



CUPERTINO

CITY OF CUPERTINO

AGENDA

PARKS AND RECREATION COMMISSION

This will be a teleconference meeting without a physical location.

Wednesday, May 18, 2022

7:00 PM

Televised Special Meeting

TELECONFERENCE / PUBLIC PARTICIPATION INFORMATION TO HELP STOP THE SPREAD OF COVID-19

In accordance with Government Code 54953(e), this will be a teleconference meeting without a physical location to help stop the spread of COVID-19.

Members of the public wishing to observe the meeting may do so in one of the following ways:

- 1) Tune to Comcast Channel 26 and AT&T U-Verse Channel 99 on your TV.**
- 2) The meeting will also be streamed live on and online at www.Cupertino.org/youtube and www.Cupertino.org/webcast**

Members of the public wishing comment on an item on the agenda may do so in the following ways:

- 1) E-mail comments by 5:00 p.m. on Wednesday, May 18, 2022 to the Commission at parksandrecreationcommission@cupertino.org. These e-mail comments will be received by the commission members before the meeting and posted to the City's website after the meeting.**
- 2) E-mail comments during the times for public comment during the meeting to the Commission at parksandrecreationcommission@cupertino.org. The staff liaison will read the emails into the record, and display any attachments on the screen, for up to 3 minutes (subject to the Chair's discretion to shorten time for public comments). Members of the public that wish to share a document must email parksandrecreationcommission@cupertino.org prior to speaking.**

3) Teleconferencing Instructions

Members of the public may observe the teleconference meeting or provide oral public comments as follows:

Oral public comments will be accepted during the teleconference meeting. Comments may be made during “oral communications” for matters not on the agenda, and during the public comment period for each agenda item.

To address the Commission, click on the link below to register in advance and access the meeting:

Online

Please click the link below to join the webinar:

https://cityofcupertino.zoom.us/webinar/register/WN_Y4hlByShTkKxWca0-ySXlA

Phone

Dial 669-900-6833, enter Webinar ID: 958 6379 9941 (Type *9 to raise hand to speak)

Unregistered participants will be called on by the last four digits of their phone number.

Or an H.323/SIP room system:

H.323:

162.255.37.11 (US West)

162.255.36.11 (US East)

213.19.144.110 (Amsterdam Netherlands)

213.244.140.110 (Germany)

103.122.166.55 (Australia Sydney)

103.122.167.55 (Australia Melbourne)

69.174.57.160 (Canada Toronto)

65.39.152.160 (Canada Vancouver)

Meeting ID: 958 6379 9941

SIP: 95863799941@zoomcrc.com

After registering, you will receive a confirmation email containing information about joining the webinar.

Please read the following instructions carefully:

1. You can directly download the teleconference software or connect to the meeting in your internet browser. If you are using your browser, make sure you are using a current and up-to-date browser: Chrome 30+, Firefox 27+, Microsoft Edge 12+, Safari 7+. Certain functionality may be disabled in older browsers, including Internet Explorer.

2. You will be asked to enter an email address and a name, followed by an email with instructions on how to connect to the meeting. Your email address will not be disclosed to the public. If you wish to make an oral public comment but do not wish to provide your name, you may enter “Cupertino Resident” or similar designation.

3. When the Chair calls for the item on which you wish to speak, click on "raise hand." Speakers will be notified shortly before they are called to speak.

4. When called, please limit your remarks to the time allotted and the specific agenda topic.

In compliance with the Americans with Disabilities Act (ADA), anyone who is planning to attend this teleconference meeting who is visually or hearing impaired or has any disability that needs special assistance should call the City Clerk's Office at 408-777-3223, at least 48 hours in advance of the meeting to arrange for assistance. In addition, upon request, in advance, by a person with a disability, meeting agendas and writings distributed for the meeting that are public records will be made available in the appropriate alternative format.

NOTICE AND CALL FOR A SPECIAL MEETING OF THE CUPERTINO PARKS AND RECREATION COMMISSION

NOTICE IS HEREBY GIVEN that a special meeting of the Cupertino Parks and Recreation Commission is hereby called for Wednesday, May 18, 2022, commencing at 7:00 p.m. In accordance with Government Code 54953(e), this will be a teleconference meeting without a physical location to help stop the spread of COVID-19. Said special meeting shall be for the purpose of conducting business on the subject matters listed below under the heading, "Special Meeting."

SPECIAL MEETING

CALL TO ORDER

ROLL CALL

ORAL COMMUNICATIONS

This portion of the meeting is reserved for persons wishing to address the Commission on any matter within the jurisdiction of the Commission and not on the agenda. Speakers are limited to three (3) minutes. In most cases, State law will prohibit the Commission from making any decisions with respect to a matter not on the agenda.

WRITTEN COMMUNICATIONS

NEW BUSINESS

1. Subject: Update on Fiscal Year 2021-22 City Work Program Item Blackberry Farm Golf Course Needs Assessment

Recommended Action: Receive the report from National Golf Foundation Consulting (NGF) for the option to complete minor repairs and improvements to the golf course and the report from Moore Iacofano Goltsman, Inc. (MIG) for converting the golf course to natural habitat. Provide input and feedback on next steps regarding public outreach.

[Staff Report](#)

[A - Existing Site Conditions](#)

[B - NGF Report - Minimal Repairs to Golf Course](#)

[C - MIG Report - Convert to Natural Habitat](#)

[D - Blackberry Farm Golf Course Use Analysis Comparative Costs - 25 Year Outlook](#)

[E - Selected Pages from Parks Master Plan](#)

[F - Draft Online Survey](#)

STAFF AND COMMISSION REPORTS

2. Subject: Monthly Update Reports

Recommended Action: Receive monthly update reports from the Director of Parks and Recreation.

ADJOURNMENT

In compliance with the Americans with Disabilities Act (ADA), anyone who is planning to attend this meeting who is visually or hearing impaired or has any disability that needs special assistance should call the City Clerk's Office at 408-777-3223, at least 48 hours in advance of the meeting to arrange for assistance. In addition, upon request, in advance, by a person with a disability, meeting agendas and writings distributed for the meeting that are public records will be made available in the appropriate alternative format.

Any writings or documents provided to a majority of the members after publication of the agenda will be made available for public inspection. Please contact the City Clerk's Office in City Hall located at 10300 Torre Avenue, Cupertino, California 95014, during normal business hours.

IMPORTANT NOTICE: Please be advised that pursuant to Cupertino Municipal Code section 2.08.100 written communications sent to the Cupertino City Council, Commissioners or City staff concerning a matter on the agenda are included as supplemental material to the agenda item. These written communications are accessible to the public through the City's website and kept in packet archives. Do not include any personal or private information in written communications to the City that you do not wish to make public, as written communications are considered public records and will be made publicly available on the City website.

Members of the public are entitled to address the members concerning any item that is described in the notice or agenda for this meeting, before or during consideration of that item. If you wish to address the members on any other item not on the agenda, you may do so during the public comment.



CITY OF CUPERTINO

Agenda Item

22-10953

Agenda Date: 5/18/2022

Agenda #: 1.

Subject: Update on Fiscal Year 2021-22 City Work Program Item Blackberry Farm Golf Course Needs Assessment

Receive the report from National Golf Foundation Consulting (NGF) for the option to complete minor repairs and improvements to the golf course and the report from Moore Iacofano Goltsman, Inc. (MIG) for converting the golf course to natural habitat. Provide input and feedback on next steps regarding public outreach.



PUBLIC WORKS DEPARTMENT

CITY HALL
10300 TORRE AVENUE • CUPERTINO, CA 95014-3255
TELEPHONE: (408) 777-3354 • FAX: (408) 777-3333
CUPERTINO.ORG

PARKS AND RECREATION COMMISSION STAFF REPORT

Special Meeting: May 18, 2022

Subject

Update on Fiscal Year 2021-22 City Work Program Item Blackberry Farm Golf Course Needs Assessment

Recommended Action

Receive the report from National Golf Foundation Consulting (NGF) for the option to complete minor repairs and improvements to the golf course and the report from Moore Iacofano Goltsman, Inc. (MIG) for converting the golf course to natural habitat. Provide input and feedback on next steps regarding public outreach.

Background

The Blackberry Farm Golf Course was constructed in 1962 and has been owned by the City since 1991. The site is approximately 16 acres and contains a 9-hole golf course, a parking lot, one main building and three accessory maintenance facilities. The main city owned building houses a pro shop and a restaurant facility that is leased by the Blue Pheasant. See **Attachment A - Existing Site Conditions** for site overview. Most of the property is located within a designated floodplain and is adjacent to Stevens Creek which contains protected and sensitive wildlife species, such as steelhead trout.

In the early 2000's, the Stevens Creek Corridor Master Plan (SCCMP) was initiated. Its goal was to create an updated vision and plan for public lands along Stevens Creek, from McClellan Road northward to Stevens Creek Boulevard. In 2014, in parallel to the SCCMP the City hired NGF to assess various options for improvements to the golf course. In 2015 and 2016 several golf course improvement options were presented to City Council for consideration. Alternatives ranged from minor repairs to the golf course to full reconfiguration, including construction of a new clubhouse. During meetings, comments about converting the golf course back to natural habitat were raised.

The efforts associated with the SCCMP and improvements to the golf course were suspended due to City Council's decision to focus first on completion of the citywide park system master plan. Since the adoption of the *Parks and Recreation System Master Plan* in 2020 the City has reinitiated the discussion regarding the golf course. The project's objective is to determine

short-term and long-term improvements to the golf course and amenities and is part of the Fiscal Year (FY) 2021-22 City Work Program. At the June 3, 2021 Parks and Recreation Commission meeting, the commission unanimously recommended to City Council to update feasibility study for Option 1 (minimal repairs) and to continue with a feasibility study for Option 3 (return to habitat). At the July 20, 2021 meeting, the City Council unanimously agreed to have staff update feasibility study for Option 1 (minimal repairs) and to continue with a feasibility study for Option 3 (return to habitat). The first option is intended to focus on completing minor repairs and improvements to the golf course. See **Attachment B - NGF Report – Minimal Repairs to Golf Course**. The second option is to convert the site to natural habitat. See **Attachment C - MIG Report – Convert to Natural Habitat**.

Discussion

Following the aforementioned direction from Council to “...update the study for minimal repairs to the golf course (Option 1) and to study returning the golf course to natural habitat (Option 3)...” the City hired two consultants to complete these studies, NGF and MIG.

NGF was directed to update their previous 2014 report and provide additional input to complete minor improvements of the golf course. This scope of work did not include assessment of the city owned building that houses the Blue Pheasant Restaurant and pro shop or assessment of business uses.

MIG was asked to complete a feasibility study for habitat restoration of the entire site. This would include a natural park focusing on a diverse ecosystem utilizing native plant species. The park would also include walking trails and active and passive restoration actions.

A. NGF Report Summary

Prior to the COVID-19 pandemic, the golf course averaged approximately 28,000 rounds of golf annually. During the pandemic the average number of rounds increased to 41,000. The City anticipates post-pandemic averages to be closer to pre-pandemic levels. Ongoing maintenance of the existing tees, greens, and fairways of the golf course is a primary expenditure for the City at this site. On average, the City subsidizes the golf course with \$272,000 (pre-COVID) of funding.

The study completed by NGF includes the following primary features for repair or improvement.

- 1) Replacement of the irrigation system.
- 2) Replace historical ponds with lowland native vegetation.
- 3) Replace tees and greens as needed.
- 4) Installation of protective netting between tee #6 and hole #4.
- 5) Shorten hole #9 to limit errant shots into the existing parking lot.
- 6) Grading or terracing of small areas of the course to improve safety and access.

- 7) Assess conversion of the water source from municipal potable water to well water.

Golf Course Irrigation

The viability of the golf course is directly tied to the irrigation system. The current irrigation system is 60 years old. It has antiquated mainline pipes and has outlived its intended lifecycle by over 30 years. Mainline pipe failures occur no less than one time per year and lateral pipe breaks or leaks occur frequently. This is cause for substantial waste of water as well as financial resources. Additionally, many replacement parts for the system are no longer available.

In 2011 the City hired Russell D. Mitchell & Associates (RDMA) to re-design the irrigation system. The new irrigation system was not constructed due to the recognition that a wider Stevens Creek Corridor Master Plan was needed to steer the direction of the entire corridor prior to improvements to the golf course. RDMA is a subconsultant to NGF for this current NGF report.

Irrigation practices since 2014 have included restrictions on total water use due to drought conditions. Prior to 2014 no restrictions were imposed on the site. **Table 1 – Irrigation Water Use Pre-2014 and Post-2014** below demonstrates the difference in water use before and after 2014.

Table 1 – Irrigation Water Use Pre-2014 and Post-2014

Year Range	Average Annual Water Use
2008 through 2013	15.9 million gallons
2014 through 2021	8.5 million gallons

The volume of potable water used after 2014 has been 53% of that used prior to 2014. The current average use of 8.5 million gallons included measures taken to improve the irrigation control system as well as extensively cutting back the total acreage irrigated. At times, up to 1/3 of the irrigation heads have been shut off for extensive periods to limit water use. This reflects irrigation of about 8 acres of the 12.5-acre site. Areas designated for limited or no irrigation tend to brown and have typically included the fairways and the rough. Critical areas to keep healthy and green include the tees and greens.

Replacement of the irrigation system will not only allow the golf course to continue operation many years into the future but will also improve water-use efficiency and effectiveness. The improved irrigation design allows for irrigation of up to 12.5 acres of the site. In times of water-use restrictions the new system can readily be adjusted to meet use limitations. This may include less water on a wide area of the golf course or irrigation of less acreage of the site. Projections for water use with a new irrigation system as reflected in the 2011 RDMA design are outlined below in **Table 2 – Water Use Projections with New Irrigation System. Table 2**

indicates that water savings over the current annual average of 8.5 million gallons can be achieved by limiting the total acreage irrigated to less than 12.0 acres assuming a standard irrigation regime for golf course turf. As drought conditions continue and water use restrictions are in place for the golf course as little as 9.5 acres of turf can be watered and would reflect a 21% decrease in water use relative to the post-2014 average.

Table 2 – Water Use Projections with New Irrigation System

Projected Irrigated Acres	Total Reduction in Irrigated Acres	Projected Annual Water Use (ETWU) (gallons)	Percentage Reduction in Water Use vs. Irrigating Full 12.5 Acres	Percentage Change from Post-2014 Average of 8.5M Gallons
12.5	0.0	8,825,050	0%	4% More
11.5	1.0	8,119,046	8%	4% Less
10.5	2.0	7,413,042	16%	13% Less
9.5	3.0	6,707,038	24%	21% Less

Note: $ETWU = (Acres * Acre-In * Eto * PF) / IE$. To calculate ETWU RDMA assumed an average Annual Evapotranspiration Rate (ETo) of 30 inches, a Plant Factor (PF) of 0.65%, and an Irrigation Efficiency (IE) of 75%.

Water Source Conversion – Potable vs. Well

Over the past 10 years the City has explored the option to revitalize the existing well located near the site. This well was used as the primary source of irrigation for the golf course from 1962 until 2003. Failure of a storage tank, which held water pumped from the well, caused the City to convert from well use to municipal potable water. Currently, potable water is the sole source of irrigation for the site.

A study to test the existing well water production capacity completed in January 2012 by Balance Hyrdologics indicated that the well could pump up to 200 gallons per minute (gpm) but that pumping at such a high rate could have a detrimental effect on flows in Stevens Creek. Regulatory agencies would likely require additional testing and continuous monitoring of Stevens Creek flows to ensure the creek would not be impacted by well operations for irrigating the golf course. This testing and monitoring of Steven Creek could be a substantial cost for the City depending on the regulatory requirements.

NGF's assessment to convert the well back to use for irrigation at BBF golf course indicate an additional capital cost of approximately \$932,000 with annual maintenance costs of at least \$9,900 over the cost of continuing to utilize potable water. Between initial capital costs, ongoing maintenance costs, groundwater use fees, and any required ongoing testing and monitoring of the system to irrigate the golf course the revitalization of the well is not likely a financially or environmentally sound alternative.

Replacement of Tees and Greens

The NGF Report accounts for replacement of all tees and greens. It is noted that the tees and greens could be replaced on an as needed basis to save initial capital costs. New tees and greens will improve the playability of the course. Regardless, typically it is recommended to replace tees and greens every 10 years.

Shortening Hole #9

NGF recommends shortening hole #9 from approximately 560 ft. to 450 ft. to improve site safety due to errant ball going into the existing parking lot. The space gained by shortening of hole #9 could be converted to additional practice hitting bays and a small practice green.

Addition of Protective Netting

NGF is recommending as a minimal baseline safety measure to add netting between holes #4 and #6. This will help eliminate concerns associated with errant shots from hole #4 onto the tee box at hole #6. NGF also notes that this measure will not eliminate other safety concerns for the golf course. Several other safety concerns are discussed within the NGF Report but are not included in the cost estimates provided.

Minor Repair and Improvement Costs

NGF estimates the capital costs for completing minor repairs and improvements to BBF Golf Course to be \$1.97 million. The City estimates that, over a 25-year period, the total cost of operation and maintenance (O&M) with these improvements will be \$8.12 million after accounting for projected revenues. Total cost to the City over a 25-year period is projected to be \$10.09 million.

B. MIG Report Summary

The City has hired MIG, Inc. to assist with a feasibility study of the option to convert BBF Golf Course to natural habitat. MIG's scope includes an assessment of existing site and habitat conditions. Generally, Stevens Creek has been a protected resource for more than 100 years due to its value as a wildlife corridor. The value of the corridor has increased over time, given the continued urbanization of the area.

BBF Golf Course is predominately located within the Federal Emergency Management Agency's (FEMA) 100-yr Flood Zone. Habitat native to the golf course would typically include multiple special-status plants but currently these plants cannot be found at the site. Additionally, MIG determined that up to three wildlife species may currently occur at the site.

At BBF Golf Course the historic ecology was likely oak savanna. This includes a low density of oak trees with mostly open canopy. The understory was likely annual grass with scattered shrubs and perennial grasses. MIG's analysis accounts for adaptation to projected climate change conditions. A return to oak savanna is compatible with anticipated ecological changes due to climate change. MIG proposes a restoration approach that includes the delineation of a riparian regeneration zone, the establishment of wildflower meadows, and designated habitat islands. Habitat islands would include flowering shrubs and native oaks. Existing coastal redwood trees would remain onsite.

Amenities for the public would include nature trails, outdoor seating, and environmental education opportunities along with other potential recreational opportunities. Park rangers would be present onsite through conversion of the pro shop to office space. The existing restrooms adjacent to the pro shop will also be available. Additionally, there would be an expansion of the parking lot located south of the golf course.

The conversion to natural habitat would include sustainable management practices. There is an estimated three-to-five-year establishment period for plantings. During this period habitat islands would be irrigated via drip irrigation and areas outside of the islands would either be trail facilities or be allowed to naturally migrate to an ecological "steady state" with use of native vegetation. This vegetation will be maintained periodically to establish standard defensible space management practices to limit exposure to fire hazards.

Use of potable water for irrigation would be limited to the habitat islands and be operational for a period of up to eight years to ensure establishment of vegetation. After an eight-year period the irrigation can be removed from the area. MIG anticipates that the native and drought-tolerant vegetation will survive within its natural environment without irrigation. Due to the type of vegetation species and the limited area planned for irrigation the City anticipates a substantial reduction in potable water use relative to continued operation of the golf course.

Natural Habitat Costs

MIG estimates a capital cost of \$1.88 million to convert the golf course to natural habitat. The City estimates that, over a 25-year period, the total cost of operation and maintenance for this option will be \$10.22 million after accounting for projected revenues. Total cost, over a 25-year period, to convert the golf course to natural habitat is projected to be \$12.10 million. The City is confident some grant funding will be available for this option. Costs presented here to not account for potential grant funding.

Note: The City anticipates that grant funding may be available for this option. The City projects potential grant funding of \$300,000 for initial improvements and \$300,000 in operational grant funding.

C. Comparative of Total Project Costs – 25 Year Outlook

Based on the planned improvements and recommendations for the site within the NGF and MIG reports, the City has established a cost estimate for each option. The estimates reflect a 25-year operational period. The cost estimates are provided in today's dollars and do not account for inflation. Costs included account for initial capital costs to construct the improvements, projected revenues, and ongoing operations and maintenance of the respective facilities.

Attachment D – Blackberry Farm Golf Course Use Analysis Comparative Costs – 25 Year Outlook provides a summary of costs associated with each option.

In summary, after accounting for projected revenues, costs for the option to repair the golf course are \$1.97 million in capital costs with an additional \$8.12 million in ongoing O&M costs. Costs for converting the site to natural habitat is \$1.88 million in capital costs with an additional \$10.22 million in ongoing O&M costs.

