

DATE: November 12, 2025

TO: Parks and Recreation Commission

FROM: Salman Husaini, Associate Civil Engineer
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SUBJECT: **Recycled Water Reservoir and Pump Station at Charleston Park, Project 23-40
Conceptual Design**

RECOMMENDATION

Review and comment on the conceptual Charleston Park layout, including the tree canopy and replacement strategy.

BACKGROUND

Recycled water is an integral component of the City's water supply portfolio. The City receives recycled water from the Palo Alto Regional Water Quality Control Plant (RWQCP), which treats Mountain View's wastewater. Up to 3 million gallons per day (MGD) may be delivered under the current agreement, though average use remains under 0.5 MGD which serves about 4% of the City's demand. With climate change impacts and constraints on imported supplies from the City's wholesalers, recycled water is a drought-resilient source needed to support future demand.

In 2022, the City completed the Recycled Water Feasibility Study Update ([Update](#)) report, which concluded that while the guaranteed 3 MGD supply meets maximum-day demand, it cannot meet peak-hour needs. The study recommended construction of a reservoir to provide operational storage, improve reliability, regulate pressure, and allow service during RWQCP shutdowns. The Update also proposed system expansion alternatives to serve additional customers within North Bayshore, NASA, and potential future customers in the East Whisman Precise Plan Area. Based on the findings, Council directed staff to proceed with the full build-out of the recycled system in North Bayshore and to evaluate a future expansion to East Whisman via Middlefield Road as shown in Figure 1.

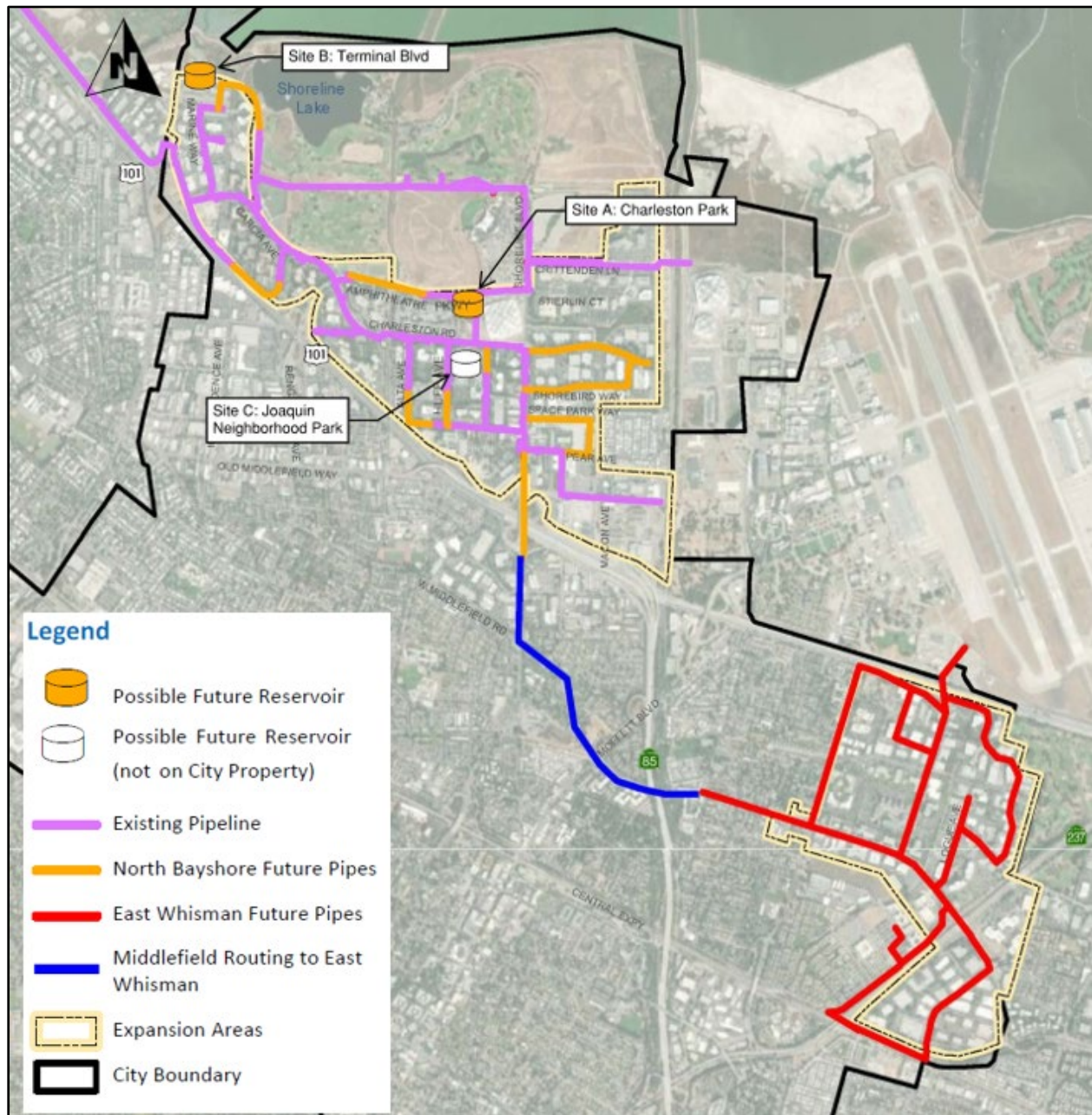


Figure 1: Recycled Water Expansion Alternatives and Potential Recycled Water Reservoir Locations

To begin implementation of these recommendations, the City initiated the Recycled Water Reservoir Siting Study in 2023. The study evaluated three potential locations: Charleston Park, Terminal Boulevard, and the future Joaquin Neighborhood Park, considering constructability, community impact, cost, environmental factors, and coordination needs. The study results ranked Charleston Park (Figure 2) as the highest-scoring location. Terminal Boulevard was not

recommended due to utility conflicts, corrosive soils, and traffic impacts. Joaquin Park was not recommended due to the uncertainty of land availability, which may be delayed 15–30 years under the Google North Bayshore Master Plan.

