



Town of Danville, California
CIP C-055

Diablo Road Trail

Conceptual Alignment and Feasibility Analysis

Final August 2018

PREPARED BY:



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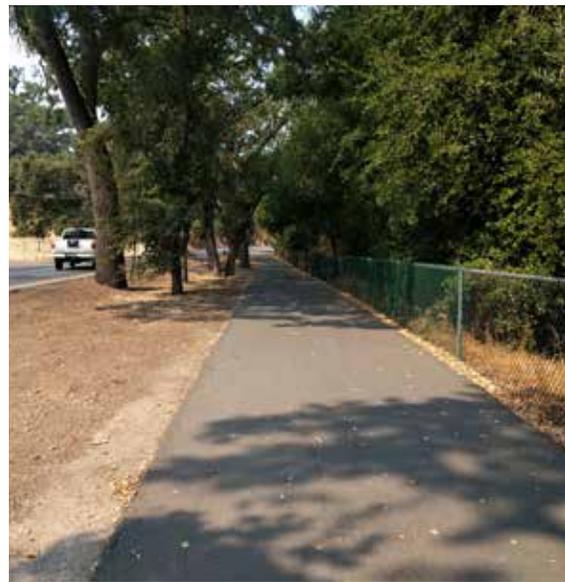
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Introduction

Introduction

With just over 40,000 residents, Danville is well-regarded for its unique small-town feel. The Town's array of historic sites, scenic trails and recreational facilities, and charming downtown shopping area contribute to the vibrancy of Danville's atmosphere and outstanding quality of life. Danville is a popular destination for a variety of recreational activities including its network of hiking and bicycling trails that are enjoyed by a variety of groups including families, commuters, trail enthusiasts, and casual users. One such trail is the Diablo Road Trail, a paved, multi-use path that currently runs 0.5 miles from the intersection of Green Valley Road to Calle Arroyo. Continuing the trail along Diablo Road has been a priority for the Town since the late 1980s; however, lack of available public space has prevented the Town from moving forward. The Town is now in the process of reviewing a land development proposal that would require dedication of space for a publicly accessible trail.



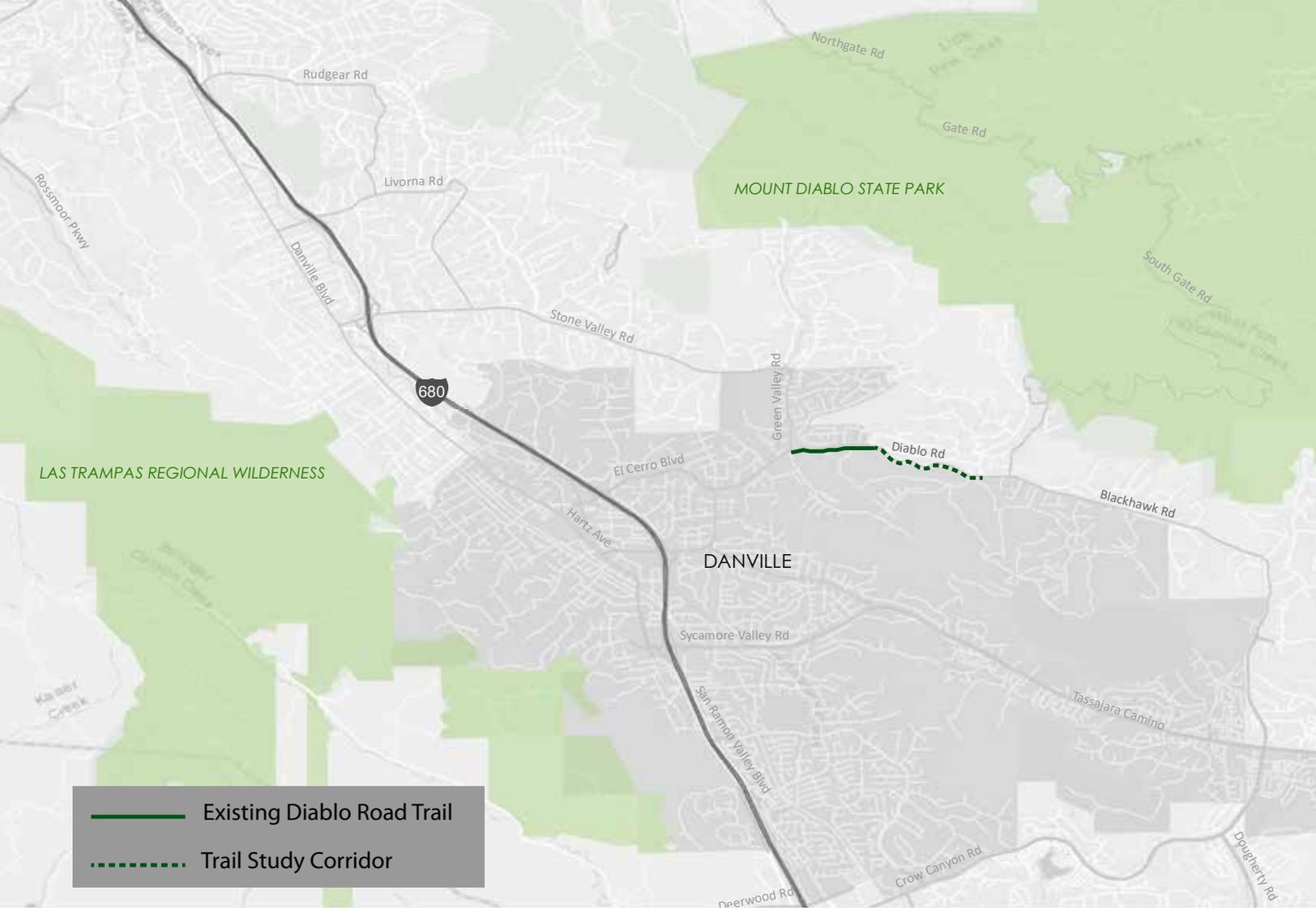


Figure 1: Vicinity Map

The purpose of this study is to explore potential alignments through this property for an off-street trail and complete this gap in the Town’s comprehensive trail network. The Diablo Road Trail project would ultimately provide a contiguous 8 to 10-foot wide, off-street, paved multi-use trail facility for all user groups including pedestrians and bicyclists, and would link the Diablo Road/Green Valley Road corridor to the west to Blackhawk Road/

Mt. Diablo Park south access to the east. The Diablo Road corridor is a preferred route to Mt. Diablo State Park, a popular recreational bicyclist destination well-known throughout the Bay Area. At just 4 miles from Downtown Danville, residents and visitors can enjoy traveling along bicycle lanes and off-road trails on a nearly continuous path between Mount Diablo and Danville’s shops and restaurants, Iron Horse Trail, and Las Trampas Regional

1989 when Danville adopted its *Townwide Trails Master Plan*. The Plan proposed a trail alongside Green Valley Creek and Diablo Road from Clydsedale Drive to 400 feet west of Ave Nueva.