Additionally, as a comparative, **Attachment D** provides an estimate of the total projected water use over 25 years for each alternative. This is a relevant metric in terms of costs as well as use of natural resources. It is anticipated that in Santa Clara County the cost of potable water will continue to increase at a rate higher than the overall Consumer Price Index for the area. This may lead to disproportionate costs associated with water use in the future. It is projected that the option to convert the site to natural habitat will use less than 10% of the water needed to irrigate the golf course over a 25-year period.

D. Proposed Public Outreach Process

During the Parks and Recreation System Master Plan public outreach process the City received a variety of input about the community's priorities for programming and use of park space. Survey information received during the master planning process indicates that 83% of respondents noted that improving access to natural open space is very or somewhat important. This compares with 74% of respondents who stated that a variety of recreational opportunities is very or somewhat important. See **Attachment E – Selected Pages from Parks Master Plan** for additional detail. The Blackberry Farm Golf Course site offers great opportunities for either of these community priorities.

The City understands the importance of allowing the community to provide input specific to the future use Blackberry Farm Golf Course. To facilitate public input the City plans to issue an online survey specifically asking the community its preferences between the two alternative uses of the site. See **Attachment F – Draft Online Survey** for the specific questions associated with the survey. The survey will be open to the public the week of May 23, 2022 and close no

later than July 15, 2022. Residents will be notified about the project and online survey through a postcard to be mailed to each residence. Additionally, the City will be holding a virtual community meeting on June 6, 2022 at 6:30 p.m. to provide an overview of the alternatives and hear directly from the community.

The City has retained Cascadia Consulting to assist with the public outreach process and analysis of community input. Once community input is provided and analyzed City staff will return to the Parks and Recreation Commission for recommendations on next steps for the project.

Sustainability Impact

The primary sustainability impact for these projects is the potential for considerable water use savings. For continued use of the golf course installation of an improved irrigation system can decrease water use by up to 21% of current levels. If the site is converted to natural habitat water use will be less than 10% that used for the golf course over a 25-year period.

Fiscal Impact

The pre-COVID annual subsidy for operation of the golf course has averaged \$272,000. After accounting for projected revenues, costs over a 25-year period for each option is summarized below:

- A. Repair the Golf Course
 - a. \$1.97 million (Total Capital Cost)
 - b. \$8.12 million (Total O&M Cost)
 - c. Average Annual O&M Cost = \$324,705
- B. Converting the Site to Natural Habitat
 - a. \$1.88 million (Total Capital Cost)
 - b. \$10.22 million (Total O&M Cost)
 - c. Average Annual O&M Cost = \$408,824

(Note: Potential grant funding may reduce projected capital and O&M costs)

Attachment D provides a summary of costs associated with each option.

Prepared by: Lisa Cameli, Project Manager

Reviewed by: Susan Michael, CIP Manager

Approved for Submission by: Matt Morley, Director of Public Works

Attachments:

A – Existing Site Conditions

B – NGF Report – Minimal Repairs to Golf Course

C – MIG Report – Convert to Natural Habitat

D – Blackberry Farm Golf Course Use Analysis Comparative Costs – 25 Year Outlook

E – Selected Pages from Parks Master Plan

F – Draft Online Survey



EXISTING CONDITIONS

- PROJECT BOUNDARY
- PARCELS
- TRAIL
- ON-STREET BIKE ROUTE OR LANE
- CREEK
- BUILDING
- NEIGHBORHOOD

SOURCE: CITY OF CUPERTINO

Attachment A Existing Site Conditions

BBF Golf Course

BBF Golf Course

Maximum Total Irrigated Area = 12.5 acres



Blackberry Farm Golf Course – Analysis of Minimal Repairs and Conversion of Irrigation to Well Water

Prepared For:

City of Cupertino

Parks and Recreation
10185 N Stelling Rd
Cupertino, CA 95014

Prepared By:



501 N. Highway A1a
Jupiter, FL 33477
(561) 744-6006

May 2022

Table of Contents

INTRODUCTION & PROJECT BACKGROUND	2
Current Scope of Services	3
Methodology	3
Limitations	3
BLACKBERRY FARM GOLF COURSE.....	5
History.....	5
Golf Course Overview and Summary of Facilities	5
Course Overview	5
Practice Facilities.....	5
Maintenance Facility	6
On-course Restrooms	6
Pro Shop and Grounds.....	6
Assessment of Current Golf Course Conditions	6
Current Conditions and General Deficiencies	6
Changes to Hole No. 9 and Practice Area	10
BLACKBERRY FARM GOLF COURSE “MINIMAL REPAIRS” IMPROVEMENT COSTS	11
Cost Estimates – Minimal Repairs Scenario.....	11
Pricing Methodology	11
Cost Estimates	11
IRRIGATION AND WATER SOURCE CONVERSION	14
Current Irrigation System	14
Current Water Use and Future Projections.....	15
Water Source Conversion to Well	16
Daily Water Use Estimate – Average Summer Day.....	16
Additional Discussion on Benefits/Efficiency of New System	16
Well Reactivation Estimated Costs.....	18
Estimated Well Reactivation Costs	18
Irrigation Cost Comparison – Potable vs. Well.....	19
SUMMARY BENEFITS OF UNDERTAKING MINIMAL IMPROVEMENTS FOR BFGC	20
Cost Efficiencies	20
Environmental Orientation.....	20
Congruence with Parks & Recreation Master Plan Goals.....	20
Replacing Empty Ponds with Native Lowland Landscape	20
NGF Conclusion.....	21
APPENDICES.....	22
Appendix A – Assessment of Golf Course Components.....	23
Appendix B – Minimum Safety Set-Backs Exhibit.....	27
Appendix C – Miscellaneous Exhibits.....	28

Introduction & Project Background

National Golf Foundation Consulting, Inc. (“NGF Consulting” or “NGF”) was retained by the City of Cupertino (“City”) in late 2021 to formulate new probable cost estimates for the “minimal repairs” improvement scenario for Blackberry Farm Golf Course (alternately, “Blackberry Farm GC”). The consulting engagement was managed by Ed Getherall, NGF’s Senior Director of Operations, with golf course architecture firm Richardson-Danner, ASGCA, and Russell D. Mitchell & Associates, Inc., irrigation consultant, acting as subcontractors to NGF.

National Golf Foundation Consulting, Inc. was previously retained by the City in 2014 to present potentially viable options regarding the future of Blackberry Farm GC. That consulting engagement was done as part of the overall due diligence related to the Stevens Creek Corridor Master Plan.

Cost estimation for the current study applies to the following elements of “Minimal Repair”, as defined by the City:

- Replacing the irrigation system. The two scenarios of Potable vs Well Water are addressed here, requiring a discussion of the logistics of re-activating the well (connection to potable water should be made regardless, as a back-up).
- Replacing the empty ponds with lowland native areas.
- Replacing tees and greens as needed (e.g., #3 tee - removing mat & replacing w/grass). Tees and greens are replaced approximately every 6 years as needed. (NGF has recommended replacing all greens with the irrigation system replacement, and included this in the cost estimates).
- Installing netting to protect the #6 tee box from errant shots on the Hole #4.
- Shortening the 9th hole to eliminate the number of errant shots to the parking lot, trail, and Hole #1. Flipping the driving net, and making it longer and with additional bays. Adding a short game practice area (chipping/sand bunker), with protective netting.
- Identifying locations where installation of steps or terracing would be beneficial.

The NGF team was also tasked with evaluating and analyzing the logistics and cost feasibility of reactivating the on-site well. The analysis includes professional opinion on what is needed structurally to restore and revitalize the existing well for use as the golf course irrigation source. This scope includes a preliminary cost estimate to reactivate the well, as well as a comparison of annual operating costs for use of Potable water vs Well water as the irrigation source at Blackberry Farm GC.

CURRENT SCOPE OF SERVICES

In late 2021, the NGF was retained to review a “Minimal Repair Scope” for Blackberry Farm Golf Course. While some of these items represent those from the NGF’s 2014 report, the City asked the NGF to review only the stated items in isolation from other potentially interrelated repairs. Therefore, the current NGF reporting cannot not fully consider the contextual influence each item has on the overall needs of the golf course.

The key areas the NGF Consulting team was asked to focus on – in addition to the aforementioned issues around potential reactivation of the on-site well – included, but were not limited to:

- (1) Playability as it relates to watering needs and turf conditions, conversion of the pond to native lowland, character and condition of tees and greens.
- (2) Safety as it relates to hole nos. 4 and 6, hole nos. 1 and 9 and accessibility for tee complexes.
- (3) Water Source as it relates to potable versus well water use.
- (4) Trail Protection as it relates to netting on hole nos. 8 and 9 (this item was later removed from the scope due to the City already assuming responsibility for this item).

Methodology

The method for updating relevant aspects of the 2014 report involved site visits on two separate occasions in November 2021 and January 2022. Interviews with key staff charged with caring for and operating the properties were conducted. Additional data, both provided by the City and secured independently, was used to ascertain the general maintenance needs and necessary improvements.

In late 2021 and early 2022, Golf Course Architect, Jeff Danner, ASGCA, MEIGCA conducted the noted site visits. The focus of Mr. Danner’s reviews was to verify previous assumptions and account for any new or additional issues needing to be addressed. The consultants met with representatives from the City of Cupertino both in-person and via video call to obtain information to support our observations. Updated findings are referenced throughout this report.

Limitations

This report is intended to provide a basis for further study and potential action by the City, as well as potential integration to the Stevens Creek Corridor Master planning effort. The report is limited to the scope of services contracted to NGF Consulting. Accordingly, information such as probable cost estimates and conceptual planning must be viewed in their context and limitations. The City is advised that further study, detailed analysis, specific planning and cost analysis should be undertaken before final actions are determined. This report should be used to form decisions on “next steps” as improvements and/or changes are considered and shifted from planning to formal project.

The physical evaluation of the golf course is limited in that the items outlined in the Minimal Repairs scope of work do not consider the interconnectivity of various golf course components. Because the NGF is studying only items defined as “Minimal Repairs” by the City of Cupertino, exclusive of their contextual influence, the NGF cannot assume liability for issues that may arise in the future related to these recommendations.

For example, the NGF cannot thoroughly study safety without considering the spatial configuration of golf holes. The safety guidelines for setbacks to adjacent property, the separation between golf holes, and general “best practices” for golf course design have changed since Blackberry Farm GC was constructed about 60 years ago. Accordingly, NGF cannot make recommendations that conform to modern best practices for such setbacks to adjacent property or separation between golf

holes. Therefore, the City should make every effort to improve conditions relative to safety and minimize the occurrence of errant ball conflicts to adjacent property and areas and uses within the Owner's property. The NGF shall not be held liable for any claim, actual damage, or injury arising from errant ball issue or condition at the Owner's property or relative to this updated study.

As it relates to costs, Probable Construction Cost prepared by the Richardson | Danner under the auspices of NGF represents the Golf Course Architect's best judgment as design professionals of the potential construction cost for the golf course work. However, neither the consulting team nor the City has control over the cost of labor, materials, equipment, or course accessories, over any contractor's methods of determining bid prices, or over competitive bidding, market, or negotiating conditions. Accordingly, the NGF team does not warrant or represent that bids or negotiated prices will not vary from any project budget which may have been proposed, established or approved by the City or from any Statement of Probable Construction Cost or other cost estimate or evaluation prepared by the Golf Course Architect.

Blackberry Farm Golf Course

In this section NGF presents a summary narrative for Blackberry Farm Golf Course, comprising a brief synopsis of its history, golf course and facility overview, and our assessment of current golf course conditions.

HISTORY

The Blackberry Farm Golf Course occupies a portion of an old farm (160 acres) settled by Captain Elisha Stephens in 1848. Blackberry Farm, until 1991, was operated as a family-owned (Nelson Family) picnic facility for 37 years and over three generations. In 1991 Cupertino residents passed a 25-year bond measure to purchase the property. Today, this 33-acre recreational facility offers a creek-side park setting for family and group picnics, swimming pools, the 9-hole golf course and City offices.

The course was constructed in 1962 and was designed by Robert Muir Graves, a prominent California-based golf course architect. It was among the first designs in Graves' career and is listed as a "Par-3 Course" in early accounts by Graves and other resources. It may be that holes were lengthened over the years in an attempt to achieve longer yardages and an increased par value.

Very little is reported to have been done to the course since the City acquired it. According to staff, only minor work has been done to repair and replace aging features and irrigation components. In recent years, work to Stevens Creek resulted in erection of barrier netting and small filtration basins along the western edges of the course. Additionally, a new maintenance facility was built by the City to replace an aging "garage" structure that had been used for maintenance operations dating to original farm and golf uses.

GOLF COURSE OVERVIEW AND SUMMARY OF FACILITIES

Course Overview

The 9-hole course has a back tee yardage of 1,544 yards and a par of 29. The two par-4 holes are quite short and barely meet USGA guidelines for the length of a par-4 golf hole. The course, with its two short par-4s, meets the technical definition of an "Executive length" course (e.g., one made up of at least one par-4 in addition to par-3 holes) but offers a very short total yardage (1,544 yards) from the back tees.

The course plays in a clockwise routing, with most holes oriented north/south. Hole corridors are tight with mature trees lining fairways. In terms of overall land use, the small footprint of the course - approximately 13.5 acres - equates to less than 1.3 acres per golf hole. This is extremely low as common acreage for even a par-3, 9-hole course is typically greater than 15 acres, or roughly 1.7 acres per golf hole.

Practice Facilities

Aside from a small practice putting green by the Hole No. 1, there are only "hitting cages" that may be used for instruction and warm-up. These structures are loosely configured and immediately adjacent to the green area for the Hole No. 9. The lack of quality practice areas and amenities that could attract new players and those interested in learning golf are all but absent.

Maintenance Facility

The maintenance building and yard are relatively new replacements for an old garage that had stored equipment. The new building is metal constructed and well-screened from view of golfers. There are sanitary facilities, wash stations and typical appointments for a modern facility. The yard, while small, is adequate for the limited equipment and materials necessary to care for the course. Storage bins for sand and landscape materials are undersized, which required double handling after loads of material are delivered.

On-course Restrooms

No restrooms are located on the course itself. The restrooms located in the maintenance building were configured to serve the public while playing golf. Due to the small footprint of the course and the short time it takes to play, new on-course restrooms are not considered mission critical.

Pro Shop and Grounds

The pro shop, staff office, storage, and restrooms are located on the lower level of a City-owned building near the first tee. The upper level houses the Blue Pheasant Restaurant, which has no affiliation with the golf course. Of important note is that the lower level lies within a designated floodplain. The parking lot was resurfaced and configured just prior to the issuance of the original NGF report in 2014. Today, the condition is fair and functional for its purpose. It still appears well lit and adequately serves the restaurant and golf uses. The pro shop building and parking lot are not part of the current study scope.

ASSESSMENT OF CURRENT GOLF COURSE CONDITIONS

The intent of this section is to provide a baseline of the current conditions and general deficiencies of Blackberry Farm Golf Course in order to provide context to the need for facility improvements. For a more detailed assessment of current conditions, organized by golf course component, please refer to [Appendix A](#).

The existing golf facility (course only) has baseline deficiencies in the six areas discussed below. In evaluating the golf course, the criteria applied was to identify the minimum “baseline” remediation measures to render the facility (i) safe for public use; (ii) acceptable in terms of common “best practices” for municipal (public sector) golf facilities; (iii) compliant with ADA guidelines for public golf facilities; and (iv) partially restored in areas where ponds were abandoned and trees removed and/or lost to disease.

Current Conditions and General Deficiencies

1. Irrigation:

The entirety of the irrigation system was deemed to be in need of full replacement. This is consistent with previous findings. We note that no work, except nominal emergency repairs and replacements, have been made to the facility since NGF Consulting first consulted with the City in 2014. Our findings now are updated to reflect newer golf irrigation technologies, including better control systems and sprinkler nozzle technology. These newer technologies save water use and provide more efficient coverage and delivery of water to irrigated turf. In determining the baseline improvements for irrigation, we used similar specification assumptions to other public sector golf courses in the market.

2. Features (Tees and Greens):

Tees (surfaces and alignment) are past their useful life. All tees need to be leveled and aligned. As part of this work, nominal enlargement is anticipated as tees can, in many locations, be lowered slightly and therefore expanded in terms of their square footage.

Greens are all in need of re-construction as they are past their useful life. Rootzones are now approaching their 56th year of use and show decline, including an inability to drain properly and fully, and all surface areas have shrunk markedly to the point where the square footage is not conducive to the wear and tear through daily use. All greens are to be reconstructed to an adapted USGA standard of 12-inches of sand greensmix over 4-inches of washed gravel with 25-foot drain tile spacing. All outfall drainage at the newly constructed greens will be handled per best practices where water is dispersed back onto the course areas in appropriate out-of-play zones. Nominal enlargement is a part of the baseline work to restore green sizes closer to their original sizes and shapes.

3. Drainage:

Current areas of the course do not drain adequately. Some areas sheet-drain directly off turf areas and, instead, should be intercepted with appropriately located outfall points. Work performed along Stevens Creek has established catchment basins where surface drainage should ideally be collected and filtered before allowing to pass to the Stevens Creek watershed.

Note: While not part of the defined minimal repair scope, we recommend that baseline course renovation work include budget allowances for minimal drainage improvements to (i) collect water to prevent ponding; (ii) positive gravity drain lines to appropriate low points; and (iii) the aforementioned collection at existing low points where proper filtration can be achieved.

4. Safety (refer to [Appendix B Exhibit](#), “Minimum Safety Set-Backs”):

The existing course layout includes golf hole lengths and orientations that are too close to one another. In some areas golf holes are too close to adjoining property, including both park (City-owned) areas and neighboring private property. **We note that the suggested remediation measures are not costed into the Minimal Repairs improvement plan.**

Forrest Richardson, ASGCA is a noted authority on golf course safety and minimum standards applied to the layout and configuration of golf holes with regard to on-course uses and adjoining property uses. He is the author of five books on golf course architecture, including *Routing the Golf Course* (John Wiley & Sons, 2001) which contains a full chapter on safety issues and considerations. For Blackberry Farm GC, Mr. Richardson has provided remediation recommendations to only the most pressing areas as shown on the accompanying [Appendix B](#) exhibit. The criteria applied in this case is described below in each area where Mr. Richardson determined an absolute mitigation must be made. Other areas of concern remain apart from those listed and may be reviewed in the NGF consulting report dated December, 2014.

Area A: The tee shot at Hole No. 1 is ± 186 yards. A typical required minimum safety set-back to both sides the nominal center line is calculated at $.8 \times$ the yardage, expressed in feet ($186 \times .8 = 148.8$ feet). This dimension is shown on the exhibit. “A” references the primary area of concern, which is the tee of Hole No. 9. To the left of Hole No. 1 is private property where errant balls regularly fall. Because this area is a steep hillside and generally unused, it is assumed to be an existing condition without high priority to be mitigated.

The [Minimum Improvement Exhibit](#) proposes a new tee surface for the tee realignment and renovation work. This minor adjustment will shift a percentage of play forward to reduce set-back requirements. Hole No. 9 tee should also be relocated out of Hole No. 1 required set-back zone and align with the new location of Hole No. 9 green described in (E) and (F).

Area B: This area represents conflicts with the tee shot from Hole No. 1 to the tee at Hole No. 2. The area “B” is within the anticipated shot zone of Hole No. 1.

Area C: The tee shot at Hole No. 2 involves a full “driver” shot for a predominance of players. At ± 220 -yards there should be no less than 160-feet to both sides of the nominal center line of play. “C” represents an area on private property where balls fall. This area, despite being a steep hillside and elevated above the golf course, does contain some degree of residential improvements that fall within the range of the minimum set-back. The set-back zone is very close to single family homes.

The Minimum Improvement Exhibit proposes relocating the Hole No. 2 tee away from the Hole No. 1 set-back zone. Shifting the tee also angles play away from the property line to improve the conditions described in (B) and (C) above.

Area D: The tee shot at Hole No. 4 involves a full “driver” shot for a predominance of players. At ± 220 -yards there should be no less than 160 feet to both sides of the nominal center line of play. “D” represents a conflict area to the left with the existing tees at Hole No. 5.

The Minimum Improvement Exhibit proposes relocating the Hole No. 4 tee away from the Hole No. 2 set-back zone. Shifting the tee also angles play away from Hole Nos. 5 and 6 to lessen the impact on their respective set-back zones. The tee on Hole No. 5 should also be relocated away from Hole No. 4 set-back zone and can become part of the lowland habitat restoration of the abandoned pond. Finally, small-scale, localized cut and fill practices are required and reflected in the cost assumptions.

