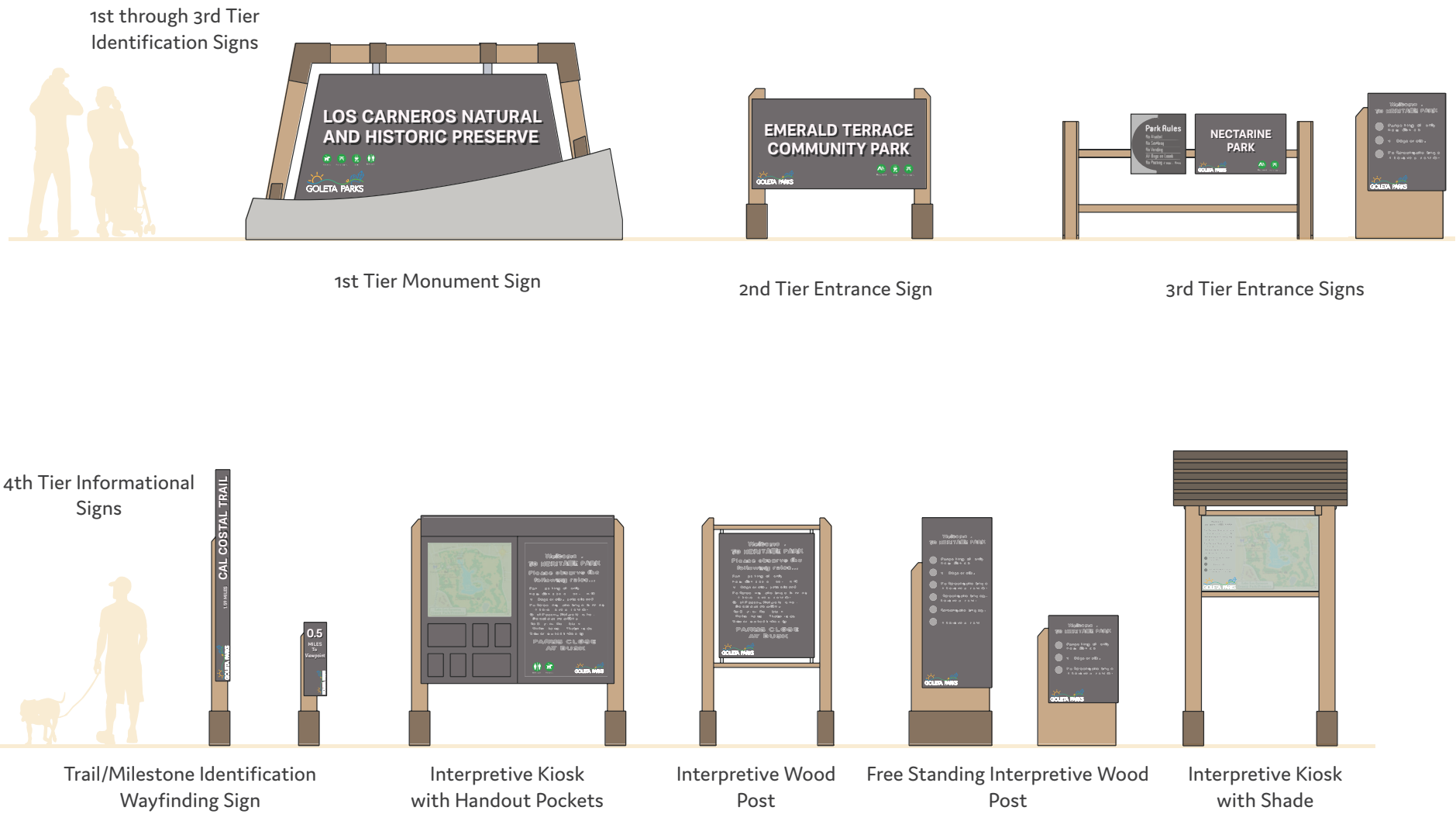
Figure 5-9: Park Signage Samples



5.11.3 Example of Implementation

As an example of how the hierarchy of signs should be used, Lake Los Carneros has been used to show the typical signage treatments envisioned at all parks. Currently, there is no official entrance feature at Lake Los Carneros. The park is accessible mostly through a vehicle entrance next to a county fire station, where there is only an entrance sign for the fire station and a small sign post for the museum. Hikers and bikers can access the park from Covington Way and La Patera Lane. Many on-line reviewers speak highly of the park, calling it a "hidden gem." A clear signage system can surely make it easier for visitors to find and navigate, making this park more accessible and enjoyable for citizens and visitors.