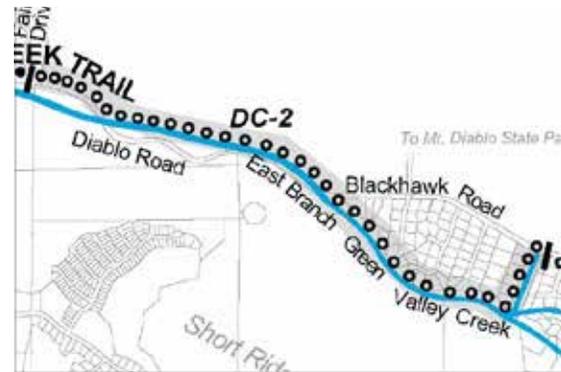
This project was further refined in the 2006 *Danville Parks, Recreation & Arts Strategic Plan*. The Diablo Road Trail was elevated as a “major community trail” in Danville and the project’s boundaries, opportunities, and constraints were described in more detail.³

In April 2017, Danville updated the *Danville Parks, Recreation & Arts Strategic Plan*. One of the five strategic directions in the update is to develop active transportation trails and pathways. The Plan cited that:

while many residents frequently drive to parks, community members expressed their desire to use active transportation modes to get there. One of the identified barriers to walking and biking to nearby community amenities is the lack of a connected trail system. Through the online questionnaire, over half of participants noted that an expanded trail network

³ Town of Danville, CA, Danville Parks, Recreation and Arts Strategic Plan, Appendix H, 54.

Figure 3: Trail alignment included in the 2006 *Danville Parks, Recreation & Arts Strategic Plan*



*would be a priority project for them.*⁴

Since the trail was first conceived in 1989, lack of available width has kept the project from moving forward. The Town deferred pursuing this project until trail development constraints could be addressed.

In October 2010, SummerHill Homes submitted an application to allow for development of 85 residential lots on the Magee Ranch Property. The property is bounded by Diablo Road and Blackhawk Road to the north and McCauley Road to the west. The property is comprised of 10 legal parcels totaling approximately 410 acres,

⁴ Town of Danville, CA, Danville Parks, Recreation and Arts Strategic Update, Chapter 2, 19.

Figure 4: Proposed Magee Ranch Property Residential Development



and is generally characterized by open grass-covered hills with scattered trees. The elevation of the property ranges from approximately 425 feet along the property's frontage at Diablo Road near McCauley Road to about 860 feet at its highest point. The site is currently used for beef cattle operations. The original proposal was challenged in court and in February 2017, Davidon Homes became the project applicant.

Davidon Homes has filed an application with the Town to rezone and subdivide the Magee Ranch Property into 69 single-family lots,

with approximately 380 acres of open space. Right-of-way dedication (transferring land to the Town) for the Diablo Trail is a condition of the Davidon Homes development.

A study of the trail segment was included in the Town's 2016-2017 Capital Improvement Program (CIP) - a comprehensive document of upcoming and planned capital improvement projects. The Diablo Road Trail was modified and adopted again in the 2017-2018 CIP.⁵

⁵ Town of Danville, CA, The 2017/18 Capital Improvement Program for the Town of Danville, C-055, CIP 92

Project Benefits

In addition to implementing adopted goals, policies, and recommendations in the *Danville 2030 General Plan*, *Danville Parks, Recreation & Arts Strategic Plan*, *Countywide Bicycle and Pedestrian Plan*, and *Townwide Trails Master Plan*, closing this gap will provide several key benefits to Danville residents and visitors.

CONNECTIVITY

The Danville Diablo Road Trail can become a viable transportation corridor by providing new access to recreation, schools, jobs, retail, and other services in the community.

HEALTH AND RECREATION

Trails create recreation opportunities that promote healthy activities such as, walking, running, bicycling, and skating. Benefits include reducing obesity, controlling cholesterol levels and diabetes, slowing bone loss in aging populations, and reducing the risk of certain cancers. Access to linear parks such as trails and paths can also provide mental health benefits that help to reduce anxiety and depression.

ECONOMIC IMPACTS

Creating a major recreational resource like the Danville Diablo Road Trail can provide access to businesses and jobs, and contribute to a sense of place for locals while also attracting tourists that support the local economy.

One of the minor drainages evaluated as part of the field visit



Planning Process

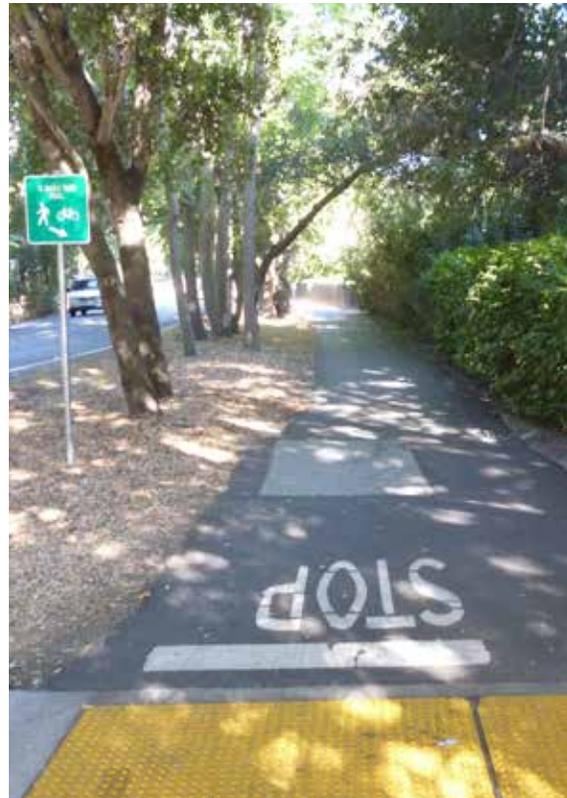
In June 2017, the Town hired a consultant to conduct a conceptual alignment and feasibility analysis. Town staff met with the consultant on site to analyze and refine feasible alignment options. Stakeholders in the bicycling community also provided feedback on potential trail alignments following a field visit.

The Town evaluated potential alignments for safety, user experience, environmental impacts, and cost. The options described in this study reflect feasible alignments for the Town to consider in the next phase of design development.

Project Considerations

SITE SETTING

Green Valley Creek splits west of Diablo Road and Green Valley Road. The north fork continues north to Stone Valley Road. The main fork continues east, crosses under Green Valley Road and parallels Diablo Road. From Green Valley Road to Fairway Drive the creek is north of the Diablo Road Trail and Diablo Road. From that point Diablo Road crosses the trail three times. Single family homes, Green Valley Pool, St. Timothy's Episcopal Church, and the Diablo Country Club are located north of Diablo Road. To the south is the Magee cattle ranch property.