New poles and netting also need consideration between Hole Nos. 4, 5, and 6. Placement of nets will require further study based on ball trajectory and tee location adjustments. Implementing new or retaining existing netting and poles should occur left of Hole Nos. 7, 8, and 9.

Area E: The tee shot at Hole No. 9 is ± 188 yards. A typical required minimum safety set-back to both sides the nominal center line is calculated at $.8 \times$ the yardage, expressed in feet. ($188 \times .8 = 150.4$ feet). This dimension is shown on the exhibit. “E” references the primary area of concern which is the tee of Hole No. 1 and golfers staging before beginning their rounds.

Area F: Represents the parking and public areas north of Hole Nos. 1 and 9 that are impacted by the set-back behind Hole No. 9’s tee shot.

The Minimum Improvement Exhibit proposes shifting and reconstructing the Hole No. 9 green to relocate further South to mitigate safety set-backs to Hole No. 1 tees and the parking lot. In addition, the City can convert the old Hole No. 9 green to become a short game practice area with adjacent netting hitting bays.

Area X: Represents golf holes that are too close to neighboring park uses and trails, yet have been mitigated with screening, fences and/or netting. “J-fence” has been used successfully along the trail spans to protect trail users. Netting on higher poles has been used in other locations, but with limited success. In many areas netting has deteriorated. In other instances, it is not high enough to fully contain shots. These areas (“X”) are specifically removed from study as the City indicates that replacement screening will be handled under separate contracts and work.

The minimum remediation measures outlined above and shown on the exhibit are only representative of the absolute measures identified by Mr. Richardson that the City should undertake to make the facility safer than it is presently. We recommend that a more comprehensive trajectory and errant ball study be performed prior to the City renovating the facility, and prior to investing in new, replacement screening. Such study will yield whether additional absolute measures are appropriate.

Additional Safety Note: Installing Netting to Protect the Hole No. 6 Tee Box from Errant Shots on Hole No. 4

The installation of nets between Hole Nos. 4 and 6, as proposed by the City under the Minimal Repairs improvement plan, does **not** adequately address existing set-back conflicts between Hole Nos. 4, 5 and 6. As shown on the safety exhibit, Hole No. 5 tees are in conflict with the tee shot at Hole No. 4. This is in addition to conflicts with the Hole No. 6 tees.

Poles and netting will **not** mitigate the overall safety issue between these three golf holes, as the elevated tees at Hole No. 4 in relationship to the other holes (and tees) is such that ball trajectory from Hole No. 4 would require poles ≥ 130 -feet in height at the most northern area. This height is impractical and cost-prohibitive. The \$172,000 probable cost estimate amount (Line Item 4.0) represents only poles and netting to address protection of Hole No. 6 tees from Hole No. 4, and does not address the full safety issue.

The best practices recommendation is to try and avoid any use of poles and netting and, in lieu of these vertical structures, to shift tees at Hole Nos. 4 and 5, nominally shortening both holes. This approach is anticipated to cost less than the investment of pole and netting, but will require further study and cost estimating to confirm. NGF Consulting does not recommend the mitigation measure as shown in the Probable Cost Estimate. The \$172,000 should be retained and applied toward the recommended best practices mitigation as described.

5. ADA Compliance (Golf Course Only):

The golf course must have accessible tees and greens that are able to be accessed by a standard golf cart. In many locations there is (i) no path near to tees or greens; (ii) too steep of a grade for access; and/or (iii) impediments between a logical parking area and the tee or green. Additionally, all practice greens and any warm-up area must be fully accessible via a path from the clubhouse area.

Our area of focus is on the golf course itself. To mitigate these conditions as noted, the approach assumed in the renovation/re-construction scope will be to create logical parking areas for a standard golf car (cart) at each tee and green with removal of any existing curbing, edge material, hedge or steps. Exceptions at tees may include steeper areas where steps or paths need to remain, but only in the event that an alternate tee is provided.

For the purposes of this report, we have generally included ADA mitigation measures within the probable cost estimate. It should be assumed that some mitigation measures are facilitated by the rebuilding of tees and greens, and that the new warm-up practice area would be constructed with ADA compliance in mind.

6. Habitat Restoration (Trees, Old Pond Areas):

Minimal work is proposed under the minimal repair approach, with only certain areas to be considered. These include removal of tree stumps and roots - primarily for safety and efficient maintenance access and practices - and restoration of the abandoned pond areas with appropriate hydroseeding/planting, slope stabilization and drainage.

Changes to Hole No. 9 and Practice Area

The proposal for minimal improvements included changes to the areas of the property occupying Hole No. 9 and the practice facility. The need for expanded practice facilities and efficient use of space can be realized through aligning the practice area hitting bays with proximity to the parking lot. Shortening Hole No. 9 frees up space to provide a short game development area between the 9th green and eight (8) hitting bays. The spatial arrangement also has the potential to reduce the probability of golf balls leaving the course and entering the parking lot, thus improving one of the most bothersome safety concerns on the property.



Blackberry Farm Golf Course “Minimal Repairs” Improvement Costs

Based on our analyses of the Blackberry Farm Golf Course and irrigation options, the NGF team has developed construction cost estimates for the golf course assuming the “Minimal Repairs” scope, as defined by the City in 2021. We have also analyzed the potential efficacy and feasibility of reactivating BFGC’s on-site well and converting the irrigation source from potable to well water. Summary findings follow.

COST ESTIMATES – MINIMAL REPAIRS SCENARIO

The method for evaluating the golf course and developing the improvement plan cost estimates involved multiple site visits as well as interviews with key staff charged with caring for and operating the property. Additional data, both provided by the City and secured independently, was used to ascertain the general maintenance needs and necessary improvements. Additionally, the consultant team referenced the goals outlined in Cupertino Parks and Recreation System Master Plan, February 2020 to ascertain whether the minimal improvements to Blackberry Farm aligned well with the same goals.

Pricing Methodology

The NGF team consulted with leading golf course and utilities contractors, suppliers, and golf course owners who have recently executed projects to arrive at updated pricing for the various line items included herein. Consulting team member Richardson | Danner combined the above with their own recent experience bidding projects throughout the Bay Area and West Coast to arrive at sampling of reasonable costs appropriate for the scope of work at Blackberry Farm GC.

Rising inflation rates, combined with increased material demands, shortages of qualified labor, complicated shipping and logistics, and the overall demand for golf course construction services are all significant factors that have contributed to a significant rise in pricing in recent years. In 2022, contractors are very busy, and some are completely booked through 2023.

Cost Estimates

The NGF shows cost estimates for the “Minimal Repairs” improvement scope for Blackberry Farm Golf Course on the following pages. The total cost for the minimal repairs as defined by the City of Cupertino ranges from approximately \$1.8 million dollars to \$2.7 million dollars, depending on whether the City pursues reactivation of the well.

BLACKBERRY FARM GOLF COURSE - Probable Cost Estimate - Minimal Repair Scope			
	Quantity	Unit	Cost
1.0 REPLACING THE IRRIGATION SYSTEM (Potable Option)			
1.1 Mobilization	LS	25,000.00	\$ 25,000
1.2 Valve-in-head sprinkler with swing joint	340 EA	475.00	161,500
1.3 Non-valve-in-head 3/4" rotor sprinkler with swing joint	60 EA	125.00	7,500
1.4 2" Isolation Valve with saddle and Valve box	64 EA	350.00	22,400
1.5 1" Quick Coupling Valve	26 EA	150.00	3,900
1.6 Central Computer and Communication Interface	1 EA	25,000.00	25,000
1.7 Solar Weather Station	1 EA	10,000.00	10,000
1.8 1-1/2" Remote Control Valve with box	16 EA	350.00	5,600
1.9 1" Remote Control Valve (DRIP) with box	45 EA	500.00	22,500
1.10 Square head Gate Valve with box	15 EA	650.00	9,750
1.11 4-6" PVC Main line with fittings	5,600 LF	40.00	224,000
1.12 3" PVC Lateral (sub-main) with fittings	1,100 LF	8.00	8,800
1.13 2" PVC Lateral (sub-main) with fittings	13,500 LF	6.00	81,000
1.14 Air Vent/vacuum relief	0 EA	1,000.00	-
1.15 #12 TWO WIRE CABLE	20,000 LF	1.50	30,000
1.16 6" Backflow	LS	7,500.00	7,500
1.17 Salvage sprinklers, QCV's and Controllers	LS	10,000.00	10,000
1.18 Performance Bond	LS	4,604.50	4,605
1.19 Contingency (5%)	LS	23,252.73	23,253
			\$ 682,308
1.20 ADDITIONAL ITEMS FOR WELL WATER OPTION			
Existing Well Activation (Assumes new pump, drop pipe and controls)			
1.21 (Further Study Required)	LS		\$ 35,000
1.22 Rework Existing Delivery Line(s)	LS		37,000
1.23 Water Tank (30,000 gal.) & 20-ft Wood Structure	LS		750,000
1.24 Utility Allowance	LS		20,000
1.25 Booster Pump	LS		90,000
1.26 Water Tank Engineering	LS		20,000
			\$ 952,000
2.0 REPLACING THE EMPTY PONDS WITH LOWLAND NATIVE AREAS			
2.1 Grubbing / Turf Eradication	1.05 AC	2,000.00	\$ 2,100
2.2 Native Area Hydroseeding & Tackifier	1.05 AC	10,890.00	11,435
			\$ 13,535
3.0 REPLACING TEES AND GREENS AS NEEDED			
Grubbing / Turf Eradication (Green and Tee Sites All 9 Holes Plus			
3.1 Practice Green)	1.32 AC	2,000.00	\$ 2,640
3.2 Rough Grading (Green and Tee Sites All 9-Holes Plus Practice Green)	7,000 CY	5.25	36,750
3.3 Topsoil Management	LS		5,000
3.4 Feature Shaping (Tees & Greens)	LS		40,050
3.5 Tee Construction (New Const. / Finish Work)	24,775 SF	3.00	74,325
3.6 Green Construction (New Const. / Modified USGA & Finish Work)	32,700 SF	8.42	275,334
3.8 Soil Amendments & Fertilizers	1.32 AC	1,000.00	1,320
3.9 Hydro-sprigging (Tees)	0.57 AC	10,890.00	6,207
3.10 Sod Allowance	5,000 SF	0.55	2,750
3.11 Seed Greens Surfaces	32,700 SF	0.60	19,620
3.12 Grow-In	LS		20,000
			\$ 483,996

4.0 INSTALLING NETTING TO PROTECT HOLE #6 TEE BOX FROM ERRANT SHOTS ON HOLE #4			
4.1	New Netting Between Hole Nos. 4 and 6	LS 1.00	\$ 172,000
			\$ 172,000
5.0 SHORTENING THE 9TH HOLE			
5.1	Green and Tee Construction for this item included in 3.0 above	NA NA	\$ -
5.2	Grubbing / Turf Eradication for Green Relocation	0.30 AC 2,000.00	600
5.3	Rough Grading for Non-Green Area	500 CY 5.25	2,625
5.4	Topsoil Management for Non-Green Area	LS	1,500
5.5	Soil Amendments & Fertilizers	0.30 AC 1,000.00	300
5.6	Hydro-sprigging (Fairways & Roughs)	0.30 AC 10,890.00	3,267
5.7	Grow-In	LS	1,500
5.8	Practice Hitting Bays Flipped (Steel Poles w/Netting & Artificial Mats)	8 bays 10,000.00	80,000
			\$ 89,792
6.0 STEPS OR TERRACING TO ADDRESS ADA (Golf Course Only)			
6.1	Tee Construction related to this item included above in 3.0	NA NA	\$ -
	Grubbing / Turf Eradication for Grading	0.2 AC 2,000.00	400
	Rough Grading to Create Walkable Slope to Tees	350 CY 5.25	1,838
	Topsoil Management for Non-Tee Area	LS	550
	Soil Amendments & Fertilizers	0.20 AC 1,000.00	200
	Hydro-sprigging (Roughs)	0.2 AC 10,890.00	2,178
	Grow-In	LS	1,000
			\$ 6,166
7.0 TREE MANAGEMENT			
7.1	Stump Removal	17 500.00	\$ 8,500
			\$ 8,500
8.0 PROFESSIONAL FEES			
8.1	Golf Course Architectural/Civil Engineering (Allowance)	LS	\$ 250,000
8.2	Project Management	LS	75,000
8.3	Permits	LS	10,000
8.4	Well Permit Fees	NIC	n/a
			\$ 335,000
GOLF COURSE CONSTRUCTION SUBTOTAL (Potable Option)			\$1,791,297
CONTINGENCY (10%)			\$ 179,130
GOLF COURSE CONSTRUCTION SUBTOTAL (Well Water Option)			\$2,743,297
CONTINGENCY (10%)			\$ 274,330
9.0 Alternate - Bunkers			
9.1	Bunker Construction (New Const. / Drainage & Finish Work)	14,400 SF 7.4	\$ 106,560
<i>Probable cost estimate is based on conceptual planning prepared as of this date. Environmental mitigation and/or consulting is not calculated in the above estimates. Unforeseen conditions, additional utility work, prolonged work due to seasonal conditions and revenue losses during closure are not a part of the probable cost estimate. Prepared 02-03-22, 16:11</i>			
<i>LS – Lump Sum; EA – Each; LF – Linear Feet; AC – Acreage; CY – Cubic Yard; NA – Not Applicable; SF - Square Feet</i>			

Irrigation and Water Source Conversion

Irrigation of the Golf Course is a critical and costly element of the ongoing operation of the golf course. In order to provide forecasts for water use and cost, NGF Consulting worked with Russell D. Mitchell & Associates (“RDMA”), who previously completed a redesign of the irrigation system for Blackberry Farm Golf Course.

CURRENT IRRIGATION SYSTEM

Irrigation of the Golf Course is a critical and costly element of the ongoing operation of the golf course. Blackberry Farm Golf Course has approximately 12.5 acres of irrigatable land. When constructed in 1962 the golf course was irrigated with use of a nearby shallow well and a storage tank with gravity-fed pipes. This kept cost for irrigation relatively low. In the early 2000’s, due to failure of the storage tank, the City converted the system to potable water use. In the original construction the use of a hydraulic system for control of individual sprinkles made the system relatively inefficient by today’s standards.

In 2011 the City hired Russell D Mitchell & Associates (RDMA) to provide a preliminary design for replacement of the existing irrigation system to improve efficiency and effectiveness of use irrigation. The new design was intended to irrigate the entire 12.5 acres while reducing water use by 20%-25%. That project was put on hold due to the ongoing studies associated with the overall Steven Creek Corridor Master Plan and potential renovations of the Golf Course. Regardless, in 2014 the City decided to replace the hydraulic control system with a battery-operated control system. The battery-operated system installed improved irrigation efficiency considerably.

Over the past several years the state of California has experienced statewide drought conditions and has required municipalities to restrict water use. San Jose Water (SJW) utilizes *Rule 14.1 - Water Shortage Contingency Plan* to regulate water use at the municipal level. Generally, golf courses are exempt from these restrictions until Drought Stage 4 is reached. However, the City has included Blackberry Farm Golf Course in ongoing implementation of water use limitations. In 2014 the City started placing water use limitations for the golf course. **Table 1 - Irrigation Water Use Pre-2014 and Post-2014** below indicates average water use for the years just prior to 2014 and from 2014 through 2021.

Table 1 – Irrigation Water Use Pre-2014 and Post-2014

Year Range	Average Annual Water Use
2008 through 2013	15.9 million gallons
2014 through 2021	8.5 million gallons

Utilizing the combination of the improvement to the irrigation control system and drought water-use limitations, on average, the City reduced water use to 53% of pre-2014 levels. These reductions were achieved with an irrigation system that is well past its useful life. One primary method used to reduce water use has been to reduce the total acreage of turf being watered. During some operational periods nearly 1/3 of all irrigation heads were turned off. This tends to lead to browning of large areas of the golf course turf. Yet, more can be done to decrease water use for the golf course.

The irrigation system is 60 years old and has outlived its useful life. There are multiple mainline pipe breaks per year and lateral pipes break on a weekly basis. The infrastructure is outdated and deteriorating. Irrigation system replacement parts are not available and repairs require creative solutions to keep the system operational.

CURRENT WATER USE AND FUTURE PROJECTIONS

The average annual water use between 2014 and 2021 was 8.5 million gallons versus of 15.9 million gallons prior to 2014. Currently, that level of water reduction is primarily being met by reducing turf irrigated. The irrigation regime varies annually based on weather, drought restrictions, and system limitations. As the City explores water saving options updating and improving the irrigation system is critical. The City anticipates the need to reduce irrigated acreage during designated drought periods. A new irrigation system will give the City opportunity to more efficiently use allotted water to provide a better golfing experience.

Table 2 – Water Use Projections with New Irrigation System - summarizes water use projections if a new irrigation system is installed. Total water use will vary based on operational decisions made by the City. In periods when no drought conditions exist the entire 12.5 acres may be irrigated. In periods of water-use restrictions irrigated acreage may be reduced. Currently, the City anticipates removing up to 3.0 acres from the irrigation regime in times of drought restrictions.

RDMA used the Estimated Total Water Use (ETWU) method to calculate future water use projects using different amounts of irrigated acreage.

Table 2 – Water Use Projections with New Irrigation System

Projected Irrigated Acres	Total Reduction in Irrigated Acres	Projected Annual Water Use (ETWU) (gallons)	Percentage Reduction in Water Use Vs Irrigating Full 12.5 Acres	Percentage Change from Post-2014 Average of 8.5M Gallons
12.5	0.0	8,825,050	0%	4% More
11.5	1.0	8,119,046	8%	4% Less
10.5	2.0	7,413,042	16%	13% Less
9.5	3.0	6,707,038	24%	21% Less

Note: $ETWU = (Acres \times Acre-In \times Eto \times PF) / IE$. To calculate ETWU RDMA assumed an average Annual Evapotranspiration Rate (ETo) of 30 inches, a Plant Factor (PF) of 0.65%, and an Irrigation Efficiency (IE) of 75%.

WATER SOURCE CONVERSION TO WELL

The NGF team also analyzed the logistics and cost feasibility of reactivating the on-site well at BFGC. A well located nearby the golf course is the original source of irrigation. The analysis includes professional opinion on what is needed structurally to restore and revitalize the existing well for use as the golf course irrigation source. This scope includes a preliminary cost estimate to reactivate the well, as well as a comparison of annual operating costs for use of potable water vs well water as the irrigation source at Blackberry Farm GC.

Current water use has averaged 26 acre-feet per year since 2014 ($1 \text{ a.f.} = 326,000 \text{ gal.} \times 26 = 8,476,000 \text{ gal./yr.}$). This estimated is based on actual water usage data from the water department. Roughly 8.5 million gallons are now a baseline in terms of water use at the current facility. According to the Balance Hydrologics well report (test performed November 2012) provided by the City, the existing and available well is likely to produce up to 160 GPM or 67,200 gallons during a 7-hour watering window. The well will produce more if the watering window is expanded.

Daily Water Use Estimate – Average Summer Day

To utilize the existing well and provide adequate water for the 12.5 acres of turf on a hot summer day, we estimate it will require approximately 91,000 gals. per day. Therefore, to irrigate the course with well water a reservoir capable of holding the difference between the ETWU and what the well can produce during the irrigation watering window ($91,000 - 67,200 = 23,800 \text{ gals.}$) will be required. If the watering window were extended to 8 hours from the 7 hours, the storage reservoir could be smaller. If the course continues to be irrigated by City potable water, no reservoir is required.

Conclusion: A 30,000-gallon storage reservoir is required to accommodate this turf footprint with well water. A potable connection with level controls will be required as a backup for makeup water or if the well is not operational for maintenance. We estimate 10% of the total water usage during the summer months will be potable water.

Note: *Fall is a good time to have a well consultant perform a new pump test, but only to determine what maximum GPM could be obtained. With dry years experienced recently, this would be a prudent course of action for the City. We point out that the 160 GPM was not actually pumped but was calculated from a test at 50 GPM. NGF Consulting recommends the City undertake this updated testing in concert with other due diligence of well fees, groundwater use fees, verification of well reactivation requirements and costs, etc.*

To properly irrigate by applying the appropriate percentage of ETo (i.e., greatly reduce or eliminate browning of the turf) at a higher efficiency over the 12.5 acres of turf, RDMA estimates the water use with a new system to be 8,825,000 gal./yr., as illustrated in **Table 2**. This is a 4% increase in total water usage per year but the uniformity of the distribution of water over the entire site will be greatly increased and more efficient.

