KAREN BASS
MAYOR

CITY OF LOS ANGELES
CALIFORNIA

Addendum No. 1
May 5, 2023

TED ALLEN, PE
CITY ENGINEER

Potrero Canyon Pacific Coast Highway Pedestrian/Bicycle Bridge Project

Task Order Solicitation (TOS) No. 202 (Work Order No. E1908654)

This addendum consists of this 3-page transmittal and two attachments totaling 56 pages.

Consultants are hereby notified of the following:

I. QUESTIONS FROM CONSULTANTS (Q) AND ANSWERS FROM THE CITY (A):

(Q1) Page 6 of the TOS states, "The Consultant shall provide references for the prime, subconsultants and Project Manager." How many references should be included for the prime? Each subconsultant? The project manager?

(A1) Two (2) references for each must be provided.

(Q2) Will we have access to the 2016 Feasibility Study by MARRS and 2018 ADA Study by MARRS (text and images)?

(A2) The DRAFT 2016 Potrero Canyon Pedestrian Crossing Feasibility Study Technical Memorandum and 2018 Potrero Canyon Trail Accessibility Study Final Report prepared during the George Wolfberg Park at Potrero Canyon Project are attached for reference purposes only. The referenced soil cemented trail limits/exact location, topography, along with other items in the report were modified during construction of the George Wolfberg Park at Potrero Canyon Project and shall not be used as a base for the Potrero Canyon Pacific Coast Highway Pedestrian/Bicycle Bridge Project.

(Q3) Does the City have any relevant documents developed for the project such as a conceptual plan or planning study? If so, we would like to review these prior to submitting our proposal.

(A3) The documents are for reference only as they were developed under a separate project. Please refer to A2.

(Q4) Has the City discussed this project with stakeholders and are there any commitments to the community regarding bridge type or aesthetics? If so, we would like to review these prior to submitting our proposal.

(A4) No.

(Q5) Does the City have a budget for the project through construction?

(A5) The Project currently has an $11M State Earmark for expenditures associated with the design and construction.

(Q6) Are forms and DBE certifications excluded from the 40-page limit?

Potrero Canyon Pacific Coast Highway Pedestrian/Bicycle Bridge Project

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(A6) Yes.

(Q7) Task 4 in the scope states to "prepare project report with conceptual plan…". Will this report be a formal Pre-Design Report subject to the City's guidelines in the Project Delivery Manual?

(A7) Yes, additionally the Project report shall comply with the Caltrans Project Development Procedure Manual, Chapter 9 Project Initiation. The Project Initiation Document will be a Project Study Report- Project Development Support.

(Q8) Can the previously prepared feasibility study for this project be provided?

(A8) Yes. Please refer to A2.

(Q9) Page 5, Section 3 requests we provide current copies of DBE certificates. Are DBE firm numbers acceptable in lieu of full certificate copies?

(A9) No.

(Q10) Can DBE information be included in the Appendix, outside of the page count, as well?

(A10) Yes.

(Q11) Can the required non-collusion affidavit and DBE Commitment forms be included in the Appendix section of our proposal?

(A11) Yes.

(Q12) In addition to the previous feasibility study, can BOE also share the Potrero Canyon Project As-Built Drawings?

(A12) For DRAFT 2016 Potrero Canyon Pedestrian Crossing Feasibility Study Technical Memorandum, refer to A2. The George Wolfberg Park at Potrero Canyon Phase II - Landscaping Project as-built drawings are still in the process of being finalized as construction phase is coming to completion and are not available at the moment.

(Q13) TOS mentions: "As part of the Potrero Canyon Park development, the California Coastal Commission, requires a permit in identifying and evaluating alternatives for a pedestrian crossing of the Pacific Coast Highway connecting the park to the beach. The pedestrian bridge overcrossing is the most feasible option and to be further evaluated in this task order." Does this mean the consultant has to provide a feasibility study on alternatives for a pedestrian crossing in which a bridge is one of the alternatives and demonstrate that the

bridge is the most feasible option *OR* has this already been established, and our project needs to validate the findings of a previous feasibility study?

(A13) The bridge crossing was determined to be the most feasible option and this task will prepare the alternatives for bridge structure type, layout/location, etc. as outlined in Task Nos. 4 and 5.

II. ATTACHMENTS:

A. The DRAFT 2016 Potrero Canyon Pedestrian Crossing Feasibility Study Technical Memorandum is attached (21 pages).

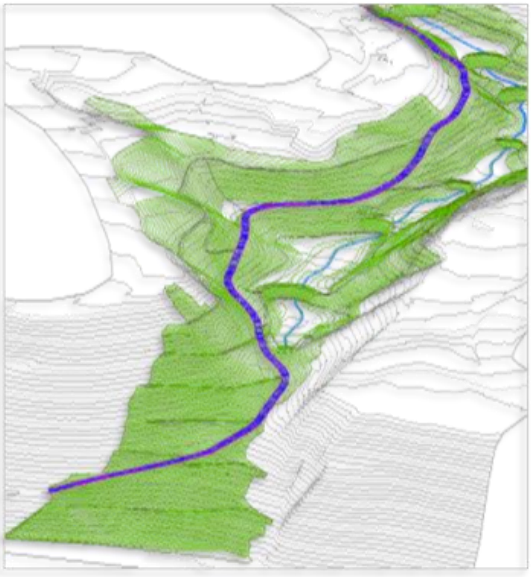
B. The 2018 Potrero Canyon Trail Accessibility Study Final Report is attached (32 pages).

Sincerely,

Digitally signed by Jonathan Carroll
Date: 2023.05.05 10:28:32 -07'00'

Gregg Vandergriff, P.E.
Division Engineer
Project Award and Control Division
Bureau of Engineering

ENGINEERING
CITY OF LOS ANGELES



DRAFT

Potrero Canyon Pedestrian Crossing Feasibility Study

Technical Memorandum

MARRS

August 2, 2016

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APPENDICES

1. Executive Summary

A pedestrian crossing from Potrero Canyon Park to Will Rogers State Beach is needed to provide safe access across Pacific Coast Highway (PCH). This feasibility study examines four alternatives: 1) extend Potrero Park trail to Temescal Canyon Road; 2) at-grade crossing of PCH; 3) underground crossing of PCH; and 4) bridge crossing of PCH, and focuses on factors such as cost, constructability, permitting, and agency review. The results of this study indicate that a bridge crossing may be most feasible based on the evaluation factors, most notably due to constructability and safety concerns.

The bridge would span from the Bathhouse at Will Rogers State Beach across the parking lot and across PCH, connecting on the north side of PCH to the pedestrian trail from Potrero Canyon Park. The bridge would meet the needs of park users and would need to meet the requirements of the California Department of Transportation (CalTrans) and the City of Los Angeles Department of Transportation (LADOT).

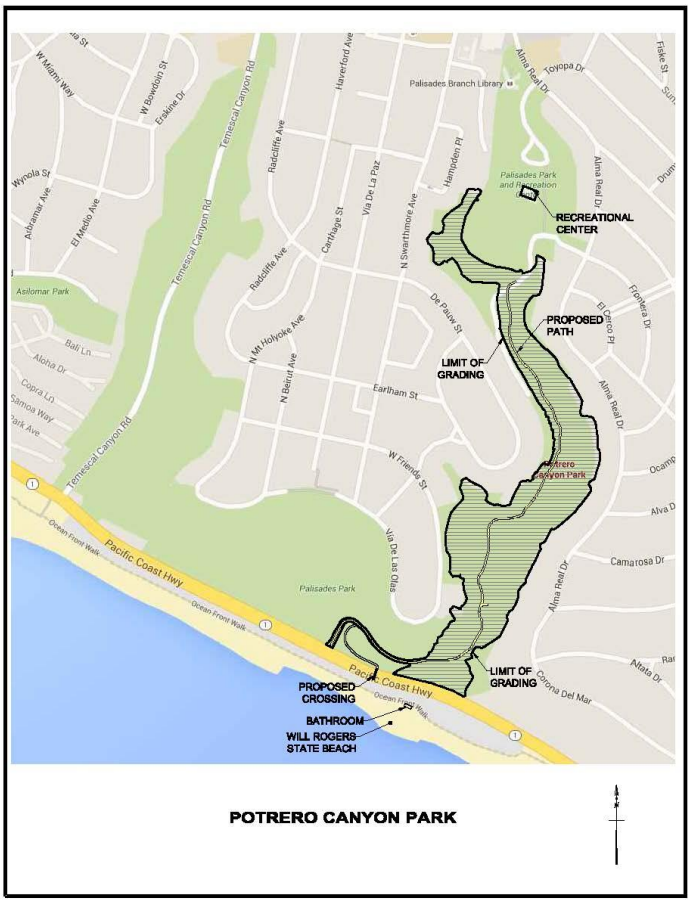

Figure 1. Potrero Canyon Park Vicinity Map

1.1. Introduction

The Potrero Canyon Project includes the development a nature park through grading, landscaping, and slope stabilization, stretching from the Palisades Park Recreation Center to PCH. The Park includes trails and riparian vegetation through a series of wetland basins. The park is intended to create permanent slope stabilization to an area having a history of landslides and is intended to protect homes located along the ridge of the canyon. As shown in Figure 1, the improvements to the canyon will be located within the canyon and areas adjacent to PCH.

