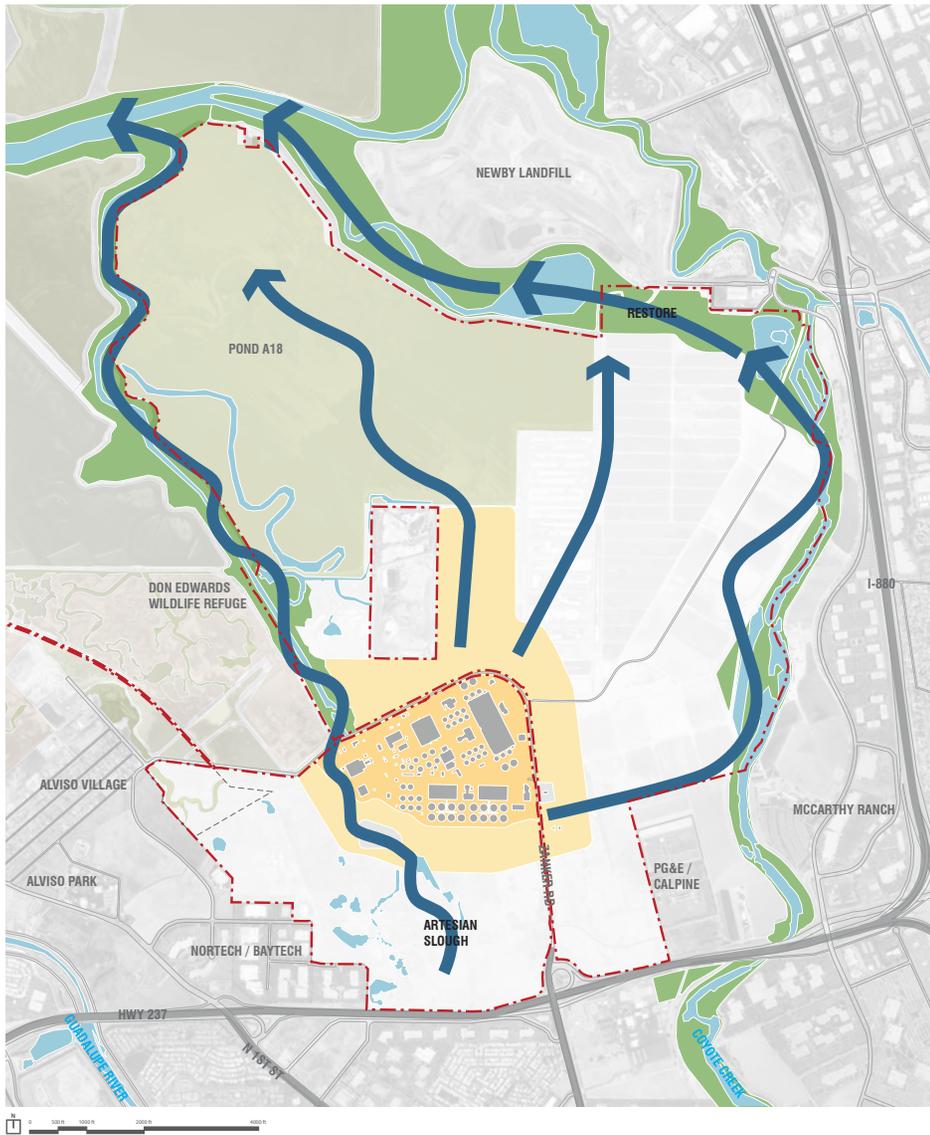
Perimeter Concept

The Perimeter Concept involves diverting treated Plant water into the upstream / southern portion of the Artesian Slough and also into the lower section of Coyote Creek. It is anticipated that the increased water volume and flow would aid the enhancement of valuable riparian habitat valuable for a variety of wildlife species.