Existing Diablo Road Trail

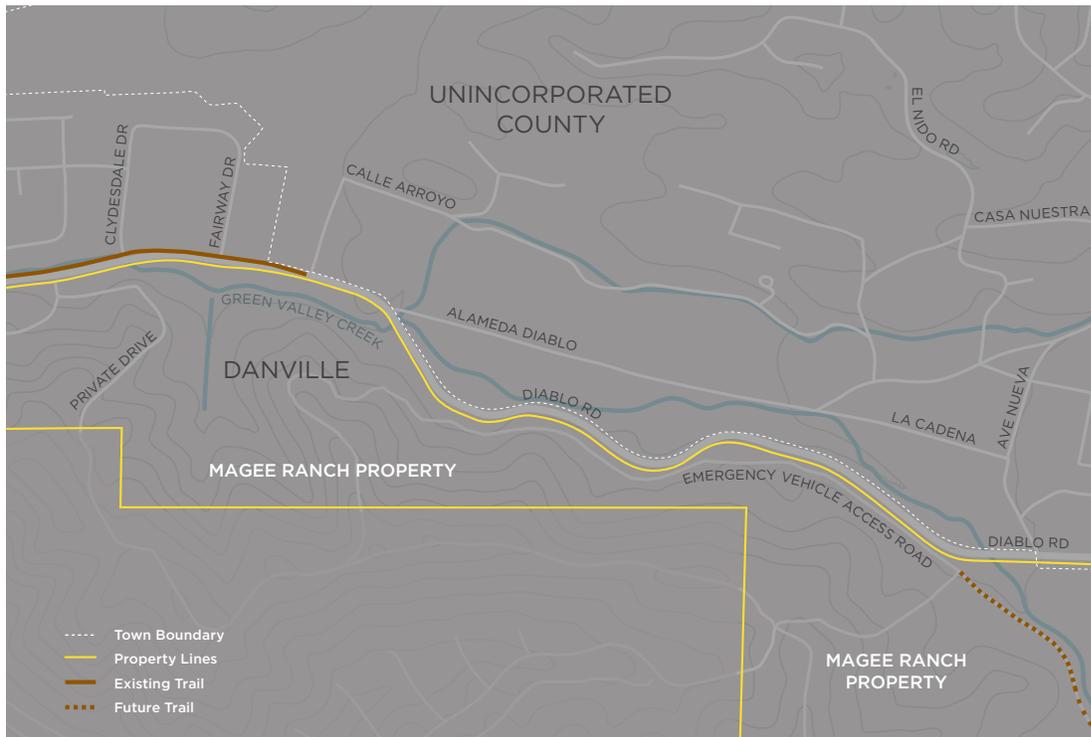
ACCESS/CIRCULATION

Diablo Road Trail

The Town has installed five feet wide bicycle lanes on El Cerro Boulevard and Diablo Road from Danville Boulevard to Green Valley Road/McCauley Road. The Diablo Lodge/Los Cerros Connector Trail is accessible off of Hill Road, 200 feet south of the Diablo Road and Green Valley intersection. Heading east from Green Valley Road, bicyclists and pedestrians can use the multi-use Diablo Road Trail on the north side of Diablo Road. This off-street paved asphalt trail varies in width from 8 to

10 feet and runs 0.5 miles to Calle Arroyo where the road is 24 feet wide. In some areas past Calle Arroyo, Diablo Road is as narrow as 20 feet. Accommodating separated bicycle facilities, sidewalks, or a multi-use path will require either private property acquisition on the north side of Diablo Road or environmental impacts to the creek and adjacent hillside. Previous studies have cited the need for a connection off-street.

Figure 5: Alignment Overview Map



Alignment Concepts

Alignment Concepts

Opportunities

A major opportunity for the trail is to co-align it with a graded and maintained emergency vehicle access road (EVA) on the Magee property that runs approximately two-thirds of the length of the corridor. This unpaved road appears able to support ADA-acceptable grades with little modification and overlooks Diablo Road. Construction cost to convert the EVA to a trail would not be extensive and the trail could continue to serve as emergency vehicle access. Utilizing the EVA would also offer trail users panoramic vistas of Mt. Diablo and the surrounding valleys.



Graded emergency vehicle access (EVA) on Magee property

Constraints

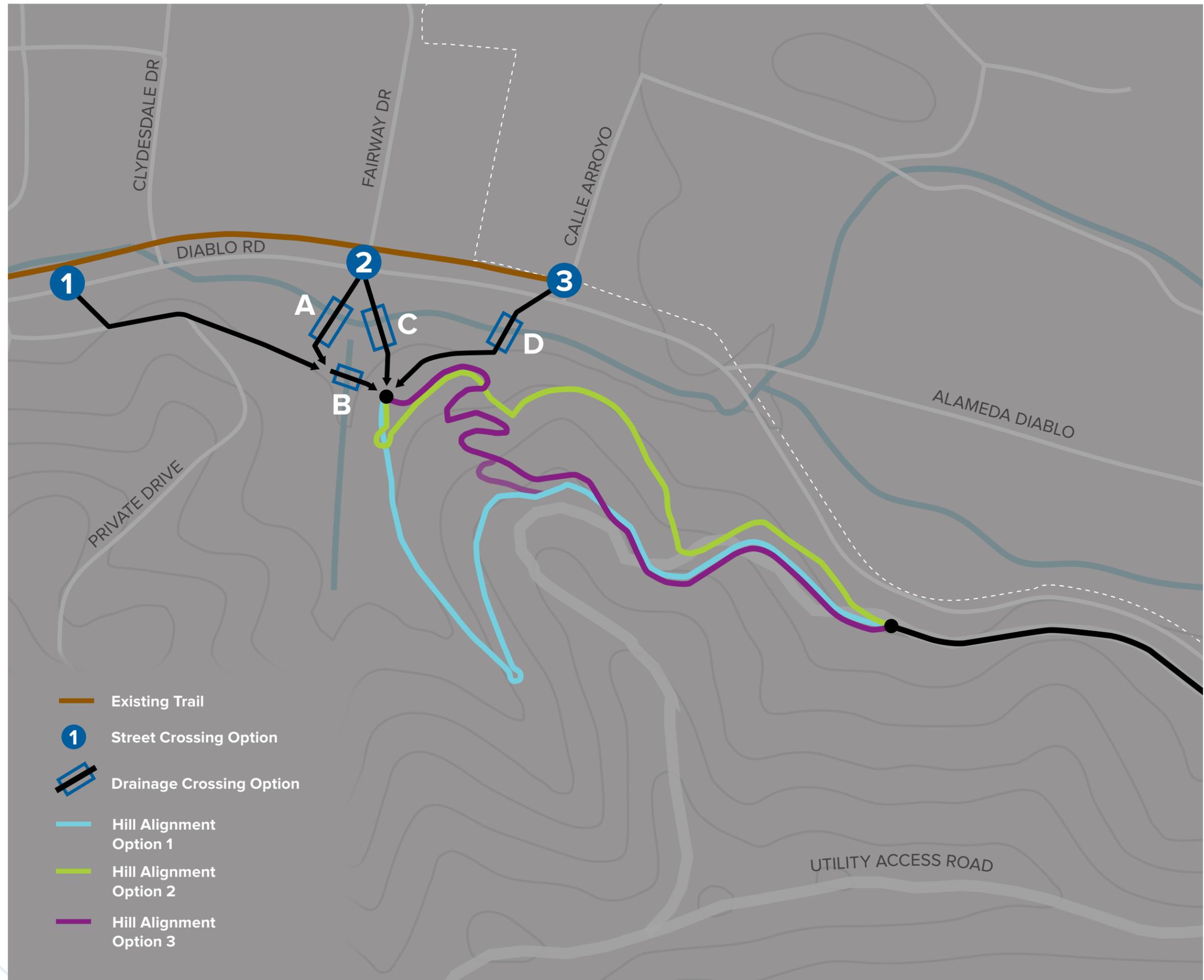
Constraints include finding an appropriate location to cross Diablo Road. Feasible options include south of Clydesdale Drive at the existing private driveway, Fairway Drive, or Calle Arroyo. Once on the south side of Diablo Road, the trail alignment must cross Green Valley Creek or its drainages because available width and steep slopes prevent the trail from running adjacent to Diablo Road. Finally, the trail must ascend a 650-foot hill to join the emergency vehicle access road. Three options have been developed that minimize both tree removal and switchbacks (which may require substantial grading). These options are described in more detail the sections below.