Potrero Canyon Park is being developed under a permit from the California Coastal Commission. Due to the location of the path's southerly terminus from Potrero Park and the need to get users across PCH, the City of Los Angeles is in the process of determining the best path forward for connecting the proposed park to the beach. Special Condition 28 of the Coastal Development Permit requires that alternatives for a pedestrian crossing of PCH be evaluated.

1.2. Purpose/Method

The purpose of this Technical Memorandum (TM) is to evaluate alternatives based on selected criteria, to safely access Potrero Canyon Park from Will Rogers State Beach across PCH or vice versa. Currently, there is no direct access from Potrero Canyon Park to the beach. The only pedestrian and bike access from the park to the beach is to use a poorly graded trail along the north side of PCH to a signalized crossing at the Temescal Canyon Road intersection, which is located nearly ½ mile from the mouth of Potrero Canyon.

Each alternative was evaluated based on the following factors:

1. Traffic Impacts: While the Trail to Temescal Road option may avoid impacts to PCH by using an existing signalized crossing, there is temptation for pedestrians to unsafely short cut across PCH directly to the beach to avoid the ½ mile walk to Temescal Road. This has been a common occurrence in the existing condition. LADOT and CalTrans are averse to mid-block at-grade crossings due to safety concerns and permanent traffic impacts, and a subgrade culvert crossing has constructability concerns. The bridge option remains quite viable due to low traffic impacts.

2. Maintenance: In meetings with the City of Los Angeles, they have stated a preference for a low level of maintenance. The current at-grade crossing at Temescal Canyon Road or a new at-grade crossing provides the least maintenance relative to the other two options. Electrical power, pumps, and piping would be necessary for the tunnel dewatering, thereby requiring a high level of maintenance. Bridges also require maintenance, especially in the coastal climate.

3. Connectivity: All three new crossing options meet the criteria of connecting Will Rogers State Beach to Potrero Canyon Park across PCH. The Temescal Canyon Road trail provides a connection, albeit circuitous.

4. Aesthetics: The main aesthetic impact for the at-grade crossing would be increased roadway signs and additional infrastructure on the highway. An underground tunnel is susceptible to graffiti and homeless encampments. The pedestrian bridge, although impactive to the viewshed, could be made architecturally pleasing with a facade highlighting the sense of place and the connection of the Park to the Beach. There are several options to improve the bridge's aesthetics; one example is iron wheels placed at the ramp entrances similar to the Baum Bridge ramp entrances located in Los Feliz.

5. Footprint Impact: The primary concerns are limiting the impact to PCH, the parking lot at Will Rogers State Beach, and minimizing exposure to the high tide line. An underground option would limit impacts to the parking lot and highway, but would face a challenge of mitigating flood and groundwater impacts. An at-grade crossing has potential to affect the parking lot count of the parking lot, and additional striping (along with signs) will need to be placed on the highway. With a 16-foot clearance, the bridge will have no impact to the highway, parking lot, or bike path. However, the ramps must remain away from the slope on the Potrero Canyon Park side, and must be able to fit within a small footprint west of the bathrooms at Will Rogers State Beach.

6. Security: The visibility that benefits security would be best with the at-grade and bridge options. The trail to Temescal could be made visible to the public with the improvements, but the underground crossing of PCH would pose visibility challenges.

7. Stakeholder Approval: LADOT and CalTrans will have safety concerns with an at-grade crossing between intersections on PCH. Approval is also unlikely for an underground structure requiring impacts to PCH and the maintenance of pumps in high groundwater. A bridge meeting height clearance, width, footprint impact, and ADA requirements, along with the trail to Temescal Road, are most likely to gain consensus. The Los Angeles County Beaches and Harbors has stated that no parking lot stalls can be impacted and the parking lot count must remain the same.

8. Right of Way (ROW): For the trail to Temescal Road, the right of way is available. For the three new PCH crossing alternatives, Caltrans would have to approve and allow encroachment. As the tunnel and bridge options require property owned by the County of Los Angeles on the Will Rogers State Beach, right of way or easements would have to be acquired from them.

9. Cost: Improving the trail to Temescal Canyon Road and using that existing crossing would have low capital costs. An at-grade crossing would also be a low cost option. The construction costs for a tunnel are predicted to be the highest, largely due to the need for retaining walls, highway impacts, traffic control, and utility conflicts. The bridge alternative has a cost estimate close to the tunnel, yet is still less than the tunnel because it has less below grade impacts.

Quantity take-offs and rough order of magnitude, preliminary opinion of probable construction costs (POPCC) for each alternative have been developed in Appendix A: Preliminary Opinion of Probable Construction Costs.

While there are additional factors in place, these are the primary factors in the determination of the best alternative to cross PCH. If situations change (funding restrictions, change of view from a stakeholder), then the factors should be revisited for further evaluation.

Research methods included speaking with stakeholders regarding impacts, site visits, collecting as-builts, reviewing overhead images, determining typical construction methods, reviewing design standards, and researching costs.

2. Crossing Overview

Four different crossings were identified: existing trail improvements, an at-grade crossing, an underground crossing, and a bridge crossing. These four options must safely connect pedestrians across PCH.

2.1. Improve the Existing Trail to Temescal Canyon Road

From Potrero Canyon Park, pedestrians must walk approximately 1/2 mile west, parallel to PCH on the north side, to an existing signalized crossing at an intersection at Temescal Canyon Road. This trail is a poorly graded existing path that joins the trail from Potrero Canyon Park. Portions of the trail are close to the ROW and there are no signs to guide pedestrians. The City would need to grade, fence, sign and maintain the path to provide proper safety and encourage its use. These improvements could be done in conjunction with one of the other alternatives.

Cost: $1,210,000 (See Appendix A, Option 1 for details)

Figure 2. Existing Trail to Temescal Canyon Road Layout

2.2. At-Grade Crossing

An at-grade crossing would be cost-effective and simple to implement; however, mid-block at-grade crossings are a safety concern. The crossing would need to begin near the parking lot bathrooms, cross the existing parking lot without compromising any existing parking, cross PCH at a perpendicular angle, and connect to Potrero Canyon Park through a graded path.

The Los Angeles County Beaches and Harbors has stated that no parking lot stalls can be impacted and the parking lot count must remain the same. Due to this restriction, the at-grade crossing cannot begin adjacent to the bathrooms but rather 125 feet west of the bathroom structure where there is a striped out area with no existing parking stalls. However, an existing planter and guardrail would need to be removed to provide an unencumbered passage to PCH.

An at-grade highway crossing would include full overhead traffic signals, flashing warning lights, possibly at-grade flashing lights at the crosswalk, and advanced flashing warning signs. These lights would need to be installed because this crossing does not occur at an intersection or existing stop light. Approval of a crossing, not located at an intersection or adjacent to an existing crossing, would be difficult to obtain due to major concerns over pedestrian safety and traffic flow. Pedestrian studies from the City of Long Beach and the Florida Department of Transportation show higher accident and fatality rates amongst pedestrians at mid-block crossings versus crossing at an intersection. The policy of many jurisdictions in southern California requires the use of traffic signals for crossings at mid-block locations.

Once across the highway, the at-grade crossing will connect to the Potrero Canyon Park trail.

Cost: $792,000 (See Appendix A, Option 2 for details)

Figure 3. At-Grade Crossing Layout

2.3. Underground Crossing

An underground crossing would consist of a 12 foot wide x 10 foot high precast concrete box running below PCH, perpendicular to the highway. It would extend from beyond the PCH northerly ROW, under PCH, under the Beach State Park parking, and below the bike path.

The tunnel would daylight to at-grade landings on both sides of the highway. On the south side, the tunnel would connect to the existing bathhouse paved area. On the north side, the tunnel would connect to the Potrero Park trail. Per ADA regulations, these connections would need to have a slope less than 8%, likely require intermediate landings, and likely require three railings: one on each side of the ramp and one in the center of the ramp. Furthermore, at-grade fencing and/or railings would need to be provided around the ramps for safety.

The concrete box crossing would have to be straight, and the floor would be approximately 20 feet below street grade. The top of the concrete tunnel would need to have a minimum clearance of 12" below all existing utilities. Since the exact horizontal and vertical location of the 8" gas, 30" sewer, and 30" water is unknown, potholing would be required prior to final design. It is possible the sewer line is lower than 9 feet below existing grade, which would require deepening of the tunnel.

Permanent pump stations (one at each end of the tunnel) will be required to pump out all ground and storm water in the tunnel. These pumps will have a significant impact on the maintenance costs to the City.

Figure 4. Underground Crossing Layout

Construction would be difficult, whether by jack and bore (due to high water table and non-cohesive soils) or by open cut and cover. It is highly unlikely that Caltrans would permit the disruption to highway traffic that cut and cover would require. The cut and cover model would require a segmented approach with lane closures in order to cut open the street and install the cast-in-place box through trenches. During construction, dewatering will be a major

consideration and likely require sump pumps to run nearly 24 hours a day since the bottom of the structure will be below sea level.

Cost: $6,137,000 (See Appendix A, Option 3 for details)

2.4. Bridge Crossing

A bridge over PCH is consistent with other crossings of PCH in adjacent Santa Monica, where pedestrians can access the beach via a pedestrian bridge over the highway. On the Will Rogers Beach side, the bridge would have a landing for a spiraling ramp adjacent to the parking lot bathrooms (bathhouse), elevate over the parking lot and highway, and connect to Potrero Canyon Park through a linear bridge ramp to join the park trail.