Additional Discussion on Benefits/Efficiency of New System

We preface this discussion by reiterating that the primary reason to replace the current irrigation system is that the system is past its useful life. The current system will only continue to deteriorate. Installation of a new system will also increase the efficiency of the system on a per-acre-irrigated basis. The existing irrigation system requires frequent repairs that redirect resources from other maintenance needs and provides inadequate coverage and playing conditions, likely resulting in lost revenues. (See Appendix A discussion relative to current condition). Even the current golf course turf condition is acceptable to the City, the point at which the irrigation system becomes unusable is approaching. (Think of replacing components /

appliances of a home or car). If the City is committed to continuing to offer affordable golf as a recreation activity to its residents, the irrigation system will soon need to be replaced.

Numerous factors contribute to the potential efficiency of a new irrigation system in comparison to the existing system being replaced. However, without understanding precisely how much water (plus labor and material resources) is being wasted from breakages, pipe and head leaks, equipment failures, and ongoing repairs under the existing system, it becomes difficult to quantify the potential savings from a new system. At Blackberry Farm GC, we are confident that using the same amount of water that has been used historically or less will result in better conditions.

In addition to less waste from maintenance problems and costs associated with older parts, the benefits of a new irrigation system include:

- Better coverage
- More uniform distribution
- More efficient head layout with better distribution
- Increased precision and control for the operator (more targeted watering):
 - Easier to single out and address problem areas rather than having to switch on/off an entire zone
 - Automatic runtimes and water scheduling allows less wasted water

The existing turf at Blackberry Farm GC is a relatively high consumer of water in the context of maintaining an acceptable playing surface. Our data and calculations tell us that not enough water is currently being distributed based on the ETo and Plant Factor to achieve a specific result. Our expert opinion is that with the same amount of water (~8.5 million gallons) currently being used, BFGC will achieve improved conditions with a new system due to the factors discussed above. Still, the cost does not change because the quantity of water is approximately the same when irrigating the full 12.5 acres. Decreased water usage and potential cost savings relative to post-2015 levels can be seen when irrigating less than 12 acres of turf.

WELL REACTIVATION ESTIMATED COSTS

To reactivate the on-site well for conversion from potable water to well water as an irrigation source, new infrastructure and additional testing will be required to confirm the costs and assumptions.

Estimated Well Reactivation Costs

The new infrastructure required to reactivate the well will include but not be limited to the following items:

- Well upgrades
- New electrical meter
- Storage tank
- Booster pump
- New piping from well to storage tank
- New piping from potable source to storage tank with controls

Well Upgrades: Depending on the condition of the well but assuming the well casing is usable, we estimate the cost to install a new pump, drop pipe and controls will be **\$35,000**.

Electric Meter: We are assuming the electrical service to the well is sufficient, but a new electrical service/meter will be required to service the booster pump located at the storage tank. We estimate the new meter to be **\$20,000**.

Storage Tank: Depending on which improvement plan is ultimately chosen for the golf course, the size of the tank and required footprint will vary. We have included a place holder cost due to the tank being installed on a tower. Based on a 30,000-gallon tank and 20' wood structure, the estimated cost is **\$750,000**.

Booster Pump: A booster pump will be required at the tank locations to provide sufficient pressure to operate the irrigation system. We estimate this booster pump will cost **\$90,000**.

New Piping (from existing well to tank): If the existing pipe from the well is deemed unusable, a new fill line with controls will be required from the well to the tank location. Due to the location of the existing well, it will be difficult to get the fill line around all existing buildings and hardscape. The length of this fill line could be 300-600 linear ft depending on the tank location. We estimate the cost to install this pipe will cost between **\$15,000 and \$27,000**.

Potable backup source and controls to tank: The storage tank will require a potable backup with an air gap and level controls for makeup water or if the well is down for maintenance. A new line from the backflow to the tank with controls will cost **\$10,000**.

Preliminary Estimated Hard Costs to Reactivate BFGC Well			
6.0	Irrigation		
6.1	Existing Well Activation*	LS	\$35,000
6.2	Rework Existing Delivery Line(s)	LS	\$37,000
6.3	Water Tank (30,000 gal.) & 20-ft Wood Structure	LS	\$750,000
6.5	Utility Allowance	LS	\$20,000
6.6	Booster Pump	LS	\$90,000
	Total		\$932,000
*Assumes new pump, drop pipe and controls (further study required)			

Irrigation Cost Comparison – Potable vs. Well

Based on water usage data provided by the city, we analyzed the cost of potable water from 2015 through 2020. The average yearly cost of potable water was \$62,176. The same usage with well water would cost the City \$39,489, resulting in **annual savings of ±\$22,700**. Since the potable water meter will still be in service as a backup the monthly cost of the water meter will still be incurred. We estimate this cost to be \$400 to \$500 per month for a yearly cost of at least \$4,800.

The well water will require electrical costs for the two pumps (well and booster) We estimate the two pumps will cost roughly \$6,000 per year in electrical costs. The City should set aside an additional \$2,000 per year in maintenance of these pumps. Other factors being equal, and using the low end of the estimated monthly cost for the water meter, the **net** annual savings on water costs for the well vs. potable (based on inputs above, valid as of late 2021) after these operational costs are factored in would be ±\$9,900 per year (2022 dollars):

Annual Cost - Well Water vs. Potable Water	
Annual Savings - Well Water	± \$22,700
Operational Costs:	
Potable Water Meter	\$4,800
Electrical	\$6,000
Maintenance	\$2,000
Net Annual Savings	±\$9,900

We note that at the time of this report, NGF has not received updated monthly water meter charge figures for the potable water meter to remain in service. Therefore, we have assumed the \$400 to \$500 as stated above. We do know that the potable water at the BFGC uses the same meter as the irrigation. As a result, the potable water rate is higher than the irrigation rate, meaning the City is paying more than necessary for golf course irrigation water.

NGF has a call into the water department to obtain general costs by meter size. At the time of this report, no further information has been received. San Jose Water Company has stated that a new separate meter could cost around \$30,000 for 4-inch meter installed. Adding a new smaller potable water meter to separate the irrigation from potable water may be required. Additionally, the City may be paying sewer fees based on water usage on the current meter. Therefore, NGF recommends having two meters. As per the 2015 State Water Ordinance, all irrigation must be separately metered from the potable water if there is more than 5,000 square feet of planting.

Conclusion – Economics of Conversion from Potable to Well

Earlier, we estimated the total infrastructure costs to implement the well system will be about \$930,000. Annual irrigation expense savings, based on current assumptions and inputs, were estimated to be ±\$9,900. **Therefore, the ‘payback’ period for this investment is about 94 years even longer when considering present value of the future savings.**

Summary Benefits of Undertaking Minimal Improvements for BFGC

The City of Cupertino should realize operational benefits by pursuing a minimal repair improvement plan that addresses only the irrigation, empty ponds, tees, greens, netting on hole nos. 4 and 6, hole no. 9 and driving net, and tee accessibility. Updated and expanded practice areas will also attract golfers and facilitate new player development and other programming opportunities. Additionally, the rehabilitated golf course will be more efficient to maintain. And, these benefits do not consider the potential “cost of doing nothing” that could result from the further deferral of facility improvements.

COST EFFICIENCIES

Areas where NGF Consulting sees a potential to reduce or reprioritize costs associated with the golf facilities include:

- Reduce managed turf footprint (to save on water cost and focus maintenance effort)
- Replace aging irrigation infrastructure (to reduce annual costs on emergency repairs)
- Create more efficient circulation through addressing accessibility needs on the golf course itself
- Replace aging tees and greens for better performance to reduce downtime during wet or inclement weather
- Address safety issues where possible given the existing layout and configuration
- Update practice facilities to help attract customers and develop new golfers

ENVIRONMENTAL ORIENTATION

Improving the golf course as presented orients Blackberry Farm GC to a more naturalized landscape. The additional benefit is a more pleasing aesthetic, and one that corresponds better to the natural areas of the Stevens Creek Valley. Additionally, enhancements to upgrade the golf course will greatly reduce or eliminate regularly occurring, but unanticipated repairs that cost the city resources. Updating the infrastructure, especially drainage and irrigation related items creates a more sustainable asset with lower expense and resources required for upkeep.

CONGRUENCE WITH PARKS & RECREATION MASTER PLAN GOALS

Minimal repairs to the golf course will go a long way with aligning the facilities to the Cupertino Parks and Recreation System Master Plan environmental goals, especially as it relates to conservation and sustainability. Advances in technology throughout the golf world have provided better options for conserving our natural resources. The most important resource in this case is water. The current irrigation system is old and inefficient. But upgrading to a newer system with smart technology, on demand metrics, diagnostics and more environmentally friendly materials in general, will allow the City to have better control over their water use and the costs associated with irrigating turfgrass in California.

REPLACING EMPTY PONDS WITH NATIVE LOWLAND LANDSCAPE

As of early 2022, the former pond is serving the purpose of dry detention. The former pond has been overtaken by the establishment of a variety of grasses and weeds, and resembles more of

a dry basin. Further work needs to be done to specify a more appropriate mix of wildflowers and/or native plant material to realize full environmental benefit. By converting the old pond areas to biofiltration basins, less water is required and maintenance can be aimed at greens, tees and playable areas of turf. Converting this area into a native lowland landscape is considered in the updated probable cost estimates.



These images depict potential “before” and “after” comparisons from the original 2014 report, showing the conversion of the old pond area to a natural “meadow” lowland area. While this specific view shows the conceptual view of Hole No. 8, it is also indicative of the transformation in landscape that could also be facilitated through turf reduction and native area establishment under the Minimal Repairs improvement plan.

NGF CONCLUSION

The consultant team concludes that the scope of work outlined under a minimal repair scope aligns very well with the City’s Master Plan goals, specifically as it relates to:

- Conservation
- Tree management
- The creation of lowland plant communities
- A reduced turf footprint
- More efficient use of water

All of these outcomes support the functionality of Cupertino’s natural environment and in a recreational setting for people to enjoy. The way golf courses are designed, built, and managed has evolved over time to better consider habitat needs. More than ever, ecology and sustainability are built into the process of creating any golf facility.

Through the enhancement of access to tees and other golf features and addressing ADA issues throughout the facilities, Blackberry Farm Golf Course becomes much more equitable in its accessibility for the public.

The minimal repair scope is certainly one way to revitalize and improve the quality of a public asset that would become much more usable for everyone. Better conditioning, turf performance and visual appeal all contribute to polishing a long-standing community asset.

Appendices

Appendix A – Assessment of Golf Course Components

Appendix B – Minimum Safety Set-Backs Exhibit

Appendix C – Miscellaneous Exhibits

APPENDIX A – ASSESSMENT OF GOLF COURSE COMPONENTS

Tees: In general, tees are in poor condition and are crowned (i.e., are not level.) Turf suffers from over-shading due to proximity of trees, and tree density (i.e., overplanting). Drainage appears non-existent with native soils likely forming the tee subgrades. Even though tees have been rebuilt occasionally, the extremely small sizes create constant wear and they simply cannot keep up with the use. As of 2022, it appears that even more usable space has been lost, particularly, at the 8th hole where the entire right half of the tee has been abandoned. This is especially problematic because Hole No. 8 is a par-3, enduring short iron shots.

Tees also do not offer yardage flexibility to the degree necessary to serve golfers of varying abilities. The yardage difference between the back tees and the forward tees is just 134-yards, an average of 15 yards per hole. Developing new tees for shorter forward yardages encourages more new players, young players and senior players, and can have the effect of promoting more play from tee yardages appropriate to individual skill level.

During the site visits, we observed that a few tees, most notably on Holes #2 and #3, have ADA access issues. Some customers struggle to navigate the steeper embankment leading up to these tees. At minimum, accessibility should be reinstated through softening the embankments or providing steps up to tees. However, steps may also be problematic depending on the needs of the individual. The location of these areas is shown in [Appendix C, Exhibit 2](#).

Fairways and Roughs: Turf quality is average-to-poor, with shaded areas being in the worst condition. In recent years, the City has tried to address this through in-house tree removal. However, as of 2022, seventeen (17) stumps ranging from 18 inches to 36 inches remain in place. Turf conditions beyond the root structure seem to be improved, but not still cannot be considered up to high standard. Drainage is lacking at points where natural grades do not convey water to low areas and the few drains installed on the course. Turf is a variety of Bermudagrass, ryegrass and kikuyugrass. Some small patches of fescue-type turf and hearty bentgrass (likely left over from original greens planting) can also be found. Compounding turf conditions is the antiquated irrigation system that delivers poor coverage, inefficient irrigation pressure, and is a constant source of leaks and breaks.

Greens: Greens are very small with poa annua, an acceptable greens “turf” that overtakes bentgrass, especially in the Bay Area region. Where the greens are not in excess shade, the surfaces are acceptable. There are significant patches of poor quality, which is likely the result of multiple factors: poor irrigation, shade, age and size. In terms of size, the greens are extremely small and do not heal from day-to-day when the course is busy. Greens for a course of this length (with many short shots played from tees that are hit high and cause deeper ball marks) should be as much as three times (3x) the size of the greens presently managed. Greens are reported to be original and were likely built on native soils with only a nominal volume of sand mixed to available soils. Considering the age and other factors, the conditions are “good.” The overall quality is well below what can be attained with new, replaced rootzones and modern drainage systems. (Note: The No. 3 green was rebuilt in recent years and is, as a result, in better condition than others.)

Bunkers: Sand bunkers, of which there are nine (9) in total, are well past their expected lifecycle. Sand has been added to bunkers throughout the years, which amounts to the only significant care they have received. Adding sand causes the floors to rise up and eventually become elevated in relationship to green surfaces. This “volcano” effect is not only a poor aesthetic, but it sends a signal that the course has been neglected. In most climates sand bunkers get new sand replaced every 2-3 years with infrastructure (drainage and subgrades) renovated every 7-10 years. According to staff there has been no work to sand bunkers (except

sand being added with occasional edging work) since the course was originally built in the 1960s.

Ponds: Originally the course had a series of ponds and streams that formed a water feature through the course. These ponds were filled with a manual valve from the creek. The ponds were taken out of service due to failure of a diversion structure between the source and the ponds. Additionally, the upper pond does not hold water due to porous soils. The ponds never served as an irrigation reservoir for the golf course, at least not in the past several decades. While no detailed inspection of ponds was made by NGF Consulting, visual inspection shows soil cracking and conditions that tend to support potential leaks should they be refilled with water.

As of 2021, the former pond has been overtaken by the establishment of a variety of grasses and weeds and resembles more of a dry basin. While not currently serving any significant function, the landform presents an interesting feature on the golf course. Modern pond construction for soil types in this region would generally call for artificial liners such as HDPE plastic sheeting laid over a geotextile fabric. However, NGF is not recommending reconstruction of the ponds (i.e., lining) as we feel evaporation and resulting water cost would be counterproductive. Alternatively, we recommend conversion of the pond areas to a passive naturalized landscape that can serve the area with biofiltration (*see below*).

Irrigation System: No in-depth evaluation was made of the irrigation system. In general, the system is original to the c. 1960s course construction and has been held together with various patches, repairs and some newer equipment. A typical irrigation system in this region will last from 18 to 25 years. The Blackberry Farm GC system has now (tried) to outlive its intended lifecycle by nearly three-fold. The system is “hydraulic” controlled, a method of control that is now so old most turf suppliers no longer have personnel who have even heard of such technology. During our visits we observed hand-watering by the grounds crew in order to overcome this less-than-desirable system. The downside of such an older system is poor coverage (too much overlap or not enough), leaks, breaks and the constant vigilance by staff that takes their time and energy away from areas and maintenance that the public can see and appreciate more.

Cart Paths: The facility has 4 carts for patrons who are not able to walk the 9-hole course. Where paths are present (at just a few locations) they are narrow and not configured well. There is little compliance with ADA guidelines in terms of curbing or access. The cart paths, where present, are showing their age with declining functionality for their intended purpose. In addition, carts are expected to navigate the hill between Hole Nos. 3 and 4. This slope and informal path are difficult for people to navigate on foot, let alone by cart. Ground moisture and muddy conditions can make this a challenge, further adding to the wear and tear on the golf course, but more importantly presenting a potential accessibility and safety issue for golfers and patrons.



The absence of cart paths in general means guidelines for accessible ingress/egress from golf features, use of accessible routes, and accommodation for alternative cart usage is poor. (Guidelines for accessible golf courses can be found in the separate attached report titled “Accessible Golf Courses” by the United States Access Board).

Trees/Stumps: Trees form the landscape theme for Blackberry Farm GC. As noted, trees line all golf holes except where poles and netting have existed along with other park uses. Overall, trees are too prevalent and cause too much shade for turf to thrive and be healthy for golf uses. Where shade is most pervasive, turf does not grow, and the ground is bare. Many trees are rootbound, with roots forming into a dense, tangled mass that occupies extensive playable turf area. Some exposed roots interfere with golfers, maintenance equipment, surface drainage, and irrigation. However, NGF notes that many trees are in decline. This condition is likely a result of aging trees, regional blight(s), and, in some areas, overcrowding where tree groupings are too close in proximity.

Where trees have been cut down, several stumps remain (see image below [Appendix C, Exhibit 3](#)). As of 2022, seventeen (17) sizable stumps remain, which has somewhat improved localized turf conditions. However, with stumps and root structure still intact, limiting the benefit to turf and golfer experience. If left in their current state some trees and/or the remaining stumps from removal may cause potential safety issues for golfers including but not limited to:

- If players hit their shot without being aware that persistent roots are just under the surface, they risk significant injury.
- Roots systems, if driven over, may cause loss of control with golf course or a tripping hazard for walkers.

- The remaining stumps present the possibility of ricocheting golf shots that may strike golfers on the same or adjacent holes.
- The presence of these root systems presents challenges to accessibility in general.