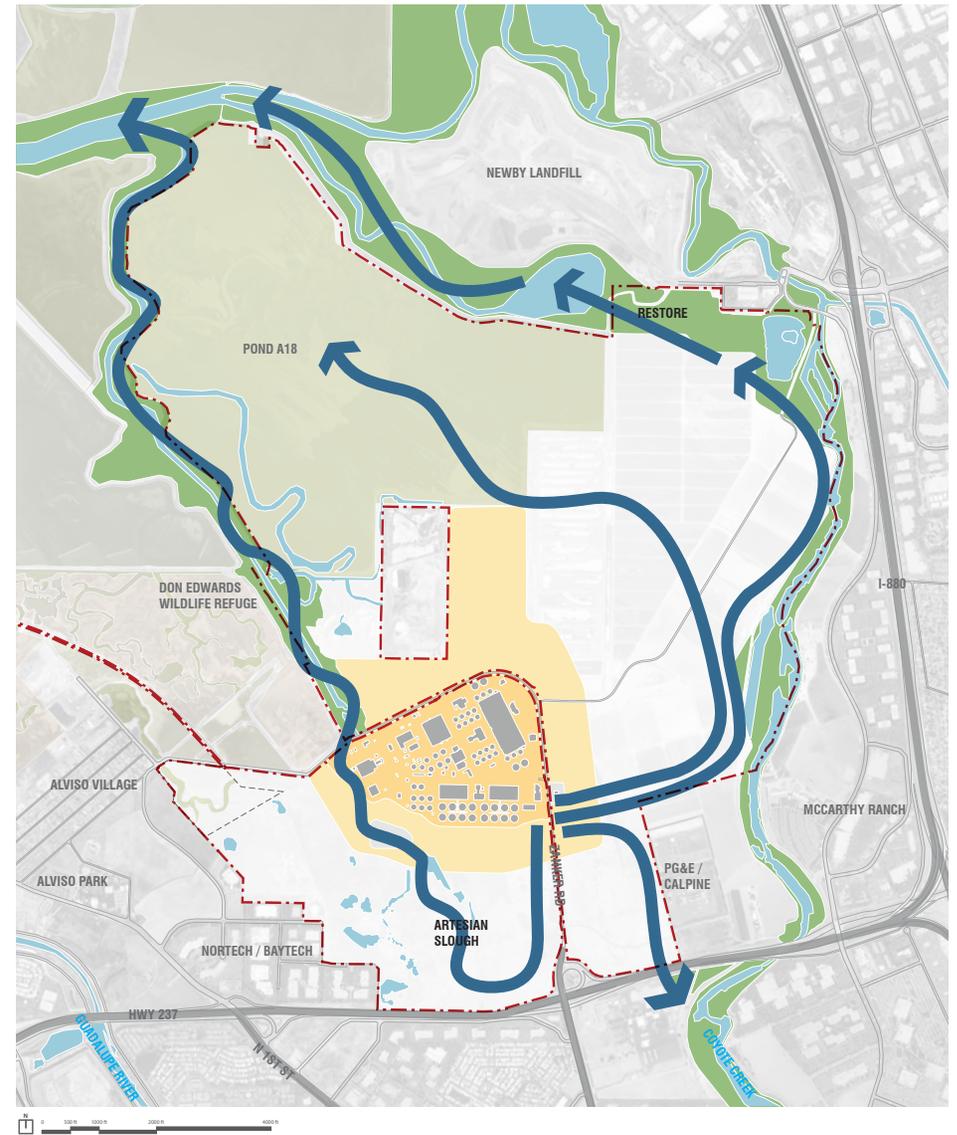
Delta Concept

The Delta Concept has similar characteristics to the Perimeter Concept. However, an additional stream connection into Pond A18 would be established south of the current Coyote Creek flood bypass channel. This additional stream creates a delta condition that distributes stream flow and potentially creates new habitat and recreation opportunities.



Fingers Concept

Multiple streams extend from the Operations Area through the Plant site like fingers. These new stream corridors define land parcels that may be enhanced for habitat, or developed for recreational purposes or economic uses.



Islands Concept

Multiple stream corridors extend from the Plant and define upland islands that may support the creation of economic development opportunities or habitat restoration. Water can also be pumped to an upstream segment of Coyote Creek in order to potentially enhance the riparian habitat of a larger area of the creek.

DEVELOPMENT PROGRAM

During interviews held with senior staff from the City of San José, a series of land use and land area requirements were established that may potentially be integrated within the Plant master plan. These requirements are summarized in the following table:

Wildlife Museum

Wildlife Museum could be modeled on the Sonora Desert Musum concept. Museum could include indoor and outdoor exploration opportunities that features South Bay habitat.

Sports Fields

City of San José, Parks, Recreation and Neighborhood Services identified need for a regional sports park that may include softball field, soccer field, and passive recreation space.

Owl Habitat

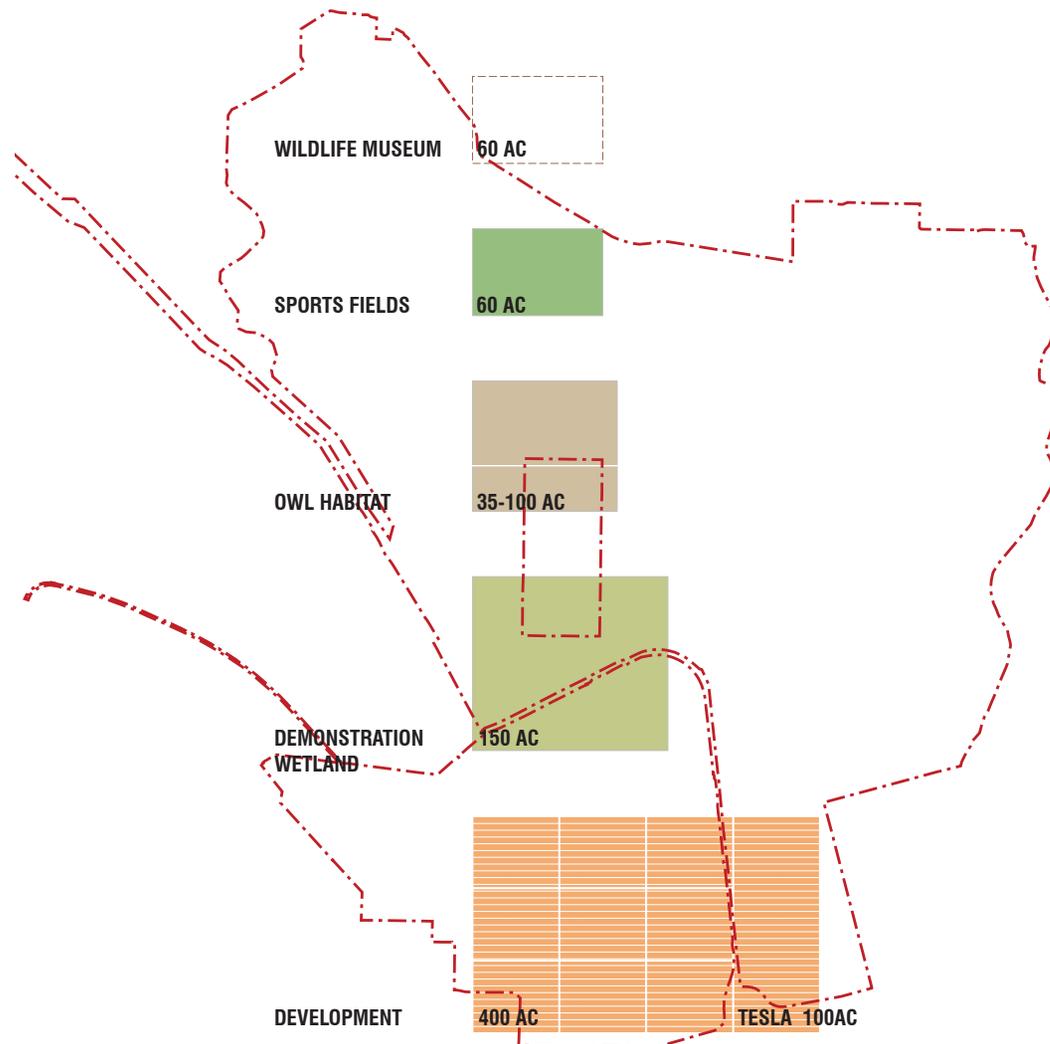
Habitat conservation plan promotes a comprehensive regional approach to habitat protection and mitigation. Over 30 species are addressed by the HCP/NCCP Plan, including the Burrowing Owl. The existing Burrowing Owl refuge located west of the Plant Operations Area could be expanded to provide owl mitigation for all of the participating agencies.