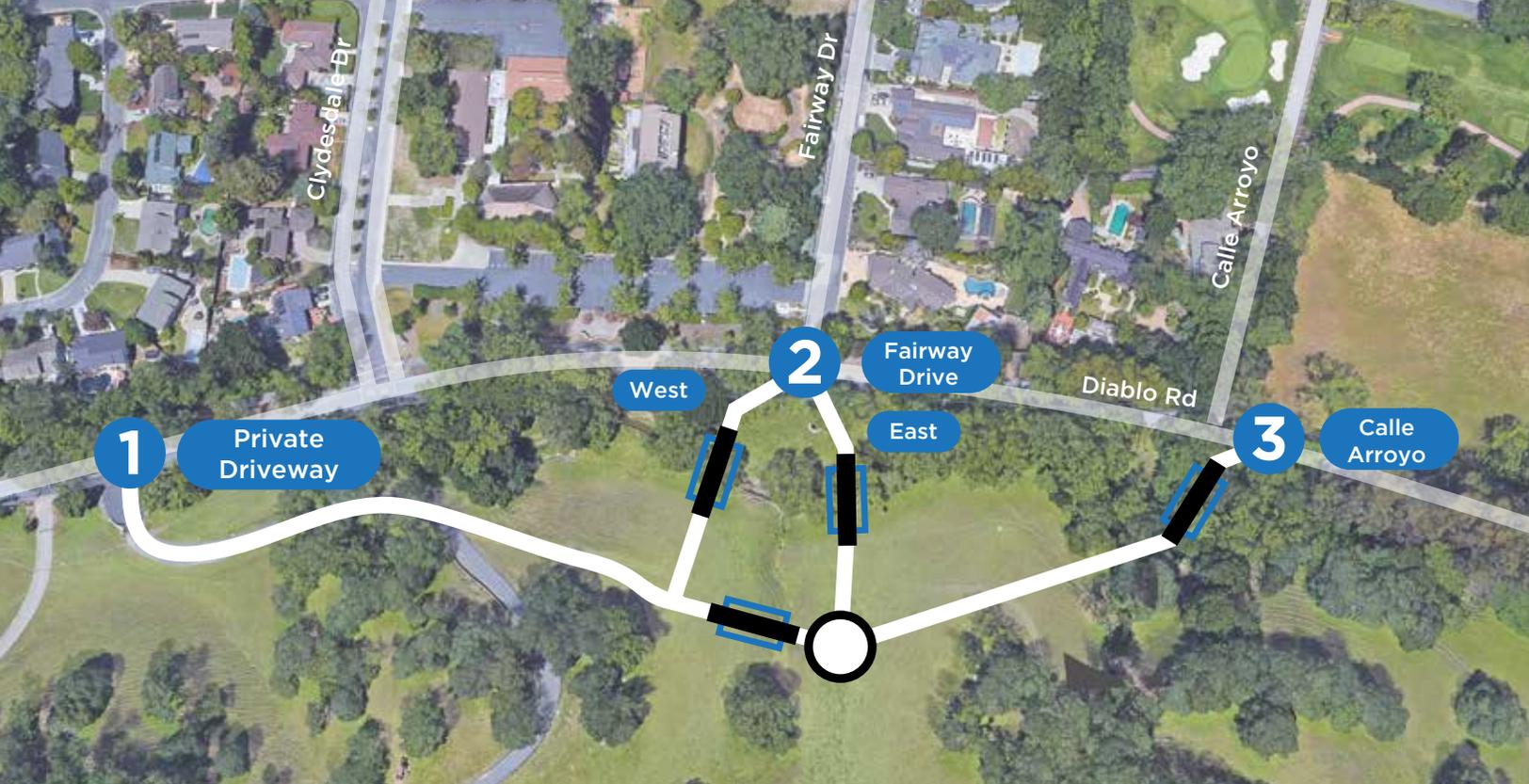
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Figure 6:

Detailed Alignment Options





Road Crossing Options

There are three different potential crossing locations along Diablo Road.

Road Option 1 is located west of Clydesdale Drive, **Road Option 2** is at Fairway Drive, and **Road Option 3** is at Calle Arroyo. Each crossing option has a different set of opportunities and constraints, summarized below and described in greater detail on the following pages.

ROAD CROSSING: SUMMARY			1 Private Driveway	2 Fairway Drive West Fairway Drive East	3 Calle Arroyo
	Length	Length of crossing & trail connection	900'	400'	450'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal	Minimal	Minimal
	Roadway Visibility	Level of visibility at street crossing	Good	Good	Adequate
	Trail Amenities	Space available for trailhead	Yes	Yes, limited	No
	Cost Estimate	Cost estimate of path construction only	\$120,000 – \$140,000	\$80,000 – \$100,000	\$90,000 – \$110,000

Potential impacts are rated minimal, moderate, or major based on the number of trees removed, permits needed, and mitigation required. Minimal impacts mean 1 or fewer permits, less than five trees removed, and no mitigation required. Roadway visibility is rated good, adequate, or inadequate based on the sight distance at the crossing locations. Good visibility is measured by having more than 500 feet of clear sight distance.

