

LAGUNA GRANDE REGIONAL PARK JOINT POWERS AUTHORITY



LAGUNA GRANDE
REGIONAL PARK
TRAIL AND VEGETATION
MAINTENANCE
STRATEGY

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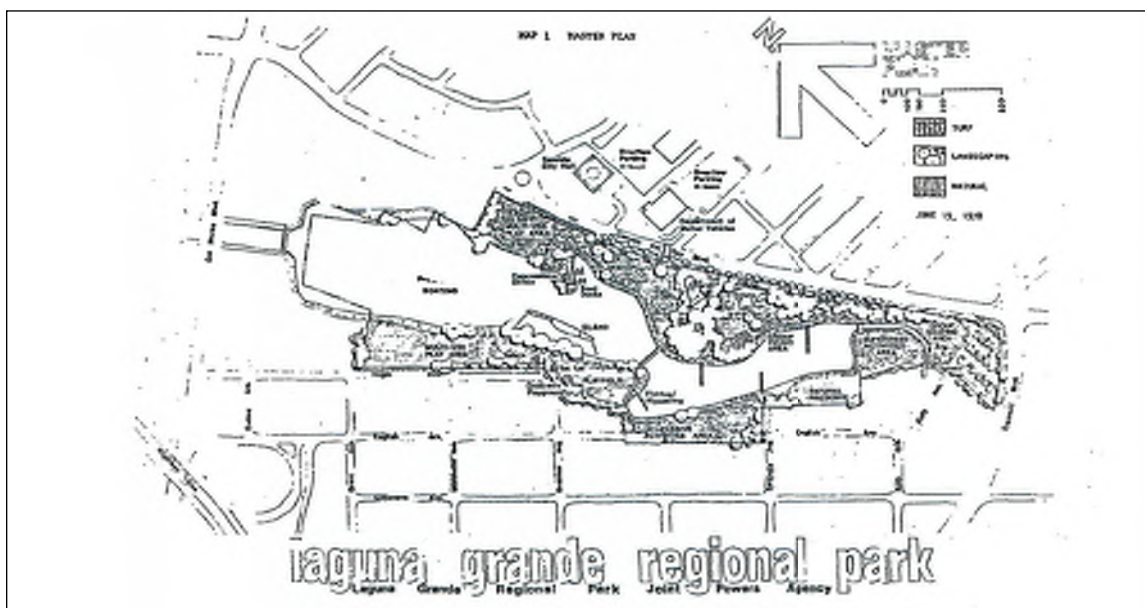
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HISTORICAL NARRATIVE

Laguna Grande Lake was a flowing estuary called the Canyon Del Rey Creek, collecting runoff from the 16.8 square mile Canyon Del Rey watershed and flowing into the Monterey Bay. Laguna Grande Lake and Roberts Lake which existed as a single body of water were separated in the 1880s by the Southern Pacific Railroad. Over time the surrounding landscape developed and populations grew, the creek, the wetlands and estuary slowly filled and eventually were cut off from the bay. Slowly landfill operations filled in the marsh areas and edges of the lakes transforming this body of water into its current state.

Laguna Grande Regional Park (LGRP / Park) did not find its beginnings until the 1960's when the cities of Monterey, Seaside and Del Rey Oaks came together to petition the state for a feasibility study for developing a "Recreation and Park District for Laguna Grande". During this time there were grand visions for the park. A pamphlet from the Seaside Chamber of Commerce proudly read "It will beautify and make more attractive the City of Seaside and the entrance to the Monterey Peninsula. It should, from this standpoint, be of interest to every Peninsula community and individual." In 1968, the cities of Monterey and Seaside formed the Laguna Grande Agency to study the area. They developed the "Laguna Grande Plan" prepared by D'Amico and Associates and Charles R. Haugh. Shortly after, in 1975, the City of Seaside contracted Richard Murray and Associates to develop the "Laguna Grande Redevelopment General Conceptual Plan".

Many new developments began for LGRP in 1976. The cities of Monterey and Seaside and the Monterey Peninsula Regional Park District formed the Laguna Grande Regional Park Joint



Source: Laguna Grande Regional Park Master Plan and EIR Addendum September 11, 1978

Powers Agency (JPA) in February. That same year the Monterey Peninsula Regional Park District purchased the Laguna Grande site. The JPA adopted Seaside's 1975 conceptual plan as its' first step in preparation of a master plan. In 1978, the "Laguna Grande Regional Park Master Plan and EIR Addendum" was completed by J.P. Manachek, A.I.A, and consulting landscape architect Charles R. Haugh.

The master plan's main objective was to "preserve and enhance Laguna Grande through a water-oriented park facility." The plan proposed to dredge a portion of the southern marsh lands and add an additional 5 acres to the lake to provide more opportunities for fishing, fly-casting, and non-power boating. The lost waterfowl habitat would be relocated to Roberts Lake, while also retaining a portion of the southern marsh as a natural preserve with boardwalk paths throughout. The lake at the time was significantly polluted. The plan proposed the addition of an aeration system, silting basin, and the removal of tule growth along the edges to help decrease nitrogen levels in the water.

In 1981 the "Land Use Plan for the Laguna Grande/Roberts Lake Local Coastal Program", was completed by the cities of Monterey and Seaside to come under compliance with the Regional Coastal Commission. It was not until 1982 that the Park was opened to the public. The master plan for the Park was never fully implemented. The northern end of the park was built out with playgrounds, fields and park facilities. The south end of the park, meant to become an extension of the lake, was not completed due to lack of funds. As droughts became more frequent in California and with the slow buildup of sediments, the marshy, low wetlands to the south began to dry and more mature vegetation developed, forming a low dense woodland of willows and brambles that exist today.