APPENDIX B – MINIMUM SAFETY SET-BACKS EXHIBIT



APPENDIX C – MISCELLANEOUS EXHIBITS

Exhibit 1 - Minimum Improvement Exhibit



Exhibit 2 – Tee Areas with Steep Embankments

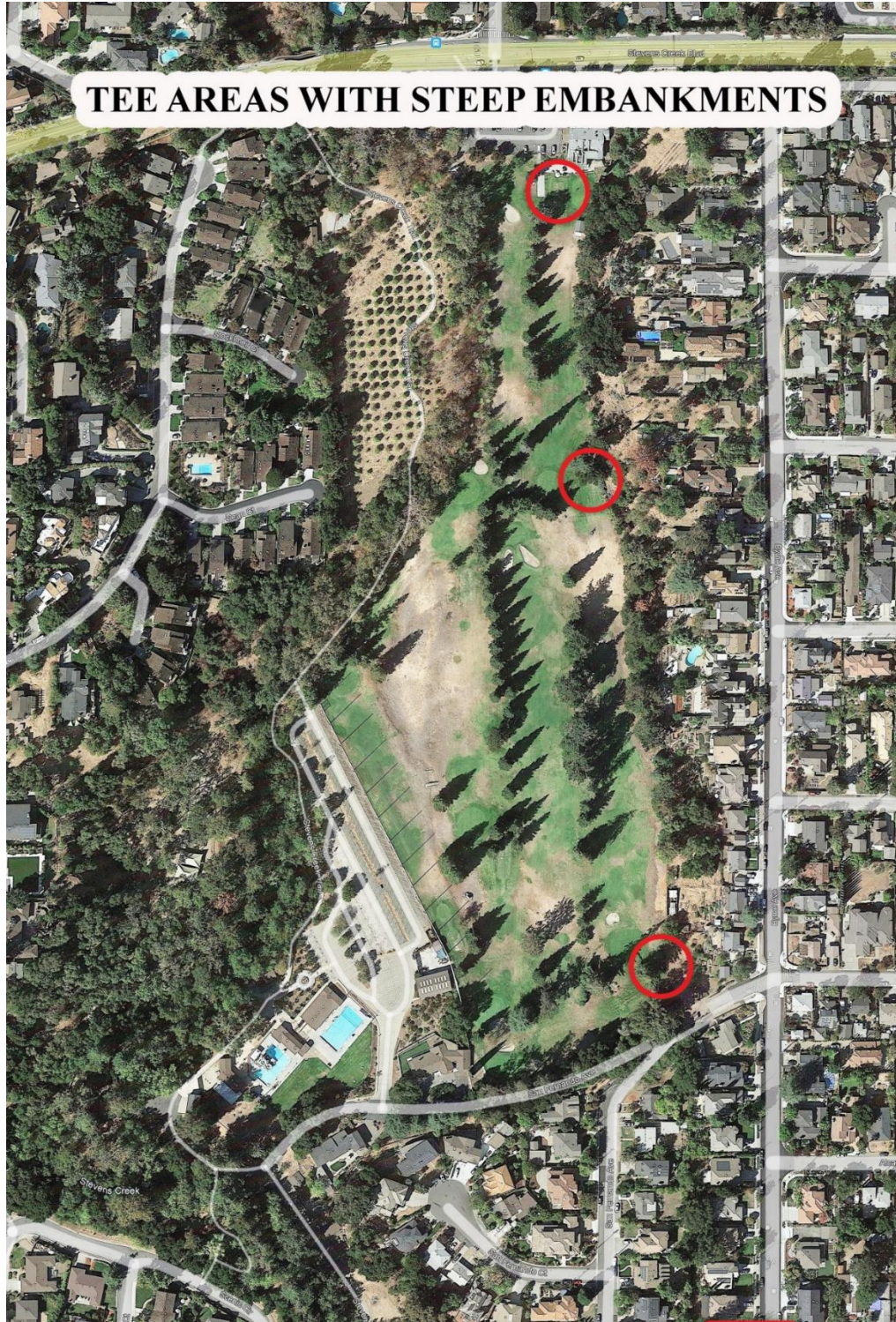
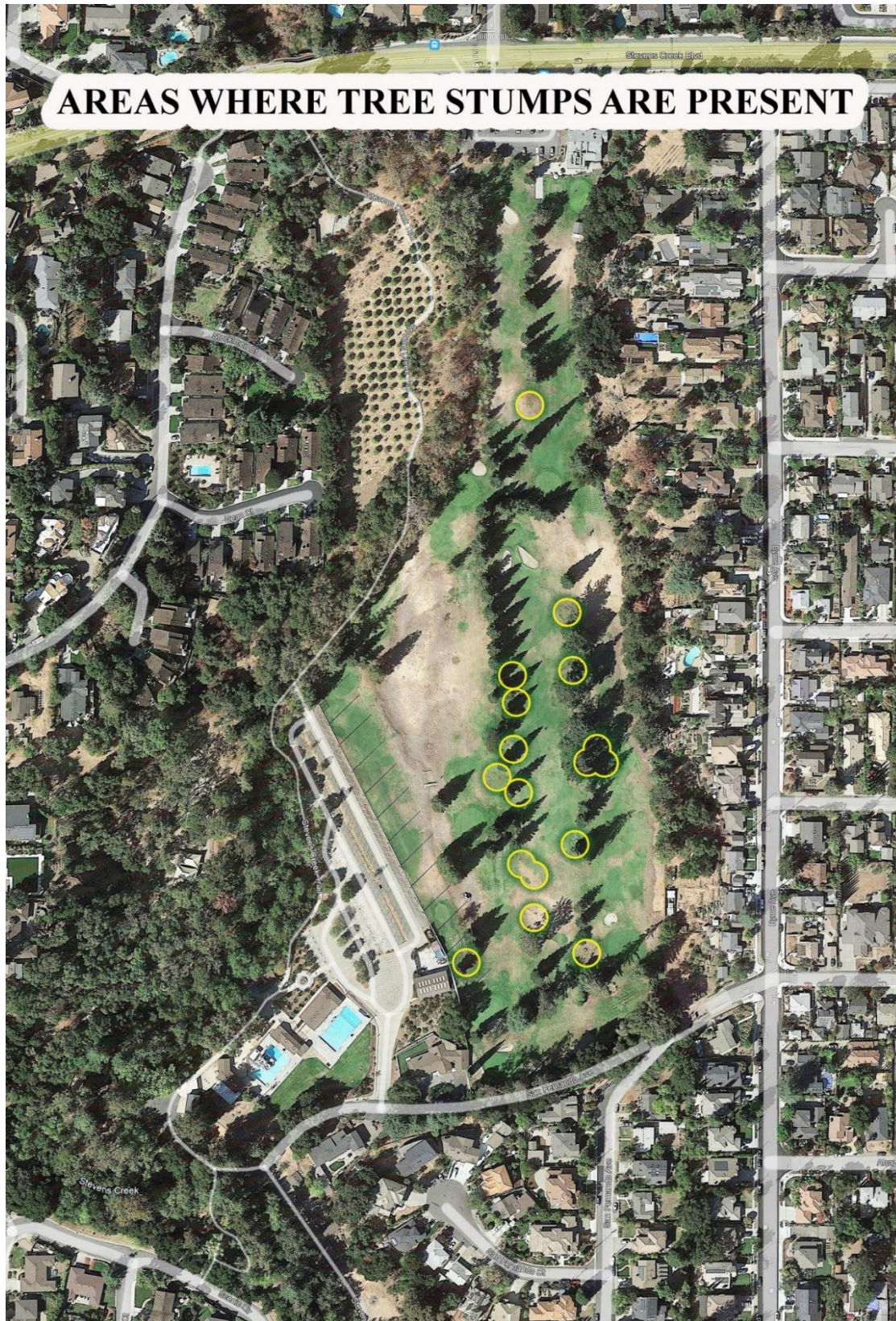


Exhibit 3 – Areas Where Tree Stumps are Present



Blackberry Farm Golf Course Urban Wildland Restoration Feasibility Study



Prepared for: **The City of Cupertino**

Prepared by: **MIG**
2055 Junction Avenue, Suite 205
San Jose, CA 95131

February 2022

Introduction

This feasibility study describes a habitat restoration scenario for the Blackberry Farm Golf Course if use of the golf course is discontinued. Restoration of the Blackberry Farm Golf Course parcel would focus on converting the golf course to a natural park, including a diverse ecosystem with native oak woodland and grassland plant communities that existed in this part of Santa Clara County over a hundred years ago. Local examples of the successful restoration and maintenance of urban wildlands include the nearby McClellan Ranch Preserve and Guadalupe Oak Grove Park in San Jose.

The restoration that is proposed in this plan includes both active and passive restoration actions, and development of trails for public access. Benefits include reduced water use, reduced greenhouse emissions and air pollution, increased habitat, increased public access to nature, and new educational opportunities to enhance existing park programs. There are additional opportunities for future park amenities to further encourage park use.

PART 1 – SITE ASSESSMENT

Setting

The 14.5-acre Blackberry Farm Golf Course is surrounded by residential development to the north and east. It is part of the Stevens Creek Corridor Park, which includes the golf course, the historic Stocklmeir Orchard, Blackberry Farm Park, and McClellan Ranch Preserve. The Stevens Creek Trail and riparian corridor borders the western edge of the Stevens Creek Corridor Park. The Blackberry Farm Park is immediately south of the golf course and includes buildings, pools, and picnic areas. South of the park is the McClellan Ranch Preserve, an 18-acre natural preserve that houses a 4-H program, environmental education facilities, and the offices of the Santa Clara Valley Audubon and the Friends of the Stevens Creek Trail. The preserve is separated from the open space areas in the Santa Cruz Mountains by less than a mile of residential development, which includes the Deep Cliff Golf Course that is located immediately south of McClellan Ranch. “Golf course” in this study refers to the Blackberry Farm Golf Course, unless otherwise noted.

Stevens Creek is 22 miles long. It originates in the Santa Cruz Mountains on the western flank of Black Mountain in the Monte Bello Open Space Preserve and drains an area of approximately 46 square miles. From its headwaters the creek flows into Stevens Creek Reservoir. Past the reservoir, the creek flows north through dense residential and commercial development in Cupertino, Los Altos, Sunnyvale, and Mountain View before emptying into San Francisco Bay at Whisman Slough. The creek watershed has been modified, and currently includes a portion of the Permanente Creek Watershed, due to the Permanente diversion channel that connects the two creeks downstream of Fremont Avenue. In addition, flows in Stevens Creek are affected by a dam at Stevens Creek Reservoir less than a mile upstream of the Blackberry Farm Golf Course.

Stevens Creek Trail is a 9.4-mile multi-use recreation trail that is planned to extend along Stevens Creek from the Santa Cruz Mountains to San Francisco Bay, and which is substantially built, including 1.3 miles in Cupertino.

The project area is mainly flat with elevations ranging from approximately 297 feet to 347 feet North American Vertical Datum of 1988 (NAVD88) (Google Inc. 2021).

The City of Cupertino, in partnership with the Santa Clara Valley Water District, completed an award-winning restoration project along Stevens Creek through McClellan Ranch and Blackberry Farm in 2008. The project included improvements to Stevens Creek for steelhead trout, and restoration of adjacent riparian and upland habitats. Restoration of the golf course would complement these past efforts.

Existing Habitat Conditions

Methods

The methods used to evaluate the existing biological resources present at the site include a database and literature review, field survey, an assessment of plant communities and wildlife habitats and corridors, an assessment of sensitive habitats and aquatic features, and a habitat evaluation for the presence of special-status species.

Data Review

Available background information pertaining to the biological resources on and near the site was reviewed prior to conducting field surveys. Information was compiled and subsequently compared against site conditions during the site visit. The following sources were consulted:

- California Natural Diversity Data Base (CNDDDB) record search for 9-quadrangles including: *Lick Observatory, Isabel Valley, Eylar Mountain, Mount Day, Calaveras Reservoir, San José East, Santa Teresa Hills, Morgan Hill, and Mount Sizer* (CNDDDB 2021).
- California Native Plant Society (CNPS) Rare Plant Program *Inventory of Rare and Endangered Plants of California* record 9-quadrangle search, including: *Lick Observatory, Isabel Valley, Eylar Mountain, Mount Day, Calaveras Reservoir, San José East, Santa Teresa Hills, Morgan Hill, and Mount Sizer* (CNPS 2021). Quadrangle-level results are not maintained for CRPR 3 and 4 species, so we also conducted a search of the CNPS Inventory records for these species occurring in Santa Clara County (CNPS 2021).
- California Department of Fish and Wildlife (CDFW) CNDDDB for natural communities of special concern that occur within near or in the site (CNDDDB 2021).
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool (USFWS 2021).
- Other relevant scientific literature, technical databases, resource agency reports, and Federal Register notices and other information published by the USFWS and National

Marine Fisheries Service (NMFS) to assess the current distribution of special-status plants and animals in the vicinity of the site.

Field Survey

A site visit was conducted by MIG senior biologist Tay Peterson and MIG senior biologist David Gallagher on December 2, 2021. During the site visit, MIG biologists assessed the existing biotic habitats and plant and animal communities at the golf course and in adjoining areas, assessed the potential for special-status species and their habitats to occur in the golf course area, and identified potential jurisdictional habitats (e.g., waters of the U.S./state), and other sensitive biological resources that could trigger the need for permits from state and federal agencies.

Limitations

This feasibility study is based on one site visit to the golf course and surrounding areas, research, and the author's knowledge of the area. It did not include any protocol surveys or multiple season surveys, but these are not necessary for this site, based on the conditions observed and our familiarity with the habitats. The feasibility study provides a concept, which would need to be developed further with a formal restoration plan. Cost estimates are at a rough order of magnitude and will require refinement once a site design and a detailed restoration plan are developed.

General Site Description

Existing Land Uses, Vegetation Communities, and Habitats

The golf course is developed with tees and fairways and trees planted to separate the fairways; it currently lacks natural vegetation communities. Most of the golf course is turf grass that is regularly watered and mowed. There are numerous mature trees present within the site, including planted coast redwood (*Sequoia sempervirens*), which do not naturally occur in the Santa Clara Valley. The site is regularly cleared of understory vegetation to maintain the golf course, which precludes the establishment of native vegetation and wildlife habitat in this area.

The golf course currently provides low-quality habitat for wildlife species because it is primarily maintained as turf suitable for golfing and does not provide forage or nesting habitat for most species. The wildlife most often associated with developed areas are those that tolerate human disturbance, such as raccoons, opossums, geese, and several common urban birds. However, the Stevens Creek riparian corridor is species-rich, so a wider variety of wildlife, not generally associated with urban areas, may forage in, or move through the golf course, and would certainly occupy restored habitat in this location.

Stevens Creek is an unusual creek on the San Francisco Peninsula because it has been protected along most of its length, and therefore forms a continuous riparian buffer from its headwaters until it enters tidal marsh in San Francisco Bay. It has been protected as a riparian corridor for at least a century, and its value as a wildlife corridor has only increased over time due to the urban development that surrounds the corridor. Continuous riparian buffers provide important wildlife migration corridors, which are critical "movement highways" for

terrestrial species such as mammals and reptiles as well as for water dependent species such as amphibians and waterfowl. Wildlife corridors counter habitat fragmentation and therefore, are essential to wildlife survival and diversity.

The creek supports a mixed riparian woodland, with mature trees as an overstory and a diversity of shrubs as an understory. Mixed riparian woodland habitats in California generally support animal communities that contribute disproportionately to landscape-level species diversity. The presence of seasonal water and abundant invertebrate fauna provide foraging opportunities for many species, and the diverse habitat structure provides cover and breeding opportunities. The mixed riparian woodland habitat adjacent to the golf course provides cover and foraging habitat for a wide variety of terrestrial vertebrates (e.g., amphibians, reptiles, and mammals), as well as several guilds of birds, including insectivores (e.g., warblers, flycatchers), seedeaters (e.g., finches), and raptors. Cavity-nesting birds (e.g., swallows and woodpeckers) may nest in the large trees in this habitat type.

Soils

The National Resource Conservation Service (NRCS) soils map of the golf course identified one soil unit, *171-Elder fine sandy loam, 0 to 2 percent slopes, rarely flooded* (NRCS 2021). The Elder series consists of very deep, well drained soils that formed in alluvium from mixed rock sources and occur in flood plains and is often subject to overflow during severe storms.

Flood Hazard

According to the Federal Emergency Management Agency's (FEMA) National Flood Insurance Rate Program (NFIP) Flood Insurance Rate Map (FIRM) for Santa Clara County, California, and unincorporated areas (Map Number 06085C0208H, May 18, 2009), much of the Blackberry Farm Golf Course is within a Special Flood Hazard Area subject to inundation by the 1% annual chance flood, also known as the 100-year flood. See the attached floodway graphic, *Blackberry Farm Golf Course: Regulatory Floodway*. The 1% annual flood (also known as the 100-year flood, or the base flood), is the flood that has a 1% chance of being equaled or exceeded in any given year.

Special-Status Plants

The CNPS (2021) and CNDDDB (2021) identify 74 special-status plant species as potentially occurring in the nine 7.5-minute quadrangles containing and/or surrounding the golf course. All 74 of those potentially occurring special-status plant species were determined to be absent from the golf course for at least one of the following reasons: (1) a lack of specific habitat (e.g., freshwater marsh) and/or edaphic requirements (e.g., serpentine soils) for the species in question, (2) the geographic range of the species does not overlap the site, (3) the species is known to be extirpated from the site vicinity, and/or (4) the habitats within the site are too impacted to reasonably expect any special-status species to occur there.

Special-Status Animals

Based on a review of the USFWS and CNDDDB databases, the biologists' knowledge of sensitive species, and an assessment of the types of habitats within the site, it was determined that three wildlife species could potentially occur within or adjacent to the site. This determination was made due to the presence of essential habitat requirements for the

species, the presence of known occurrences within five miles of the site, and/or the site's location within the species' known range of distribution. The legal status and likelihood of occurrence of special-status animal species in the project area are discussed in greater detail below.

Special-status animal species that are not expected to occur in the golf course because of the lack of suitable habitat, or the site is outside the known range of the species, and/or the site is isolated from the nearest known extant populations by development or otherwise unsuitable habitat include Central California Coast Steelhead (*Oncorhynchus mykiss irideus*), California giant salamander (*Dicamptodon ensatus*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylei*), Santa Cruz black salamander (*Aneides flavipunctatus niger*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), burrowing owl (*Athene cunicularia*), long-eared owl (*Asio otus*), peregrine falcon (*Falco peregrinus*), white-tailed kite (*Elanus leucurus*), yellow warbler (*Setophaga petechia*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

Because the site is adjacent to Stevens Creek, three special-status species have the potential to be present in the developed portions of the site: California red-legged frog, western pond turtle, and San Francisco dusky-footed woodrat. In addition, the project site provides potential habitat for nesting birds and bats that are protected by California Fish and Game code. These resources are discussed in detail below.

California Red-legged Frog (*Rana draytonii*). Federal status: Threatened; State status: Species of Special Concern. The California red-legged frog was federally listed as threatened in June 1996 (USFWS 1996) based largely on a significant range reduction and continued threats to surviving populations. Critical habitat was most recently designated in March 2010 (USFWS 2010). Designated critical habitat is not present in the project area. The historical distribution of the California red-legged frog extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. The species' current distribution includes isolated locations in the Sierra Nevada and the San Francisco Bay area, and along the central coast (USFWS 2002).

The California red-legged frog inhabits freshwater pools, streams, and ponds throughout the Central California Coast Range and isolated portions of the western slope of the Sierra Nevada (Fellers 2005). Its preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters (Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). However, red-legged frogs will also breed in small, shallow pools as well as intermittent streams. Non-breeding frogs may be found adjacent to streams and ponds and may travel up to two miles from their breeding locations across a variety of upland habitats to other suitable non-breeding habitats (Bulger et al. 2003; Fellers and Kleeman 2007). However, the distance moved is highly site-dependent and is influenced by the local landscape (Fellers and Kleeman 2007). California red-legged frogs generally disperse during the wet season from mid-October to mid-April.

The Stevens Creek corridor contains suitable aquatic breeding habitat (i.e., long-lived pools or slow-moving streams with emergent vegetation or other egg mass attachment sites) for the

California red-legged frog. Additionally, the riparian corridor along Stevens Creek provides suitable foraging and dispersal habitat. Because of the proximity of the Stevens Creek corridor, red-legged frogs have the potential to disperse through the site. The nearest known breeding populations of red-legged frogs are in Permanente Creek in Rancho San Antonio County and Open Space Preserve, approximately one mile west of the site; and in the upper reaches of Stevens Creek, near Stevens Creek Reservoir, approximately three miles upstream of the site. However, there are no documented occurrences of red-legged frog in the urbanized reaches, including the entire downstream section of Stevens Creek (CNDDDB 2021).

Even though the site contains suitable dispersal habitat for California red-legged frog, it is highly unlikely that red-legged frogs would currently occur in the golf course, due to active management of the golf course. It is also extremely unlikely that an individual from Permanente Creek and the remote upstream portions of Stevens Creek would disperse downstream as far as the site. If the site were restored in the future, it is feasible that red-legged frogs could find upland refuge there.

Western Pond Turtle (*Actinemys marmorata*). Federal status: None; State status: Species of Special Concern. The western pond turtle occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California (Bury and Germano 2008). Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and western pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded areas. Juveniles occur in shallow aquatic habitats with emergent vegetation and ample invertebrate prey. Nesting habitat is typically found within 600 feet of aquatic habitat (Jennings and Hayes 1994), but if no suitable nesting habitat can be found close by, adults may travel overland considerable distances to nest.

The Stevens Creek corridor contains suitable aquatic habitat for western pond turtle. Also, if present in Stevens Creek, western pond turtle could potentially move into the adjacent upland areas within the developed, grassy areas of the golf course. The nearest known documented occurrences of western pond turtle are from Saratoga Creek near its confluence with Calabazas Creek at Guadalupe Slough; the salt ponds, marshes, and channels along the Bay Trail to the west, both approximately nine miles downstream of the site; and Stevens Creek County Park, approximately three miles upstream of the site. There are no documented occurrences of western pond turtle in the urbanized reaches of Stevens Creek (CNDDDB 2021).

Even though the open grassy areas of the site contain suitable upland habitat for western pond turtle, it is highly unlikely that pond turtles would currently disperse into the site from the Stevens Creek corridor due to the high levels of disturbance. Furthermore, it is extremely unlikely that an individual from the downstream areas near the San Francisco Bay and the remote upstream portions of Stevens Creek would disperse into the golf course. If the area was restored to oak savanna habitat, it is feasible that western pond turtles could nest there.

San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*). Federal status: None; State status: Species of Special Concern. The San Francisco dusky-footed woodrat occurs in a variety of woodland and scrub habitats throughout San Mateo County and the adjacent

Central Coast Range, south to the Pajaro River in Monterey County (Hall 1981, Zeiner et al. 1990). San Francisco dusky-footed woodrats prefer riparian and oak woodland forests with dense understory cover, or thick chaparral habitat, and build large, complex houses of sticks and other woody debris, which may be maintained by a series of occupants for several generations (Carraway and Verts 1991; Lee and Tietje 2005). Also, they will often build these stick houses in the canopy of trees. Woodrats also use human-made structures, and can nest in electrical boxes, sheds, pipes, abandoned vehicles, wooden pallets, and portable storage containers. The breeding season for dusky-footed woodrat begins in February and sometimes continues through September, with females bearing a single brood of one to four young per year (Carraway and Verts 1991).

The Stevens Creek corridor contains suitable habitat for dusky-footed woodrat and woodrats may occasionally forage in the golf course, but the site does not currently contain suitable habitat to support woodrat houses. Woodrats would be expected to colonize riparian woodland, habitat islands, or oak trees on a restored site.