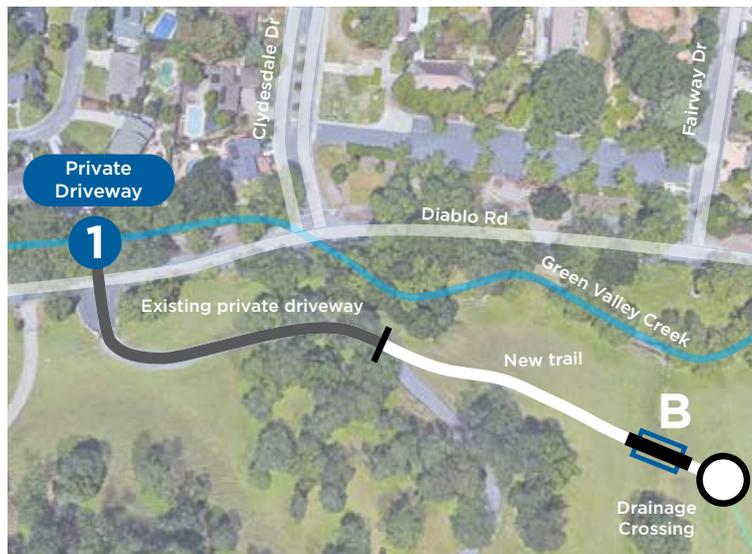
1 ROAD OPTION 1: PRIVATE DRIVEWAY WEST OF CLYDESDALE DRIVE

Option 1 would use an existing private driveway west of Clydesdale Drive. The driveway provides access to a private residence and ranching land. The ranch land owners preliminarily are supportive of this use of their property.

This location provides room for a large trailhead/staging area. For those that need to cross Diablo Road, this spot provides good sightlines for vehicles, pedestrians, and bicyclists. Using this location as the crossing point is constrained by the need to cross a drainage channel (Drainage Crossing B). Another potential constraint is opposition from the resident of the one house atop the hill (different party than the ranchers, who own the remaining land).

ROAD CROSSING: OPTION 1 - PRIVATE DRIVEWAY

	Length	Length of crossing & trail connection	900'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal
	Roadway Visibility	Level of visibility at street crossing	Good
	Trail Amenities	Space available for trailhead	Yes
	Cost Estimate	Cost estimate of path construction only	\$120,000 – \$140,000



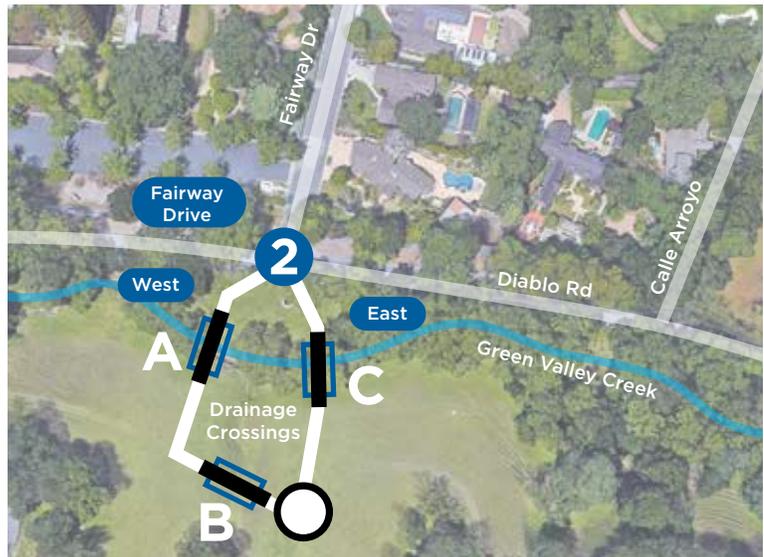
2 ROAD OPTION 2: FAIRWAY DRIVE

Option 2 is located at the Fairway Drive intersection of Diablo Road. Option 2 provides two access alignments to reach the hill alignment. Each of these two alignments crosses a different segment of the drainage channel. The first alignment uses Drainage Crossing A (western crossing) and Drainage Crossing B (southern crossing). The second alignment crosses Drainage Crossing C (eastern crossing).

The Fairway Drive crossing has some space for trailhead/staging area, but less than is available through Option 1. This location also provides crossing users and passing vehicles with good sightlines and visibility. The primary constraint for this site is that it also involves crossing drainage channels; if the western alignment is chosen, a second drainage crossing (Drainage Crossing B) would be required. If Crossing C is chosen, Drainage Crossing B would not be needed.

ROAD CROSSING: OPTION 2 - FAIRWAY DRIVE

		WEST	EAST
	Length	Length of crossing & trail connection	400' 300'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal Minimal
	Roadway Visibility	Level of visibility at street crossing	Good Good
	Trail Amenities	Space available for trailhead	Yes, limited Yes, limited
	Cost Estimate	Cost estimate of path construction only	\$80,000 – \$100,000 \$80,000 – \$100,000