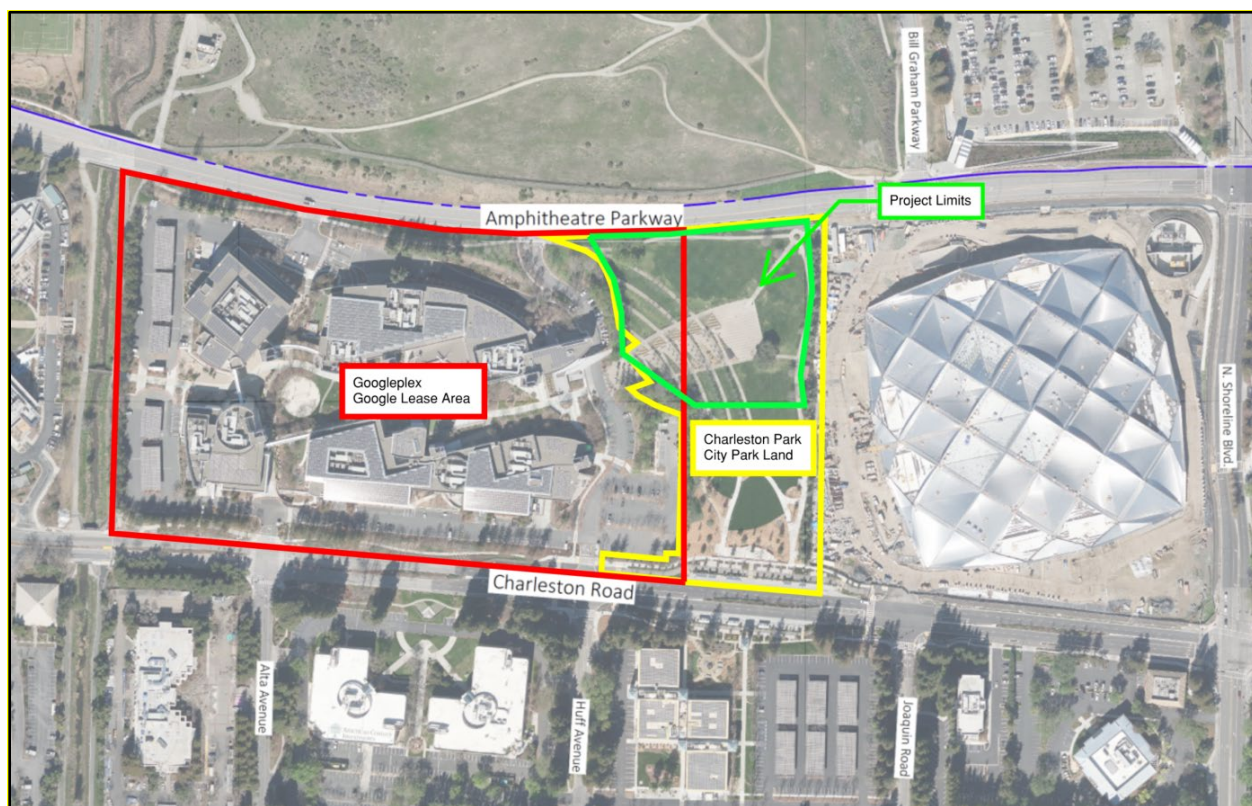


Figure 2: Charleston Park Location Map and Project Limits

In [November 2024](#), staff presented the PRC with the siting study options and the recommended alternatives, which was either a buried or semi-buried reservoir at Charleston Park in the place of the existing water feature. At that meeting, the Commission expressed a preference for a fully buried reservoir at Charleston Park, but was open to a semi-buried option if the buried option was too costly. Subsequently, in [January 2025](#), the City Council approved Charleston Park as the reservoir site and authorized design services for a reservoir, pump station, and landscaping.

ANALYSIS

Since the PRC and Council's review of the draft siting study, the project has advanced into conceptual design. Several refinements have been made to the reservoir and pump station

locations, as well as overall park layout and landscaping. The conceptual design achieves two key goals:

1. Integrate critical water infrastructure underground while maintaining open space character; and
2. Enhance park function and visitor experience through landscape and circulation improvements and integration with the southern portion of Charleston Park.

Key Design Updates

A. Reservoir and Pump Station Design

The reservoir location has been refined from the siting study, which previously identified both buried and semi-buried options at Charleston Park. Based on feedback from the PRC and ongoing cost evaluation, the design now proposes a fully buried 2.2 million gallon reservoir with a 125-foot diameter (about the size of a small baseball field) reservoir beneath the grass south of Amphitheatre Parkway, preserving the surface area for open space and/or native planting. Preliminary cost estimates indicate that a fully buried reservoir would increase overall project costs by approximately three percent, a relatively minor increase for the added community and aesthetic benefits.