Demonstration Wetland

A demonstration wetland could be developed which serves to highlight, for public education purposes, how natural biological processes can be used to cleanse influent.

Economic Development

City of San José Office of Economic Development advises that clean-tech manufacturers (solar, wind, etc.) are currently seeking to construct large 400,000 sq ft facilities in the San José area. Large parcels of land are the primary incentive needed to attract the development of clean-tech manufacturing facilities.



Other uses that were identified in Project Memorandum 5.8 Site Opportunities, Constraints, and Considerations, include the following.

| | |
|--------------------------------|---------------|
| Resource Recovery / Production | 50 acres |
| Solar Farm | 150 acres |
| Algae Farm | > 200 acres |
| Aquaculture | 50 acres |
| Regional Biosolids processing | 30 – 60 acres |
| Regional Composting Facility | 15 acres |
| Farming | > 200 acres |
| Energy Crop | > 200 acres |
| Community Emergency Staging | 30 acres |
| Water Recreation | < 50 acres |



DEVELOPMENT CONCEPTS

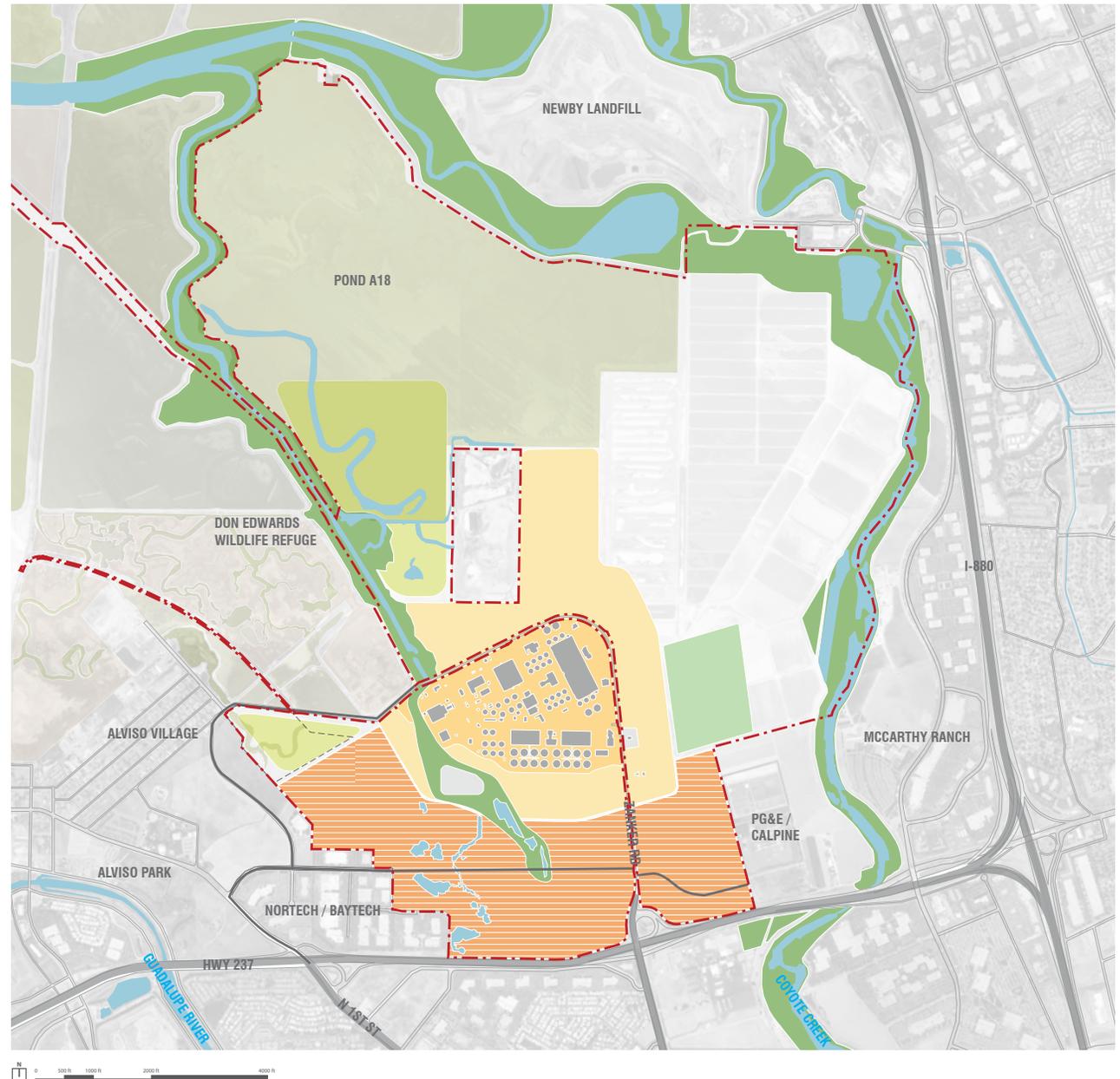
Preliminary Development Criteria

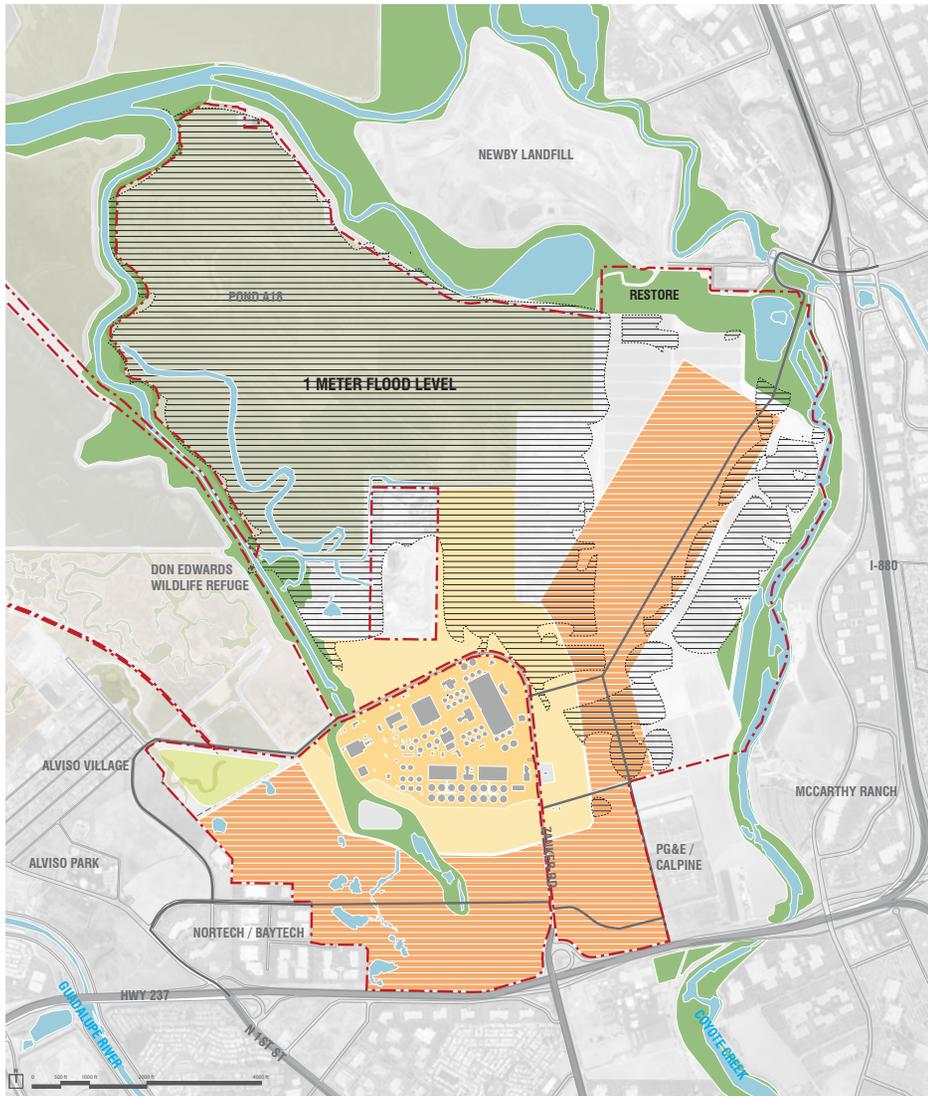
- Impacted Land: Land that has been detrimentally impacted or contaminated by previous uses should be prioritized for development. The most heavily impacted land should be developed first. For example, contaminated land should be developed before farmland.
- Flood Risk: Land that is susceptible to flooding, either by a 1-in-100 year storm event or by predicted sea level rise, should be avoided by development.
- Size and Dimensions: Development parcels should be adequately sized to accommodate development of anticipated buildings, facilities, and infrastructure.
- Contiguous: Development parcels should be contiguous to the greatest extent possible. Continuous allow for the efficient development of municipal infrastructure and utilities.
- Visibility: Visibility is perhaps one the most important considerations for retail development. Industrial development does not necessarily require a high visibility.