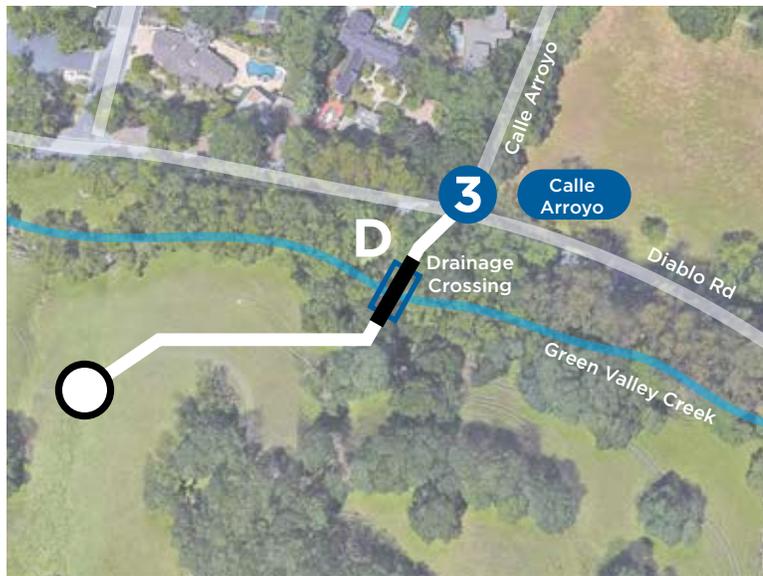
3 ROAD OPTION 3: CALLE ARROYO

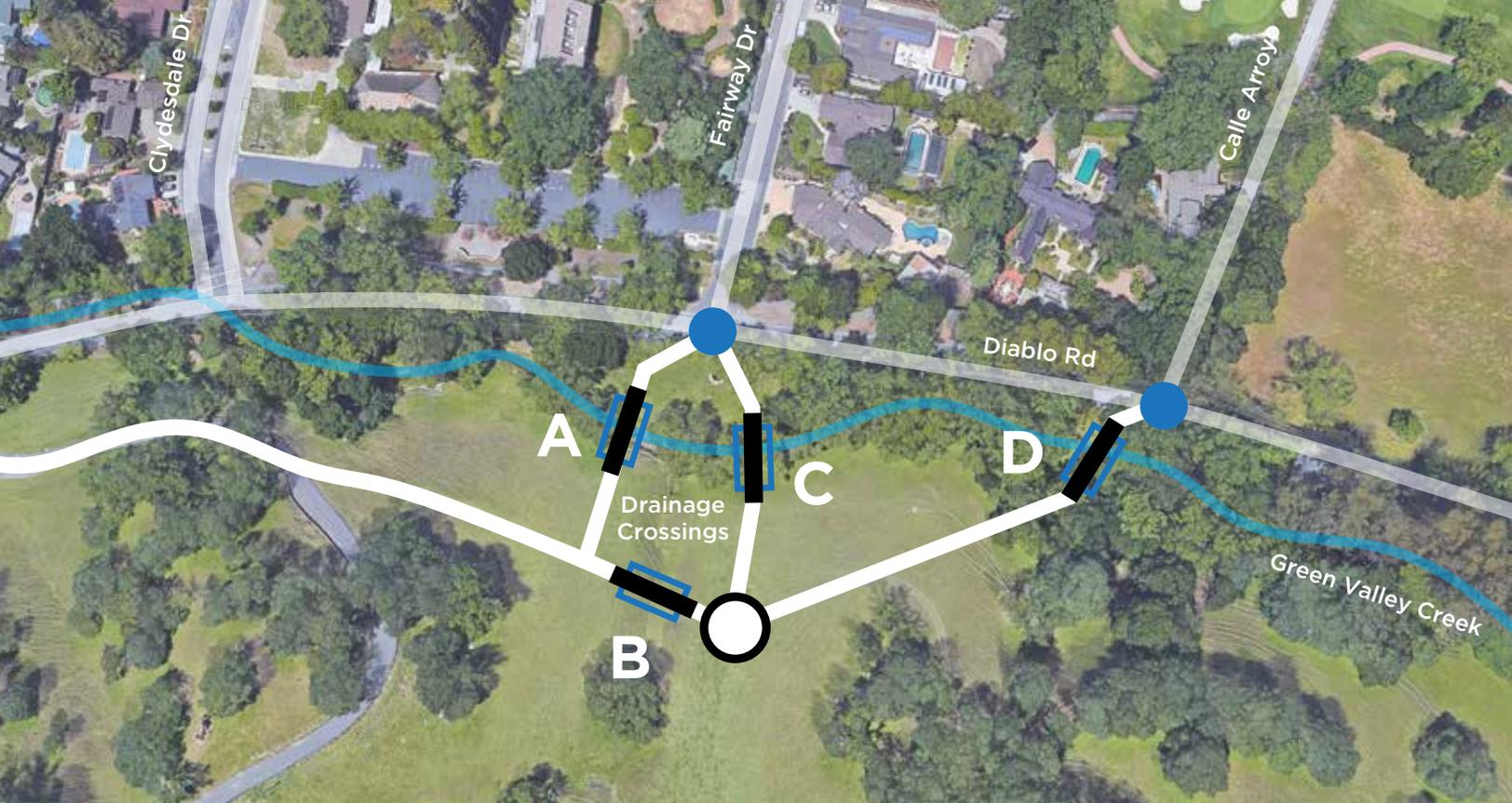
Option 3 is located at the Calle Arroyo intersection of Diablo Road. This site is the most geographically constrained of the three sites; there is not space for a trailhead/staging area. An additional constraint is that while the sightlines are adequate for safe pedestrian and bicycle crossings, it provides the shortest line of site of the three sites.

Option 3 would require one drainage channel crossing: Crossing D.

ROAD CROSSING: OPTION 3 - CALLE ARROYO

	Length	Length of crossing & trail connection	450'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal
	Roadway Visibility	Level of visibility at street crossing	Adequate
	Trail Amenities	Space available for trailhead	No
	Cost Estimate	Cost estimate of path construction only	\$90,000 – \$110,000





Drainage Crossing Options

As described in the previous section, a critical component of any trail alignment is the drainage channel crossing.

There are four potential drainage crossing locations. Crossing B would be required with Clydesdale/Driveway crossing, Crossings A and B would be required with the western alignment of the Fairway Drive crossing, Crossing C would be required with the eastern alignment Fairway crossing, and Crossing D would be required with the Calle

Arroyo crossing. There is only one alignment that would require two crossings: the western alignment of the Fairway Drive (2) crossing.

Generally speaking, each of these four potential crossings are relatively similar in terms of scope and scale, but there are differences in terms of necessary grading and tree removal around each crossing. A more detailed description of each drainage crossing is found below.

CROSSING A:

Crossing A is a part of the western alignment for the Fairway Drive option. This crossing would be over the east-west running drainage channel. This crossing is generally the same size as Crossing C and Crossing D. Minimal tree removal would be required at this site.

DRAINAGE CROSSING: OPTION A

	Bridge Length	Prefabricated 10' wide bridge	75'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal
	Street Access	Connection to street crossings	Fairway Dr (west)
	Cost Estimate	Cost estimate for drainage crossing only	\$500,000 – \$700,000

CROSSING B:

Crossing B is a part of the alignment for a trail that originates near Clydesdale Drive and the crossings for the western Fairway Drive alignment. Crossing B is the smallest/least invasive crossing. This is also the only crossing that crosses a north-south drainage channel. Minimal tree removal would be required at this site.

DRAINAGE CROSSING: OPTION B

	Bridge Length	Prefabricated 10' wide bridge	75'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal
	Street Access	Connection to street crossings	Clydesdale Dr & Fairway Dr (west)
	Cost Estimate	Cost estimate for drainage crossing only	\$250,000 – \$350,000



CROSSING C:

Crossing C is a part of the eastern alignment for the Fairway Drive option. This crossing is similar in size to Crossings A and D. This site would require some tree removal to accommodate the crossing.

DRAINAGE CROSSING: OPTION C

	Bridge Length	Prefabricated 10' wide bridge	75'
	Potential Impacts	Tree removal, stream & habitat intrusion	Moderate
	Street Access	Connection to street crossings	Fairway Dr (east)
	Cost Estimate	Cost estimate for drainage crossing only	\$600,000 – \$800,000

CROSSING D:

Crossing D is a part of the alignment for the Calle Arroyo option. This crossing is similar in size to Crossings A and C. This site would require some tree removal to accommodate the crossing.