REFERENCES

Schmalz, David. "Despite a persistent problem of encampments at Laguna Grande Park, the years go by, and nothing seems to change." Monterey County Weekly 07 Mar 2019. Web. 20 Oct 2021

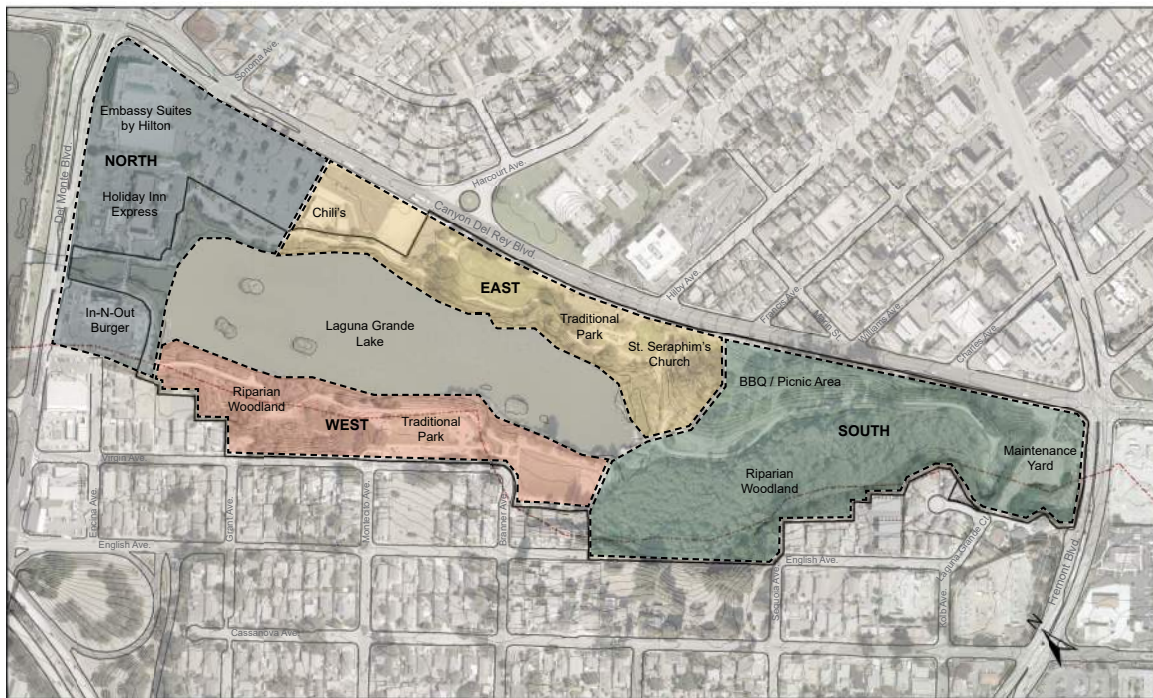
Laguna Grande Regional Park Master Plan and EIR Addendum. J.P. Manachek, A.I.A., and Charles R Haugh. 1978

Land Use Plan for the Laguna Grande/Roberts Lake Local Coastal Program. Duncan and Jones. 1981

EXISTING CONDITIONS

02

In order to provide a clear understanding of the park and its specific areas, below is a map highlighting key features and the areas that will be discussed throughout this plan.



AESTHETICS

Laguna Grande Regional Park is a unique aquatic landscape situated between Monterey and Seaside. There are clear views into the park from Canyon Del Rey Boulevard to the east and from the surrounding neighborhoods to the west. Interior views include: the lake, native aquatic bird species, low woodlands, and rolling grassy hills. The south end of the Park has elevated hillsides, that provide views toward the Bay.

ACCESS AND CIRCULATION

The Park provides multiple pedestrian and vehicular access points with the exception of the southern end. The southern end of the park has no accessible pedestrian or vehicular access connecting to Fremont Boulevard. An existing set of stairs leads down into the park near Canyon Del Rey Boulevard. There are no sidewalk connections to the stairs from Canyon Del Rey Boulevard or Fremont Boulevard.

Parking around the lake is facilitated with three public parking lots, two on the east and one on the west, as well as street parking on the west. Pedestrian connections to park trails are accessible from multiple points, two off of Del Monte Boulevard, four off of Canyon Del Rey Boulevard, and four off of Virgin Avenue. Trails connect to a central loop that runs along the perimeter of the lake. There is a wide path that leads to the south end of the park and dead ends with stairs which lead up to Fremont Boulevard. Secondary paths on the east and west sides of the park connect to the main loop around the lake. See Circulation Map Figure 01.

TRAIL SURFACE/MATERIAL CONDITIONS

The Park has a number of trail materials including: asphalt, concrete, gravel, decomposed granite (DG), boardwalks, and mulch. The general trail conditions are good due to weekly maintenance and repairs from the cities. All trails have been kept clear of vegetation allowing easy access. See Trail Conditions Map Figure 02.

The majority of park trails are asphalt and conditions vary. There are two areas that have been heavily impacted by root growth and become areas of concern for accessibility and safety that need replacement. Along the asphalt trails there are many areas where the edge of the path, particularly on the lake side, is deteriorating. Some areas impacted by erosion and root damage have been clearly demarcated by maintenance staff for public safety.



Asphalt Trail Root Impacts



Asphalt Trail in Poor Condition

The use of concrete throughout the park has been limited to restroom facilities and at bridge abutments on the north end of the park. The concrete throughout the park is in good condition, however, in some locations where the trail transitions from concrete to DG, rutting has occurred.

Gravel has only been used for the trail that runs to the south end of the park. This portion of the trail has been well maintained and is in good condition.

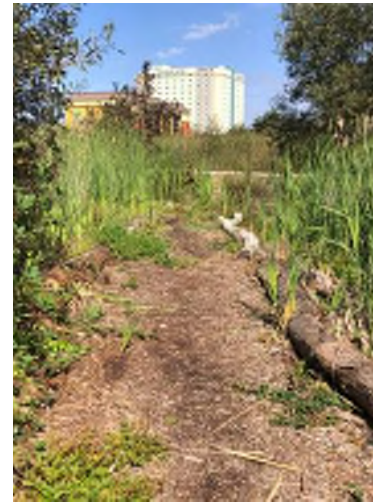
DG has been used on the northwest side of the park running from the end of the traditional park on the west side up to the In-N-Out Burger to the north. The DG path has been well maintained and is in good condition with no root impacts or erosion.



Gravel Trail



DG Trail



Mulch Trail

Wood decking is limited to the two bridges and five piers around the lake. These appear to be in good condition. Accessibility to these bridges and piers varies greatly. Many of the piers are inaccessible to wheelchairs due to grade change, as well as connections to the main trail that are too steep or narrow. The bridge at the north end of the park is not considered accessible by code.



Bridge Boardwalk

The mulch trails are seasonal and have been limited to the riparian woodland along the northwest edge of the lake. These trails vary in width and condition, with some portions of the trail subsiding into wet soil. The application of new mulch has kept much of the trail in good condition.

ADJACENT ACTIVITIES / SURROUNDING LAND USE

The main trail loop is surrounded by a diverse set of land uses and activities. The north end of the park is adjacent to privately owned hotels, fast food and drive-in restaurants.