Bat Colonies. Bats are protected under Sections 4150-4155 of the California Fish and Game Code. Bats tend to forage and roost near freshwater sources. Stevens Creek provides a seasonal source of freshwater, and cavities within trees and structures may provide suitable day and maternity roost habitat for many species of bats. The trees on the golf course may provide habitat for bats that roost in foliage but are not likely to provide habitat for cavity roosting bats. It is unlikely that the golf course supports a bat maternity colony, although bats may forage over the golf course from roosts in the adjacent Stevens Creek corridor.

Roost sites for bats are critical resources for mating, hibernation, rearing young, conserving energy, and protection from adverse weather and predators. Bat selection of roost sites is influenced by distribution and abundance of food resources, risks of predation, as well as the physical attributes of the roost itself. Roost selection is paramount to the success of a species and the removal of roost habitat could adversely impact species survivorship (Kunz 1982). Maternity roosts are particularly important and vulnerable to impacts.

The removal of non-native trees may temporarily impact roosting bats but will not be significant due to the presence of higher quality roosting habitat in the nearby Stevens Creek corridor. The planting of native oak trees, including restoring native grassland habitat and expansion of the riparian habitat along Stevens Creek will increase the amount of available high-quality foraging habitat. Additionally, native oaks, once mature will provide higher quality roosting habitat for bats.

Nesting Birds. Birds may nest within the trees, shrubs, dense stands of vegetation, and man-made structures in and around the site. All bird species are protected under California Fish and Game code and the California Migratory Bird Protection Act; and most are protected under the federal Migratory Bird Treaty Act.

Sensitive and Regulated Plant Communities and Habitats

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance since the state inception of the

Natural Heritage Program in 1979. CDFW determines the level of rarity and imperilment of vegetation types; and tracks sensitive communities in its Rarefind database (CNDDDB 2021).

In addition to tracking sensitive natural communities, CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 1995). CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations and denotes which alliances are classified as sensitive (CDFW 2021).

Natural Communities of Special Concern. There are no CDFW classified sensitive natural communities within the golf course.

Sensitive Vegetation Alliances. There are no CDFW classified sensitive plant communities within the golf course.

CDFW Stream/Riparian Habitat. California Fish and Game Code includes regulations governing the use of, or impacts to, many of the state's fish, wildlife, and sensitive habitats, including the bed and banks of rivers, lakes, and streams. Stevens Creek and its associated riparian habitat up to the top of bank is subject to CDFW jurisdiction under Section 1600 et seq. of State Fish and Game Code. However, Stevens Creek and its associated riparian habitat is entirely outside of the site.

Waters of the U.S./State. Stevens Creek meets the definition of waters of the U.S./state, which is under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB). However, Stevens Creek is entirely outside of the golf course (see the Concept Plan). Also, the USFWS's National Wetlands Inventory (NWI) map of the site identified Stevens Creek as a seasonally flooded forested/shrub wetland. The NWI also shows three additional jurisdictional features, including two freshwater ponds and a freshwater emergent wetland (NWI 2021). These features correspond to water features that are part of the landscaping but are not currently maintained because they no longer hold water. During the site visit, no water or wetland vegetation were observed in all three features. Additionally, the three features were not hydrologically connected to the Stevens Creek corridor.

NWI maps are based on interpretation of aerial photography, limited verification of mapped units, and/or classification of wetland types using the classification system developed by Cowardin et al. (1979). These data are available for general reference purposes and do not necessarily correspond to the presence or absence of jurisdictional waters. If restoration of the golf course impacts the former ponds (e.g., grading), a formal wetland delineation would be required to determine if these features meet the definition of Waters of the U.S.

Critical Habitat/Essential Fish Habitat (EFH). There is no designated critical habitat or essential fish habitat within the site, but Stevens Creek is designated critical habitat for Central California Coast Steelhead (NMFS 2005). Additionally, Stevens Creek has been identified as a priority for steelhead population restoration by the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE), which includes federal, state, and local stakeholders. The FAHCE

is in the process of developing a Fish Habitat Conservation Plan for three local watersheds, including Stevens Creek.

Central California Coast Steelhead are known to occur in Stevens Creek (Leidy et al. 2005, Leidy 2007; CNDDDB 2021); However, the status of steelhead populations in coastal San Francisco Bay streams, including Stevens Creek, remains highly uncertain, and it has been determined that sections of upper Stevens Creek, including the project site, are periodically inaccessible due to passage barriers (Domenichelli & Associates 2017; Williams et al. 2016).

Permits

There are no regulated habitats within the boundaries of the Blackberry Farm Golf Course. The riparian zone of Stevens Creek does not extend into the golf course and the depressions within the golf course that may have been ponds in the past do not currently exhibit the parameters to meet the definition of waters of the U.S./state. No activities envisioned in this feasibility study would extend into the jurisdiction of the resource agencies and trigger Clean Water Act, Porter Cologne Water Protection Act, or California Fish and Game Code permit requirements.

Historic Habitat Conditions

Research on the historical ecology (pre-European settlement) of the region revealed that oak savanna was likely the dominant vegetation community at the site (SFEI 2015). Oak savannah woodland has a low density of oaks with a mostly open canopy. The understory was likely an annual grassland with scattered shrubs and perennial grasses. Based on the proximity of the site to Stevens Creek and soil type (the soil texture at the site is fine sandy loam), coast live oak (*Quercus agrifolia*) was likely the dominant tree in the savannah woodland. Coast live oaks occur on a wide range of soils derived from diverse parent materials and having a variety of textures from sandy loam to clay. Coast live oak generally occur on mesic (wet) sites, including slopes, savannas, alluvial terraces, canyon bottoms, and along streambanks (Sawyer and Keeler-Wolf 1995).

Of the other native oak species known to historically occur in Santa Clara Valley, black oak (*Quercus kelloggii*) may have been interspersed with coast live oak, especially farther away from Stevens Creek, since black oaks are most common on dry, well-drained soils with sandy loam to gravelly clay loam textures. Black oak generally occurs from level valley floors to alluvial slopes, rocky ridges, and steep slopes, with steep slopes the most typical. Valley oak (*Quercus lobata*) and blue oak (*Quercus douglasii*) were likely absent from the site based on the soil type at the site. Valley oaks generally occur in deep, rich soils with silty to sandy clay loam textures typical of floodplains and valley floors. They also depend on water-table access. Furthermore, in the SF Bay Area, soil textures identified as fine-loamy and loamy were positively correlated with valley oak presence, while fine, fine-silty, and sandy soil textures were significantly negatively correlated with valley oaks (Grossinger et. al 2008; Sawyer and Keeler-Wolf 1995). Blue oak generally occurs on dry soils characterized by a claypan or a clay-rich subsoil layer, which is lacking at the site (Borchert et al. 1993).

Climate Change

Climate change refers to any significant change in the measures of climate lasting for an extended period, including major changes in temperature, precipitation, or wind patterns, among other effects, which occur over several decades or longer. Over the past century, human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere. Greenhouse gases trap energy from the sun in the Earth's atmosphere and cause it to warm. Trend projections indicate that atmospheric concentrations of GHG emissions will continue to increase throughout this century. The specific effects of these increases will vary by location, but in general average temperatures are projected to increase, resulting in changes in precipitation, sea level rise, and increased risks of extreme weather events, flooding, droughts, and wildfires. The following changes are projected to occur in the coming decades over the Santa Clara Valley:

- Even with substantial global efforts to reduce greenhouse gas emissions, the Santa Clara Valley will likely see a significant temperature increase by mid-century, based on modeling through Cal-Adapt (2021).
- Precipitation in the Santa Clara Valley will continue to exhibit high year-to-year variability with very wet and very dry years. The Bay Area's largest winter storms will likely become more intense, and potentially more damaging, in the coming decades (Cal-Adapt 2021).
- Future increases in temperature, regardless of whether total precipitation goes up or down, will likely cause longer and deeper California droughts, posing major problems for water supplies, natural ecosystems, and agriculture (Cal-Adapt 2021).

Climate change will likely influence the types of plant communities that will do well at the golf course, as some plant species may thrive in the changing conditions while others may decline. In particular, the increased temperatures and changes in rainfall pattern are likely to affect growing conditions on the golf course. Native species adapted to the projected increased temperature ranges as well as to longer dry periods punctuated by shorter periods of heavy precipitation and possible flooding would generally do well at the site under projected climate change scenarios. The habitat restoration scenario outlined below—of allowing the riparian corridor to naturally expand, and to foster the development of oak savanna on the golf course—is compatible with predicted climate change effects.

PART 2 – RESTORATION OPPORTUNITY

Creating an Urban Wildland

Open natural spaces are increasingly important for both humans and native wildlife as an escape from urbanization and isolation. The concept of an urban wildland is to integrate natural landscapes in the urban environment as a different type of recreational open space than well-manicured parks. Both children and adults need natural areas to explore and have close contact with nature, and that are accessible in the city. Urban wildland spaces also provide essential habitat patches and corridors to ensure the survival of native species in the human-dominated landscape. Reconceptualizing urban parks and recreation areas to include natural habitats, or urban wildlands, therefore has multiple health and environmental benefits. Urban wildlands are a new and important habitat type within the urban landscape (Lundholm and Richardson 2010).

Cities are challenging locations for native restoration projects since urban habitats tend to be fragmented and frequently disturbed, and resources are limited. The soils have typically been greatly disturbed and no longer provide an optimum growing environment. Restoring native habitats in an urban landscape requires incorporating land management principles and activities aimed at returning a damaged or degraded ecosystem back to ecosystem health and sustainability. Many restoration projects look to ecological conditions present before the time of European settlement as the landscape that should be restored because these are the landscapes that are adapted to the prevailing environmental conditions.

Urban wildlands often need to balance the goals of ecological restoration and access for outdoor recreation. Given that the Stevens Creek Corridor Park will remain a regional recreational resource, restoration planning and goals will need to include pathways that encourage active exploration of nature, while also maintaining ecologically intact habitats.

A successful urban wildland will give users a stronger connection with nature, which can be further enhanced with trails, benches, and an outdoor classroom to help foster outdoor education and stewardship. Future development of interpretive features and a nature play area could further promote a healthy lifestyle and foster multi-cultural connections, as these elements may attract a subset of the public focused on those activities. While connections to nature may not have been their initial goal, they may be drawn in to enjoy the site's natural areas.

Ecological Benefits

The Blackberry Farm Golf Course land was formerly an oak savannah adjacent to the riparian corridor of Stevens Creek (SFEI 2015). An oak savannah is essentially a grassland dotted with oak trees. Oak woodlands and savannahs have the greatest species richness of any vegetation community in California and are especially rich and diverse when adjacent to riparian corridors (Sawyer and Keiler-Wolf 1995). A suite of locally native species, particularly birds, are strongly associated with oaks, including white-breasted nuthatches (*Sitta carolinensis*), oak titmice (*Baeolophus inornatus*), and acorn woodpeckers (*Melanerpes formicivorus*). Annual grasslands

are species rich with native forbs that increase floral resource abundance and diversity for native insect floral visitors, some of which are important pollinators, as well as naturalized honeybees (*Apis mellifera*).



Photo 1. An oak woodland savannah with recreation trails at Guadalupe Oak Grove Park in San Jose.

Grasslands are particularly important since populations of important pollinators have been declining throughout much of North America over the past couple of decades. Beekeepers in the U.S. have been suffering from unusually high rates of colony loss of the naturalized honeybee. The abundance of several bumblebee species in the western U.S. has declined dramatically, with at least one species now believed to be extinct. And both the eastern and western populations of the monarch butterfly have declined precipitously, with the eastern population reaching a new record low in recent years.

Re-establishing a natural ecosystem at the Blackberry Farm Golf Course would maximize long-term sustainability at the site by using native plants that are adapted to the specific climate conditions of the region and the cycles of heat and drought that are common in the Santa Clara Valley. Once established, native oaks and native shrubs will need no irrigation and the mixture of trees and shrubs will provide robust root systems that will prevent erosion and substantially increase runoff infiltration and uptake of excess nutrients and other pollutants carried by urban stormwater runoff, which will also improve aquatic habitat for steelhead in Stevens Creek. These habitat types are also resilient to periodic flooding, which could occur in the flood zone areas mapped in the area.

Natural ecosystems in urban environments can also significantly reduce greenhouse emissions by helping to store carbon, as well as reducing urban air pollution. This will help California to reach its targets for greenhouse gas emission reductions, adding to our state's leadership model around the world in slowing and reversing the rate of climate change. Climate change models for the region predict a continued warming trend, less annual rainfall, and an increase in the frequency and magnitude of extreme weather events. A natural ecosystem will mediate heat island effects generated by heat absorption in and reflection by surrounding urban areas that are dominated by asphalt, concrete, and buildings; and will compensate for swings in local weather exacerbated by climate change.

Restoration Approach

Because the Blackberry Farm Golf Course is relatively small, highly disturbed, and surrounded by an urban landscape, there are significant restrictions on what native ecological conditions can be restored. For example, a full conversion of the existing grassland to a native grassland is not a realistic goal because many non-native grasses are naturalized, and it is unlikely that such grasses could be eradicated in a sustainable way from the site except at enormous cost and effort. Instead, the restoration should focus on recovering or reintroducing the key flora of oak woodland savanna and annual grassland communities. Furthermore, natural ecosystems are spatially and temporally dynamic with shifting boundaries and species composition. This natural state of flux, driven by natural ecosystem processes, is critical to the long-term health of natural ecosystems. Because of the urban setting of the Blackberry Farm Golf Course, some natural ecosystem processes will need to be suppressed or eliminated, which will require alternative methods to maintain sustainable native habitats. For example, oak woodland will naturally displace annual grassland through the process of ecological succession, so to maintain grassland habitat, management actions that are suitable in an urban environment, such as mowing or managed grazing, will be needed. While fire has historically served this purpose it is no longer suitable to use in this location.

Restoration of natural habitats is a complex, long-term process that requires the development of a restoration plan with planning, implementation, and monitoring components. The restoration plan will provide a robust framework that identifies short- and long-term restoration goals, effective and appropriate designs to meet restoration goals, regular evaluation of restoration efforts to determine whether goals are being met, and contingency and adaptive management measures if goals are not being met. Based on our assessment of the site conditions at the Blackberry Farm Golf Course, the following should be considered if the site is restored to a native ecosystem.

Overview

The recommended approach is shown on the attached graphic, *Blackberry Farm Golf Course: Urban Wildland Restoration Approach*, and includes the following elements:

- Delineate a riparian regeneration zone to allow the Stevens Creek riparian corridor to naturally invade portions of the existing golf course. Manage the vegetation to foster native species growth.
- Establish wildflower meadows in an already existing open area of the golf course.
- Establish habitat islands similar to those in McClellan Ranch, including flowering shrubs and native oaks that support wildlife species, including pollinators.
- Areas not selected for restoration will be transitioned to low maintenance zones, managed as annual grasslands.
- Allow the existing coastal redwood trees to remain.
- Incorporate sustainable management practices.
- Incorporate fire resiliency management practices using defensible space principles.
- Plan for a minimum three-to-five-year establishment period.
- Establish accessible walking trails that connect with the Stevens Creek Trail and develop other visitor amenities, such as seating, an outdoor education area, and Ranger space.
- Allow for future recreation development along the trails, such as additional seating and gathering areas, interpretive elements, an exercise par course, and nature play area.

These are discussed in further detail below:

Riparian Regeneration Zone. The riparian corridor along Stevens Creek will naturally expand into the existing landscaped areas. The extent of this expansion is unknown but will be influenced by the existing hydrology and soil composition at the site. Therefore, a 50-foot riparian regeneration zone (buffer) is proposed to allow the riparian corridor to naturally expand into the existing landscaped area. Invasive shrub and tree species will be removed in this area until native species become established. The budget includes an option of planting 100 5-gallon shrubs in this area if desired.



Photo 2. Existing riparian corridor along Stevens Creek. The proposed restoration approach includes a riparian regeneration zone, which would allow the Stevens Creek riparian corridor to naturally invade portions of the existing golf course.

Establish Wildflower Meadows. A wildflower meadow is an open area where herbaceous flowering annuals and perennial bunchgrasses are dominant. Woody species are absent or present in low numbers. A wildflower meadow is a complex and diverse interactive plant community that provides important habitat for pollinators and other wildlife. Once a wildflower meadow becomes a well-established plant community, it is less susceptible to weed invasions and requires very little regular maintenance. However, long-term management is important to maintain a meadow over time since most meadows are only a transitional stage and will be replaced by shrubs and trees. Establishment of a wildflower meadow would involve selecting an existing area free of woody vegetation, removal of the non-native turf grasses by natural methods (e.g., grazing using goats), tilling of the site, and then hydroseeding or seed drilling a diverse, locally sourced native wildflower and grass mix.



Photo 3. *The proposed restoration approach includes the creation of a wildflower meadow, which could be nestled between the existing rows of redwood trees.*

Creation of Habitat Islands. Habitat islands are defined areas where focused restoration efforts would take place. They can include upland refugia habitats for native amphibian and reptile species when Stevens Creek experiences high flows from winter storms, and habitats focused on pollinator conservation, which includes high density planting of a diverse array of flowering native shrubs and herbaceous annuals. They are a manageable size for restoration

efforts, both in terms of cost and chances of successful establishment within the 3-to-5-year time period. It is recommended that the composition of the islands follow three styles: islands with oaks and grasses, islands with flowering shrubs and no oaks, and islands with a combination of oaks and flowering shrubs.

Creation of a habitat island would involve the removal of non-native grasses, herbs, and woody species by natural methods (e.g., hand removal and soil solarization), followed by seeding and planting of native species. These areas are typically fenced temporarily to allow establishment of the planted vegetation and weeds are suppressed using mulch. Generally, downed vegetation, including trimmings and thatch (organic matter) are left in place to provide cover for wildlife.



Photo 4. A native habitat restoration site at McClellan Ranch Preserve, south of Blackberry Farm is an example of a habitat island with diverse flowering plants. The Stevens Creek riparian corridor is in the background.

The creation of habitat islands can occur over time to allow focused use of resources, provide an educational element so that visitors can see how the restoration process proceeds over time (e.g., use interpretive signage to highlight habitat islands created in the first year, second year, etc.), and to determine what species grow best in the conditions present at the golf course (e.g., if a species dies in the first year then it can be removed from the planting palette and replaced with a more suitable species).

Low Maintenance Zones, and Potential Bioswale Planting areas. The areas outside of restored habitat islands and wildflower meadows will be transitioned to low maintenance zones. The turf grass in these zones will be allowed to grow naturally (i.e., no irrigation or fertilizer) and will be grazed by goats or mowed once or twice a year. These areas can be restored to native habitats in the future if desired or as determined in an approved detailed restoration plan.

Existing Coastal Redwood Trees. Since coastal redwood trees are not adapted to the hot and fog-free summers found in the Santa Clara Valley, some of the existing redwoods will likely die-off without the supplemental water provided from irrigation of the turf grass. It is impossible to know how many and when they may die-off since some may be tapped into the water table associated with Stevens Creek and could persist for many more years. Therefore, it is recommended that the existing redwood trees remain in place and be monitored yearly for signs of overall health. Trees then can be removed on an individual basis over time and the wood recycled for restoration purposes (e.g., downed trees can be converted to mulch for use in the habitat islands) or for building park benches and/or other structures.



Photo 5. The proposed restoration includes keeping the existing redwood trees, which can be incorporated into a trail network, nature play areas, and gathering spaces.

Sustainable Management Practices. Cost-saving and sustainable management practices can be incorporated into the restoration plan, including native plant landscaping practices (e.g., leaving plant litter in place, minimal pruning and shearing, no fertilizers, etc.), mulching, and goat/sheep grazing to control invasive species. Irrigation systems placed on the surface will be used during the establishment period, and then will be removed, reducing the long-term need for irrigation. The existing topography of the site can be incorporated into the restoration plan, so that mass grading is not proposed. For example, the dry ponds can be planted with native vegetation and used as bioswales to naturally capture and filter urban runoff, including run-off from a trail network and the existing parking areas. A wildflower meadow could be installed on the current fairways and habitat islands could be installed on the fairways, tees and greens.



Photo 6. The proposed restoration approach includes using the existing depression from the dry pond as a bioswale to collect run-off from a trail system as well as existing parking areas. The fencing will be removed.

Fire Resiliency. Standard defensible space management practices should be incorporated into the restoration design and the regular maintenance plan. These practices will assure that grasses are trimmed annually, that space with low growing vegetation is kept between the habitat islands, and that trimming of lower branches that can transfer fire into the canopy is

completed on a regular basis. Grasses will be trimmed annually, but branch trimming is typically every 3-5 years, depending on conditions.