The nearby Los Angeles County Fire Department uses the Will Rogers State Park parking lot to conduct practice exercises and requires a minimum clearance of 16 feet. This minimal clearance will be provided across the parking lot and across PCH.

Supporting columns would be placed outside of the State highway's ROW where columns would be close enough to provide the maximum structural support while not infringing on traveled paths or parking lot spaces. In addition, the columns cannot impact the existing 8" gas and 30" sewer on the south side of PCH, and avoid the 30" water line on the north side of PCH. Since the exact horizontal and vertical location of the underground utilities is unknown, potholing would be required prior to column placement for final design.

There are above ground utilities on the north side of PCH currently identified as Time Warner Cable, Verizon, and LADWP power. The proposed bridge would be in conflict with these overhead lines, and they would likely require undergrounding between the two nearest poles.

Protecting pedestrians is a primary concern on the bridge, and measures need to be implemented to avoid objects falling onto the highway. As such, a minimum 8-foot high fence needs to be constructed on the bridge and ramps.

A straight ramp running parallel to PCH needs to be placed on the Potrero Canyon side of the park, which will provide a connection from the bridge to the Park trail. Because of the history of landslides in the area, we have avoided using the slope to support the ramps. The ramp is placed 10 feet outside of the PCH ROW to minimize the length of bridge while allowing for maintenance on both sides of the ramp.

Cost: $4,538,000 (See Appendix A, Option 4 for details)

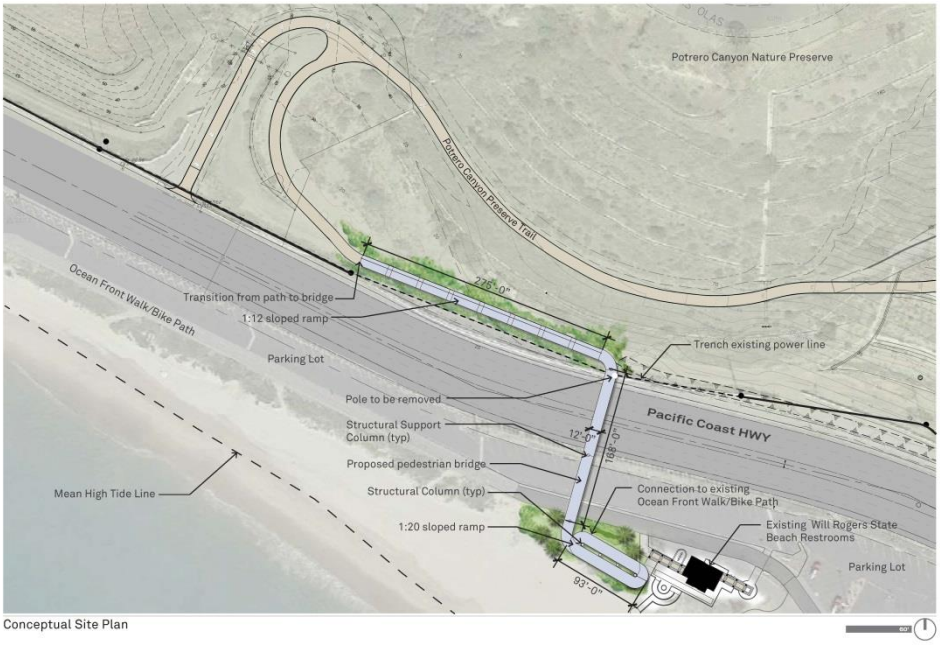

Figure 5. Bridge Crossing Layout

Figure 6. Landscaping Layout

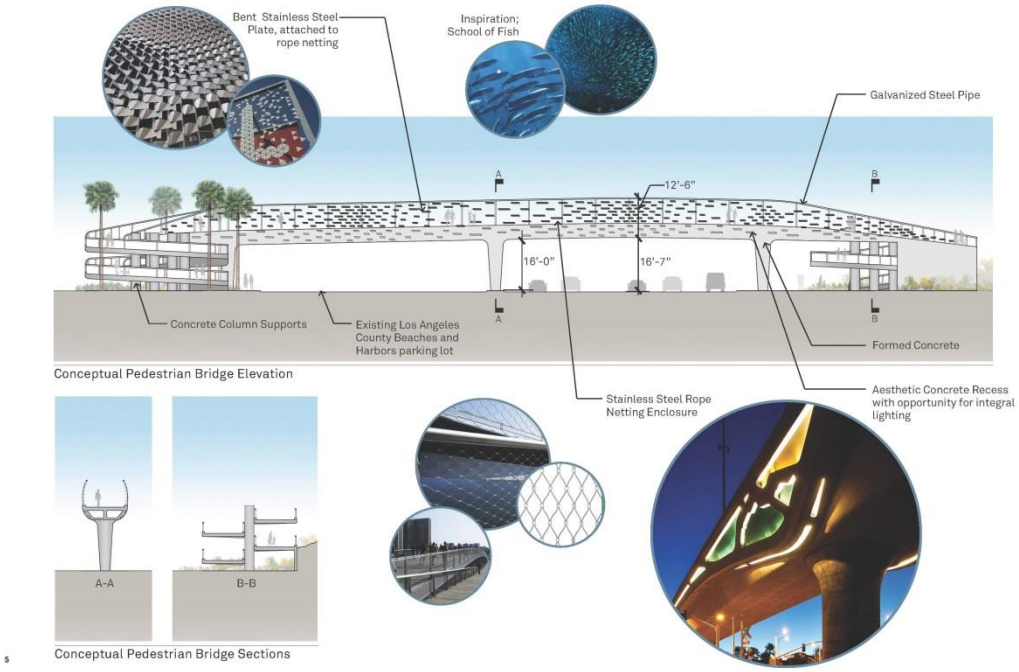

Figure 7. Bridge Elevation and Finishes

2.5. Alternatives Analysis Matrix

The matrix below presents a summary of the constraints and benefits of each alternative.

Alternative	Opinion of Costs	Disadvantages	Advantages
Existing Crossing at Temescal Canyon Road *(Section 2.1)*	**$1,210,000**	• Not a direct connection to the beach • Safety Concern - tempts unauthorized crossing of PCH and parking lot • Additional grading required • Security – less visible areas would need to be mitigated	• Low level of capital costs and maintenance • No additional traffic impacts • Positive visual improvement • Proper, existing signalized intersection • Closes gap for loop trail • Can be done in combination with other alternatives

At-Grade Crossing *(Section 2.2)*	**$792,000**	• Safety concern for mid-block highway crossing • High impacts to permanent traffic • LADOT and CalTrans approval challenges	• Low construction cost • Low traffic impacts during construction • Provides direct at-grade connection to beach • Minimal ADA constraints • Avoids impacts to parking
Underground Crossing *(Section 2.3)*	**$6,137,000**	• Costly construction • High maintenance • Major traffic impacts during cut and cover installation • Potential impacts to existing utilities • Safety and security in tunnel • Extensive ramp structures could impact the beach and/or parking • Potential for homeless encampments in the tunnel • Agency approvals could be difficult	• The permanent structure will have no impacts to traffic on PCH • Avoids impacts to the parking • Provides a grade - separated crossing
Bridge Crossing *(Section 2.4)*	**$4,538,000**	• High level of cost and maintenance • Extensive ramp structures • Visual and beach park impacts • Requires relocation and /or undergrounding of LADWP power lines	• The permanent structure will have no impacts to traffic on PCH • Minimal impacts to beach parking lot • Provides a grade - separated crossing • Less maintenance costs than the proposed tunnel • Gives highest visibility to Potrero Canyon Park • High likelihood for stakeholder approval

3. Permit Conditions for the Potrero Canyon Crossing

This Section provides a general description of the permit requirements for approval of the Potrero Canyon crossing:

3.1. California Coastal Commission Permit

The Project is located within the "Coastal Zone", which falls under jurisdictional approval for any development. It is recommended to begin this permit process early in the design, as it can be a long lead item.

3.2. Los Angeles Department of Transportation

Once constructed, LADOT will be responsible for the operation and maintenance of any crossing structure. It is important to communicate with LADOT early in the design process for approval of any conceptual and final designs, since their department will be responsible for sign-off and acceptance of ownership.

3.3. Los Angeles Bureau of Engineering

The Los Angeles Bureau of Engineering – Structural Engineering Division would perform review services for a bridge designed by a private consultant. Since the bridge will not be located on private parcels, it is unlikely that the Los Angeles Department of Building and Safety (LADBS) will review any portion of the bridge. However, connecting path and landscaping would likely be reviewed by LADBS – Planning and Grading divisions.

Several departments could be involved in approval of the design including planning, grading, cultural affairs, disabled access review, green building (due to a structure over $200,000 in value), and structural department.

3.4. California Department of Transportation

Any signage, striping or encroachments within the ROW will be under Caltrans jurisdiction. Crossing over any Caltrans right-of-way will require review and approval of overhead structures, particularly for clearance. In addition, Caltrans will review to verify that all their design criteria and specifications are met.