The pump station location has also changed from the siting study, which originally placed it immediately south of the existing water feature. The updated concept layout positions the pump station in the northwest corner of Charleston Park, within a parcel leased by Google as part of the Googleplex campus. With a footprint of approximately 63 feet by 28 feet, this location was selected in coordination with Google to reduce impacts to the central park area, minimize visual impacts, and improve access for City maintenance vehicles serving the pump station and Charleston Park. Coordination with Google is ongoing to address park features and leased-area impacts.

Environmental considerations also guided the updated location of the reservoir and pump station. Both are within the Habitat Overlay Zone (HOZ), a designated area intended to protect sensitive grassland habitat for the western burrowing owl and other species. The HOZ imposes restrictions on grading, new structures, and lighting, and generally limits heights to no more than 4 feet above existing grade to preserve suitable foraging conditions. These constraints directly influenced the design and siting of the pump station and reservoir. The reservoir and pump station designs use the existing topography and grade adjustments to comply with the height limitation while minimizing impacts. The project will adhere to all HOZ requirements outlined in the North Bayshore Precise Plan and the Shoreline Wildlife Management Plan, balancing operational needs with habitat protection.

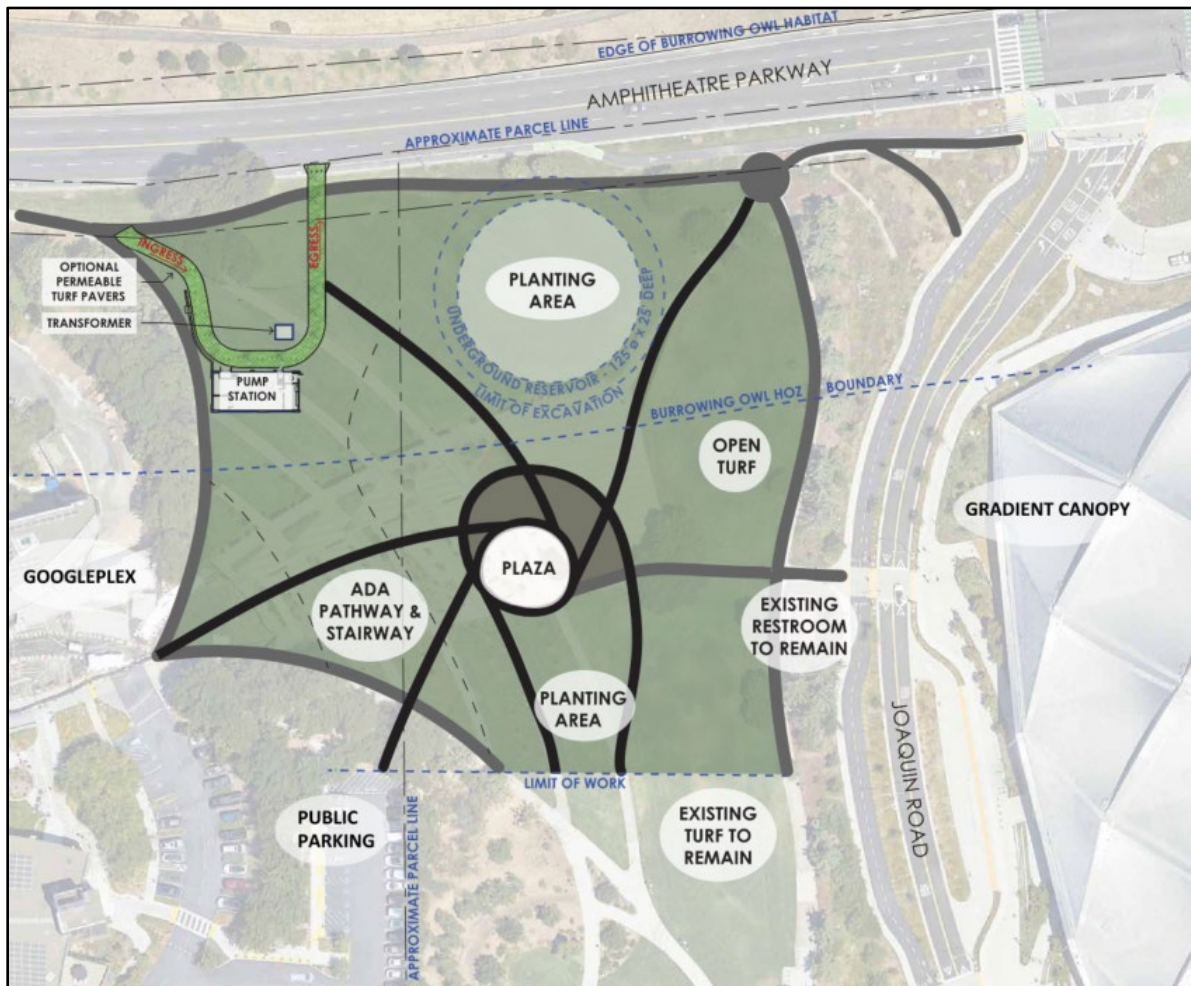


Figure 3: Conceptual Site Plan

B. Reimagining the Water Feature Area

The existing water feature (Figure 4), once a central visual element, has become increasingly costly to operate and maintain. The project provides an opportunity to reimagine this space as a central plaza, creating a more sustainable and usable gathering area that connects to surrounding pathways and park amenities.