Concept 1 - Contiguous Development

Development occurs on all buffer lands with frontage onto Highway 237. This approach would result in development that is contiguous to the Nortech / Baytech office park and the potential Telsa site located east of Zanker Road.

- - - Project Boundary
- Plant Expansion Area
- ▨ Potential Economic Development





Concept 2 – Maximum Development Potential

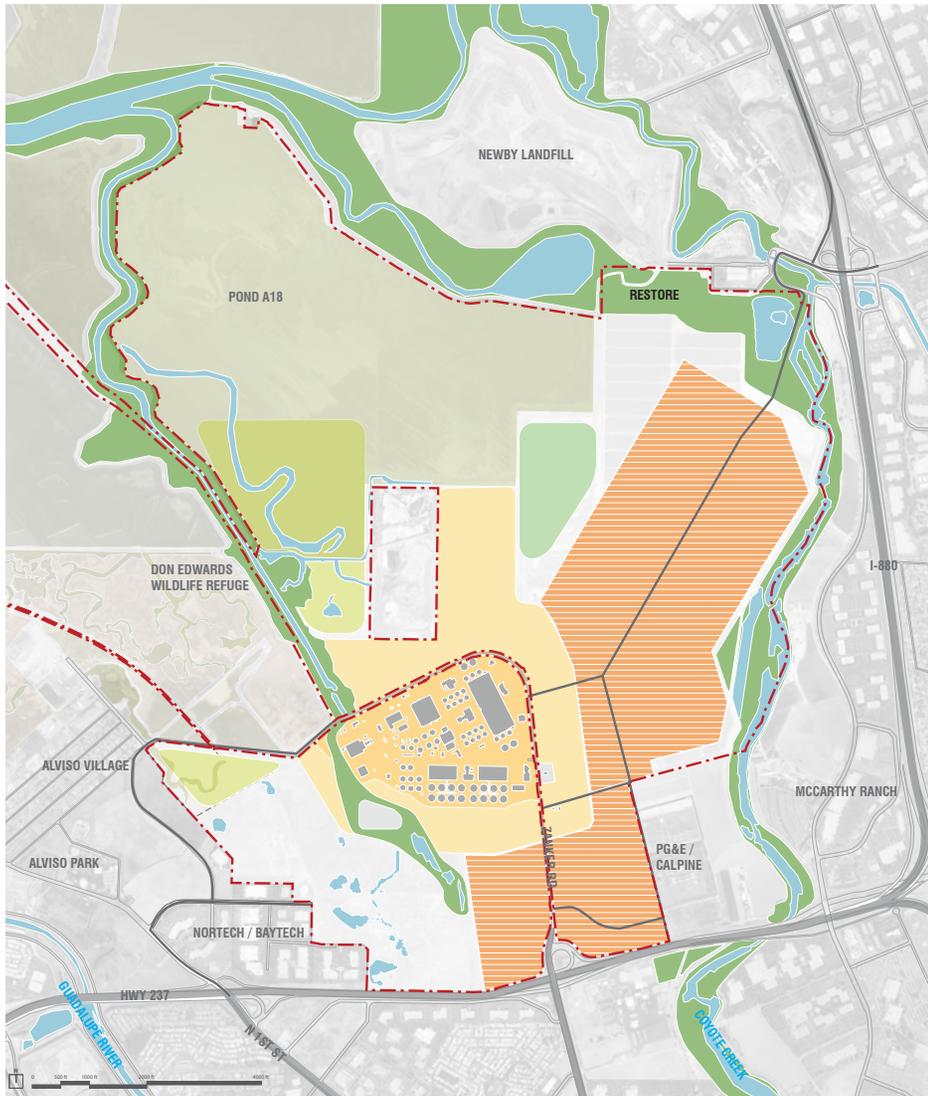
All lands that are not required for Plant operations are utilized for economic development purposes. However, potential development within the biosolids lagoons area is reduced based on the potential for sea level rise.