3.5. Los Angeles County Beaches and Harbors

Will Rogers State Beach and the accompanying parking lot are owned and maintained by LA County Beaches and Harbors. Due to the impact on their property, the County will be concerned with property rights, adequate clearance of the bridge over the parking lot, connectivity to the existing bathhouse, infrastructure protection, maintaining the setbacks from the high tide line, and impacts to the existing parking and their operations.

4. Conclusions, Recommendations and Next Steps

4.1. Conclusions and Recommendations

Each alternative was evaluated for advantages and disadvantages. Choosing one of the three new PCH crossing alternatives would provide easier access between Potrero Canyon Park and Will Rogers State Beach than the existing condition. All four options meet the purpose of providing access from the beach to the park. However, two of these alternatives have safety, maintenance and stakeholder approval issues that would likely remove them from consideration.

Based upon the evaluation of the applicable criteria, the proposed pedestrian bridge is the most feasible alternative to connect Potrero Canyon Park to Will Rogers State Park Beach. Once a preferred option is chosen, the actions listed below will be recommended for developing the Project to the next phase.

4.2. Next Steps

The results of the evaluation suggest that the bridge alternative is the most viable option for a pedestrian crossing from Potrero Canyon Park to Will Rogers State Beach over PCH. The following steps should be taken to advance the design of the bridge:

1. Contact stakeholders including Coastal Commission, LADWP, Los Angeles City Department of Transportation, California Department of Transportation, and Los Angeles County Beaches and Harbors to obtain buy-in of the bridge concept and location.

2. Perform a full utility investigation of the site including potholing of utilities on the south side of PCH. These results could help determine where the column supports for the bridge could be in conflict with any utility lines.

3. Contact the City of Los Angeles Council District 11 to set up a community planning meeting. The intent is to show the benefits of the proposed bridge to the community, receive feedback, and address any concerns. This will mitigate negative reaction moving forward with the project.

4. Identify potential funding sources for the construction and maintenance of the bridge. Consult with financial programmers to assess the length of time required to achieve full funding based on the funding sources and their level of contribution.

5. Soil conditions, onsite and offsite drainage, and impacts to the overhead LADWP power line need to be investigated for feasibility at future design phases.

APPENDIX A:

Preliminary Opinion of Probable Construction Costs

Preliminary Opinion of Probable Construction Cost - Potrero Canyon Bridge
Option 1 - Trail to Temescal Canyon

				Date:	06/01/2016
	Description	**Qty**	**Unit**	**Unit Cost**	**Total**
1	Mobilization	1	LS	$15,000	$15,000
2	Grow and kill - weed abatement	2	AC	$1,500	$3,000
3	Grubbing, fine grading, etc.	2	AC	$10,890	$21,780
4	Agronomic soil testing	1	LS	$500	$500
5	Grade Trail	3000	CY	$10	$30,000
6	12' wide D.G. hiking trails w/ plastic wood header	24834	SF	$6	$152,729
7	New meter and backflow (from Temescal Cyn. Road)	1	LS	$10,000	$10,000
8	Irrigation mainline: 2"	2000	LF	$10	$20,000
9	Irrigation system (15' both side path w/4 zones)	2	AC	$29,225	$43,838
10	Hydroseeding/Erosion control (15' both sides path)	2	AC	$11,470	$22,940
11	Tree Planting	2	AC	$1,500	$3,000
12	Shrub planting	2	AC	$1,500	$3,000
13	6' Trail Fence	5000	LF	$50	$250,000
14	Gate with Trilogy Lock	1	EA	$10,000	$10,000
15	Plant establishment & Maintenance (1 year)	2	AC	$5,000	$10,000
16	Vegetation monitoring & yearly reports, 5 years	1	LS	$5,000	$5,000
17	Lighting	1	LS	$10,000	$10,000
18	Electrical	1	LS	$5,000	$5,000
19	Site Handling and Disposal	1	AL	$10,000	$10,000
	Hard Costs Sub Total				**$625,787**
20	General Conditions	15%	LS	$93,868	$93,868
21	Qualified Safety Representative	80	Hr	$120	$9,600
22	Design	10%	LS	$62,579	$62,579
23	Construction Manager	1	LS	$10,000	$10,000
24	Community Liaison	30	Hr	$140	$4,200
25	Survey Services	5%	AL	$31,289	$31,289
26	Certified Payroll	1	AL	$8,000	$8,000
27	Permits	2%	LS	$12,516	$12,516
28	Bonds, Insurance, Inspection (Payment and Performance)	4%	LS	$25,031	$25,031
29	Contractor Overhead and Profit	20%	LS	$125,157	$125,157
	Sub Total				**$1,008,027**
30	Contingency	20%	LS		$201,605
	Sub Total				**$201,605**
				TOTAL:	**$1,209,633**

Notes:

1. The unit cost data is derived from MARRS in-house sources and RS Means 2016 Q2 Construction Cost Data.
2. This is a rough order of magnitude preliminary opinion of probable costs only, and is intended for a rough cost projection used for budget planning pruposes in the early stage concept development of a project. Actual construction costs may vary. MARRS will not be responsible for, or liable for, unauthorized changes or uses of these values.
3. No preliminary design was made available at the time of this estimate.
4. Prices are based on current economic conditions and do not include escalation.
5. This Opinion of Cost assumes that all improvements will be constructed at one time.
6. At this stage of plans, the quantity take off were performed when possible and parametric estimates and allowances are used for items that cannot be quantified.
7. This Opinion of Cost does not include costs for right of way or easements.
8. This Opinion of Cost does not include existing utility relocation, removal or disposal.

Preliminary Opinion of Probable Construction Cost - Potrero Canyon Bridge
Option 2 - At Grade Crossing

				Date:	04/22/2016
	Description	**Qty**	**Unit**	**Unit Cost**	**Total**
1	Mobilization	1	LS	$30,000	$30,000
2	Clearing and Grubbing	1	LS	$15,000	$15,000
3	Traffic Control including signs	1	LS	$25,000	$25,000
4	Landscaping	1	LS	$40,000	$40,000
5	Traffic striping including pavement markings - PCH	1	LS	$10,000	$10,000
6	Traffic striping including pavement markings - Parking lot	1	LS	$10,000	$10,000
7	Overhead cantilever Traffic Signals	2	EA	$70,000	$140,000
8	Pedestrian signal push buttons	2	EA	$7,000	$14,000
9	At-grade pedestrian flashing lights	1	LS	$30,000	$30,000
10	12' wide x 12" thick soil cement access road	454	SY	$30	$13,620
11	Guard rail removal	1	LS	$4,000	$4,000
12	Advance Warning Sign	2	EA	$5,000	$10,000
	Hard Costs Sub Total				**$341,620**
13	General Conditions	15%	LS	$51,243	$51,243
14	Qualified Safety Representative	360	Hr	$120	$43,200
15	Design	10%	LS	$34,162	$34,162
16	Construction Manager	4%	LS	$13,665	$13,665
17	Community Liaison	80	Hr	$140	$11,200
18	Survey Services	5%	AL	$17,081	$17,081
19	Certified Payroll	1	AL	$8,000	$8,000
20	Permits	2%	LS	$6,832	$6,832
21	Bonds, Insurance, Inspection (Payment and Performance)	4%	LS	$13,665	$13,665
22	Contractor Overhead and Profit	20%	LS	$68,324	$68,324
	Sub Total				**$608,992**
23	Contingency	30%	LS		$182,698
	Sub Total				**$182,698**
				TOTAL:	**$791,690**

Notes:

1. The unit cost data is derived from MARRS in-house sources and RS Means 2016 Q2 Construction Cost Data.
2. This is a rough order of magnitude preliminary opinion of probable costs only, and is intended for a rough cost projection used for budget planning pruposes in the early stage concept development of a project. Actual construction costs may vary. MARRS will not be responsible for, or liable for, unauthorized changes or uses of these values.
3. No preliminary design was made available at the time of this estimate.
4. Prices are based on current economic conditions and do not include escalation.
5. This Opinion of Cost assumes that all improvements will be constructed at one time.
6. At this stage of plans, the quantity take off were performed when possible and parametric estimates and allowances are used for items that cannot be quantified.
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8. This Opinion of Cost does not include existing utility relocation, removal or disposal.