On the east side adjacent to Canyon Del Rey Boulevard there is a traditional neighborhood park with an event lawn and stage, restroom facility, and playground. There is also a private parcel with St. Seraphim's Russian Orthodox church, which is accessed through the park.



Seaside Playground
Image Credit: <https://filmmonterey.org>



St. Seraphim's Church



Seaside BBQ/Picnic Area

The southern portion of the park consists predominately of a riparian woodland and creek that are largely inaccessible to the public. South of the church are grassy slopes with BBQ / picnic areas and strolling paths. At the very southern tip of the park, adjacent to Fremont Boulevard, is a maintenance and storage yard for the city of Seaside.

The western edge of the park also has traditional park programming with a synthetic turf soccer field, restroom facility, playground, synthetic turf volleyball court, BBQ and picnic areas. There is also a riparian woodland with seasonal mulch trails.



Monterey Volleyball Court



Monterey Soccer Field

TOPOGRAPHY

The property rises from 12-feet above sea level at the lake water level to 50-feet above sea level at the southern end along Fremont Boulevard and Laguna Grande Court. The southern end of the park functions like a valley between two 30-foot slopes to the east, south and west. The slopes level out as they move north towards the lake. The majority of the site sits 6-feet to 8-feet above the lake water level and is relatively flat and accessible.

HAZARDS

Primary hazards include flooding and fires. Flooding occurs during heavy rain events along the western edge of the lake and southern wooded portion of the property, but does not pose a threat to the surrounding neighborhoods.

Fires are a community concern for the southern portion of the property due to the dense understory growth in the riparian woodland area. The ongoing regional drought and illegal camping in this area increase risk of fires breaking out.

VEGETATION

The Park, with its unique aquatic features, hosts a wide variety of vegetation. Much of this vegetation is native to the region and provides habitat for various wildlife but has been impacted by the spread of invasive species. See appendix A and B. Vegetation is maintained by the cities on a weekly basis with a focus on the traditional park areas. Special maintenance activities, such as tree limbing and trail clearing, are performed a few times throughout the year. Dense vegetation throughout the park obstructs sight lines along the trail and to the docks and is a safety concern.



Invasive Giant Reed and French Broom



Native Lavatera assurgentiflora - Island Mallow

Refer to Appendix A – Laguna Grande Focused Plant Survey (EMC)

Refer to Appendix B – Invasive Plant Control (EMC and BRG)

WILDLIFE AND SENSITIVE SPECIES

Refer to Appendix C – Wildlife Analysis (EMC)

GENERAL MAINTENANCE

The Park is generally visited daily to clean restrooms and provide a quick visual check of park conditions. Operations improvements are scheduled weekly or monthly depending on the season. However, over the years persistent homeless encampments have considerably grown and become more permanent. City of Seaside staff are now checking encampments one to two times per week. Shelters, however, have tunneled deeper into the thickets to avoid easy observation. The increasing population has alarmed neighbors and created water quality and safety hazards for park visitors.



Encampments in Woods
Image Credit: City of Seaside



Encampments in Thickets

FIGURE 1: LAGUNA GRANDE REGIONAL PARK CIRCULATION



FIGURE 2: LAGUNA GRANDE REGIONAL PARK TRAIL CONDITIONS



COMMUNITY OUTREACH

03

In order to provide equitable engagement to the community within the planning process, the project team set up a website, haveyoursaymonterey.org, to allow community members of varying backgrounds and ages equal opportunity to comment and engage with the plans. Community meetings, public comments, plan drafts and design team meeting minutes were all made available throughout the planning process.

The opportunity for stakeholder and community engagement included a virtual townhall held on July 28, 2021 and a community site walk held on August 14, 2021. The virtual townhall, with 40 people in attendance, provided the community with an introduction to the planning process and key objectives. Community members were invited to provide comments. Key priorities heard from the community included:

- Improve park safety
- Address and fix accessibility issues
- Maintain and improve planting
- Disclose all funding sources for improvements
- Engage neighboring businesses adjacent to the Park

After the townhall, the community was invited to participate in a site walk around the Park. The project team engaged with community members and were able to address specific concerns throughout the park. There was a total of 32 people in attendance. Key takeaways from the site walk include:

- Unauthorized encampments are a personal safety, water quality, and fire danger security issue
- Design focus should be on accessibility improvements and vegetation maintenance
- Desire for clear sight lines along trails
- Protect and extend habitat areas and resources
- Aesthetic upgrades are not a priority – the park is generally well maintained
- Community should continue to be involved in the decision-making process
- Funding sources

OUTREACH SUMMARY

The virtual town hall was recorded and made public on haveyoursaymonterey.org. A video of the site walk was created and also posted to the project website. Fliers and meeting minutes and materials for community engagement events can be seen in Appendix D. Opportunities for public comment and input will continue throughout the planning process.

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FIGURE 3: LAGUNA GRANDE REGIONAL PARK COMMUNITY SITE WALK



FIGURE 4: LAGUNA GRANDE REGIONAL PARK COMMUNITY SITE WALK



The purpose of the Trail and Vegetation Maintenance Strategy (Strategy) is to provide the Joint Powers Authority (JPA) a clear set of priorities and means for maintaining the trails and vegetation throughout the Park. The proposed Plan will implement maintenance strategies to create a more accessible, safe, and long-lasting park for the surrounding community and region. Laguna Grande Regional Park is a unique landscape within the cities of Monterey and Seaside, providing visitors access to rarely seen aquatic and migratory birds, riparian vegetation, and fresh water lakes. Increased maintenance will require an intentional and thoughtful approach. The proposed Strategy provides direction to meet the regulations for maintenance of sensitive habitats and around bodies of water set forth by the State and Federal government agencies.

1. IMPROVE PERSONAL SAFETY

- Accessibility Improvements: trail maintenance and repair
- Sightline Visibility: create clear sight lines at curves and corners by limbing trees and clearing understory
- Access and Monitoring: clear vegetation and overgrown brush to increase public visibility and surveillance and discourage illegal camping; provide on-going maintenance for access and clean up.
- Repair existing lighting and extending new lighting where park trail has no ambient street light



Black Crowned Night Heron (Nycticorax nycticorax)

Image Credit: www.reconnectwithnature.org

2. MAINTAIN AND IMPROVE QUALITY OF NATURAL RESOURCES

- Preserve and protect existing habitat
- Remove invasive vegetation where practical
- Mitigate habitat disturbance from vegetation removal as deemed appropriate at a 3:1 replacement ratio

3. ADDRESS ENCAMPMENT HEALTH, SAFETY AND FIRE SAFETY CONCERNS

- Access and Monitoring: clear non-native vegetation and overgrown brush to discourage illegal camping and provide maintenance for emergency services foot access
- Clear a fire safety defensible space around residences adjacent to park boundaries
- Provide seasonal trails through south riparian woods for consistent monitoring



Mallards (Anas platyrhynchos)

TRAIL AND VEGETATION MAINTENANCE STRATEGY

The north side of the Park has a looped trail around the lake with direct neighborhood access and parking for visitors. This segment of the Park is well visited. The south end, extending back to Fremont Boulevard, does not have a looped path or easy neighborhood access. As a result, the dense vegetation has attracted homeless encampments. Open fires are a high concern to neighbors. Park visitors feel threatened by itinerant groups and observed drug exchanges.