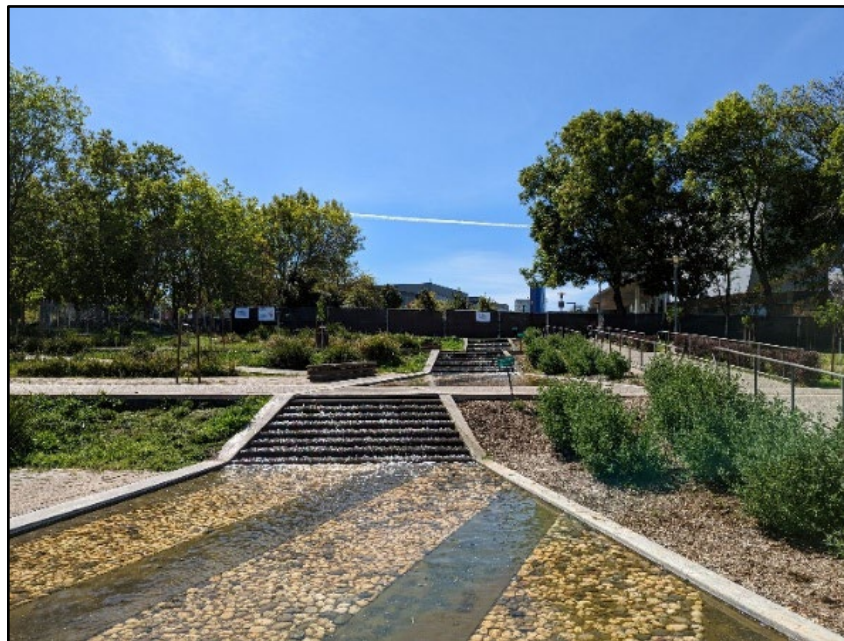


Figure 4: Existing Water Feature

Charleston Park Layout

The proposed Charleston Park layout shown in Figure 5 emphasizes a strong plaza presence with shade and seating. Two existing heritage trees would be preserved within individual planters, creating immediate canopy and sense of character. The plaza design is to

accommodate informal gatherings, performances, and provide shaded seating areas. Additional details of the project are provided in the following sections.