According to the Lake Los Carneros Trail Management Plan (2009), SBTC recommended the development of small, unobtrusive kiosks at each of the main entrances to provide users with basic information regarding use of the park and interpretive materials about the park relating to the area's wildlife and natural features.

Figure 5-13 is a map of the park from the SBTC document. The purple circles with letters represent recommended locations for different type of signs from the signage family introduced.

Figure 5-10: Park Map (2009)

A 1st Tier Monument Sign

Main entrance with parking and other attractions on N Los Carneros Rd; currently no park name sign exists

B 2nd Tier Entrance Identification Sign

Another paved entrance with unofficial parking on N La Patera Ln; currently no park name sign exists

C 3rd Tier Entrance Identification Sign

As an official entry area for pedestrians, a sign is needed to identify the park and the entrance

D 3rd Tier Entrance Identification Sign

Another version of how this 3rd Tier could be make to work along a trail entrance

E 4th Tier Wayfinding Informational Signs

Various trail markers can help to identify trails and to suggest mileage and destinations

F 4th Tier Visitor Kiosk with Handout Pockets

Interpretive signs can exist where a resource is seen or where a walking entrance enters special park areas

5.12 Recommendations for Utilizing Reclaimed Water for Parks

The use of reclaimed water for park irrigation purposes is both a logical and sustainable option that should be considered for all parks. This general goal, however, should be applied in a comprehensive manner. Reclaimed water use can help to save on costs (less per unit cost), although the actual costs may be higher than the costs of using potable water. Factors affecting financial feasibility include capital costs of distribution, retrofitting, active water management practices as well as the cost of water to the City Parks Department. The extension of reclaimed water infrastructure is often not justifiable based only on water costs for a park system. However, if capital funding for reclaimed water infrastructure is going to occur in a particular geographic area, and a park can take advantage of this subsidized, drought-tolerant, alternative source, it should be considered.

5.12.1 Three-Phase Screening Process

There are a number of factors that need to be taken into account to decide if a park should switch its irrigation systems from potable to reclaimed, including:

- Adjacency to existing recycled water distribution lines
- Timing/status of park in planning, design and renovation schedules
- Soil capability in respect to drainage and retention capability of existing soils
- Horticultural capability/salt-tolerance levels of existing or future plantings
- Use capability in respect to proximity to passive, active, or play or picnic areas
- Current or planned irrigation systems and their compatibility with reclaimed water

To determine whether a given park is suitable for implementing a reclaimed water irrigation strategy, a comprehensive, three-phase prioritization screening process is recommended. This is to align with the natural progression of park planning and design, but also so that critical feasibility factors are determined early in the process. Table 5-8 through Table 5-10 show a methodology that should be used, in sequential order from Phase 1 through Phase 3. Scores are achieved at each phase per park; if the minimum score is reached for a phase, the park can be moved to the next screening phase for further consideration. If the total for the park reaches at least 3 points for phase three, it is recommended to consider the project for reclaimed water irrigation. If the screening is performed for multiple parks, simply prioritize the highest scoring parks out of the list.

Screening Process

- Phase 1 is an initial System Planning effort at taking into account all parks in the City of Goleta. If the points entered in the form for a particular park are 3 or greater from Phase 1, it can be considered for moving it to Phase 2.
- Phase 2 recommends a park to be planned for reclaimed use if it has a 4 or higher point summary based on if the park is new or if parts of the park are new expansions or if the existing irrigation system needs a major retrofit.
- Phase 3 should only be considered after the reclaimed water access requirements in Phase 1 have been met and that the park is considered a good candidate based on the park status (existing or proposed) or one that is with a well-drained soil. Phase 3 factors are not considered feasibility factors but may provide an understanding of how capable or compatible the park is based on plants already in the park and on the type of existing irrigation system the park has operating.