Establishment Period. Natural habitats often require three to five years to become established. Temporary irrigation systems are provided during the establishment period and are removed once the vegetation is established. To ensure success of native restoration, long-term management practices, including annual funding, need to be addressed in the restoration plan.

Trails and Visitor Amenities. This new urban wildland will provide the community with passive recreation experiences, educational opportunities, and connections to nature close to home. Accessible walking trails are proposed to connect with the Stevens Creek Trail and existing buildings. The decomposed granite paths will loop through the site, with occasional benches, encouraging low-impact exploration of the area.

Outdoor education opportunities in the area could be enhanced by better on-site space for Park Rangers and development of an outdoor education area. This could consist of decomposed granite paving and log benches, possibly salvaged from the Redwoods on site. The outdoor education area is best placed towards the North end of the site, which has an existing parking lot off an arterial road and a restroom in the golf/restaurant building that could be open to the public from an exterior door. The current golf pro shop is proposed as office space for the Park Rangers, with some minimal interior improvements, such as flooring and paint. An existing storage shed just south of the building can serve as storage and an informal meetup space for the Rangers.

There is a desire for additional parking at the South end of the existing golf course. An additional row of parking and drive aisle is proposed, with several additional accessible parking spaces located near the new trail. The vehicle, bicycle, and pedestrian access from the south entrance along San Fernando Avenue is currently being studied separately, by others (see *Blackberry Farm Entrance Road Improvements Feasibility Study* by Underwood & Rosenblum, Inc., August 2020).

Future Recreation Development Opportunities. The restoration plan should allow for future recreation to be developed along the trails. Some possibilities include:

- Exercise Par Course
- Nature Play Area
- Bus Turnaround at the North End
- Additional Seating and Gathering Areas
- Art and Interpretive Elements
- Larger Renovation of the Golf Pro Shop/Restaurant Building to support educational activities and operation of the natural area.

Estimated Costs

See the attached Rough Order of Magnitude Costs for the estimated costs to implement the above restoration approach. Specific assumptions used to develop cost line items are noted in the cost table. General cost assumptions include the following:

- Cost estimates are at a rough order of magnitude and will require refinement once a site design and detailed restoration plan are developed.
- A topographic survey and additional site studies are required to assess required ADA upgrades at the existing building and parking area.
- Site preparation does not require mass grading.
- The sand traps and existing trees will be left as is.
- Existing fencing and netting along the west and south edges of the golf course will be removed, including the footings.
- Four of the extra-large timber fence poles adjacent to the south parking lot (at Blackberry Farm Park) are assumed to be removed for parking lot work while the rest will remain for bird habitat. If desired, the remaining poles could be partially cut at different heights for variation.
- Goats will be used to remove/prepare the existing fairway grasses for restoration, and to help with removal of invasive species on the slope on the east side of the golf course.
- Annual maintenance will be limited to weeding and selective mowing around plantings in the habitat islands/riparian zone, and mowing/grazing grasses in the wildflower meadow, low maintenance areas, and bioswales in the first 3 to 5 years. After that the annual maintenance is expected to decrease as plants become established. Every 5 years a more intensive defensible space trimming plan will be implemented to address low hanging branches and shrub spacing.
- There will be eight habitat islands. The habitat islands will be planted with oak trees and perennial plants and will be seeded with native grasses and forbs. Temporary fencing will be installed to protect most of the plants from deer browse until they are established, then the fence will be removed.
- Where hydroseeding is noted, it will occur annually over three years with a native wildflower meadow mix.
- Irrigation to the habitat islands will be via temporary surface pipes and is expected to be removed once the plants are established in 3 to 5 years.
- The existing irrigation system at the backflow valve is suitable for re-use. All pipes will be abandoned in place, but the risers will be capped.
- A detailed restoration and management plan will be prepared prior to preparing construction drawings and will be subject to City review. It is not currently included in the budget.
- There will be ten years of monitoring and adaptive management to assure the plan is well-implemented. Since there are not permits, the monitoring period is flexible, but five years is the minimum.
- A more intensive restoration approach involving tree removal, soil restoration, and additional plantings is not desired.
- No permits from state or federal resource agencies are required.

References

- Barnhart, R.A. 1986. Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Southwest) - Steelhead. U.S. Fish and Wildlife Service Biol. Rep. 82(11.60). U.S. Army Corps of Engineers TR EL-82-4.
- Borchert, M.I., N.D. Cunha, P.C. Krosse, and M.L. Lawrence. 1993. Blue oak plant communities of southern San Luis Obispo and northern Santa Barbara Counties, California. Gen. Tech. Rep. PSW-GTR-139. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.
- Bulger, J.B., N.J. Scott, Jr., and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biological Conservation 110: 85-95.
- Bury, R.B. and D.J. Germano. 2008. *Actinemys marmorata* (Baird and Girard 1852) - western pond turtle, Pacific pond turtle in G.J. Rhodin, C.H. Pritchard, P.P. van Dijk, R.A. Saumure, K.A. Buhlmann, and J.B. Iverson, editors. Conservation biology of freshwater turtles and tortoises: A compilation project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs.
- Busby, P.J., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California. National Marine Fisheries Service. NOAA Tech. Memo. NMFS-NWFSC-27.
- Cal-Adapt. 2021. Local Climate Change Snapshot for 22100 Stevens Creek Boulevard, Cupertino, California 95014, United States. Cal-Adapt was developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and the California Strategic Growth Council. Accessed December 27 at: <https://cal-adapt.org/>
- Carraway L.N. and B.J. Verts. 1991. *Neotoma fuscipes*. Mammalian Species No. 386, The American Society of Mammalogists. 10 pp.
- [CDFW] California Department of Fish and Wildlife. 2021. VegCAMP Natural Communities Lists. Accessed December 2021 from <https://www.wildlife.ca.gov/data/vegcamp/natural-communities>.
- [CNDDB] California Natural Diversity Data Base. 2021. Results of electronic records search. Rarefind 5. California Department of Fish and Wildlife, Biogeographic Data Branch. Accessed December 2021 from <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>.
- [CNPS] California Native Plant Society. 2021. Inventory of Rare, Threatened, and Endangered Plants of California. Version 8-02. Accessed December 2021 from <http://www.rareplants.cnps.org/advanced.html>.
- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Department of the Interior, Fish and Wildlife

Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. (Version 04DEC98).

Domenichelli and Associates. 2017. Stevens Creek Steelhead Passage Improvement Project Feasibility Report. Prepared for Friends of Stevens Creek Trail. November 2017.

Fellers, G.M. 2005. *Rana draytonii* California red-legged frog. In M. Lannoo, ed. Amphibian Declines: The Conservation Status of United States Species. University of California Press. CA: Berkeley. Pp 552-554.

Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: implications for conservation. *Journal of Herpetology* 41(2): 276-286.

[FEMA] Federal Emergency Management Agency. 2009 (May 18). National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM) for Santa Clara County, California, and Unincorporated Areas. Map Number 06085C0208H.

Fukushima, L. and E.W. Lesh. 1998. Adult and juvenile anadromous salmonid migration timing in California streams. *California Fish and Game* 84:133-145.

Google Inc. 2021. Google Earth Pro (Version 7.1.5.1557) [Software]. Available from earth.google.com.

Grossinger, R. M., E. E Beller, M. N Salomon, A. A Whipple, R. A Askevold, C. J Striplen, E. Brewster, and R. A Leidy. 2008. South Santa Clara Valley Historical Ecology Study, including Soap Lake, the Upper Pajaro River, and Llagas, Uvas-Carnadero, and Pacheco Creeks. Prepared for the Santa Clara Valley Water District and The Nature Conservancy. A Report of SFEI's Historical Ecology Program, SFEI Publication #558, San Francisco Estuary Institute, Oakland, CA.

Hall, E.R. 1981. *The Mammals of North America*. 2nd edition. Volume II. John Wiley and Sons, New York, New York.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division.

Kunz, T.H. 1982. Chapter 1 Roosting Ecology of Bats. In, T.H. Kunz, editor. *Ecology of Bats*. Plenum Publishing Corporation, New York, New York

Lee, D.E. and W.D. Tietje. 2005. Dusky-footed woodrat demography and prescribed fire in a California oak woodland. *Journal of Wildlife Management* 69(3):1211-1220.

Leidy, R.A. 2007. Ecology, Assemblage Structure, Distribution, and Status of Fishes in Streams Tributary to the San Francisco Estuary, California (Report). San Francisco Estuary Institute.

Leidy, R.A., G.S. Becker, and B.N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout (*Oncorhynchus mykiss*) in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, CA.

Lundholm J.T. and Richardson P.J. 2010. Habitat analogues for reconciliation ecology in urban and industrial environments. *Journal of Applied Ecology* 47:966–975.

[NMFS] National Marine Fisheries Service. 2005. Endangered and Threatened species: Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Steelhead and Salmon in California. Final rule. *Federal Register* 70:52488-52626.

[NWI] National Wetlands Inventory. 2021. Wetlands Mapper. U.S. Fish and Wildlife Service Accessed December 2021 from <http://www.fws.gov/wetlands/Wetlands-Mapper.html>.

[NRCS] Natural Resources Conservation Service. 2021. Web Soil Survey. U.S. Department of Agriculture. Accessed December 2021 from <http://websoilsurvey.nrcs.usda.gov>.

[SFEI] San Francisco Estuary Institute. 2015. "Santa Clara Valley Historical Ecology GIS Data version 2" Accessed [date retrieved]. <http://www.sfei.org/content/santa-clara-valley-historical-ecology-gis-data>.

Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, CA.

Shapovalov, L., and A.C. Taft. 1954. The life histories of the steelhead rainbow trout (*Salmo gairdneri*) and silver salmon (*Oncorhynchus kisutch*) with special reference to Waddell Creek, California, and recommendations regarding their management. DFG Bulletin No. 98.

Szewczak, J.M. 2013. The Ecology and Conservation of California Bats. San Francisco State University. SFSU Field Campus. August 5–9 2013.

[USFWS] U.S. Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-legged Frog. *Federal Register* 61:25813-26833.

[USFWS] U.S. Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Region 1.

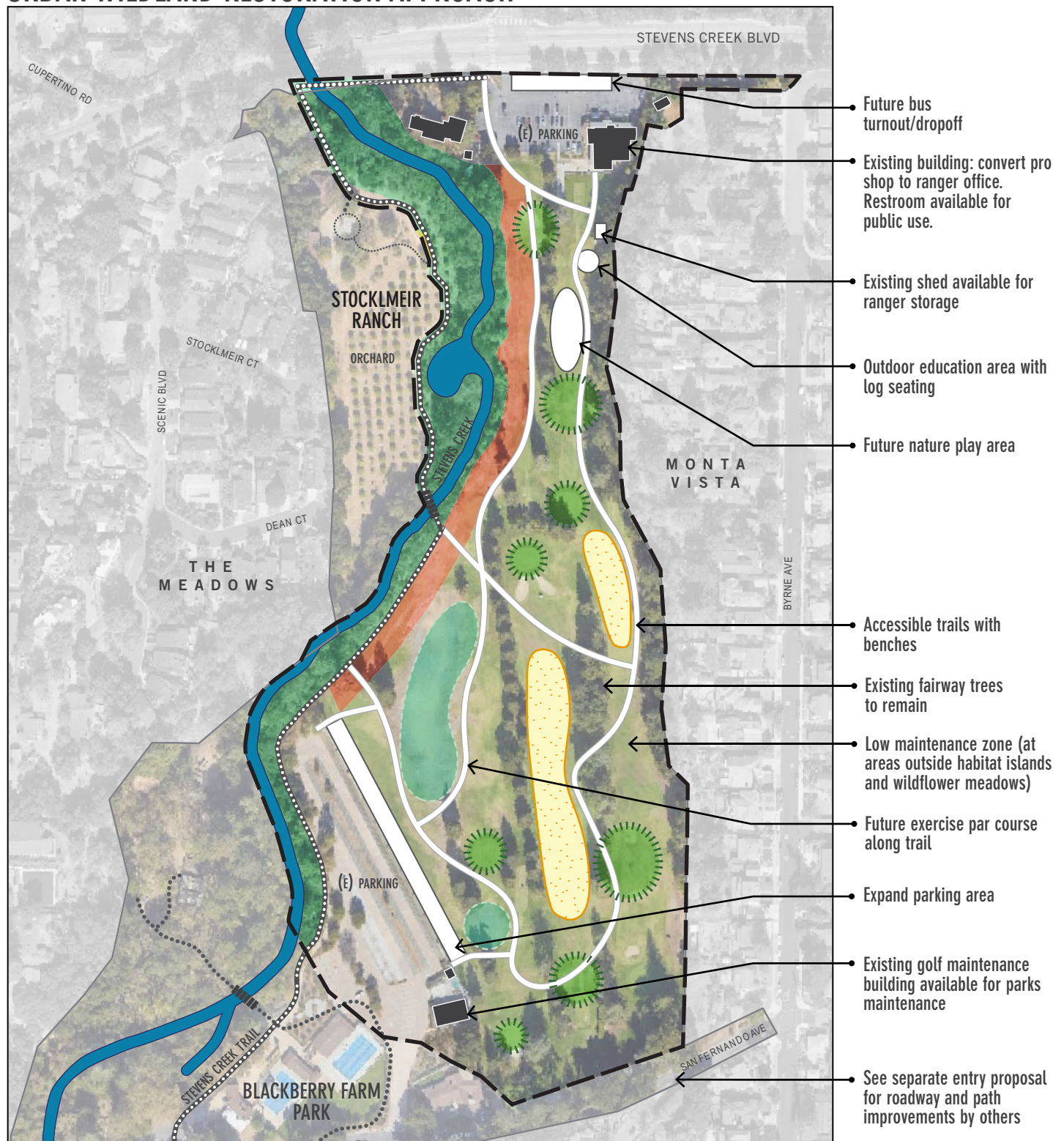
[USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. *Federal Register* 75:12815-12959.

[USFWS] U.S. Fish and Wildlife Service. 2021. IPaC Information for Planning and Conservation. Accessed December 2021 from <https://ecos.fws.gov/ipac/t69>.

Williams, T.H., B.C. Spence, D.A. Boughton, R.C. Johnson, L.G. Crozier, N.J. Mantua, M.R. O'Farrell, and S.T. Lindley. 2016. Viability assessment for Pacific salmon and steelhead listed under the Endangered Species Act: Southwest. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-564.

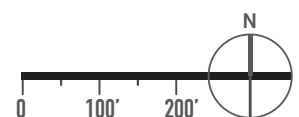
Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White, editors. 1990. California's Wildlife. Volume III: Mammals. California Department of Fish and Game, Sacramento, California.

BLACKBERRY FARM GOLF COURSE URBAN WILDLAND RESTORATION APPROACH



MAP LEGEND

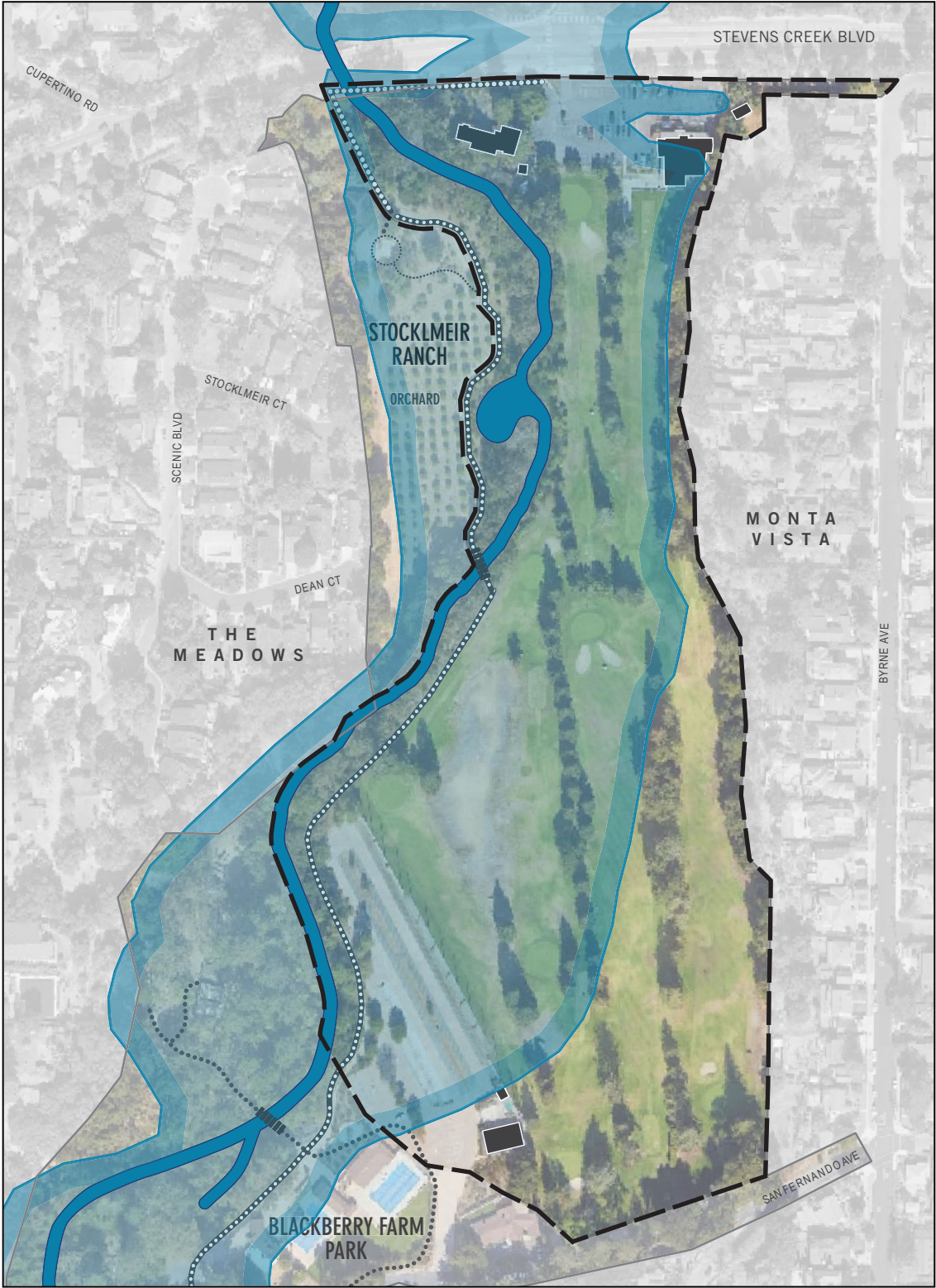
	STUDY AREA		CREEK		RIPARIAN REVEGETATION ZONE
	PARK BOUNDARY		PROPOSED PATHS		DRY POND - POTENTIAL BIOSWALE PLANTING
	(EXISTING) BUILDING / STRUCTURE		PROPOSED BUILT FEATURE		HABITAT ISLAND
	(E) STEVENS CREEK TRAIL		EXISTING RIPARIAN CORRIDOR		WILDFLOWER MEADOW
	(E) PATHS				
	(E) BRIDGE				



FEBRUARY 2022

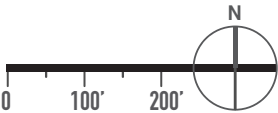


BLACKBERRY FARM GOLF COURSE REGULATORY FLOODWAY



MAP LEGEND

- STUDY AREA
- PARK BOUNDARY
- (EXISTING) BUILDING / STRUCTURE
- (E) STEVENS CREEK TRAIL
- (E) PATHS
- (E) BRIDGE
- CREEK
- AE - REGULATORY FLOODWAY



Blackberry Farm Golf Course Restoration - Feasibility Study
Cupertino, CA

OPINION OF PROBABLE COSTS

Rough Order of Magnitude

March 2022 by MIG, Inc.