Overall, residents feel the looped trail and active park areas are generally well maintained. Seaside and Monterey have been attentive to community needs in the primary recreation spaces. The JPA focus should begin with the southern half of the park.

As described in other sections of this report, any disturbance of identified habitat areas will be mitigated by habitat enhancement elsewhere in the park. Annually, a description and map of probable disturbance and enhancement will be submitted to the JPA for approval.

In order to meet the Goals (see pages 15-16) and priorities above, the following maintenance strategies are recommended for Laguna Grande Regional Park.

1. TRAIL MAINTENANCE AND IMPROVEMENTS

- Replace sections of trail impacted by root damage
- Repair edges of trail impacted by erosion – install header or curb to maintain trail edge along the lakeside.
- Add mulch seasonally to portions of seasonal trail that are degraded
- Repair or replace culverts under trail
- Provide formal trail connection to Fremont St
- Provide formal trail connection along Virgin St

2. ACCESSIBILITY IMPROVEMENTS

- Restore accessibility to north bridge - make compliant with local building codes
- Repair areas with trip hazards
- Install accessible paths to docks - make compliant with local building codes
- Provide accessible ingress/egress to Laguna Grande from Fremont St.

3. VEGETATION CLEARING

- Clearing and limbing around trail curves and corners
- Clearing at docks
- Clearing and limbing around illegal camp sites to improve access for monitoring and cleaning
- Mitigate habitat removal with invasive removal and restoration planting

4. DEFENSIBLE SPACE (FIRE RISK MITIGATION)

- 100' defensible space clearing in riparian woodlands next to homes
- 100' defensible space clearing in upland woods next to homes
- Mitigate habitat removal in riparian areas with invasive removal and restoration planting

5. SEASONAL TRAIL DEVELOPMENT

- Provide 10' wide seasonal mulch trails through southern riparian woodland with seasonal foot bridges for creek crossing
- Mitigate habitat removal with invasive removal and restoration planting

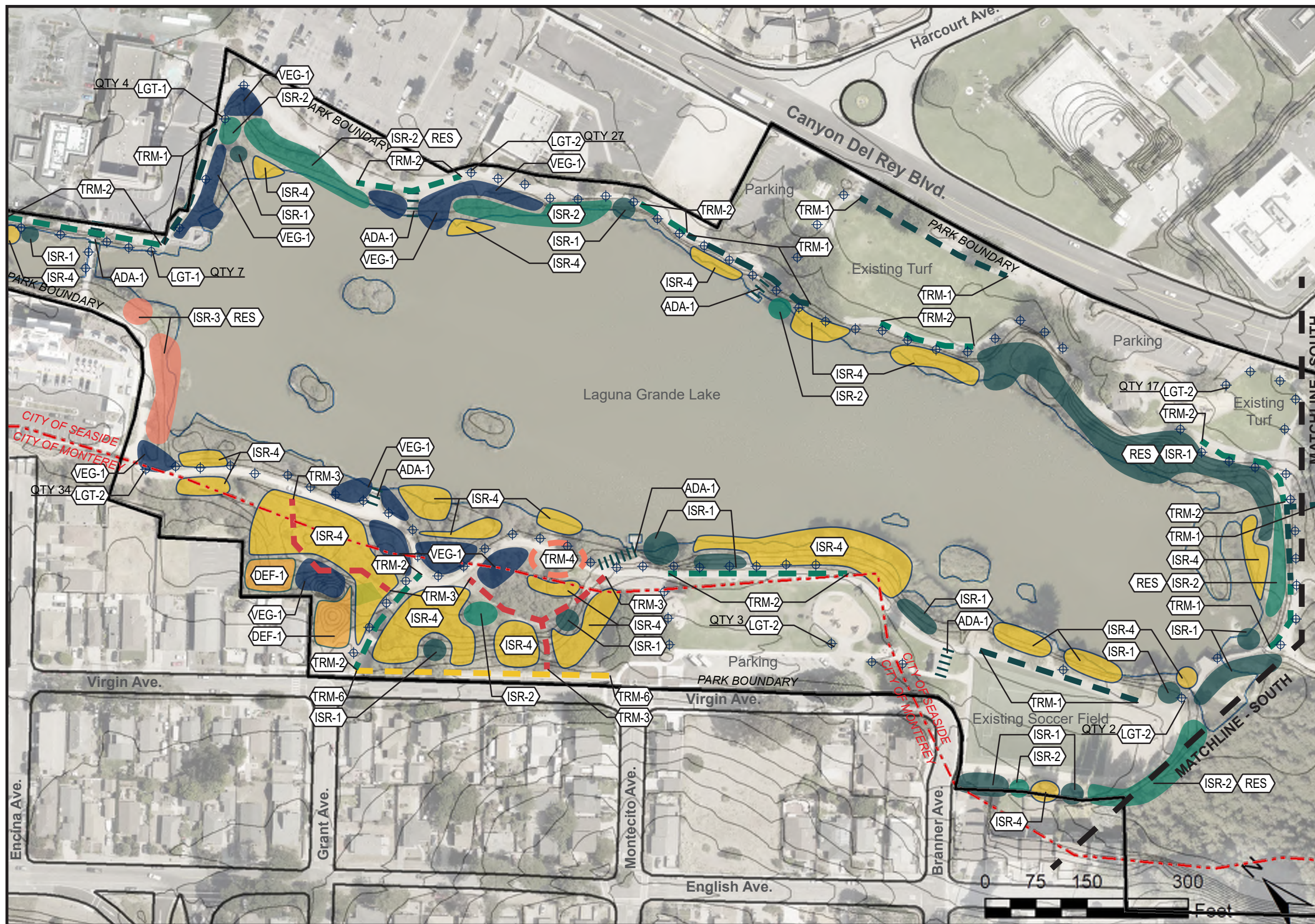
6. INVASIVE SPECIES REMOVAL AND RESTORATION PLANTING

- Priority 1 (1-3 years) –
- Priority 2 (1-5 years) –
- Priority 3 (6-10 years) –
- Priorities 4-5 -
- Priority 6 (no action) –
- Restore native plantings where invasives are fully removed
- Create new native habitat along southern gravel trail