Screening Process 1: Initial System Planning

Reclaimed Water Access: By far, distance from supply factors are the most critical metrics in making these decisions, therefore, it is recommended that access to existing (or planned) distribution of reclaimed water is considered first (see Table 5-8). If reclaimed water already exists in a portion of the park, then it should be used throughout the park. If reclaimed water is available at the edges of a park, then this should be a high priority park to consider for this use. Even if the project is within 200 feet to 1,000 feet, if allowable, it may be feasible to extend the distribution lines or provide a connector valve and meter and run a pressurized line to the park site. However, much beyond 1,000 feet the financial feasibility starts to become an infeasible choice. If reclaimed water is proposed in the area around an existing park that will bring reclaimed water to or near the park within a 3-year time-frame, it is probably within the window of the need to plan for it. However, if it is greater than 1,000 feet or beyond 3 years for access to reclaimed water, then other parks should be considered as a higher priority. This phase serves as a first-pass filter, since it involves the highest cost which determines the feasibility of considering irrigation for a park in the first place.

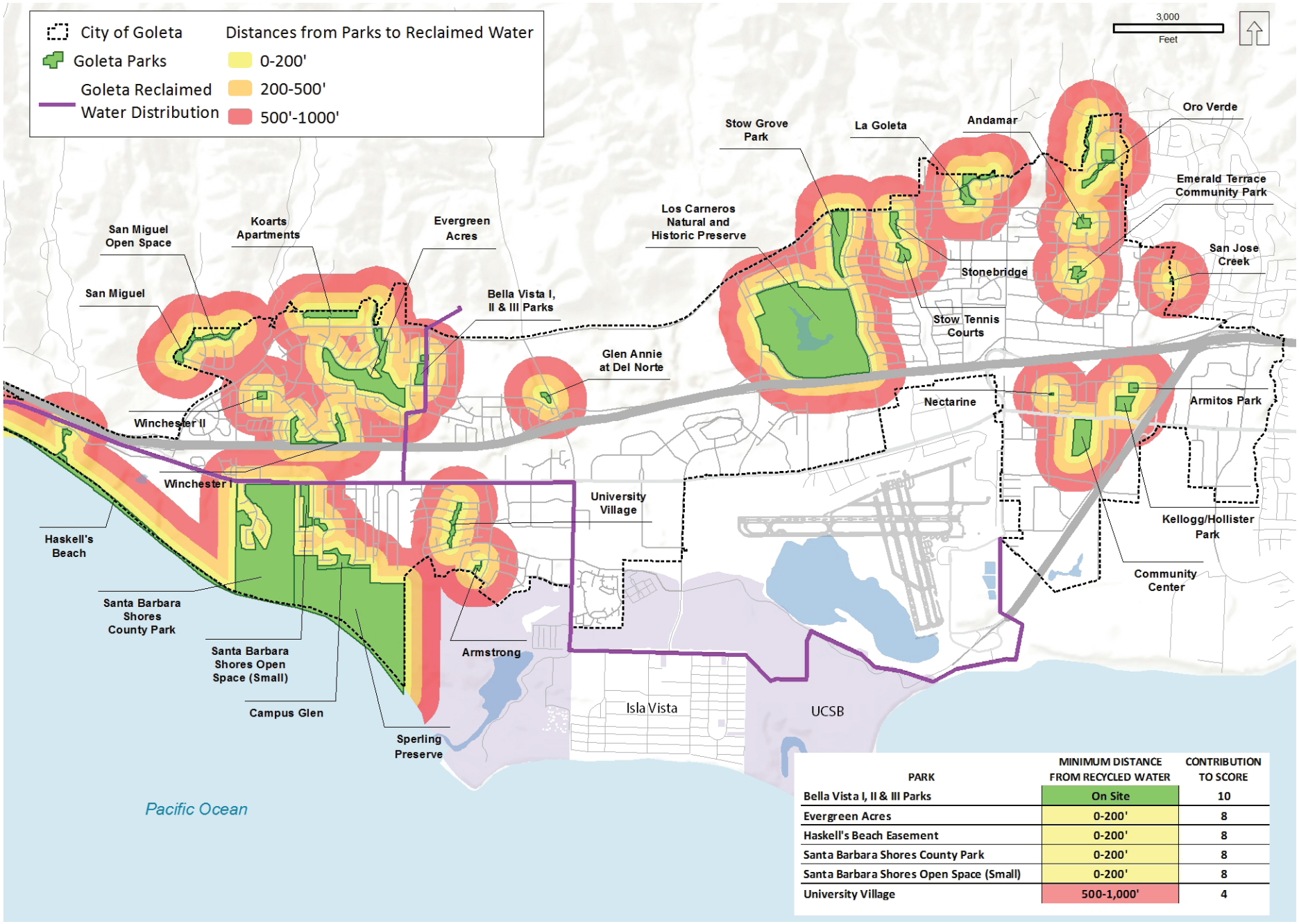
The City and its water provider, though having not implemented, have also considered reclaimed water reuse possibilities with recharging its potable water supplies. Although reclaimed water delivery and use is currently about a third the capacity of available supplies, there may be some potential minor impacts to the available reclaimed water supply. While no expansion is planned of the reclamation distribution system (per Dan Brooks, Chief Engineer, Goleta Water District, 1/8/2019), note that this phase of the screening process can accommodate future planned expansion in 3, 5, or 10 years.