Preliminary Opinion of Probable Construction Cost - Potrero Canyon Bridge
Option 3 - Underground Tunnel

				Date:	04/21/2016
	Description	**Qty**	**Unit**	**Unit Cost**	**Total**
1	Mobilization	1	LS	$40,000	$40,000
2	Cleaning and Grubbing	1	LS	$30,000	$30,000
3	Aggregate base	370	CY	$85	$31,583
4	Structural Excavation	4100	CY	$58	$236,570
5	Structural Backfill	1000	CY	$52	$52,340
6	Tunnel Ballast	1	LS	$150,000	$150,000
7	Dewatering	1	LS	$100,000	$100,000
8	Soldier Piles	1	LS	$180,000	$180,000
9	18" Thick Structural Concrete - Tunnel Sections	575	CY	$465	$267,375
10	12" Thick Structural Concrete - Ramp Sections	765	CY	$590	$451,350
11	Sump Pump for Groundwater Discharge	2	EA	$15,333	$30,666
12	Metal Railing - Ramps	1120	LF	$210	$235,200
13	Traffic Control Requirement including signs	1	LS	$250,000	$250,000
14	Traffic Striping including pavement marking	1	LS	$45,000	$45,000
15	Allowance for utility line support - water and sewer force main	1	LS	$100,000	$100,000
16	Allowance for utility line support - dry utilities	1	LS	$50,000	$50,000
17	Landscaping	1	LS	$50,000	$50,000
18	Striping	1	LS	$20,000	$20,000
19	Furnish and Install 6" Road Base	46	CY	$85	$3,910
20	Furnish and Install 3" Asphalt	2500	SF	$15	$37,500
21	Low Point Catch Basin	2	EA	$40,000	$80,000
22	Storm Drain 18" line	100	LF	$865	$86,500
23	Storm Drain Outlet to Ocean	2	EA	$15,000	$30,000
24	12' wide x 12" thick soil cement access road	750	SY	$30	$22,500
25	Tunnel Ventilation - Railings and Grill	1	LS	$40,000	$40,000
26	Logistics and Alternate Traffic allowances	1	LS	$90,000	$90,000
27	Lighting	1	LS	$80,000	$80,000
28	Monitoring, Testing, Sampling, Site Storage, and Handling of Soils Containing RCRA Hazardous Waste	1	LS	$25,000	$25,000
	Hard Costs Sub Total				**$2,815,494**
29	General Conditions	15%	LS	$422,324	$422,324
30	Qualified Safety Representative	1400	Hr	$120	$168,000
31	Design	10%	LS	$281,549	$281,549
32	Construction Manager	4%	LS	$112,620	$112,620
33	Community Liaison	200	Hr	$140	$28,000
34	Survey Services	5%	AL	$140,775	$140,775
35	Certified Payroll	1	AL	$20,000	$20,000
36	Permits	2%	AL	$56,310	$56,310
37	Bonds, Insurance, Inspection (Payment and Performance)	4%	LS	$112,620	$112,620
38	Contractor Overhead and Profit	20%	LS	$563,099	$563,099
	Sub Total				**$4,720,791**
39	Contingency	30%	LS		$1,416,237
	Sub Total				**$1,416,237**
				TOTAL:	**$6,137,028**

Notes:

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8. This Opinion of Cost does not include existing utility relocation, removal or disposal.

Preliminary Opinion of Probable Construction Cost - Potrero Canyon Bridge
Option 4 - Pedestrian Bridge

Date: 06/01/2016

	Description	Qty	Unit	Unit Cost	Total
1	Mobilization	1	LS	$80,000	$80,000
2	Clearing and Grubbing	1	LS	$30,000	$30,000
3	Traffic Control including signs	1	LS	$70,000	$70,000
4	Landscaping - Bioswale (3500 sq ft)	3500	SF	$2	$7,000
5	Landscaping - Coastal Bluff Srub (8000 sq ft)	1	LS	$4,000	$4,000
6	Landscaping - Washingtonia Filifera (6000 sq ft)	1	LS	$4,000	$4,000
7	Landscaping - Trees	1	LS	$40,000	$40,000
8	Irrigation	1	LS	$25,000	$25,000
9	Architectural Concrete panels (Precast - Custom)	1	LS	$150,000	$150,000
10	Safety Construction Fencing - Staging	1	LS	$7,000	$7,000
11	Excavation and Export	560	CY	$60	$33,600
12	Trenching and backfill for Power line (140 lf)	1	LS	$6,000	$6,000
13	Power line rerouting Utility company charges	1	LS	$150,000	$150,000
14	Geotextiles for Erosion Control	1	LS	$10,000	$10,000
15	Prestressed concrete piles - 24" (12)	730	VLF	$93	$67,671
16	Pile cap	10	EA	$1,294	$12,935
17	Foundations	90	CY	$308	$27,743
18	Bridge Columns (3)	30	CY	$1,563	$46,888
19	Ramp Columns (7)	64	CY	$1,901	$121,677
20	Grade Beam	52	CY	$1,398	$72,712
21	Backfill and compaction	2800	LCY	$11	$30,800
22	Precast Concrete Girder	4	EA	$28,828	$115,312
23	Orthotropic Deck	6500	SF	$35	$227,500
24	Structural Concrete - Ramps	120	CY	$650	$78,000
25	Concrete Barrier	500	LF	$140	$70,000
26	4" AC - Allowance	1	LS	$25,000	$25,000
27	Architectural Bent Stainless Steel Plates	1	LS	$25,000	$25,000
28	Architectural Fencing	1	LS	$35,000	$35,000
29	Main Span Railing	450	LF	$180	$81,000
30	Approach Railing	1940	LF	$75	$145,500
31	Protection of Existing Structures	1	LS	$50,000	$50,000
32	Bollards	8	EA	$917	$7,336
33	Gates	2	EA	$8,000	$16,000
34	Lighting	1	LS	$45,000	$45,000
35	Electrical	1	LS	$70,000	$70,000
36	Repair of Traffic striping and marking	1	LS	$10,000	$10,000
37	Site Handling and Disposal	1	LS	$25,000	$25,000
38	Equipment and Hoisting	1	LS	$50,000	$50,000
39	Monitoring, Testing, Sampling, Site Storage, and Handling of Soils Containing RCRA Hazardous Waste	1	LS	$25,000	$25,000
	Hard Costs Sub Total				**$2,097,673**
40	General Conditions	15%	LS	$314,651	$314,651
41	Qualified Safety Representative	960	Hr	$120	$115,200
42	Design	10%	LS	$209,767	$209,767
43	Construction Manager	1	LS	$83,907	$83,907
44	Community Liaison	80	Hr	$140	$11,200
45	Survey Services	5%	AL	$104,884	$104,884
46	Certified Payroll	1	AL	$8,000	$8,000
47	Permits	2%	LS	$41,953	$41,953
48	Bonds, Insurance, Inspection (Payment and Performance)	4%	LS	$83,907	$83,907
49	Contractor Overhead and Profit	20%	LS	$419,535	$419,535
	Sub Total				**$3,490,677**
50	Contingency	30%	LS		$1,047,203
	Sub Total				**$1,047,203**
				TOTAL:	**$4,537,880**

Notes:

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APPENDIX B:
Stakeholders Contacts

Stakeholders Contacts

Name	Title	Agency	Phone	E-mail
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ENGINEERING
CITY OF LOS ANGELES

Potrero Canyon Trail Accessibility Study Final Report

MARRS

June 1, 2018

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   - Americans with Disabilities Act (ADA)
   - Architectural Barriers Act (ABA Standards)
2. Potrero Canyon Improvement Plans

1. Executive Summary

Pedestrian and Emergency Vehicle access through the Potrero Canyon Park will be provided by a 12' wide Trail designated as a 12' soil-cement access road in the Design Drawings.

The City of Los Angeles, Department on Disability has requested the City of Los Angeles-Bureau of Engineering and MARRS Services to review the current design of the Access Road (Trail) and determine the impacts to make the same fully compliant with Americans with Disabilities Act (ADA)[1] requirements, and in the event that ADA compliance cannot be met, recommend measures to mitigate the impacts to accessibility.

This feasibility study examines the available Alternatives to make the Trail fully compliant with the slope along running length requirements stipulated by the United States Access Board (the federal agency defining all accessibility requirements).

The results of this study indicate that a redesign of the Potrero Canyon Park Trail to provide full ADA compliance through the entire length would require complex engineering solutions, additional permitting with local agencies, have significant impacts to cost, local flora and fauna, impair the visual aesthetics to the Trail and park, and reduce the safety of pedestrians and vehicles using the Trail for access to the canyon.