7. LIGHTING

- Repair or replace existing lighting
- Extend new lighting along the southern gravel trail

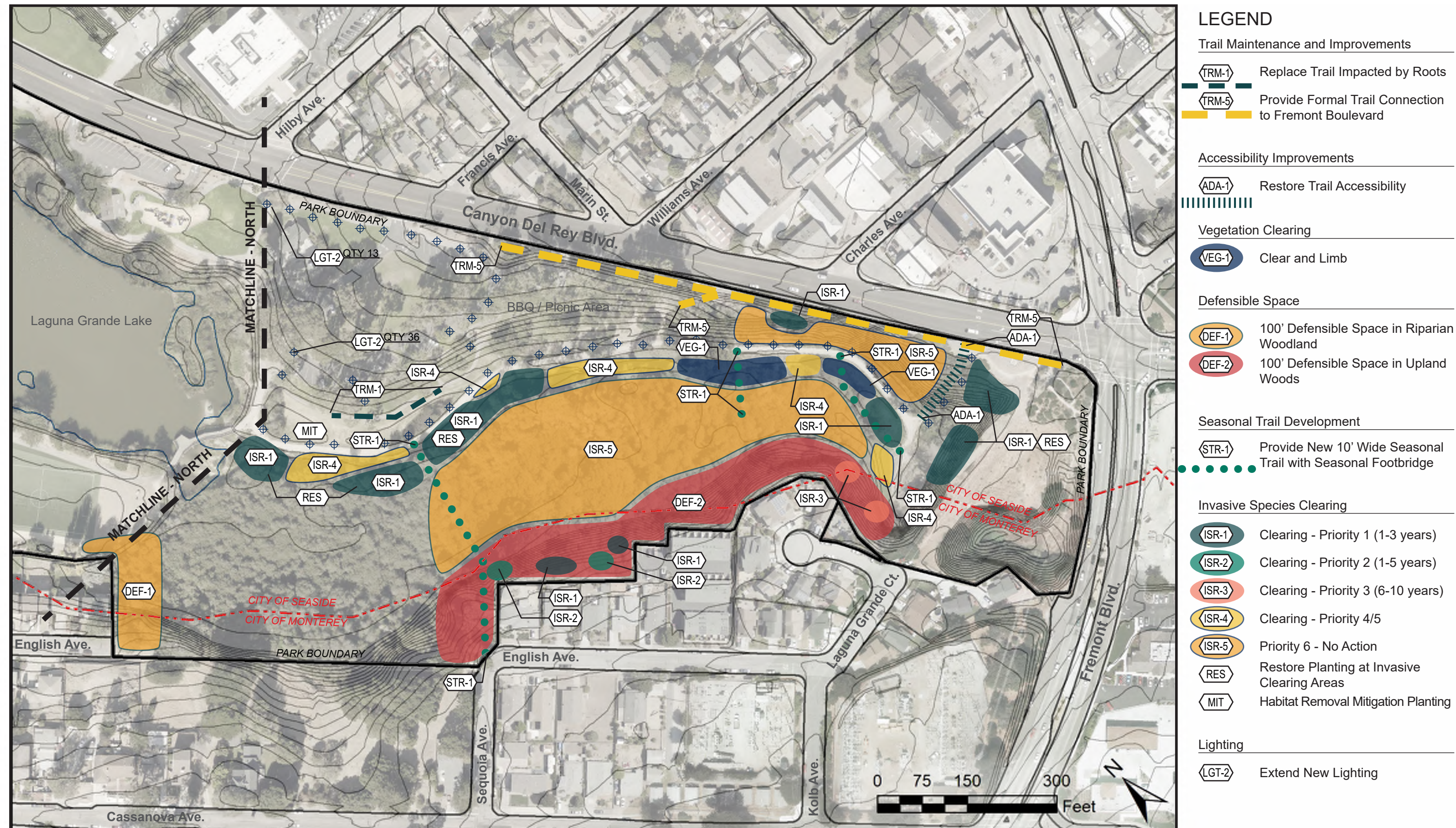
FIGURE 5: OVERALL PLAN - NORTH



LEGEND

- Trail Maintenance and Improvements**
 - Replace Trail Impacted by Roots
 - Repair Edge of Trail - Erosion
 - Add Mulch to Seasonal Trail
 - Repair/replace Culverts
 - Install Formal Trail Along Virgin Ave.
- Accessibility Improvements**
 - Restore Trail Accessibility
- Vegetation Clearing**
 - Clear and Limb
- Defensible Space**
 - 100' Defensible Space Clearing in Riparian Woodland
- Invasive Species Clearing**
 - Priority 1 (1-3 years)
 - Priority 2 (1-5 years)
 - Priority 3 (6-10 years)
 - Priority 4/5
 - Restore Planting at Invasive Clearing Areas
 - Habitat Removal Mitigation Planting
- Lighting**
 - Repair/Replace Existing Lighting
 - Extend New Lighting

FIGURE 6: OVERALL PLAN - SOUTH



PHASE ONE IMPLEMENTATION

06

Implementation of the recommended maintenance and improvements will require time and approval from the governing agencies. The design team is recommending a phased approach to Strategy implementation in order to alleviate costs and to obtain permit approvals. With safety as the top priority, phase one will address these issues first. Many of the safety issues directly correlate with overgrown vegetation. Vegetation clearing and removal will require permits, but can easily be incorporated into weekly maintenance routines. Other safety items to be addressed include repairing trails heavily impacted by root damage and erosion and clearing defensible space for fire safety.