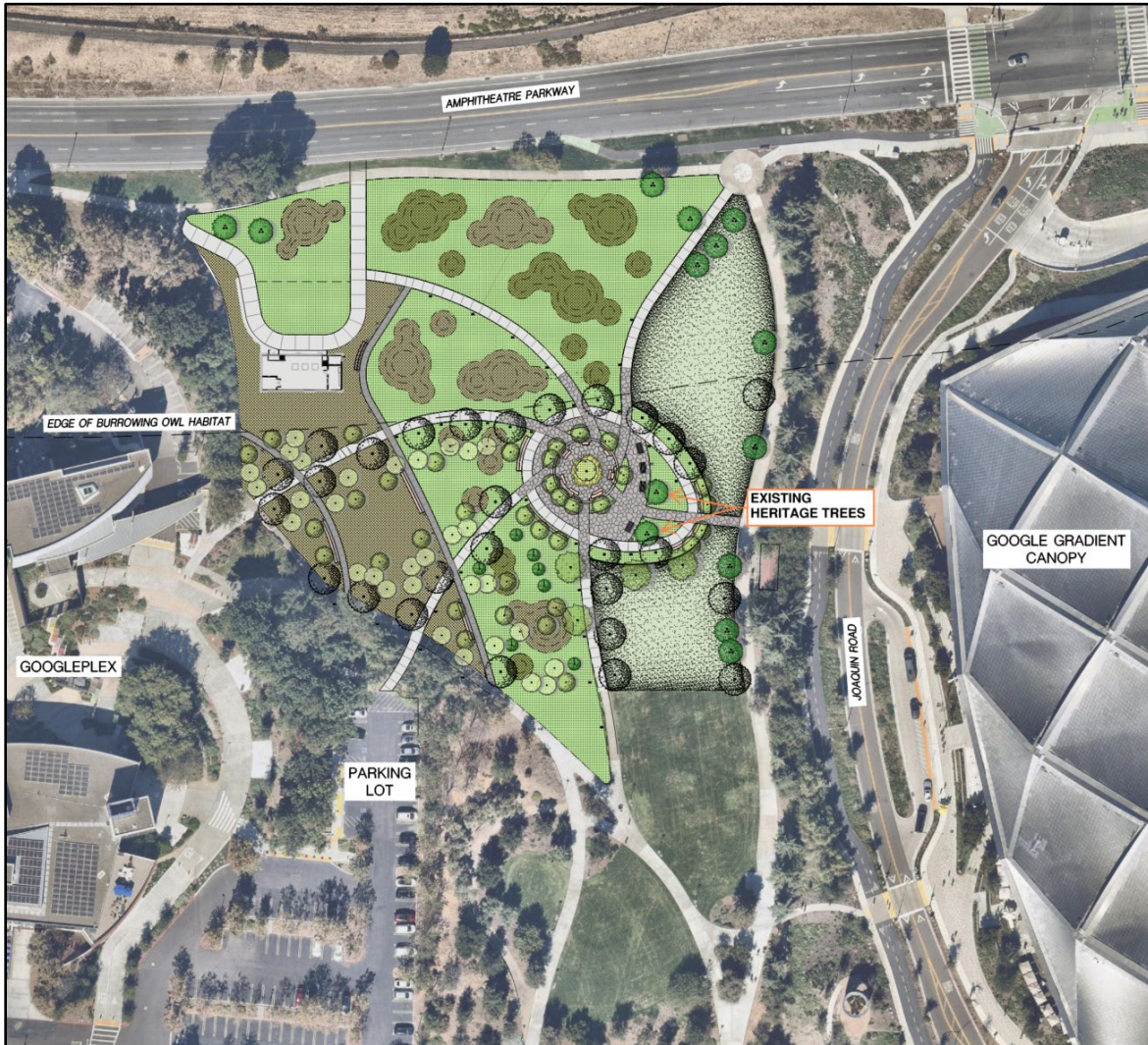


Figure 5: Charleston Park Layout

To complement the central plaza design, a network of radiating pathways extends outward, creating connections between key destinations, including Googleplex, Gradient Canopy, Amphitheatre Parkway, and the southwestern parking lot to the park. These pathways will be designed to meet Americans with Disability Act (ADA) standards and will ensure inclusive access throughout the park.

Landscape mounds add aesthetic interest by breaking up the park's overall profile and creates a separation from other landscaping areas and plantings. Further details can be found in the full preliminary layout plan in Attachment 1.

C. Lighting and Safety Enhancements

Environmentally sensitive lighting will be used throughout the project and provide adequate illumination for safety and security while minimizing light spill and glare. While HOZ restricts new structures exceeding 4 feet in height, existing fixtures are grandfathered and may be relocated elsewhere in the park. Accordingly, five light fixtures over 4 feet in height within the HOZ will be removed and reinstalled along the new pathways. Bollard lighting along minor pathways and the central plaza will improve nighttime visibility and comfort.

D. Landscaping Framework and Planting Palette

The landscaping framework draws on the plant palette introduced during the 2021 Charleston Park south side renovation, creating a unified, cohesive identity across the entire park. The updated planting approach emphasizes ecological resilience, water efficiency, and year-round visual interest. The full proposed planting palette is shown in Figure 6.

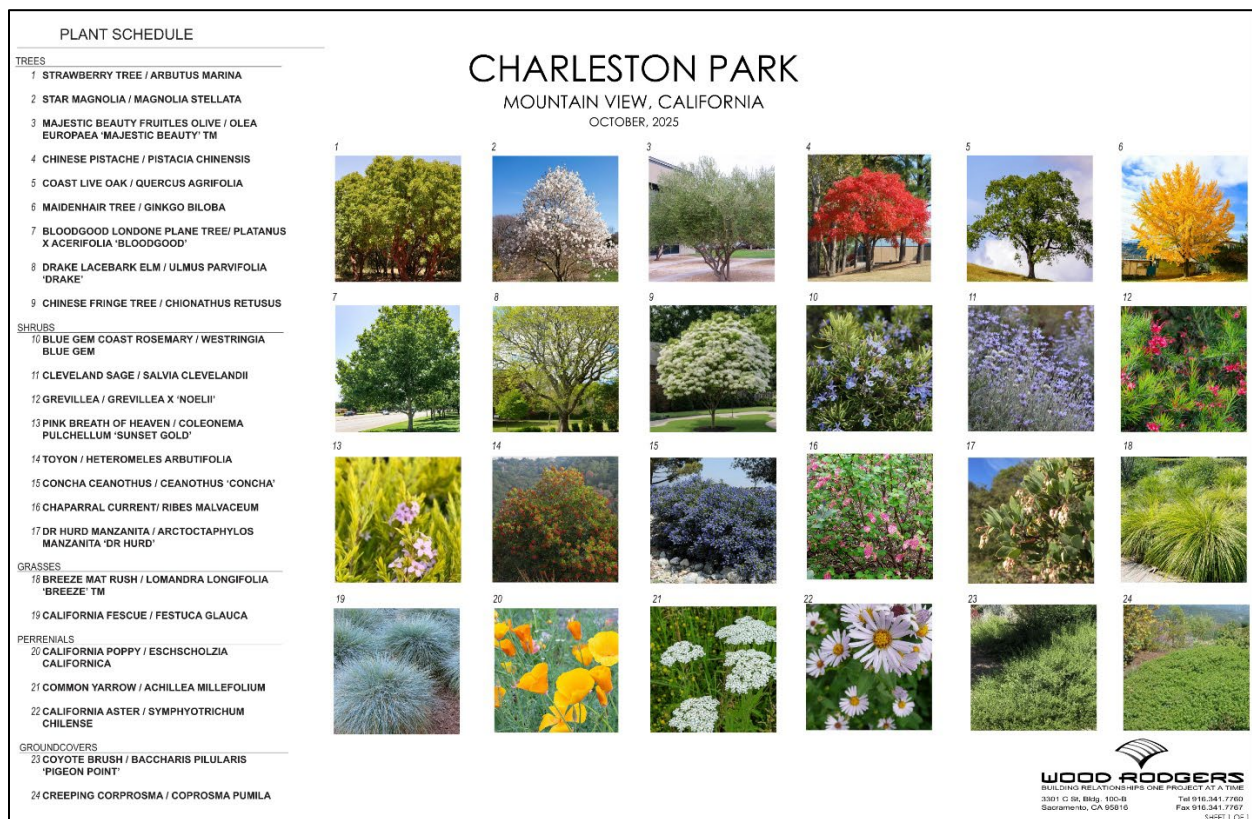


Figure 6: Proposed Planting Palette

The planting approach emphasizes the use of native and climate-adapted species, and balances three functional zones (Figure 7):