DESCRIPTION	QUAN.	UNIT	COST	ITEM TOTAL	TOTAL	COMMENTS
DEMOLITION & CLEARING					\$114,340	
Remove Existing Golf Facilities - tee markers, cups at greens, small windmill pump structure	1	LS	\$15,000	\$15,000		Sand traps to remain
Cap/shut down existing irrigation valve/heads and risers	1	LS	\$25,000	\$25,000		Assuming existing 100 valve-in-head sprinklers to be capped if existing rotors are not re-useable
Partial fencing removal at South parking area	1	LS	\$25,000	\$25,000		Remove 4 Large wood poles and footings at south parking area, lower section of chainlink fence and upper section of netting
Fencing removal along Stevens Creek	1	LS	\$18,000	\$18,000		Includes fencing/footings along bike trail & driving range/cage
Initial Goat grazing/clearing	11	AC	\$1,000	\$11,340		
Invasive tree removal (with root grinding on some species)	1	ALLOW	\$20,000	\$20,000		Includes one-time removal of invasive Privet (existing). Fairway trees to remain as is.
Assumes no other utility work						
IRRIGATION					\$101,223	
Riparian Revegetation Zone - Install temporary drip irrigation system with above-ground lines (no mowing or goats)	50,723	SF	\$0.50	\$25,362		Includes battery operated controllers, valves, on-grade piping, fittings, on-grade poly tubing and emitters at Riparian Revegetation Zone
Habitat Islands - Install temporary drip irrigation system with above-ground lines (no mowing or goats)	41,715	SF	\$0.50	\$20,858		Includes battery operated controllers, valves, on-grade piping, fittings, on-grade poly tubing and emitters at each Habitat Island area
Wildflower Meadows - Install temporary rotor irrigation system with buried lines (due to mowing and goats)	44,388	SF	\$0.75	\$33,291		Includes battery operated controllers, valves, piping, fittings, rotors, nozzles and swing joints at each Wildflower Meadow area
Field verify and install water points of connection to existing irrigation system main line piping.	12	EA	\$500	\$6,000		
Short-term Maintenance of Irrigation by installation contractor (assume 6 months)	136,826	SF	\$0.06	\$8,210		Square footage represents Irrigated Areas only
Ongoing tree maintenance: Yearly removal of dangerous limbs or trees		ALLOW	\$7,500	\$7,500		Per Lisa's comment: What might ongoing tree maintenance look like? Tay: line item with explanation
SEEDING & LANDSCAPE					\$225,325	

Blackberry Farm Golf Course Restoration - Feasibility Study
Cupertino, CA

OPINION OF PROBABLE COSTS

Rough Order of Magnitude

March 2022 by MIG, Inc.

DESCRIPTION	QUAN.	UNIT	COST	ITEM TOTAL	TOTAL	COMMENTS
Note: Overall area of work not including hillside trees to remain and existing parking area	494,132	SF				
Riparian Revegetation Zone - sparse planting, mainly letting the riparian corridor enlarge on its own.	1	LS	\$10,000	\$10,000		Approx. 50' wide
Riparian Revegetation Zone - mulch	50,723	SF	\$0.50	\$25,362		
Habitat Islands - planting	41,715	SF	\$1	\$41,715		Planting mixture of 2 (5) gallon trees, 30 (5) gallon shrubs, (27) mix of 1 gallon oaks and perennials on each island for estimating purposes (assuming islands of the same size).
Habitat Islands - mulch	41,715	SF	\$0.50	\$20,858		
Habitat Islands - temporary fencing	2,000	LF	\$10	\$20,000		Assume metal stakes and plastic deer netting
Native Wildflower Meadow - hydroseeding	44,388	SF	\$1	\$44,388		
Low Maintenance Zone (annual grasslands) including Bioswale areas - no planting, see maintenance section	329,604	SF				Remainder areas (excluding special areas noted above and decomposed granite surfacing)
Short-term Maintenance of Riparian Reveg. Zone, Habitat Islands & Wildflower Meadows by installation contractor (assumes 6 months)	1	LS	\$18,000	\$18,000		Weeding around new plants, check irrigation is working
Soil Samples & Testing for Habitat Islands	1	LS	\$5,000	\$5,000		
Soil Amendment for Habitat Islands	1	ALLOW	\$40,000	\$40,000		
VISITOR AMENITIES					\$814,325	
<u>Trails</u> - Pedestrian Stabilized Decomposed Granite Trail	26,892	SF	\$16	\$430,272		Assume agg. Base, 6' wide with wood edging to maintain accessibility
<u>Ranger office space</u> - Allowance for Minimal Upgrades at Pro Shop	1	ALLOW	\$35,000	\$35,000		New flooring, interior paint, approx. 1050 sf
<u>Outdoor Education Area</u>						
Pedestrian Stabilized Decomposed Granite with wood edging	900	SF	\$20	\$18,000		Assumes ~30x30' area
Log Benches	1	ALLOW	\$35,000	\$35,000		May be possible to salvage from onsite redwoods
<u>Site Furnishings</u>						Drinking Fountain - NIC
Benches along Trail with DG pullout	8	EA	\$3,000	\$24,000		

Blackberry Farm Golf Course Restoration - Feasibility Study
 Cupertino, CA

OPINION OF PROBABLE COSTS
Rough Order of Magnitude
 March 2022 by MIG, Inc.

DESCRIPTION	QUAN.	UNIT	COST	ITEM TOTAL	TOTAL	COMMENTS
Bike Racks near North parking lot	1	ALLOW	\$8,000	\$8,000		
Trash and Recycling Receptacles	6	EA	\$2,000	\$12,000		
<u>South Parking Area</u> - Additional parking row and drive aisle	1	ALLOW	\$150,000	\$150,000		<i>Including wheel stops, parking signage, striping and some concrete at ADA spaces and exits to path system</i>
<u>Misc. Signage</u> - Simple laminated "Restoration zone" signs, etc.	1	ALLOW	\$15,000	\$15,000		<i>More extensive Interp/Educational Signage - NIC, future</i>

Blackberry Farm Golf Course Restoration - Feasibility Study
Cupertino, CA

OPINION OF PROBABLE COSTS

Rough Order of Magnitude

March 2022 by MIG, Inc.

DESCRIPTION	QUAN.	UNIT	COST	ITEM TOTAL	TOTAL	COMMENTS
Design Fees (Design & Permitting, public outreach, CDs, Bid/Award 4-6 SITE VISITS, RFIs, etc)			\$87,050	\$87,050		
				SUB TOTAL	\$1,255,213	
				Design Contingency (20% of construction subtotal)	\$251,045	This number is included to allow for clarifications, refinements, and revisions that take place during the design phase.
				Mobilization (5%)	\$62,762	
				General Conditions + O&P (10%)	\$125,522	
				Construction Contingency (15%)	\$188,284	
CONSTRUCTION ESTIMATE TOTAL*					\$1,882,825	

MAINTENANCE & MONITORING					\$242,500	
Year 1-3						
Hand weeding & Selective Mowing of Riparian Revegetation Zone & Habitat Islands (monthly)	3	YEAR	\$9,600	\$28,800		
Mowing/Grazing for Wildflower Meadows, once annually	3	YEAR	\$1,200	\$3,600		
Mowing/Grazing for Low Maintenance Area and Bioswales	3	YEAR	\$7,000	\$21,000		
Irrigation Maintenance for Riparian Area, Habitat Islands & Wildflower Meadows	3	YEAR	\$8,000	\$24,000		
Monitoring	3	YEAR	\$18,000	\$54,000		
Years 4-10						
Min. Hand weeding & Selective Mowing of Riparian Revegetation Zone & Habitat Islands	7	YEAR	\$2,000	\$14,000		
Mowing/Grazing for Wildflower Meadows, once annually	7	YEAR	\$2,000	\$14,000		
Mowing/Grazing for Low Maintenance Area and Bioswales	7	YEAR	\$1,000	\$7,000		
Irrigation Maintenance - years 4 and 5, if needed (final years)	2	YEAR	\$4,200	\$8,400		Increased maintenance due to age of equipment- may require more equipment replacement than years 1-3
Irrigation decommissioning/removal of backflow preventer (cap water supply), on-grade piping, drip tubing and emitters, valves, and controllers.	1	EA	\$5,000	\$5,000		Remove backflow, remove/cap meter, remove remote control valves and controllers, remove on-grade drip systems.
Monitoring	7	YEAR	\$6,000	\$42,000		

Blackberry Farm Golf Course Restoration - Feasibility Study
 Cupertino, CA

OPINION OF PROBABLE COSTS
Rough Order of Magnitude
 March 2022 by MIG, Inc.

DESCRIPTION	QUAN.	UNIT	COST	ITEM TOTAL	TOTAL	COMMENTS
Pruning for Defensible Space (Every 5 years, Twice during 10 year period)	2	EA	\$6,600	\$13,200		
Irrigation decommissioning in Riparian Revegetation Zone & Habitat Islands	1	EA	\$7,500	\$7,500		

** Cost Notes/Assumptions:*

Costs based on Feb. 2022 Feasibility Study by MIG and accompanying site graphic, Urban Wildland Restoration Approach.

Does not include review of existing irrig. system, topographic or utility surveys or additional studies.

Does not include additional work to existing ADA parking, access, restrooms, etc. (topo and existing conditions survey needed).

Assumes an allowance of \$7500/year for tree removal. Reduced irrigation may result in more trees lost in the first ten years, so costs may not be spread evenly.

See final page of the Feasibility Study for a comprehensive list of cost assumptions.

Design Contingency" stated above? We will want to know this estimate. Tay: Design fees note removed from here and fees are included on line 64

Attachment D

Blackberry Farm Golf Course Use Analysis Comparative Costs - 25 Year Outlook				
Item #	Item		Repair Golf Course	Natural Habitat
1	Capital Cost		\$1,970,000	\$1,882,825
2	Total O&M Expenditure (0-25 yr)		\$17,496,250	\$10,720,594
		O&M Expenditure Breakdown		
	2A	Irrigation Water Cost***	\$1,575,000	\$100,800
	2B	Sewer Discharge Cost	\$525,000	\$297,200
	2C	City Labor Costs	\$7,569,500	\$9,591,844
	2D	Contracted O&M Services	\$7,610,000	\$562,000
	2E	O&M Miscellaneous	\$216,750	\$168,750
3	Estimated Revenue (0-25 yrs)		\$9,378,624	\$500,000
4	O&M Expenditure minus Revenue (0-25 yrs)		\$8,117,626	\$10,220,594
5	Total Cost minus Revenue (0-25 yrs)		\$10,087,626	\$12,103,419
6	Irrigation Water Use (0-25 yrs) Gallons*		168 to 212 million Gallons	14 million Gallons
7	Grant Funding Potential**		N/A	\$600,000

Average Annual O&M Cost over 25 Years =	\$324,705	\$408,824
---	-----------	-----------

* based on current average use in drought conditions (8.5 M gal) and represents minimal use.

**assume \$300k for construction and \$300k on-going

***assumes use of current annual volume of water. Could be 15% reduction.



Nature Experience

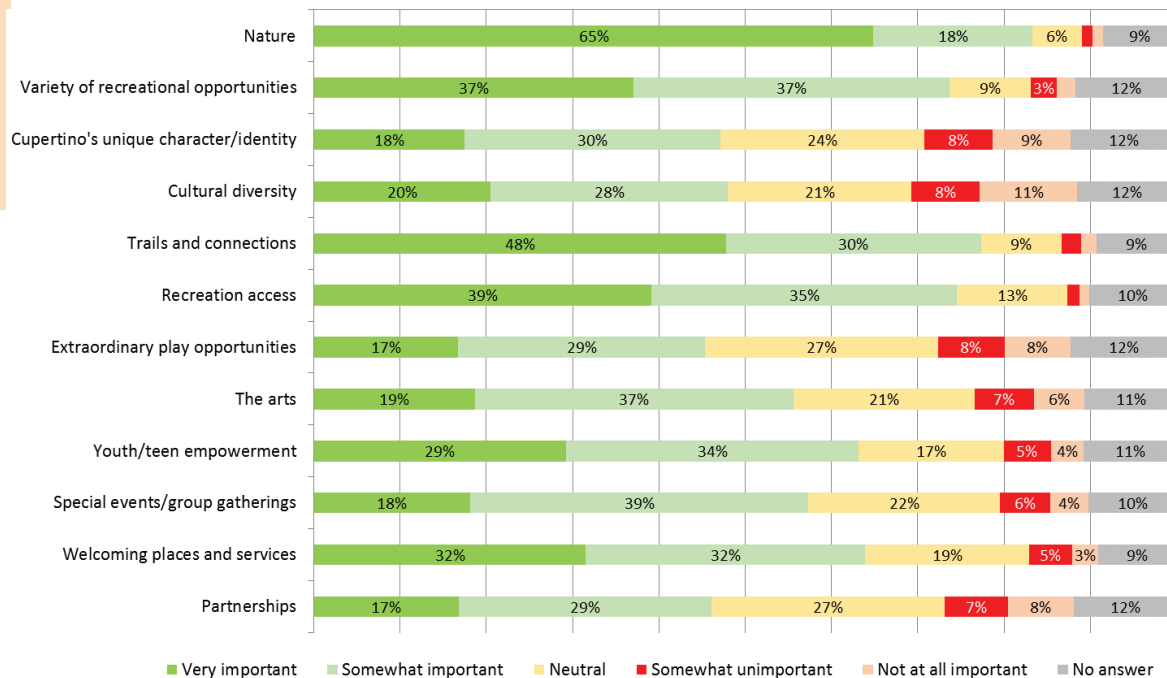
Community members want more opportunities to connect to nature.

Expanding access to nature is a top priority for the community. Throughout all outreach activities, participants consistently favored incorporating nature and increasing access to natural open space over other potential enhancements. Community priorities include improving or restoring creeks, meadows, and wildlife habitat in existing parks, as well as planting more trees and native plants in public spaces. Stakeholders, Council members and

residents noted the importance of environmental education and nature programs in connecting people to nature. Gardening and nature play were seen as additional opportunities to connect to nature. As the City renovates its parks, residents would like to see a decreased emphasis on large lawn areas and more focus on retaining a site's natural character. City parks could better highlight existing natural amenities and tree cover, adding to the City's overall "natural capital."

85% of Citywide Survey respondents noted that improving access to natural open space is needed

FIGURE 7: NATURE RECEIVES THE MOST AND STRONGEST SUPPORT OF THE PRIORITY GOALS FOR THE PARKS AND RECREATION SYSTEM (VISION AND GOALS QUESTIONNAIRE)





Recreation Variety

Residents and visitors desire a wide range of recreation options.

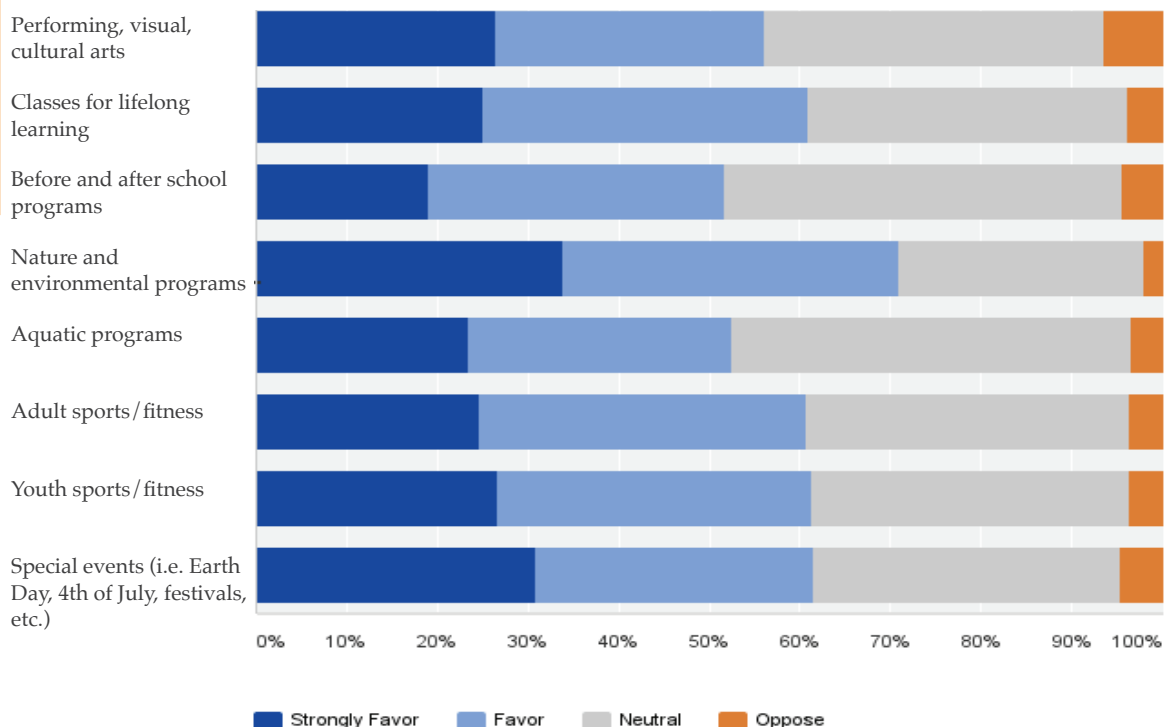
Cupertino is a diverse community with a keen interest in diverse recreation. Outreach findings indicate that residents expect a greater variety of recreation options, including unique, high-quality attractions for residents and visitors. The wide range of recreation interests includes a need for different types of facilities and programs that support visual and performing arts, nature and

environmental education, sports and fitness, and more. Community members want to see different types of facilities that go beyond standard recreation offerings, such as non-traditional, multi-purpose facilities.

Community members recommended adding varied facilities such as a parcourse, outdoor exercise equipment, and moveable seating to City parks, as well as traditional elements such as basketball courts.

74% of Questionnaire respondents believe that having a greater variety of facilities and programs is important

FIGURE 10: DIVERSE INTERESTS IN EIGHT TYPES OF PROGRAMMING ENHANCEMENTS (CITYWIDE SURVEY)



Attachment F – Draft Online Survey

The City wants to hear your thoughts about the future use of Blackberry Farm Golf Course

Please take a short survey!

This survey will take about 10 minutes to complete. For ages 12 and under, parents are encouraged to help their children complete the survey. This survey is also available in Simplified Chinese and Hindi.

Introduction

As a Fiscal Year 2021-2022 City Work Program item, the Cupertino City Council included a needs assessment study of Blackberry Farm Golf Course. Currently, the City is looking into two options for the site, 1) Conduct minor repairs to the golf course, or 2) Discontinue use of the site as a golf course and restore to natural habitat and trails.

(Insert ariel map of site vicinity)

Call to Action: Let the City know which of the two options you prefer to see implemented at the Blackberry Farm Golf Course site.

Survey Introduction: Whether you are a Cupertino resident, golfer, walker, or neighbor, the City wants to hear from you. The City is deciding between two options for the use of the Blackberry Farm Golf Course site:

Option A: Golf Course Minor Repairs and Improvements – Replace the irrigation system, tee boxes, greens, and sand traps. The ninth hole would be shortened to increase safety and eliminate errant shots to the parking lot, trail, and first tee box. This includes the possible expansion of the short game practice area. The empty ponds would be replaced with lowland native plantings. On course ADA issues would be addressed.

(Insert photo representative of Golf Course)

Option B: Conversion to Natural Habitat - Establish accessible walking trails that connect with the Stevens Creek Trail and develop other visitor amenities, such as seating, an outdoor education area, and ranger's office. Allow the Stevens Creek riparian corridor vegetation to naturally occupy portions of the existing golf course. Plant and manage vegetation to foster growth of drought tolerant and native species. Establish a wildflower meadow. Coastal Redwoods would remain. Incorporate fire resiliency management practices.

(Insert Photo representative of Natural Habitat Option)

You can review the reports for each option and sign up for email notifications regarding this topic at: <https://engagecupertino.org/bbf-golfcourse>

- **Which of the following describes you...(check all that apply)**
 - I live in Cupertino
 - I work in Cupertino
 - I go to school in Cupertino
 - I visit shops, restaurants, and service businesses in Cupertino.
 - Other (please describe)
- **On average, my household plays golf at Blackberry Farm Golf Course...**
 - Never
 - 1-5 times per year
 - 6-12 times per year
 - 13-24 times per year
 - More than 24 times per year
- **On average, my household uses the Stevens Creek Corridor Trail...**
 - Never
 - Less than 1 time per month
 - 1-3 times per month
 - 4-11 times per month
 - More than 12 times per month
- **Currently, my household uses the Steven's Creek Corridor Trail for...(select all that apply)**
 - Walking for leisure or exercise
 - Dog walking
 - Commuting
 - Biking for leisure
 - Other (fill in blank)
 - My household does not use the Steven's Creek Corridor Trail
- **How far do you live from Blackberry Farm Golf Course?**
 - Less than ½ mile
 - Less than 1 mile
 - Between 1-5 miles
 - More than 5 miles

(Note: Insert Radius Map Here)

- **Assuming costs are similar between options, which recreational opportunities would you like to see prioritized at the Blackberry Farm Golf Course site? (Choose one)**
 - Minimal repairs to the existing 9-hole golf course

- Conversion of the golf course to natural habitat with an extension of the Stevens Creek Corridor Trail
- **Why do you prefer one option over the other?**
 - *(Fill in the Blank)*
- **Do you have any other thoughts about the future of the site you would like to share?**
 - *(Fill in Blank)*
- **OPTIONAL**
 - Provide your name and email address to receive periodic updates.

DRAFT



CITY OF CUPERTINO

Agenda Item

22-10922

Agenda Date: 5/18/2022
Agenda #: 2.

Subject: Monthly Update Reports

Receive monthly update reports from the Director of Parks and Recreation.