1. TRAIL MAINTENANCE AND IMPROVEMENTS

- Replace sections of trail impacted by root damage – trail section along Canyon Del Rey in Seaside traditional park and trail section along soccer field in Monterey traditional park

2. ACCESSIBILITY IMPROVEMENTS

- Restore accessibility compliance to north bridge

3. VEGETATION CLEARING

- Clearing and limbing around trail curves and corners particularly in the northwest riparian woodland
- Clearing at docks
- Clearing and limbing around illegal camp sites
- Mitigate habitat removal with invasive removal and restoration planting

4. DEFENSIBLE SPACE

- Clear 50' of the 100' defensible space behind homes along upland woods. (Likely no mitigation required)

5. SEASONAL TRAIL DEVELOPMENT

- Provide 10' wide seasonal mulch trail through southern riparian woodland with seasonal foot bridges for creek crossing. Connect from the gravel trail to English and Sequoia
- Mitigate habitat removal with invasive removal and restoration planting
- Invasive Species Removal and Restoration Planting:
- Priority 1 (1-3 years):
 - Clear invasives where vegetation clearing for safety and defensible space will already be happening.
 - Clear invasive species where necessary to mitigate habitat removal
- Restore native plantings where invasive species have been fully removed

FIGURE 7: PHASE ONE PLAN - NORTH

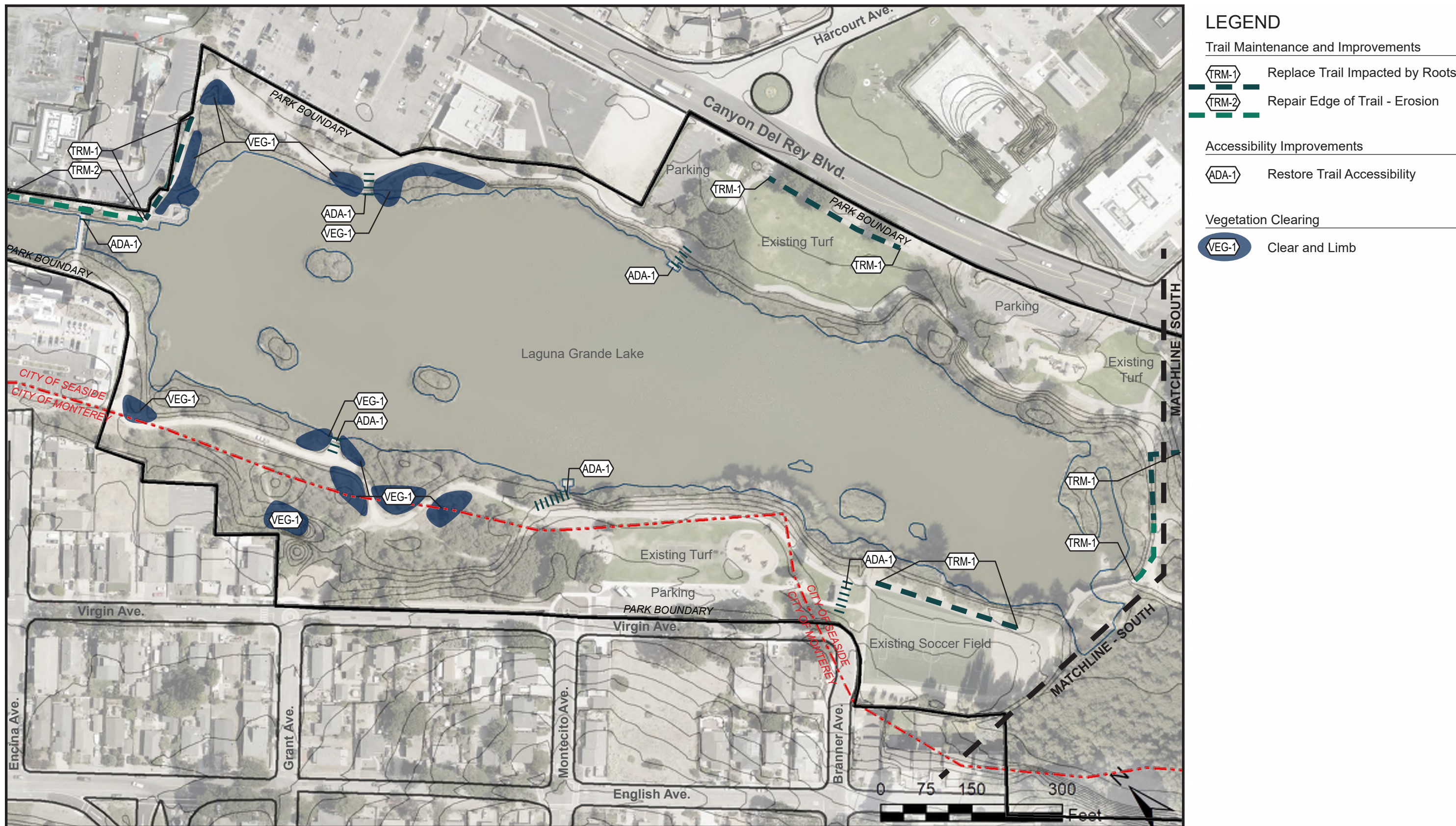
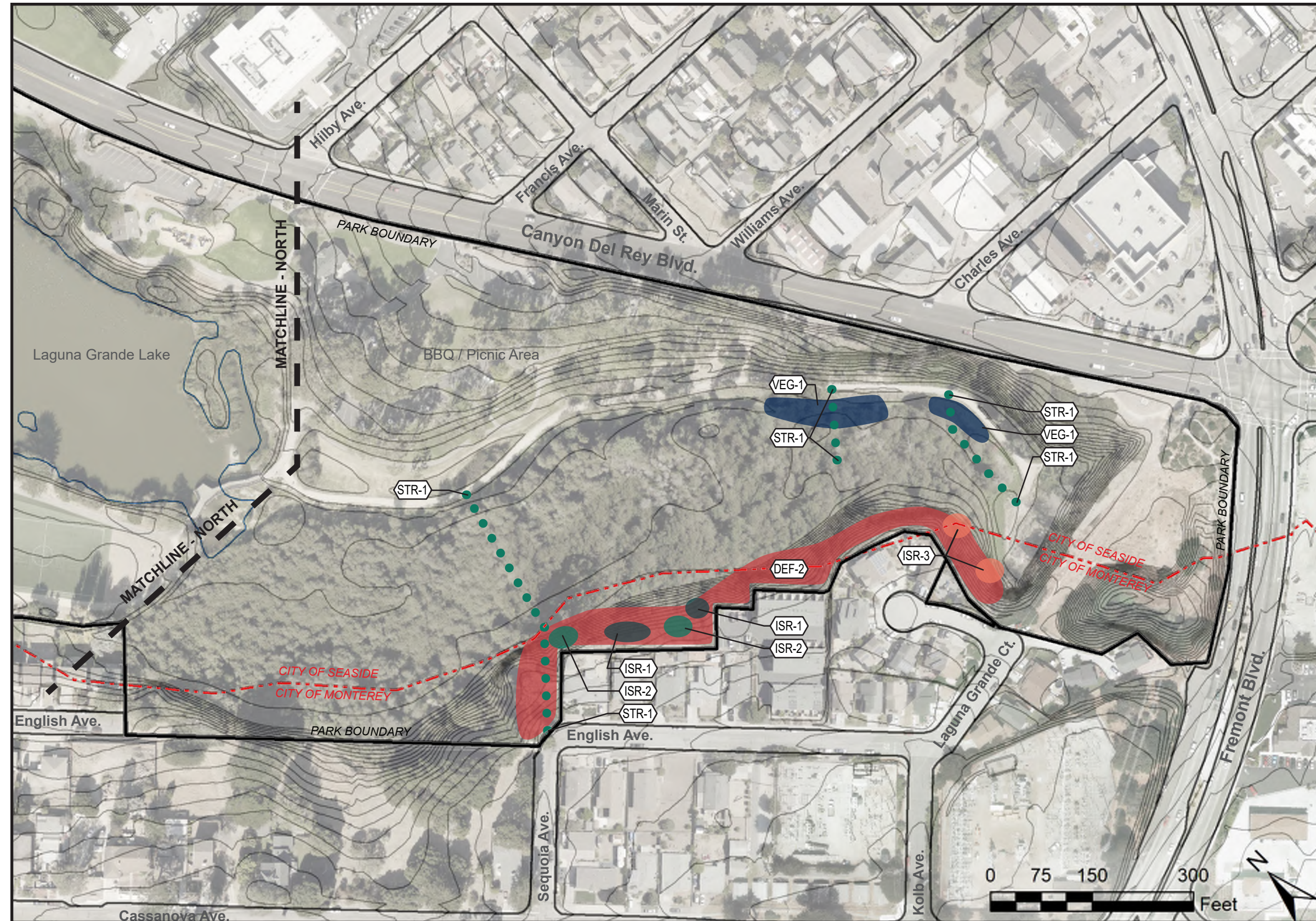