- **Native Meadow and Hillside Grasses:** Along the western hillside adjacent to Googleplex, the design introduces a hydroseeded “no-mow” mix of native bunchgrasses such as *Deschampsia elongata* (Slender Hairgrass), *Koeleria macrantha* (Prairie Junegrass), *Poa secunda* (Bluegrass), and *Eschscholzia californica* (California Poppy) which will create a natural meadow aesthetic. These species require minimal irrigation and are compatible with recycled water, improve soil stability, and provide habitat for pollinators.
- **Shrubs and Groundcover Layer:** In the central area and over the reservoir, drought-tolerant native shrubs and groundcover form a colorful, low-maintenance tapestry that softens the interface between pathways and open areas. Representative species include *Heteromeles arbutifolia* (Toyon), *Ceanothus ‘Concha’* (California Lilac), *Salvia clevelandii* (Cleveland Sage), and *Achillea millefolium* (Common Yarrow). These species provide seasonal color and habitat value and require limited pruning and irrigation. Plant height is limited to preserve open sightlines across the plaza and toward Gradient Canopy.
- **Recreation and Open Turf Zone:** The eastern side near Joaquin Road retains open turf for informal recreation, gatherings, and flexible community use. The approximately 28,000 square feet turf area will be established with a drought-tolerant fescue blend suitable for recycled water irrigation. The open lawn serves as a visual and functional counterbalance to the planted hillside and central plaza, maintaining the park’s identity as an accessible, multi-use urban green space.

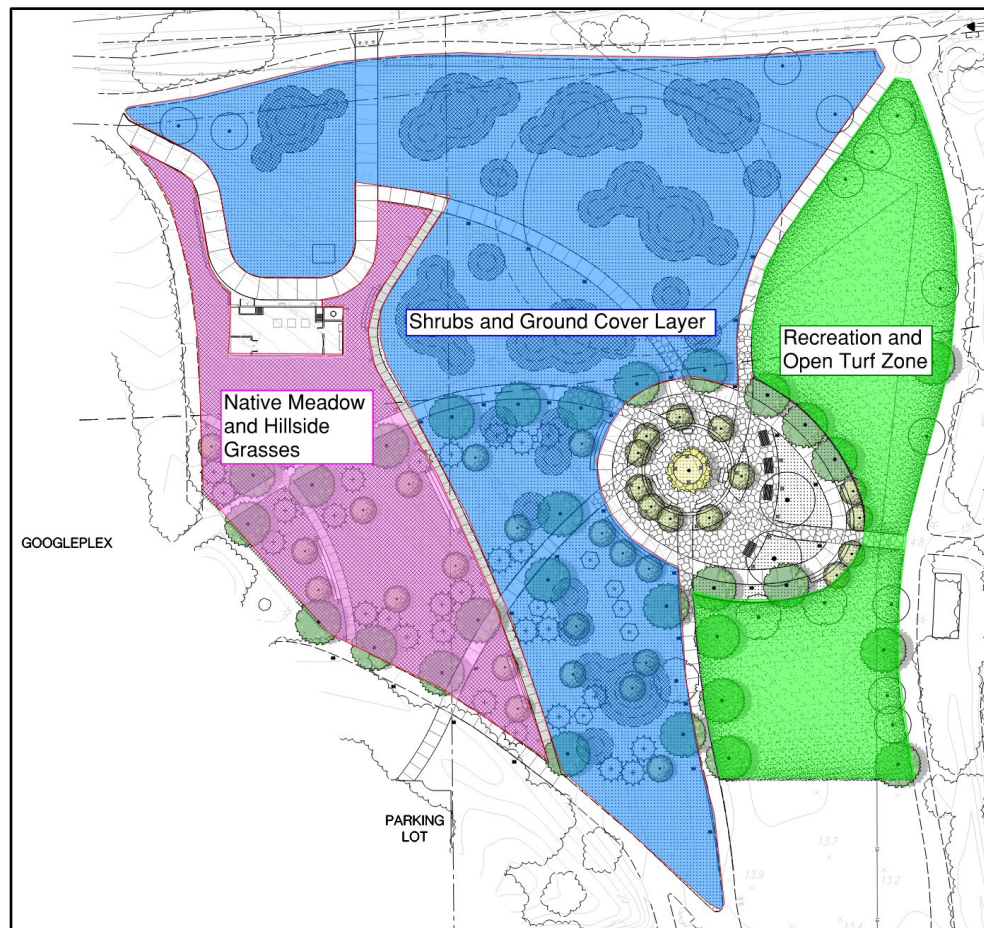


Figure 7: Conceptual Landscape Zones

Together, these zones create a visually diverse yet unified park experience, promoting biodiversity, reducing maintenance needs, and ensuring year-round interest.