An analysis map showing distances to and from parks to reclamation lines is provided here. This map includes a list of the parks within an acceptable distance to recycled water distribution and their points scored on the first phase of the screening process (see Figure 5-115-14). Note that the parks visible on this map only include public parks owned and managed by the City of Goleta, since these parks will be considered for a reclamation irrigation strategy. If the reclaimed water line runs through the park itself, such as Bella Vista Park, then the score achieves a very high score of 10.

Table 5-8: Screening Process Phase 1: Initial System Planning

	SCREENING PROCESS PHASE 1: INITIAL SYSTEM PLANNING		
Reclaimed Water Access	**SCORING POTENTIAL**	**RECLAIMED WATER ACCESS POINTS**	
Reclaimed Water at Park	10		
Reclaimed Water Adjacent to Park (less than 200')	8		
Reclaimed Water Near Park (200' to 500')	5		
Reclaimed Water Near Park (500' to 1,000)	4		
Far from Reclaimed Water (>1,000')	0		
Will be Serviced by Reclaimed Water in 3 years	3		
Will be Serviced by Reclaimed Water in 5 years	2		
Will be Serviced by Reclaimed Water in 10 years	1		
	SUBTOTAL	**0**	**If above 3 points, move onto Phase 2**

Figure 5-11: Distances from Recycled Water to Parks



PARK	MINIMUM DISTANCE FROM RECYCLED WATER	CONTRIBUTION TO SCORE
Bella Vista I, II & III Parks	On Site	10
Evergreen Acres	0-200'	8
Haskell's Beach Easement	0-200'	8
Santa Barbara Shores County Park	0-200'	8
Santa Barbara Shores Open Space (Small)	0-200'	8
University Village	500-1,000'	4

Screening Process Phase 2: Park Planning

After having succeeded through the first phase, this screening phase will rank the parks based on existing conditions, which includes park planning and soil capability. The factors involved with Phase 2 are more related to new park sequencing (see Table 5-9).

Park Status: A new park can start with properly designed water distribution and irrigation methods from the beginning and the appropriate salt-tolerant types of plant material can be specified up front.