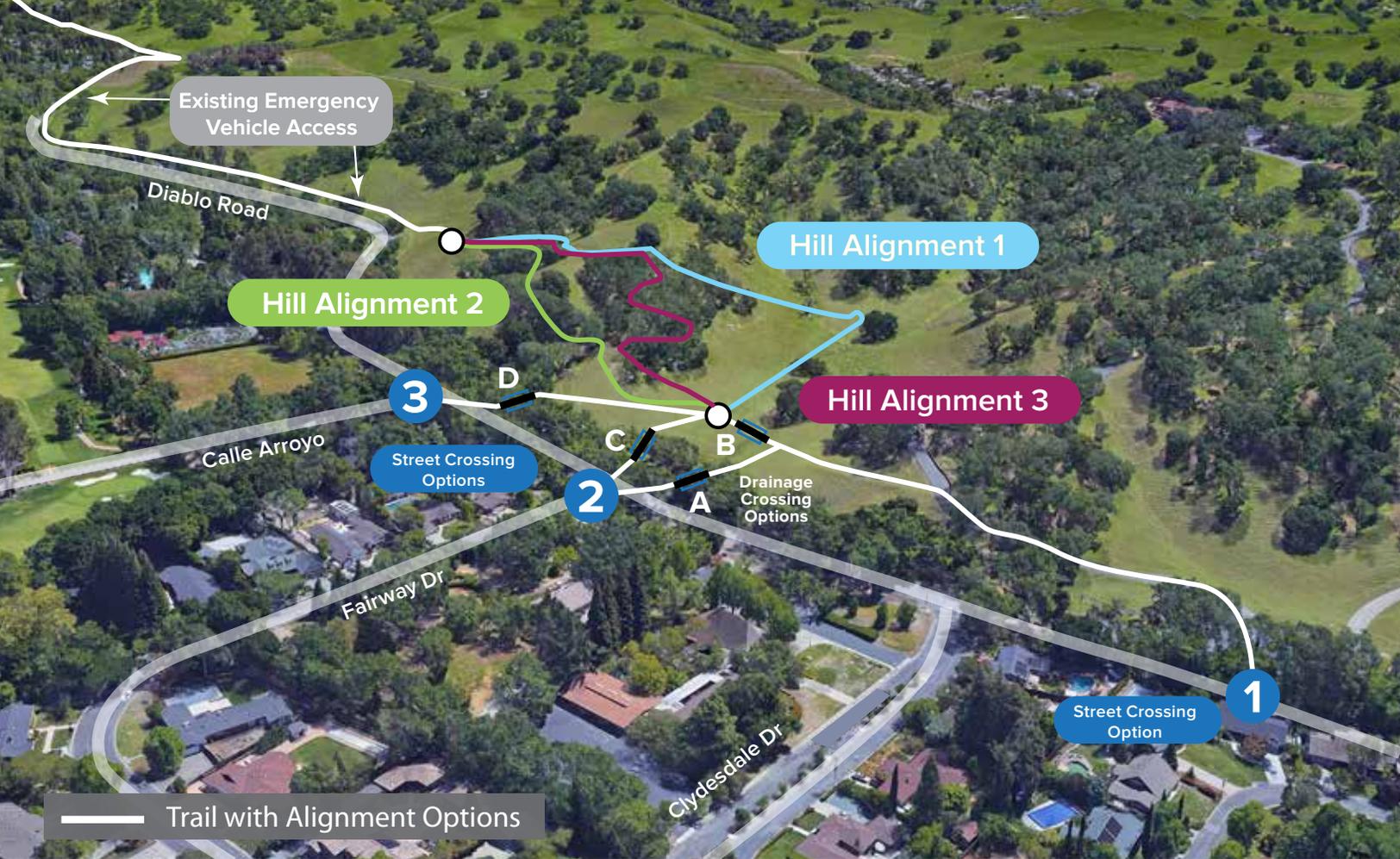
DRAINAGE CROSSING: OPTION D

	Bridge Length	Prefabricated 10' wide bridge	85'
	Potential Impacts	Tree removal, stream & habitat intrusion	Moderate
	Street Access	Connection to street crossings	Calle Arroyo
	Cost Estimate	Cost estimate for drainage crossing only	\$600,000 – \$800,000

DRAINAGE CROSSING: SUMMARY

			A	B	C	D
	Bridge Length	Prefabricated 10' wide bridge	75'	75'	75'	85'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal	Minimal	Moderate	Moderate
	Street Access	Connection to street crossings	Fairway Dr (west)	Clydesdale Dr & Fairway Dr (west)	Fairway Dr (east)	Calle Arroyo
	Cost Estimate	Cost estimate for drainage crossing only	\$500,000 – \$700,000	\$250,000 – \$350,000	\$600,000 – \$800,000	\$600,000 – \$800,000





Hill Alignment Options

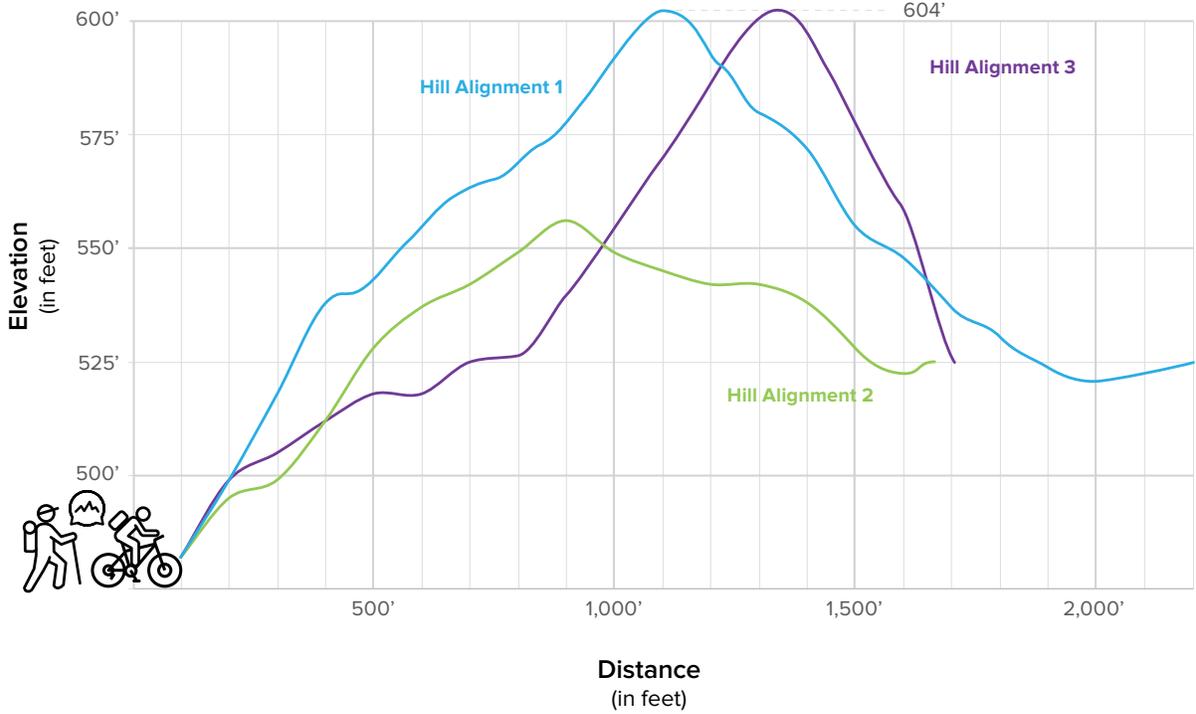
After crossing the drainages, the trail will climb a hill in order to avoid steep slopes and eventually run parallel to Diablo Road.