1: See Section 1.4 Explanation of Guidelines and Terminology Used

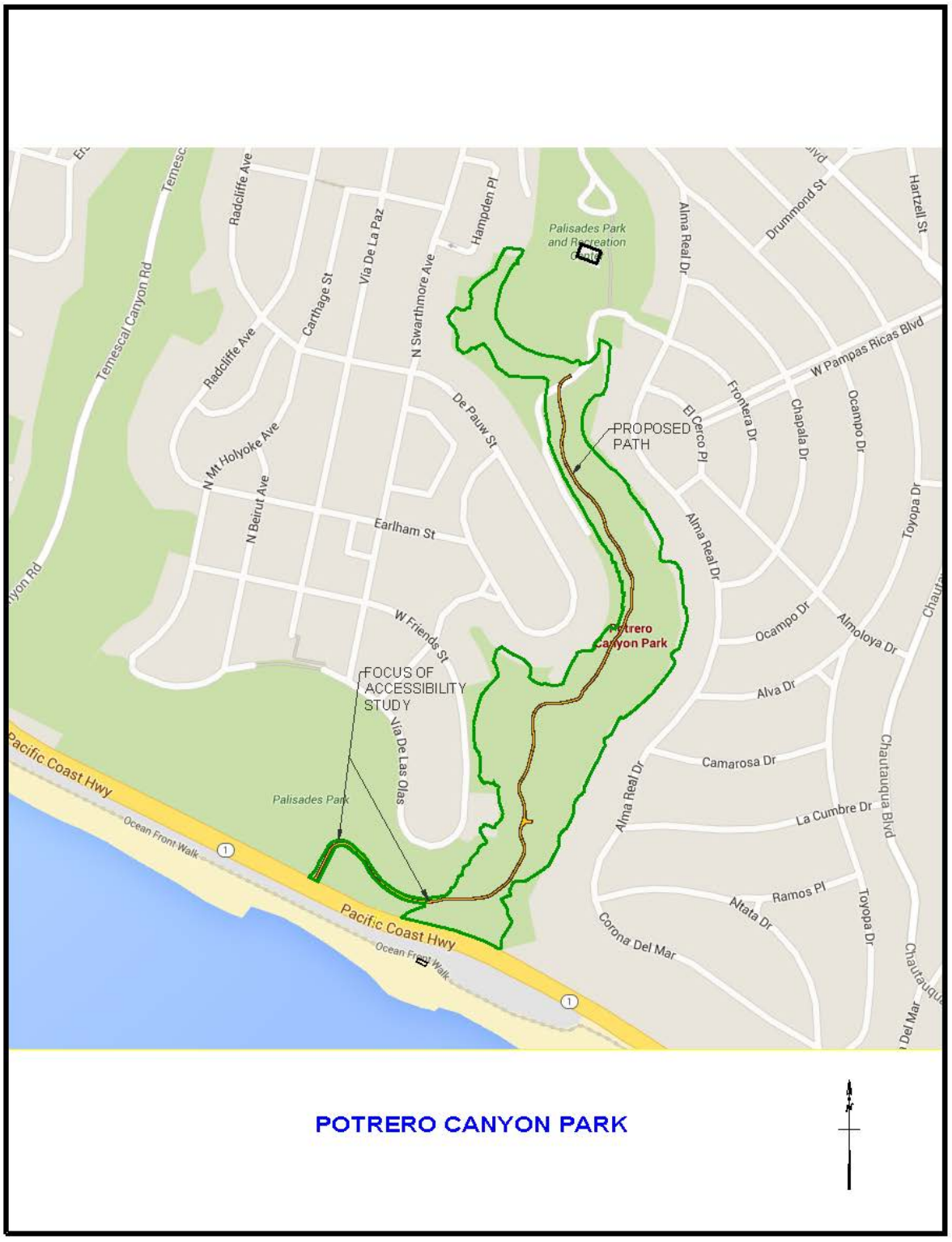

Figure 1. Potrero Canyon Park Vicinity Map

1.1. Background and Introduction

The Potrero Canyon Project includes the development a nature park through grading, landscaping, and slope stabilization, stretching from the Palisades Park Recreation Center to PCH. The Park includes Trails and riparian vegetation through a series of wetland basins. The park is intended to create permanent slope stabilization to an area having a history of landslides and is intended to protect homes located along the ridge of the canyon.

As shown in Figure 1, the improvements to the canyon will be located within the canyon and areas adjacent to PCH.

A new 12-feet wide soil-cement Access Road (also referenced interchangeably as Potrero Canyon Trail, Trail) will provide access through the length of the Park. This road provides a dual function of pedestrian use and emergency/fire access from PCH to the Pacific Palisades Recreation Center.

Due to the terrain of the area, the Trail has proposed slopes ranging from 3% to 15%, with an approximate total elevation gain of 160 feet, from PCH to the Recreation Center.

The current improvement plans for the entire canyon (including the Trail) have been reviewed and approved by the California Coastal Commission, Los Angeles Department of Building and Safety, including LADBS-Fire, LADBS-Planning, and LADBS-Grading; and LABOE-Geotechnical. Current reviews of Caltrans, Los Angeles Department of Recreation and Parks, and Community Advisory Committee have provided no comments or concerns regarding the current design slopes and accessibility of the Trail. Furthermore, the City of Los Angeles Department of Disability has accepted and approved the current improvement plans for the Trail.

1.2. Purpose

The only path and means of access through the Park is the proposed Access Road (Trail) shown in the improvement plans. Therefore, a fully accessible Trail, in full compliance to ADA (or equivalent requirements for outdoor developments as stipulated in the United States Access Board, the parent body for accessibility requirements) and the CA AG Manual (2009) would provide access to the canyon for people of means.

The purpose of this report is to identify, evaluate and recommend available technically feasible Alternatives to make the Trail compliant to ADA standards (or equivalent for outdoor developments as stipulated in the United States Access Board, the guiding document for accessibility requirements) and the CA AG Manual (2009).

The report also includes recommendations to mitigate inaccessible/incompliant sections of the Trail per the current proposed alignment, to the extent possible, should the “Conditions for Exception” apply.

1.3. Method

The report examines each proposed Alternative (including the existing proposed design), to summarize the advantages and disadvantages therein, and makes recommendations based on costs, constructability, park aesthetics, environmental impacts and Agency approval.

The evaluation of each Alternative included research of guidelines, design documents, available historic data regarding park usage, discussion of environmental impacts, quantity take-offs and rough order of magnitude, and a preliminary opinion of probable construction costs (POPCC) for each Alternative.

1.4. Explanation of Guidelines, Terminology Used

Historically, the term “ADA requirements and compliance” has been used to describe accessibility requirements for both internal and external environments (including outdoor developed areas like parks, trails etc.).

While generally adequate, it must be noted that standards issued under the Americans with Disabilities Act (ADA) address accessibility requirements primarily for places of public accommodation and commercial facilities, and conditions for exceptions do not apply.

The United States Access Board is responsible for designing, developing and maintaining accessibility guidelines and standards for the indoor and outdoor environment.

Achieving accessibility in outdoor environments has long been a source of inquiry due to the unique challenges and constraints posed by terrain, the degree of development, construction practices and other factors. The United States Access Board has developed the Architectural Barriers Act (ABA) Accessibility Standards that define accessibility requirements specific to outdoor developed areas, including Trails-the primary focus of this study.

Both ADA and ABA standards are very similar, but address accessibility needs of substantially different environments. Also, because of the nature of outdoor environments, ABA additionally has provisions to allow exceptions for situations where terrain and other factors make compliance impracticable.

For ease of comprehension, and on account of familiarity of terminology, this report will use the term ADA compliance interchangeably with ABA compliance.

The United States Access Board requirements drives all derivative standards including but not limited to the California State Parks Accessibility Guidelines and the Forest Service Trail Accessibility Guidelines. For purposes of clarity, only the United States Access Board has been referenced in this document.

1.5. Trail Classification

Section 1017 Trails of the Architectural Barriers Act (ABA) Accessibility Standards, United States Access Guidelines, stipulates requirements for Trails. Therefore Potrero Canyon Trail is required to comply with the accessibility requirements stipulated therein.

The Architectural Barriers Act (ABA) Accessibility Standards also includes Section 1019 Conditions for Exceptions, that provides justification for invoking exceptions to compliance with the guidelines in Section 1017. Potrero Canyon Trail accessibility shall be verified for qualification to these conditions.

2. Accessibility Guidelines Requirements

Per Section 1017-Trails of the Architectural Barriers Act (ABA) Accessibility Standards (EXHIBIT-1, APPENDIX A), not more than 30% of the total length of the Trail is allowed to have a running slope steeper than 1:12 (8.33%). The standards also stipulate that the running slope of any segment of a Trail shall not be steeper than 1:8 (12%).

Additionally, where the running slope of a segment of a Trail is steeper than 1:20 (5%), the maximum length of the segment shall not exceed the limits summarized in Table-1, and resting intervals shall be provided accordingly.

Table 1: Maximum Running Slope and Segment Length between Resting Intervals

Running Slope of Trail Segment		Maximum Length of Segment : (Maximum Distance between Resting Intervals).	Remarks
Steeper than	But not Steeper than		
0%	1:20% (5%)	No Limits	--
1:20 (5%)	1:12 (8.33%)	200 feet	--
1: 12 (8.33%)	1:10 (10%)	30 feet	Cannot exceed 30% of total length of Trail
1:10 (10%)	1:8 (12%)	10 feet	

In order to bring an incompliant trail to compliance and assure “Full Accessibility”, the following options are available:

- Modifying/realigning the trail to limit running slopes to less than 5% through the entire length of the Trail.
- Modify/realign incompliant stretches of the trail to comply with the requirements of Table

2.1. Conditions for Exceptions

Due to the unique challenges presented by outdoor developed areas with regards to accessibility requirements and compliance, Section 1019 of the Architectural Barriers Act (ABA) Accessibility Standards allows exceptions under certain conditions of practicability including but not limited to the terrain and constructability issues.

After conditions of practicability for all feasible design alternatives to achieve “Full Accessibility” have been established, and it has been determined that the effort and resources required to implement these design alternatives is disproportionately high relative to the level of access being established, Section 1017 allows the following exception specific to Trails:

- Exception 1: Applicable to scenarios where a condition in Section 1019, does not permit full compliance with a specific provision in Section 1017 (in this case, running slope requirements of the Potrero Canyon Trail). A full evaluation shall be performed to ensure that the trail complies with the running slope requirements to the extent possible. **Per Advisory 1019.1, Trails qualify for this exception.**

2.2. Conditions for Exceptions specific to Potrero Canyon Trail

Realigning the Potrero Canyon Trail for full compliance with accessibility guidelines is not practicable due to:

- Condition 1: Compliance is not practicable due to terrain. (Section 1019.1 Condition 1)
- Condition 2: Compliance cannot be accomplished with the prevailing construction practices. (Section 1019.1 Condition 2)

The effort and resources required to realign Potrero Canyon Trail for "Full Accessibility" has been determined to be disproportionately high relative to the level of access being established, and allows applicable exceptions to compliance.