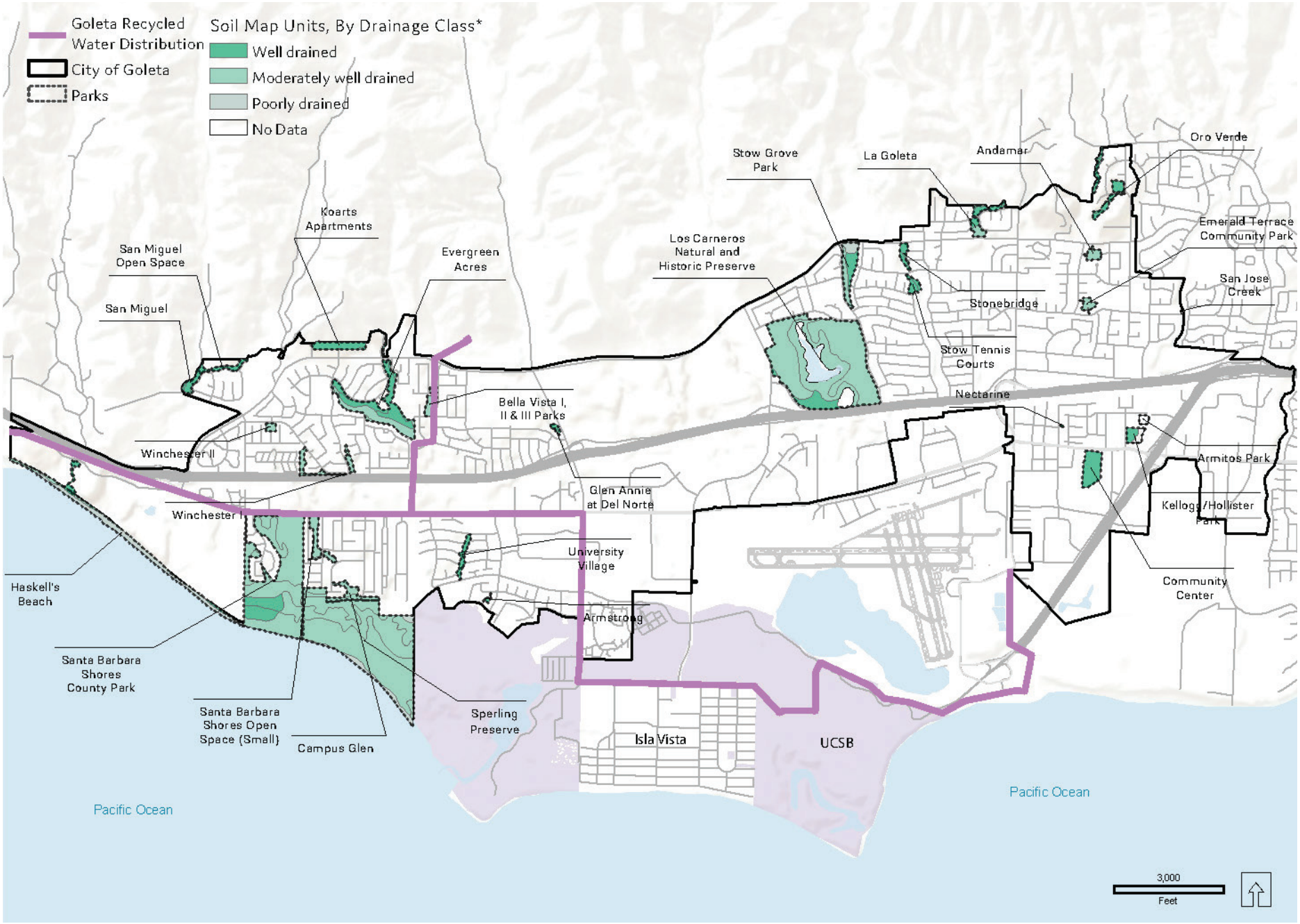
Soil Capability and Reclaimed Water Relationships: A major factor in determining the feasibility of reclaimed water use is the type of soil including its chemical characteristics. Soil with high salinity levels would require salt tolerant plant species which are generally limited in number. In general, reclaimed water must be applied with greater control and management if it is high in Total Dissolved Solids (TDS), a measure of salinity and other solids. High TDS water causes a significant loss in water and nutrient uptake capability in most landscape plants due to salinity ions displacing critical ions and plants become stressed. Soil water near the surface naturally evaporates, and plants will suffer if salts are not pushed away from the plant root zone on a regular basis. Saline water conditions tend to build-up on the soil surface, creating a crust to hinder water infiltration and a toxic evapotranspiration environment for plants. Any salt build-up around the root system can cause stunting in growth, tip burn of vegetation or other damage to the plant.