E. Tree Canopy and Replacement Strategy

Trees are a defining feature of Charleston Park's landscape identity, providing structure, seasonal character, and ecological value within the broader Shoreline Regional Park Community. The project aims to both protect existing canopy and establish a new generation of trees suited to evolving site conditions.

Approximately forty-two (42) non-heritage *Aesculus californica* (California Buckeye) trees currently surround the existing water feature. The planned removal of the water feature and the redesign of the adjacent hillside along with the addition of ADA-complaint pathways will impact many of these Buckeye trees. While these buckeyes are in fair condition, construction activities such as hardscape removal, soil excavation, and grading near the tree root zones are expected to cause significant disturbance and negatively impact tree health.

Common Name	Scientific Name	Heritage	Total No. of Trees	Proposed Trees to be Removed	Proposed Trees to be Preserved
California buckeye	<i>Aesculus californica</i>	0	42	35	7

Table 1: Existing Buckeye Tree Management

Arborist assessments indicate that relocating the affected Buckeyes would likely result in a low survival rate due to transplanting stress. Based on the proposed design of the hillside, an estimated 7 Buckeyes adjacent to and south of the pathway leading to the parking lot (Figure 8) can be preserved, while the remaining 35 Buckeyes are proposed for removal and replacement at a 1:1 ratio with larger-caliper native species selected for their resilience and ability to provide shade canopy.

**Figure 8: Buckeye Tree Management Plan**

Building on this replacement strategy, the project goes beyond simple mitigation by significantly expanding the park's tree canopy. In addition to the **35 replacement trees**, **64 new trees** are proposed throughout the park as shown in Table 2. This design reinforces the park's green character and enhances long-term shade coverage. The proposed planting features *Pistacia Chinensis* "Keith Davey" (Keith Davey Chinese Pistache), *Platanus x Acerifolia* "Bloodgood" (Bloodgood London Plane Tree), and *Arbutus x 'Marina'* (Marina Strawberry Tree) as key potential species. As illustrated in Figure 9, the canopy replacement and enhancement plan distributes new tree plantings throughout Charleston Park to restore shade coverage, strengthen the park's visual identity, and create a cohesive landscaping experience.

Tree Category	Species	No. of Trees
Replacement Trees (Shade)	<i>Pistacia Chinensis</i> 'Keith Davey' / Keith Davey Chinese Pistache <i>Platanus X Acerifolia</i> 'Bloodgood' / Bloodgood London Plane Tree <i>Ulmus Parvifolia</i> 'Drake' / Drake Lacebark Elm	4
Replacement Trees (Accent)	<i>Arbutus X 'Marina'</i> / Marina Strawberry Tree <i>Chionanthus Retusus</i> / Chinese Fringe Tree <i>Magnolia Stellata</i> / Star Magnolia <i>Olea Europaea</i> 'Majestic Beauty' TM / Majestic Beauty Fruitless Olive	31
Subtotal Replacement Trees		35
New Trees (Shade)	<i>Pistacia Chinensis</i> 'Keith Davey' / Keith Davey Chinese Pistache <i>Platanus X Acerifolia</i> 'Bloodgood' / Bloodgood London Plane Tree <i>Ulmus Parvifolia</i> 'Drake' / Drake Lacebark Elm <i>Quercus Agrifolia</i> / Coast Live Oak	28
New Trees (Accent)	<i>Arbutus X 'Marina'</i> / Marina Strawberry Tree <i>Chionanthus Retusus</i> / Chinese Fringe Tree <i>Magnolia Stellata</i> / Star Magnolia <i>Olea Europaea</i> 'Majestic Beauty' TM / Majestic Beauty Fruitless Olive	35
New Tree (Specimen)	<i>Gingko Biloba</i> / Maidenhair Tree	1
Subtotal New Trees		64
Total:		99

Table 2: Proposed Tree Species

The canopy design incorporates new 24" box trees along turf edges to enhance shade and reduce irrigation needs, while maintaining open, flexible space within the park's interior. The trees shown in Figure 9 are illustrated at their typical mature size in an urban setting to accurately convey the anticipated canopy coverage once fully established.