Potrero Canyon Trail is therefore, governed by Section 1017 and qualifies for Exception 1, Conditions 1 and 2 per Section 1019 and Advisory 1019.1 of the ABA.

2.3. Accessibility: Current Proposed Alignment

The current proposed alignment of the Access Road follows the terrain, with the attempt to maximize the visual impact of the inherent scenic beauty of the area.

Figure 2, APPENDIX B shows the existing slopes for the entire length of the Trail, along with the classifications for accessibility and slope:

- Total length of the Access Road is approximately 4237 feet.
- 658 feet has < 5% slope and is "Fully Accessible"
- 1986 feet has slopes from 5% to 8.33% and requires resting intervals every 200 feet
- 798 feet has slopes from 8.33% to 10% and requires resting intervals every 30 feet
- 179 feet has slopes from 10% to 12% and requires resting intervals every 10 feet.
- 616 feet has slopes > 12% is incompliant.

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Table-2 summarizes the Running Slope vs Segment Length between Resting Intervals for the Trail.

Table-2: Running Slope and Segment Length between Resting Intervals Analysis

	Running Slope of Trail Segment		Length of each Segment (feet.) (From PCH to RC)	Remarks
	Steeper than	But not Steeper than		
1	0%	1: 20%	658	16% of total length
2	1:20 (5%)	1:12 (8.33%)	1986	47% of total length, provide resting interval every 200 feet.
TOTAL LENGTH (SLOPE>8.33%) (3+4)			977	23% of Total Length; is less than 30% of maximum allowed length
3	1:12 (8.33%)	1:10 (10%)	798	19% of total length, provide resting interval every 30 feet
4	1:10(10%)	1:8 (12%)	179	4% of total length, provide resting interval every 10 feet
5	1:8 (12%)	---	616	Not permitted, review condition for exception per guidelines

3. Proposed Alternatives

The following Alternatives, have been evaluated to bring the Trail in compliance with ADA requirements:

- Alternative 1: Continuous 5% grade with proposed alignment. (Figure 3, APPENDIX B)
- Alternative 2: Selective modification to incompliant sections of Trail (switchback design) (Figure 4, APPENDIX B)
- Alternative 3: Exercise “Conditions for Exceptions” (Section 1019), and recommend measures to ensure maximum accessibility, within the constraints of terrain and constructability.

3.1. Alternative 1 : Continuous 5% grade with proposed alignment (5% Uniform Slope from PCH to Palisades Park Recreation Center) (Figure 3, APPENDIX B)

Estimated Cost: $ 84,198,932

Engineering and Design: Per this alternative, the alignment of the Trail has been retained. The Trail begins at an elevation of (+) 23 feet (approx. at PCH) to terminate at (+) 258 feet (approx. at Palisades Recreation Center). The rise has been evenly distributed over the length of the Trail (4200 feet approx.), to achieve an approximate slope of 5%, as mandated by ADA requirements.

The grading to achieve the 5% slope requires continuous retaining walls approximately 3000 linear feet of 40-75 feet high retaining walls on either side of the Trail. This allows the current alignment and surrounding grading to remain unaffected, but would create a major tunneling effect with large retaining walls on both sides. There is no change to the original length of the Trail.

Taking into account the historic frequency of landslides in the project area, the design of the retaining walls will require complex, customized engineering solutions, including but not limited to extensive geotechnical studies, slope stabilization, storm water drainage and runoff, and groundwater containment.

Construction: The 40-75 feet retaining wall design requires detailed constructability reviews to verify feasibility of construction, including but not limited to pre-construction evaluation of access road capacities, availability of large staging areas, and identified source of fill.

Due to the magnitude of the project, long term disruptions to the local population are to be expected. The project will need extensive coordination and minimal slips in schedule to reduce liability on account of Safety (slope instability etc.) and Liquidated Damages (delays, cost over-runs etc.)

Environmental Impacts: This alternative involves extensive earthmoving over a very large area. The grading and retaining wall construction could potentially result in a permanent change in the topography of the area.

Through the duration of the construction activities, natural beauty of the area will be disrupted by visible modifications to the terrain and construction equipment. Additional construction will have further impacts to noise, water demands, and air pollution. While these are temporary and limited to the construction phase, long term and permanent disruptions like steep slope excavations, fill alterations and high retaining walls potentially lessen the inherent scenic quality of the area.

Access and usage of the Park could be restricted or suspended (as applicable) during construction.

The extensive earthwork could involve higher maintenance costs and potentially have temporary and permanent impacts to the ground cover and local vegetation, including the introduction of invasive plant species due to imported fill material.

Site run-off from disturbed areas and storm run-off from impervious surfaces could compromise the steep retaining walls.

Safety: The proposed canyon like setting over extended stretches poses significant challenges to speedy egress and emergency evacuation.

The canyon rim formed by the retaining walls require safety signage barriers and restricted entry ways to ensure public safety.

Visual: The high retaining walls permanently impair the scenic beauty of the park.

Others: Need further evaluation of foot traffic and usage by category to justify a redesign.

3.2. Alternative 2: Selective modification to incompliant sections of Trail (switchback design) (FIGURE 4, APPENDIX B)

Estimated Cost: $ 24,942,230 (Cost Adder)

Engineering and Design: The realignment of the Trail is restricted to the segment of the Trail where slopes ranges from 8.33% to 12% and above, which mitigates impacts to the remainder

of the Trail. The realigned Trail begins at an elevation of 55 feet (at PCH end) and terminates at an elevation of 170 feet (towards the Recreation Center) at which point the Trail consistently has the 5% mandated slope per ADA requirements.

The stipulated 5% slope can be achieved only with a “switchback” design (i.e. the Trail switches back and forth), which extends the length of the Trail by about 1260 feet.

The grading to achieve the 5% slope with switchback design requires approximately 4000 linear feet of sharply curving retaining walls 4-40 feet high on either side of the realigned Trail extended Trail.

The large curved retaining walls, associated earthwork and drainage require complex engineering solutions, including but not limited to extensive geotechnical studies, slope stabilization, and modeling to verify feasibility and safety of the design.

Constructability and Coordination: The required grading to achieve the 5% slope requires the construction of retaining walls ranging from a height of 4- 40 feet on either side of the Trail.

The construction is complex on account of the switchback design, requiring detailed constructability analyses for both technical and logistical feasibility. Additionally, the construction methodology could potentially involve specialized practices and operations not usually associated with standard construction practices for earthwork and slope stabilization, and might require specialized construction crews.

Additionally, as in Alternative 1, pre-construction evaluation of access road capacities, including, but not limited to identifying availability of large staging areas and source of fill will have to be performed.

Environmental Impacts: This alternative involves extensive earthmoving over an area though lesser than that of Alternative 1. The grading, and rebuilding would result in a permanent change in the topography of the area.

Due to the magnitude of the project, long term disruptions to the local population are to be expected. The project will need extensive coordination and minimal slips in schedule, to reduce liability on account of Safety (slope instability etc.) and Liquidated Damages (delays, cost over-runs etc.).

Through the duration of the construction activities, natural beauty of the area will be disrupted by visible modifications to the terrain and construction equipment. Additional construction will have further impacts to noise, water demand, and air pollution. While these are temporary and limited to the construction phase, long term and permanent disruptions like steep slope excavations, fill alterations and high retaining walls potentially lessen the inherent scenic quality of the area.

Access and usage of the Park could be restricted or suspended (as applicable), during construction.

The extensive earthwork could involve higher maintenance costs. The earthwork could have temporary and permanent impacts to the ground cover and local vegetation, including the introduction of invasive plant species due to imported fill material.

Site run-off from disturbed areas and storm run-off from impervious surfaces could compromise the steep retaining walls.

Safety: The proposed canyon like setting, with sharp curves over short stretches poses significant challenges to speedy egress and emergency evacuation.

The canyon rim formed by the retaining walls would require safety signage, barriers and restricted entry ways to ensure public safety from the steep drop offs at the switchbacks.

Additionally, potentially unstable slopes would require major shoring for construction safety.

Visual: The high retaining walls with a switchback configuration permanently impair the scenic beauty of the park, particularly from the primary vantage point of PCH.

Others: Need further evaluation of foot traffic and usage by category to justify a redesign.

3.3. Alternative 3: Exercise "Conditions for Exceptions", Determine Type of Exception and maximize accessibility to the extent practicable.

This Alternative examines the criteria required to qualify the Potrero Canyon Trail for exception to compliance to ADA, and determines the type of exception.

The current proposed alignment of the Trail is generally compliant (or can be brought to compliance with minimal modifications) to ADA requirements. A small 616 feet section of the Trail has running slopes greater than 12% and is out of compliance with ADA requirements.

Per Sections 1017 and 1019 of the Architectural Barriers Act (ABA) Accessibility Standards, when conditions of terrain or constructability require disproportionately high levels of effort and allocation of resources relative to the level of access being established in order to comply with stipulations of access guidelines, exceptions to compliance can be requested. The guidelines further describe the types of exceptions that could be requested, based upon qualification of the Trail:

- Exception 1: when the incompliant portion of the Trail can be brought to compliance to the maximum extent possible.
- Exception 2: Not applicable to trails.