2018 reclaimed water analysis results of TDS at the Goleta Water District's treatment facility range from 1,131 and 1,435 ppm, with an average of 1,238 ppm (per Lena Cox, Laboratory and Technical Services Manager, Goleta Sanitary District, 10 Jan. 2019). These numbers are generally high but for plants with various levels of salt tolerance this water is still considered usable. Interventions are recommended with mid-level TDS, such as leaching as the most common method (Irrigation Water Quality Standards and Salinity Management, Texas A&M Agrilife Extension, 2017) and moderate-level restricted use (Water Quality for Agriculture, 29 Rev. 1, FAO, 1994).

Table 5-9: Screening Process Phase 2: Park Planning

SCREENING PROCESS PHASE 2: PARK PLANNING				
Park Status	**SCORING POTENTIAL**	**PARK STATUS POINTS**		
Existing Park with Some Reclaimed Water Infrastructure	5			
New Park in Design Phase	4			
Programmed Park in Planning Phase	3			
Existing Park with Expansion Areas	2			
Park Needing Irrigation Replacement Soon	1			
Soil Capability	**SCORING POTENTIAL**	0	**SOIL CAPABILITY POINTS**	
Well Drained Loam / Sandy Soils	3			
Semi-permeable Deep Soils	2			
Modifiable Soils	1			
Poorly Drained Clay Soils	-5			
		SUBTOTAL	**0**	**If above 4 points, move onto Phase 3**

Figure 5-12: Well Drained Soils Throughout Park System



Soils conducive for reclaimed water use are those that are capable of allowing adequately flushing of TDS. Plants root zone depths vary across species and in various soil types but the majority of roots are generally found within the top 18" of the surface. Well drained soils that are deeper than 16" can generally minimize TDS build-up near the root zones. A map of well drained soils found in Goleta's park system can be found on Figure 5-12. Note that the parks shown on this analysis map only include public parks owned and managed by the City of Goleta, since these will be the parks most eligible for consideration for irrigation. The categories on this map align with the "Well Drained Loam/Sandy Soils" factor in the screening table.

Interventions can be used to mitigate the effects of higher TDS levels in reclaimed water and soils. These can encompass a proper, judicious selection of plant material that can handle higher TDS levels, as well as soil amendments and treatments. For existing sites it is not always easy, nor is it always simple to modify the infiltration rates of low permeability soils necessary for effective leaching. Modifying the soil surface is limited to minimizing disturbance to existing plants and their roots. Some soils can be modified enough to increase drainage capability. Irrigation practices that apply excess water on a managed, regular basis, and applying supplemental irrigation during rain events (where allowed) can help to drive salts down below and out of the active plant root zone. But these methods are more expensive than having the favorable soils to start with.

Screening Process Phase 3: Park Design

This phase is where the park planner can have the most control (see Table 5-10). The factors involved with Phase 3 are more about how and where in the park should one consider implementing reclaimed water use.

Table 5-10: Screening Process Phase 3: Park Design

SCREENING PROCESS PHASE 3: PARK DESIGN					
Horticultural Capability	**SCORING POTENTIAL**	**HORTICULTURAL CAPABILITY POINTS**			
Wide Open Turf Fields	2				
Generally Mixed Non-native Plantings	1				
Drought Tolerant Natives	-1				
Use Compatibility	**SCORING POTENTIAL**	0	**IRRIGATION CAPABILITY POINTS**		
General Passive or Trail / Walkway Use	2				
Active Sports	1				
Near Playgrounds or Picnic Areas	-1				
Current Irrigation Compatibility	**SCORING POTENTIAL**		0	**USE COMPATIBILITY POINTS**	
Rotary or Flood / Stream Based System	2				
Typical Mixed System	1				
Impact Irrigation / Large Coverage	-1				
Drip or Emitter Based System	-2				
			SUBTOTAL	**0**	**If above 3 points, consider park as a candidate**
GRAND TOTAL FOR ALL PHASES				**0**	
(if above 10 points consider programming / implementing project)					