FIGURE 8: PHASE ONE PLAN - SOUTH



LEGEND

Vegetation Clearing

VEG-1 Clear and Limb

Defensible Space

DEF-2 100' Defensible Space in Upland Woods

Seasonal Trail Development

STR-1 Provide New 10' Wide Seasonal Trail with Seasonal Footbridge

Invasive Species Clearing

ISR-1 Clearing - Priority 1 (1-3 years)

ISR-2 Clearing - Priority 2 (1-5 years)

ISR-3 Clearing - Priority 3 (6-10 years)

RES Restore Planting at Invasive Clearing Areas

MIT Habitat Removal Mitigation Planting

COST ESTIMATES

07

LAGUNA GRANDE REGIONAL PARK COST ESTIMATE

Project: Laguna Grande Regional Park -
Maintenance Strategy
Client: JPA
Issuance: **Strategy Draft**
Date: October 14, 2021

Project Number: 21.019
Estimate By: DZ
Checked By: BM



ZONE 1 - NON-SOUTH WOODLAND				
item description	quantity	unit cost	item total	subtotal
INVASIVE SPECIES REMOVAL				
Priority 1 (1-3 years):				
High cost (Hand removal)	24,500 SF	\$0.35	\$8,575	
Medium cost (Mechanical removal)	6,500 SF	\$0.15	\$975	
Low cost	0 SF	\$0.07	\$0	
Tree removal	32 EA	\$500.00	\$16,000	\$25,550
Priority 2 (1-5 years):				
High cost (Hand removal)	22,250 SF	\$0.35	\$7,788	
Medium cost (Mechanical removal)	6,200 SF	\$0.15	\$930	
Medium cost (Mechanical removal) in defensible space	3,500 SF	\$0.07	\$245	
Low cost	0 SF	\$0.25	\$0	
Tree removal	2 EA	\$500.00	\$1,000	\$9,963
Priority 3 (6-10 years):				
High cost (Hand removal)	2,100 SF	\$0.35	\$735	
Medium cost (Mechanical removal)	1,100 SF	\$0.15	\$165	
Low cost	0 SF	\$0.07	\$0	
Tree removal	0 EA	\$500.00	\$0	\$900
Priority 4 (Himalayan Blackberry, English and Cape Ivy - removal will have short and long term impact on habitat)				
High cost (Hand removal)	93,750 SF	\$0.35	\$32,813	
Medium cost (Mechanical removal)	25,000 SF	\$0.15	\$3,750	
Low cost	9,600 SF	\$0.07	\$672	
Tree removal	0 EA	\$500.00	\$0	\$37,235
Priority 5 (Himalayan Blackberry - No Action at this time)				
Mitigation planting and irrigation	80,000 SF	\$5.00	\$400,000	\$473,647
Fire crew savings ¹	1 LS	\$200,000.00	\$200,000	(\$200,000) ²
LIMBING, PRUNING, CLEARING				
Tree pruning and limbing	50 EA	\$500.00	\$25,000	\$25,000
TRAIL REPAIRS - ROOT IMPACTS - 250 LF				
Demolition	2,500 SF	\$3.00	\$7,500	
Root pruning	1 LS	\$8,000.00	\$8,000	
Fine grading	2,500 SF	\$0.25	\$625	
Asphalt paving and base	2,500 SF	\$8.00	\$20,000	\$36,125