Impacted Land

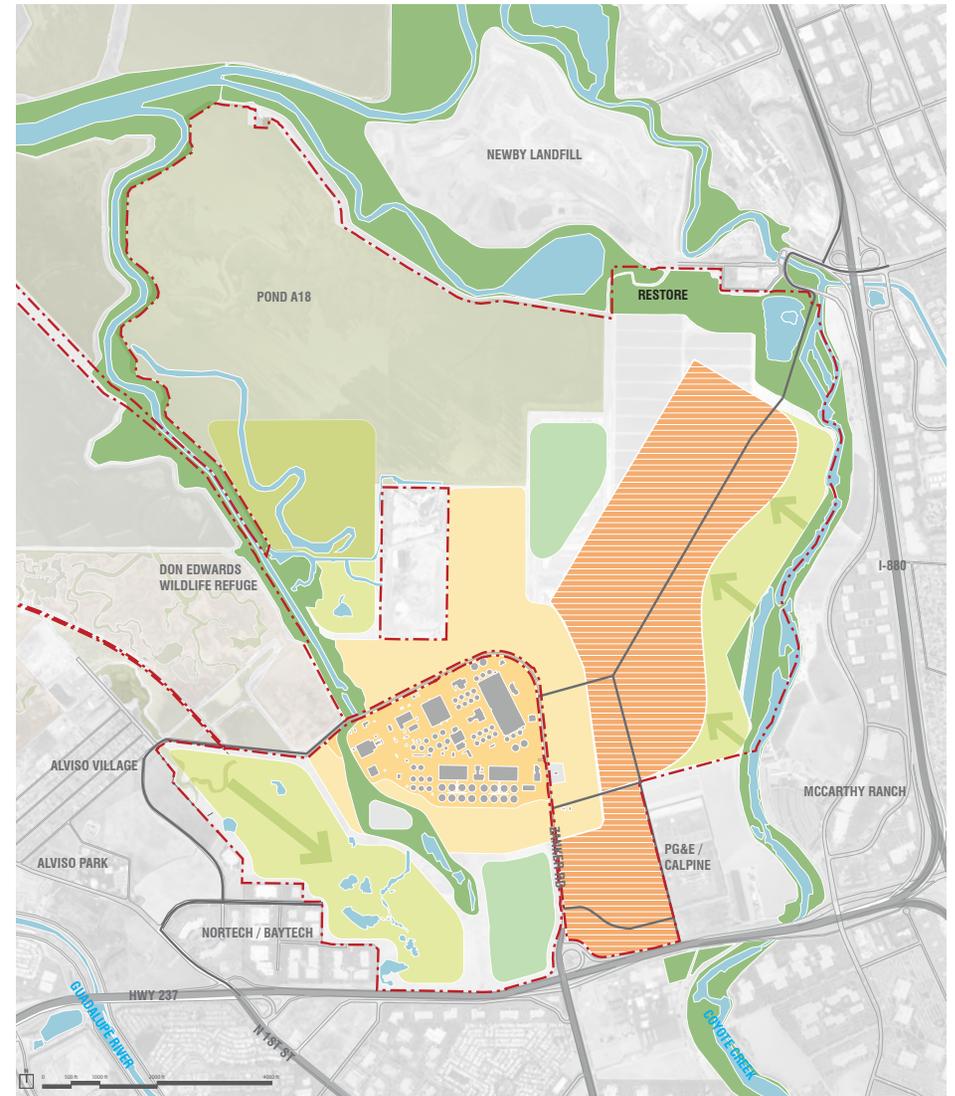
The following sub-categories have been identified to further define the characteristics of impacted lands located at the Plant:

1. Buffer Lands: Anticipated to have moderate level impact from farming;
2. Current Biosolids Lagoons: Anticipated to have medium level impact from biosolids drying;
3. Legacy Biosolids Lagoons: Anticipated to high level impact from biosolids drying; and
4. Landfill: Anticipated to have extreme level impact and highest potential for soil contamination



Concept 3 – Impacted Land

The impacted land development concept focuses development on the land with the greatest impact, such as the current biosolids lagoons and the legacy biosolids lagoons. The resulting development is generally oriented along the I-880 “corridor”. This pattern of development may require the establishment of an additional vehicle access route from the north.



Concept 4 – Enhanced Habitat

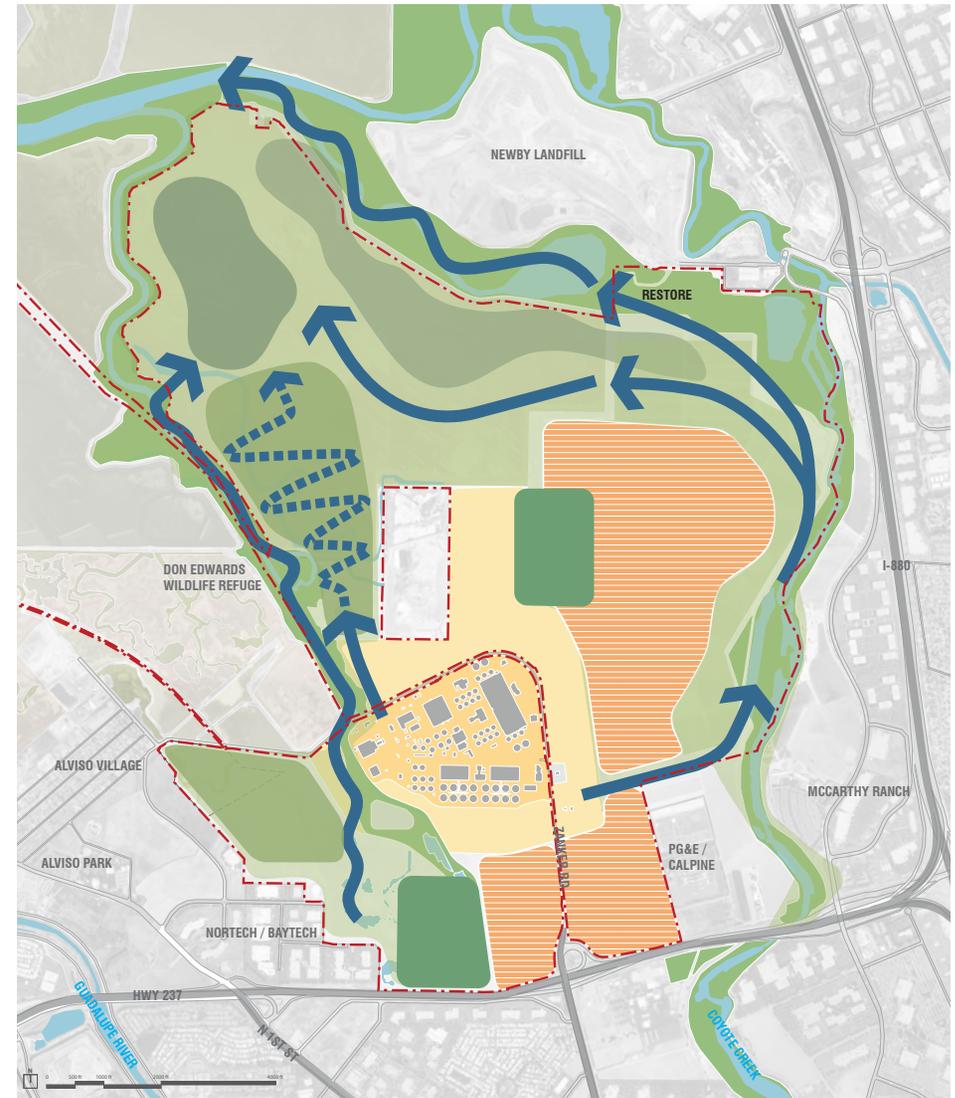
Opportunities to enhance habitat, including expansion of the Coyote Creek riparian corridor and enlargement the existing owl management area, will shape location and form of development.