Horticultural Capability: Plants that are subjected to reclaimed water irrigation must be able to survive under sustained applications of water and live in soils that may be with higher salts levels. Each site evaluated should be considered for their ability to support plants conducive to living with these conditions. Existing ornamental plants must be identified as to their salt sensitivity level. Many ornamental plants are salt-sensitive and may not be able to tolerate reclaimed water with the TDS levels present. Some coastal native plant material can be capable of handling higher salinities in the soil and on their foliage, but most do not do well. Since natives require lower water use to start with, irrigation systems may not often be operated enough, and their inability to tolerate infrequent watering may be to their detriment. Potential possibilities of mitigating the increase in salt levels exposed to plants may include periodic reclaimed/potable water mixing, and potable water syringe cycling.

Park Use Compatibility: When considering applications for reclaimed water, use regulations must be taken into account. Where conflicts are evident, modifications must be reviewed. Potable water use areas must be reviewed along with reclaimed water use areas. Some potable water use areas may need to be expanded due to restrictions of reclaimed water use. Health concerns of using reclaimed water around active sports fields (those sports where a player's face/mouth may come in contact with the turf) may need to be avoided. However, timing of events and timing of irrigation application can offset some of these concerns. Natural waterways, water features, drinking fountains, exercise facilities, playgrounds and drainage facilities and other areas where potential contact with reclaimed water may occur, are concerns. In areas of a park where food is prepared or eaten, over-spray onto these areas may be a concern. Again, time of application and control of irrigation practices, where allowable, can still allow for reclaimed water use in these areas. However, the costs of water application techniques and monitoring will be higher.

Current Irrigation Compatibility: Finally, if an existing irrigation system is in place and is not in need of whole replacement (operates sufficiently), then the types of irrigation equipment retrofitting should be considered. In general, low flow emitter, micro-spray or drip systems tend to clog up easily when their orifices are exposed to atmosphere, especially those only operated infrequently and in dry seasons. But when this type of irrigation covers extended plant root zones (orifices are not just localized at the plant), are operated regularly and can be cycled longer for leaching purposes, they can be an effective means of driving salts out of the root zone. On the other hand, sprinkler heads that cover large areas can in built environments create over-spray onto non-landscape areas that is of concern. Generally, wide open areas are better for reclaimed water application, especially turf areas since they allow for irrigation systems that are less likely to clog and with less equipment may minimize retrofit costs. Some sprinkler heads may cause soil surface compaction with their large water drops, which can impact water infiltration. The most effective types of irrigation most closely imitate the broad coverage of rainfall. Smaller water drops of sprinkler heads with moderate throw distances allow for less over-spray and water that is better distributed.

Summary

All of these factors should be considered in determining if and where to use reclaimed water in a park, and this screening process is one method to ensure everything is addressed. A master plan for reclaimed use in parks should be further developed to determine specific recommendations by Park maintenance staff, planning staff, as well as staff from the Goleta Sanitary Water Resource Recovery District.

5.13 ADA Recommendations

Federal and state ADA requirements put the responsibility of access barrier removal on all responsible agencies when dealing with public facilities such as park trails, walkways, parking, restrooms and other recreation amenities. Every effort should be made to assure that new facilities meet the latest ADA standard and that existing facilities should be altered or enhanced to be brought into compliance. Exceptions to barrier removals include the relaxation of ADA standards if the full compliance of the standard will result in permanent negative impacts to natural resources or cultural resource of the site. Even in these situations, adhering to some improvement level is still required. However, assurance that at least one of each type of facility, amenity or access path is always required, not all existing facilities at each site may need to be brought into conformance, as long as each unique experience has at least one facility that is accessible. Trails do not need to be hard surface such as concrete or asphalt. However, a firm surface is required for ADA access compliance. This surface can be made of any material as long as it results in a firm wheel chair capable pathway. As mentioned above, not all trails will be required to be accessible, as long as each location, view, destination or amenity that is experienced in the park along this trail has at least one accessible surface.