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item description	quantity	unit cost	item total	subtotal
TRAIL REPAIRS - ACCESSIBILITY - 325 LF				
Demolition	3,250 SF	\$3.00	\$9,750	
Fine grading	3,250 SF	\$0.25	\$813	
Asphalt paving and base	3,250 SF	\$8.00	\$26,000	
Concrete paving	520 SF	\$16.00	\$8,320	\$44,883
FUTURE ANNUAL MAINTENANCE				
Expanded Maintenance ⁴	1.72 AC	\$13,000.00	\$22,360	\$22,360
ZONE 2 - SOUTH WOODLAND				
item description	quantity	unit cost	item total	subtotal
INVASIVE SPECIES REMOVAL				
Priority 1 (1-3 years):				
High cost (Hand removal)	5,800 SF	\$0.35	\$2,030	
Medium cost (Mechanical removal)	0 SF	\$0.15	\$0	
Low cost	0 SF	\$0.07	\$0	
Tree removal	29 EA	\$500.00	\$14,500	
Tree removal in defensible space	8 EA	\$500.00	\$4,000	\$20,530
Priority 2 (1-5 years):				
High cost (Hand removal) in defensible space	4,000 SF	\$0.35	\$1,400	
Medium cost (Mechanical removal)	0 SF	\$0.15	\$0	
Low cost	0 SF	\$0.07	\$0	
Tree removal	0 EA	\$500.00	\$0	\$1,400
Priority 3 (6-10 years):				
High cost (Hand removal) in defensible space	4,000 SF	\$0.35	\$1,400	
Medium cost (Mechanical removal)	0 SF	\$0.15	\$0	
Low cost	0 SF	\$0.07	\$0	
Tree removal	0 EA	\$500.00	\$0	\$1,400
Priority 4 (Himalayan Blackberry, English and Cape Ivy - removal will have short and long term impact on habitat)				
High cost (Hand removal)	31,700 SF	\$0.35	\$11,095	
High cost (Hand removal) in defensible space	4,000 SF	\$0.35	\$1,400	
Medium cost (Mechanical removal)	0 SF	\$0.15	\$0	
Low cost	0 SF	\$0.07	\$0	
Tree removal	0 EA	\$500.00	\$0	\$12,495
Priority 5 (Himalayan Blackberry - No Action at this time)	179,500 SF	\$0.00	\$0	
Priority 5 (Himalayan Blackberry - No Action at this time) in defensible space	35,500 SF	\$0.00	\$0	
Mitigation planting and irrigation	35,000 SF	\$5.00	\$175,000	\$210,825
Fire crew savings ¹	1 LS	\$98,250.00	\$98,250	(\$98,250)²

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item description	quantity	unit cost	item total	subtotal
DEFENSIBLE SPACE CLEARING - UPLAND WOODS				
Clear and grub - native species	32,500 SF	\$0.50	\$16,250	
Mulch	740 CY	\$120.00	\$88,800	
Erosion control	25,000 SF	\$0.25	\$6,250	\$111,300
Fire crew savings ¹	1 LS	\$36,575.00	\$36,575	(\$36,575) ³
DEFENSIBLE SPACE CLEARING - RIPARIAN WOODS				
Clear and grub - native species	14,000 SF	\$0.50	\$7,000	
Mulch	129 CY	\$120.00	\$15,480	
Erosion control	4,000 SF	\$0.25	\$1,000	\$23,480
Fire crew savings ¹	1 LS	\$10,370.00	\$10,370	(\$10,370) ³
TRAIL DEVELOPMENT - 800 LF				
Clear and grub	9,600 SF	\$0.50	\$4,800	
Fine grading	9,600 SF	\$0.50	\$4,800	
Mulch	74 CY	\$120.00	\$8,880	\$18,480
Fire crew savings ¹	1 LS	\$4,620.00	\$4,620	(\$4,620) ³
FUTURE ANNUAL MAINTENANCE				
Mitigation planting establishment ⁴	1.22 AC	\$13,000.00	\$15,860	
Trail maintenance ⁴	0.22 AC	\$13,000.00	\$2,860	
Defensible space maintenance ⁴	1.87 AC	\$13,000.00	\$24,310	\$43,030
TOTAL				\$1,118,602

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NOTES

1. Fire crews consist of 12-15 crew members and a fire captain. Cost \$225 a day and bring their own equipment.
2. Assumed fire crews will clear and grub at \$0.25 a SF and could plant at \$3.00 a SF
3. Assumed fire crews will clear and grub at \$0.25 a SF and mulch at \$90.00 a CY.
4. Assumed \$13,000 per acre per month.

LAGUNA GRANDE REGIONAL PARK PHASE 1 COST ESTIMATE

Project: Laguna Grande Regional Park -
 Maintenance Strategy
 Client: JPA
 Issuance: **Strategy Draft**
 Date: October 14, 2021

Project Number: 21.019
 Estimate By: DZ
 Checked By: BM



IMPLEMENTATION PHASE 1				
item description	quantity	unit cost	item total	subtotal
LIMBING, PRUNING, CLEARING				
Tree pruning and limbing	50 EA	\$500.00	\$25,000	\$25,000
LIMBING, PRUNING, CLEARING AT ENCAMPMENTS				
Tree pruning and limbing	50 EA	\$500.00	\$25,000	\$25,000
TRAIL REPAIRS - ROOT IMPACTS - 250 LF				
Demolition	2,500 SF	\$3.00	\$7,500	
Root pruning	1 LS	\$8,000.00	\$8,000	
Fine grading	2,500 SF	\$0.25	\$625	
Asphalt paving and base	2,500 SF	\$8.00	\$20,000	\$36,125
TRAIL REPAIRS - ACCESSIBILITY - 200 LF				
Demolition	2,000 SF	\$3.00	\$6,000	
Fine grading	2,000 SF	\$0.25	\$500	
Asphalt paving and base	2,000 SF	\$8.00	\$16,000	
Concrete paving	520 SF	\$16.00	\$8,320	\$30,820
DEFENSIBLE SPACE CLEARING - UPLAND WOODS				
Clear and grub - native species	16,250 SF	\$0.35	\$5,688	
Mulch	370 CY	\$120.00	\$44,400	
Erosion control	25,000 SF	\$0.25	\$6,250	
Fire crew savings ^{1 2}	1 LS	-\$19,600.00	(\$19,600)	\$36,738
TRAIL DEVELOPMENT - 400 LF				
Clear and grub	4,800 SF	\$0.50	\$2,400	
Fine grading	4,800 SF	\$0.50	\$2,400	
Mulch	37 CY	\$120.00	\$4,440	
Fire crew savings ^{1 3}	1 LS	-\$4,620.00	(\$4,620)	\$4,620
INVASIVE SPECIES REMOVAL - NON-SOUTH WOODS				
High cost (Hand removal)	3,600 SF	\$0.35	\$1,260	
Medium cost (Mechanical removal)	3,000 SF	\$0.15	\$450	
Low cost	600 SF	\$0.07	\$42	\$1,752
INVASIVE SPECIES REMOVAL - SOUTH WOODS				
Tree removal in defensible space	8 EA	\$500.00	\$4,000	
High cost (Hand removal) in defensible space	23,750 SF	\$0.35	\$8,313	
Fire crew savings ¹	1 LS	-\$2,500.00	(\$2,500)	\$9,813

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TOTAL					\$169,867
FUTURE ANNUAL MAINTENANCE					
Expanded Maintenance ⁴	2.0 AC	\$13,000.00	\$26,000		\$26,000

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