INTEGRATED LAND USE CONCEPTS



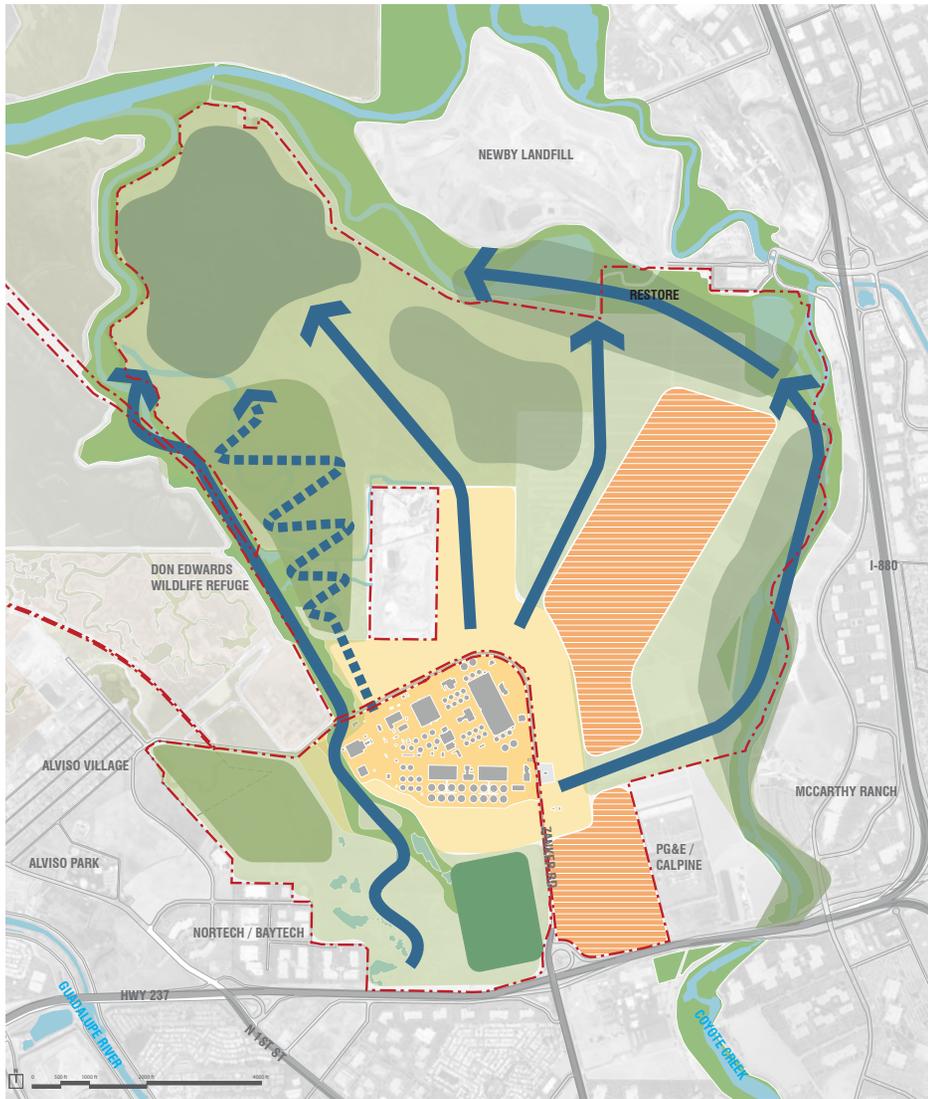
Perimeter

Treated water is used to augment and enhance the Artesian Slough and Coyote Creek habitats. A polishing wetland is established in the form Biosolids Lagoons area and sends water into Coyote Slough. Development occurs along the Hwy 237 corridor. Pond A18 is restored to provide wetland habitat.