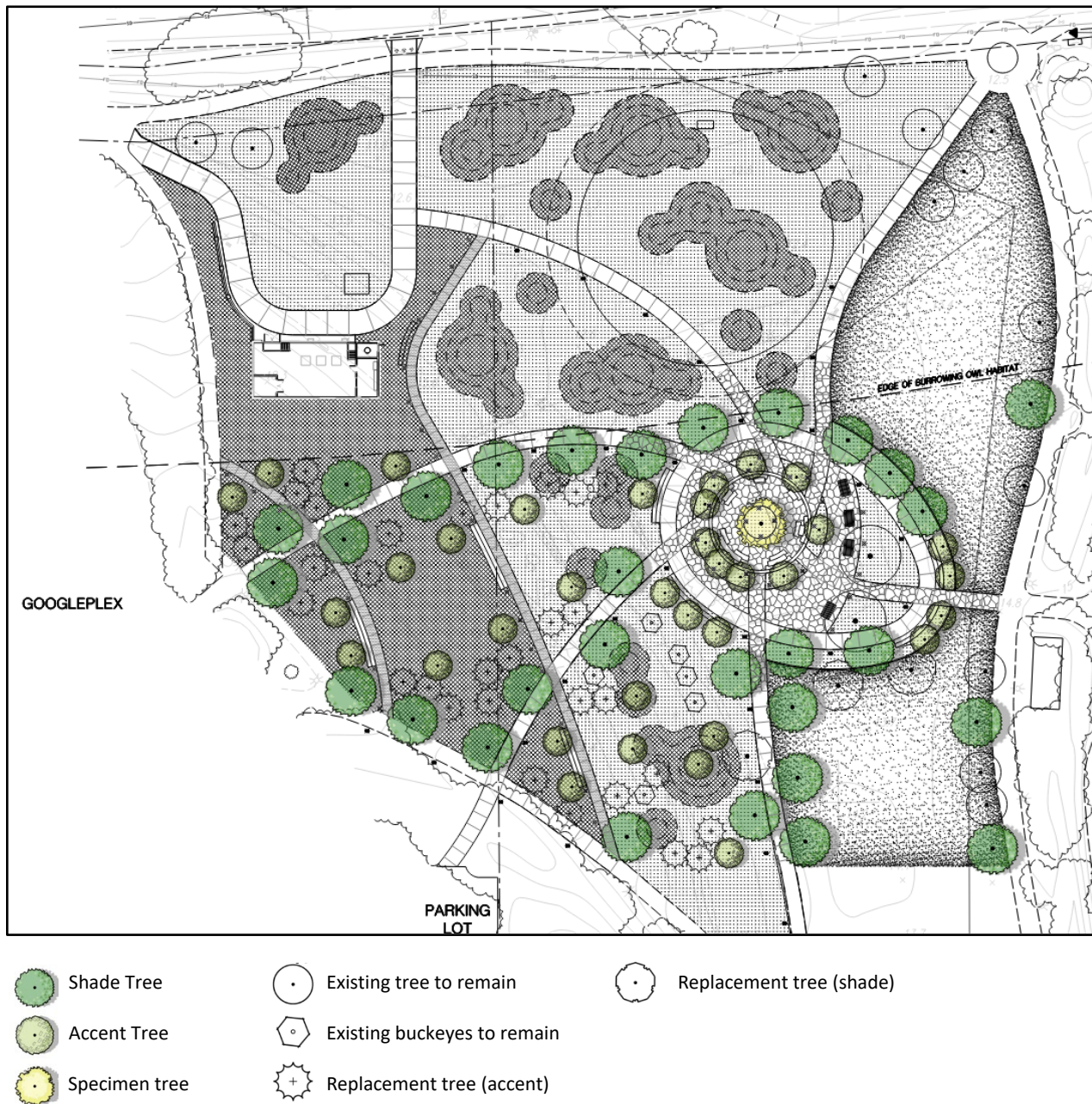


Figure 9: Conceptual Planting Plan and Tree Canopy

Stakeholder Outreach

Google buildings surround the project site to the east and west. Staff has been engaged with Google to solicit feedback on the conceptual park design since Charleston Park was selected for the project. However during preparation of this memo, Google provided new comments as follows:

- Increased/new pathways connecting the east and west sides of the park to facilitate pedestrian and bicycle connectivity between the two Google buildings. Staff is generally supportive of this request and will work to include additional or wider east-west pathways during the final design.
- Amphitheater seating in lieu of the plaza. Staff has informed Google that this is beyond the scope of the project and would require Google financial assistance to proceed forward.
- Increase visual connectivity between the park and the campuses by removing and/or relocating additional trees. City staff is not in support of tree removals to facilitate visual connectivity.

Due to the timing of these comments, they are not considered in the concepts being presented in this report. Staff will continue dialogues with Google to review pathway designs and the feasibility of a small amphitheater.

CONCLUSION

The Recycled Water Reservoir and Pump Station project demonstrates how essential public infrastructure can coexist with recreation, habitat, and design excellence. Key project benefits include:

- **Dual-purpose land use:** Below-grade reservoir and above grade pump station integrated with existing and future landscaping features to preserve open space.
- **Sustainability:** Supports expansion of the City's recycled water system while eliminating the high-maintenance water feature and introducing native landscaping.
- **Accessibility and connectivity:** Improved ADA pathway connectivity and route circulation for park users.
- **Ecological sensitivity:** Compliance with HOZ requirements and providing eco-sensitive lighting to preserve the environmental integrity of Charleston Park.

Staff requests the PRC to provide feedback on the following:

1. Charleston Park Layout:

- Park Plaza Design
- Radiating Walkways
- Landscaping Framework and Planting Palette

2. Tree Canopy and Replacement Strategy:

- Tree Canopy Layout
- Tree Replacement Strategy

NEXT STEPS

Staff will continue design development with the design consultant, City staff, and Google to finalize pathways, landscaping, and amenities. Following this coordination, staff will return to the PRC for input on the 65% design and proceed to complete the design by late 2026. Project construction is anticipated to start in summer 2027.

PUBLIC NOTICING

In addition to the standard agenda posting, notices were mailed to property owners and residents/tenants within 750' of the proposed project site.

~~SH-TT-LA/AF/1/CSD~~
~~955-07-01-24M~~

Attachments: 1. Preliminary Demolition, Layout, and Landscaping Plans – Charleston Park
2. Renderings of Proposed Improvements

cc: PWD, CSD, APWD – Au, PCE – Tseng, SCE – Chou, ACE – Husaini, F/c (23-40)