There are three potential hill alignments that the trail can follow. Each of these alignments follows a different route, but starts and ends at the same location. Where the hill alignments end, the trail connects to the existing Emergency Vehicle Access Road.

A detailed description of each alignment can be found on the following pages.

Each of these routes were designed to keep the incline of the routes as similar as possible. Thusly, there are minimal grading differences (in terms of trail steepness) between each of the three routes. This objective to minimize incline differences is one of the primary reasons for the design of these routes.

Figure 7: Trail - Hill Alignment Profiles



HILL ALIGNMENT 1

Hill Alignment 1 is the longest of the three potential alignments. The primary drawback of this design is that it is the most indirect route of the three alignments and involves more than 450 feet of out of direction travel. This alignment does, however, provide scenic vistas and minimizes necessary tree removal.

HILL ALIGNMENT 1

	Length	Length of hill alignment trail	2,200'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal
	Route Directness	Relative directness of overall route	Indirect
	Scenic Views	Access to scenic views	Yes
	Cost Estimate	Cost estimate based on construction	\$750,000 – \$1,000,000

HILL ALIGNMENT 2

Hill Alignment 2 is the most direct of the three potential alignments. However, this alignment would require both significant tree removal and would be the most difficult of the three alignments to construct.

HILL ALIGNMENT 2

	Length	Length of hill alignment trail	1,650'
	Potential Impacts	Tree removal, stream & habitat intrusion	Major
	Route Directness	Relative directness of overall route	Direct
	Scenic Views	Access to scenic views	No
	Cost Estimate	Cost estimate based on construction	\$500,000 – \$750,000

HILL ALIGNMENT 3

Hill Alignment 3 was designed to minimize elevation differences; this requires several switchbacks in the western segment of the alignment. This approach lengthens the route (2,000 feet longer than Hill Alignment 2), but does not require as much out of direction travel as Hill Alignment 1. This route’s alignment does, however, take advantage of the scenic vistas provided by the foothills.

HILL ALIGNMENT 3

	Length	Length of hill alignment trail	1,700'
	Potential Impacts	Tree removal, stream & habitat intrusion	Minimal
	Route Directness	Relative directness of overall route	Direct, switchbacks
	Scenic Views	Access to scenic views	Yes
	Cost Estimate	Cost estimate based on construction	\$500,000 – \$750,000

Cost estimates include improvements to the Emergency Vehicle Access road where all the hill alignments end.



Alignment Summary

This study summarizes various alternatives for closing the gap in the existing Diablo Road Trail. As shown in the maps and diagrams in this report, there are three road crossings, four drainage crossings, and three hill alignments that are feasible to pursue. Each alternative has both benefits and trade-offs and below is a summary of the potential combinations to help compare these options.

Alignment Summary Table

Road Crossing Pages 16-19	Drainage Crossing Pages 20-23	Hill Alignment Pages 24-27	Emergency Vehicle Access	Cost Estimate
1 Private Driveway	B	1	<input checked="" type="checkbox"/>	\$1,570,000 - \$1,940,000
	B	2		= \$1,320,000 - \$1,690,000
	B	3		\$1,320,000 - \$1,690,000
2 Fairway Drive	A + B	1	<input checked="" type="checkbox"/>	\$2,030,000 - \$2,600,000
	A + B	2		\$1,780,000 - \$2,350,000
	A + B	3		\$1,780,000 - \$2,350,000
	C	1		= \$1,880,000 - \$2,350,000
	C	2		\$1,630,000 - \$2,100,000
3 Calle Arroyo	D	1	<input checked="" type="checkbox"/>	\$1,890,000 - \$2,360,000
	D	2		= \$1,640,000 - \$2,110,000
	D	3		\$1,640,000 - \$2,110,000

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Implementation

Implementation

Private Property Acquisition

The trail crossing of Diablo Road is within city right-of-way. The remaining trail alignment will stay within the Magee Ranch property. The proposed Davidon development project requires a bicycle and pedestrian trail as a condition of development.

Design & Permitting

The consideration of several factors (including presence of endangered species, existing site conditions, and regional setting) contribute to determining the appropriate level of environmental analysis for a particular project. Located within a suburban setting (adjacent to Diablo Country Club), the key environmental issues associated with this project are likely to focus on access/circulation, public safety, visual resources, and a number of temporary construction measures.

If federal funds are used for the project a joint CEQA/NEPA process will need to be completed. This includes biological surveys, field work and preparation of technical studies to comply with local, state, and federal environmental processing requirements.

Funding

CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program (CIP) is a comprehensive document of upcoming and planned capital improvement projects. It serves as a guide for identifying current and future fiscal requirements, and it becomes the basis for determining the annual capital budget. It includes major projects undertaken by the town such as the construction of new building, parks, or facilities including engineering, design, and other pre-construction measures.

GRANT FUNDING

Recreational Trails Program

The Recreational Trails Program (RTP) provides funding to states to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses. The RTP is a Federal-aid assistance program of the U.S. Department of Transportation's Federal Highway Administration (FHWA) to help the States provide and maintain recreational trails.

Eligible projects include:

- Trail maintenance and restoration
- Trailside and trailhead facilities
- Equipment for construction and maintenance
- Construction of new recreational trails
- Acquisition of trail corridors
- Assessment of trail conditions
- Safety and environmental education
- Administration

Funding and Requirements:

- Applicants to the RTP are responsible for obtaining a match of at least 12% of the total project cost.
- Compliance with the National Environmental Policy Act (NEPA)
- Completion of the National historic Preservation Act
- Listing of the project on the State Transportation Improvement Plan (STIP) or a local Transportation Improvement Plan (TIP)
- Acquisition projects, applicants must obtain an appraisal that conforms to the Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA)

Active Transportation Program

In 2013, Governor Brown signed legislation creating the Active Transportation Program (ATP). This program is a consolidation of the federal Transportation Alternatives Program (TAP), California's Bicycle Transportation Account (BTA), and federal and California Safe Routes to School (SRTS) programs.

The ATP program goals include:

- Increase the proportion of trips accomplished by biking and walking
- Increase safety and mobility for non-motorized users
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals
- Enhance public health
- Ensure that disadvantaged communities fully share in the benefits of the program
- Provide a broad spectrum of projects to benefit many types of active transportation users

Eligible projects include:

- Infrastructure projects: Capital improvements that will further program goals. This category typically includes planning, design, and construction.
- Non-infrastructure projects: Education, encouragement, enforcement, and planning activities that further program goals. The focus of this category is on pilot and start-up projects that can demonstrate funding for ongoing efforts.
- Infrastructure projects with non-infrastructure components



Acknowledgments

Funding for this study was provided by Contra Costa Transportation Authority Measure J Transportation for Livable Communities Program.