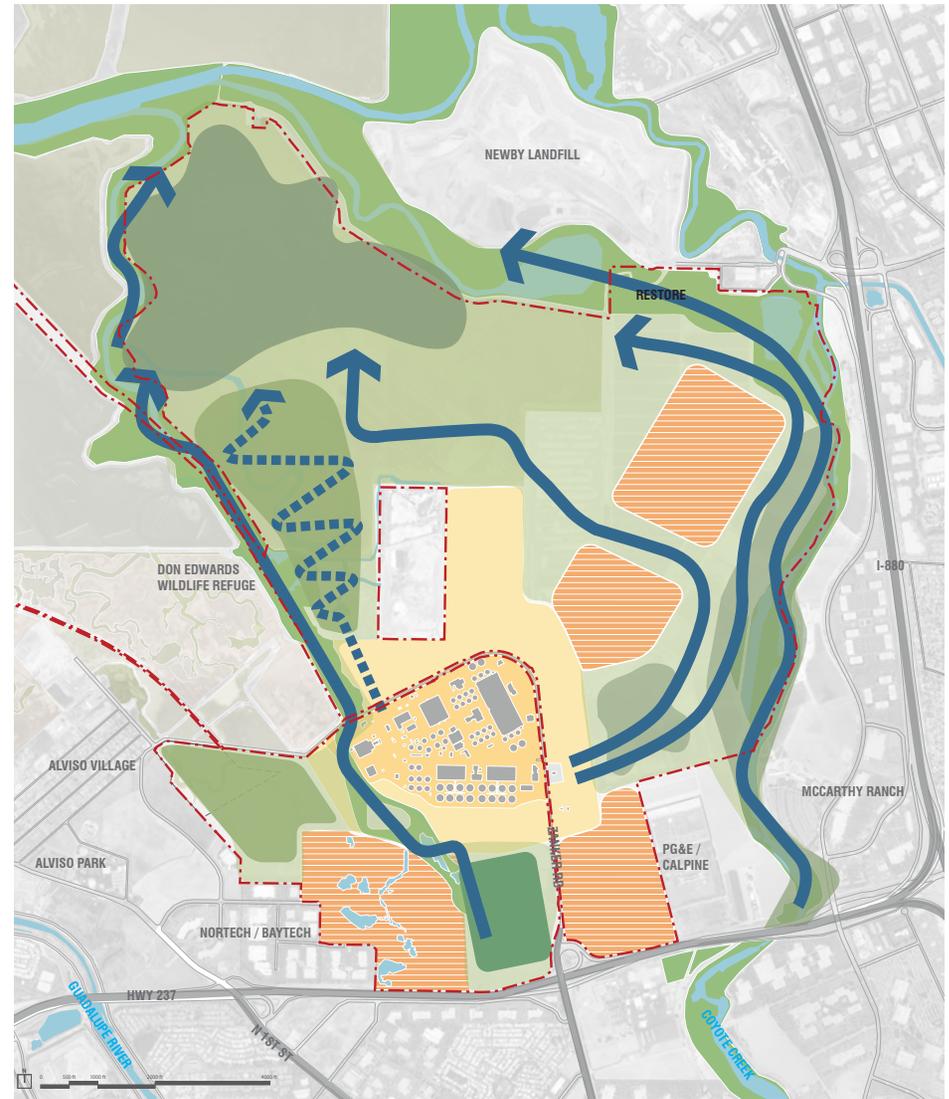
Delta

Economic development occurs along the I-880 corridor and is located on the most heavily impacted lands. Treated water is diverted to Artesian Slough and Coyote Creek, and a delta is created by diverting Coyote Creek flows towards Pond A18. A polishing wetland is located on the west side of Zanker Road Landfill.



Fingers

The potential development footprint is minimized to focus on areas with the highest elevation and level of impact. Multiple streams of treated water are directed into the former Biosolids Lagoons, in addition to recharging the Artesian Slough and Coyote Creek.



Islands

Treated water is directed around islands of development. New riparian habitats will be established which create amenity value for future development, and establishes recreational corridors that potentially incorporate trails that connect habitats and other destinations.

SCALE COMPARISONS

The following comparisons compare the Plant land area to other relevant projects at the same scale. This analysis enables a better understanding of the potential for accommodating alternative uses and functions at the Plant.



SJ/SC WPCP, San José, CA

- Plant occupies approximately 2,651 acres



Sacramento Regional Wastewater Treatment Plant, CA

- Similar facilities to SJ/SC WPCP
- Extensive habitat restoration areas
- Community encroachment
- Synergistic uses (ice plant, fish farm)



Munich Wastewater Treatment Plant, Germany

- Compact operational footprint
- Emphasis on design quality and aesthetics
- High profile sports facilities nearby

SCALE COMPARISONS



Sonora Desert Museum, Tucson, AZ

- Visitor's Center
- Approximately 60-acres of trails and natural habitat
- Remote location



Petrosun Algae Farm, El Paso, TX

- The nation's first commercial-scale, open-pond algae farm to produce oil as a biodiesel feedstock
- Large footprint (1,100 acres of algae growing space)



Golden Gate Park, San Francisco, CA

- Diverse public open space program with active & passive recreation opportunities
- Third most visited city park in the United States
- Features the California Academy of Sciences (one of the largest natural history museums in the world)