Alternatives 1 and 2 described in the earlier sections of this document have been evaluated to require disproportionately high levels of effort and allocation of resources relative to the level of access being established in order to bring 616 feet of Trail to comply with guideline requirements.

Alternative 1 is not practicable due restrictions imposed by the terrain.

Alternative 2 is not practicable due to restrictions imposed by the terrain and constructability.

Therefore, Potrero Canyon Trail qualifies for Exception 1, Conditions 1 and 2 of Architectural Barriers Act (ABA) Accessibility Standards.

In order to maximize the use of the Trail, and increase safety of the target population, mitigating measures based on common sense improvements and sensible engineering practice i.e. not necessarily stipulated by accessibility guidelines could be implemented in the incompliant sections of the Trail for the 616 feet stretch.

These improvements could include as a minimum:

- Prominent advisory/cautionary signage through and at approach to sections where slopes exceed 12% over running length.
- Hand Rails along the stretch where slopes exceed 12% over running length.
- Guide Rails along the stretch where slopes exceed 12% over running length.
- Overlay of anti-skid/high friction surfacing on portions where slopes exceed 12%.
- Luminous marking/striping of portions at beginning and end of limits where slopes exceed 12%.

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3.4. Analysis Matrix and Evaluation

The matrix below presents a summary of advantages and disadvantages of all Alternatives:

Table 3: Alternatives Analysis Matrix

Alternative and Alignment Details	Opinion of Costs (ROM)	Disadvantages	Advantages
Alternative 1: Continuous 5% grade with proposed alignment.	$84,198,932 (Retaining Walls)	**1. Engineering and Design** Design requires additional review of slope stabilization of the entire corridor. The 40'-70' retaining wall involve high maintenance costs. **2. Constructability and Coordination** Requires thorough constructability review, and detailed work plan, coordination with local authorities and agencies to mitigate severe disruptions to local population. Elaborate drainage and shoring requirements are required for storm events on account of area being prone to landslides. Site accessibility needs to be evaluated on an ongoing basis through the course of the project due to the tight access corridor. **3. Construction** 40'-70' high retaining walls involve significant construction, material and earthmoving costs that require a very large staging area. **4. Safety** Due to the canyon (tunnel) like design, detailed safety analyses and emergency evacuation procedures through the duration of construction needs to be performed to ensure worker and pedestrian safety. **5. Aesthetics** The tunnel like design permanently impairs the riparian look to the park, and ability for pedestrians to view the canyon. **6. Agency Review and Approval** The updated design requires repeat review and approval from appropriate agencies and authorities for compliance with initial guidelines and conditions.	No change to proposed alignment.

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3.4. Analysis Matrix and Evaluation-contd.

Alternative and Alignment Details	Opinion of Costs (ROM)	Disadvantages	Advantages
Alternative 2: Selective modification to incompliant sections of Trail (switchback design)	$24,942,230 (Retaining Walls + Additional Trail Run)	**7. Engineering and Design** Design requires additional review of slope stabilization of the entire corridor. The 40' retaining wall involve high maintenance costs. Additionally the switch back design for the retaining walls may require modeling and structural analysis. **8. Constructability and Coordination** Requires thorough constructability review, and detailed work plan, coordination with local authorities and agencies to mitigate severe disruptions to local population. Elaborate drainage and shoring requirements are required for storm events on account of area being prone to landslides. Site accessibility needs to be evaluated on an ongoing basis through the course of the project due to the tight access corridor. Additionally, the switchback design may require examination of available construction methods to execute the switchback design for the retaining walls. **9. Construction** 40' high retaining walls involve significant construction, material and earthmoving costs that require a very large staging area. **10. Safety** Due to the canyon (tunnel) like design, detailed safety analyses and emergency evacuation procedures through the duration of construction needs to be performed to ensure worker and pedestrian safety. **11. Aesthetics** The tunnel like design permanently impairs the riparian look to the park, and ability for pedestrians to view the canyon. **12. Agency Review and Approval** The updated design requires repeat review and approval from appropriate agencies and authorities for compliance with initial guidelines and conditions.	Full Accessibility per guidelines. Approximately 2700 feet of the trail follows the original proposed alignment.

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3.4. Analysis Matrix and Evaluation-contd.

Alternative and Alignment Details	Opinion of Costs (ROM)	Disadvantages	Advantages
Alternative 3: Exercise "Conditions for Exceptions", and maximize accessibility to the extent practicable.	Costs associated with permitting, signage, resting intervals, etc.	**13. Accessibility** Sections of the Trail are not fully accessible.	No change to approved alignment and design by Agencies. Compliant with Guidelines. Allows limited accessibility. Most cost effective alternative. Retains riparian look of park.

4. Conclusions, Recommendations and Next Steps

4.1. Conclusions

All three alternatives were evaluated for advantages and disadvantages for ADA Compliance of the Potrero Canyon Trail.

Per United States Access Guidelines, Section 1019 of the Architectural Barriers Act (ABA) Accessibility Standards, (EXHIBIT-1, APPENDIX A), when the effort and resources required to comply with the stipulations of applicable codes and guidelines have been verified to be disproportionately high, relative to the level of access being established, exceptions can be applied per the following:

- Where compliance with the technical provision is not practicable due to terrain.
- Compliance cannot be accomplished with the prevailing construction practices.

Both Alternatives 1 and 2 comply with the stipulations of applicable codes and guidelines, but the effort and resources required to comply with these guidelines have been verified to be disproportionately high, relative to the level of access being established. Therefore both Alternatives 1 and 2 qualify for exceptions to accessibility compliance:

- Alternative 1 is not practicable on account of the terrain. **Therefore Alternative 1 qualifies for Condition 1, Conditions for Exceptions when Compliance is not practicable due to terrain. (Section 1019.1.1)**
- Alternative 2 is not practicable on account of the terrain and may potentially utilize construction methods not usually associated with earthwork and grading. **Therefore Alternative 2 qualifies for Conditions 1 and 2, Conditions for Exceptions when Compliance is not practicable due to terrain (Section 1019.1.1) and Compliance cannot be accomplished with the prevailing construction practices (Section 1019.1.2)**

Since it has been determined that the possible realignment alternatives to bring the Trail to ADA compliance are not practicable, Alternative 3 (Exercise “Conditions for Exceptions”) can be implemented.

4.2. Recommendations

As permitted by Section 1017.1, Exception 1, United States Access Guidelines, the Trail shall be in compliance to accessibility requirements, with respect to running slope requirements, to the maximum extent possible.

Additionally, as stipulated by Advisory 1017.7.1, where maximum running slope and segment length requirements cannot be complied with, and the terrain results in steeper running slopes, additional resting intervals shall be provided.

Therefore, it is recommended that the Trail be constructed per current proposed alignment updated to include the following: (Figure 5, APPENDIX B)

- Maximize (to the extent possible), compliance to running slope requirements.
- Provide resting intervals as stipulated in the guidelines for maximum in terrain with steeper running slopes and segment lengths.
    - 5%-8.33%: Resting Intervals at every 200 feet (11Ea.)
    - 8.33%-10%: Resting Intervals at every 30 feet (29 Ea.)
    - 10%-12%: Resting Intervals at every 10 feet (18 Ea.)

For the stretch of trail with slopes greater than 12% include the following methods of mitigation: (Figure 5, APPENDIX B)

- Add prominent advisory/cautionary signage through and at approach to sections where slopes exceed 12%.
- Add hand rails along stretches where slopes exceed 12%.
- Add Guide rails along stretches where slopes exceed 12%.
- Overlay anti-skid/high friction surfacing on portions where slopes exceed 12%.
- Paint Luminous marking/striping of portions where slopes exceed 12%.

4.3. Next Steps

Apply for Exception 1, Section 1017.1 United States Access Guidelines.

Compile and submit paper work for Exception 1, Condition 1: Compliance is not practicable due to terrain for Alternative 1.

Compile and submit paper work for Exception 1, Condition 1: Compliance is not practicable due to terrain and Exception 1, Condition 2: Compliance cannot be accomplished with the prevailing construction practices for Alternative 2.

Update current Potrero Canyon Improvement Plans for additional railing, signs, anti-skid/high friction overlay, and marking for specific areas along the Trail.

If necessary, provide outreach services to the community and have preliminary planning meetings to confirm improvements prior to final design.

---END OF DOCUMENT---

APPENDIX A:

Referenced Documents:

1. Excerpts from The United States Access Guidelines: Architectural Barriers Act (ABA) Accessibility Standards.

EXHIBIT-1

HIGHLIGHTED SECTIONS ARE SPECIFIC TO THE POTRERO CANYON ACCESSIBILITY STUDY

EXCERPT: UNITED STATES ACCESS BOARD GUIDELINES FOR OUTDOOR DEVELOPED ENVIRONMENT.

REFERENCE: https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards/aba-standards/single-file-version#chapter10

1017 Trails

1017.1 General. Trails shall comply with 1017.

EXCEPTIONS: 1. When an entity determines that a condition in 1019 does not permit full compliance with a specific provision in 1017 on a portion of a trail, the portion of the trail shall comply with the provision to the extent practicable.
2. After applying Exception 1, when an entity determines that it is impracticable for the entire trail to comply with 1017, the trail shall not be required to comply with 1017.

> Advisory 1017.1 General Exception 2. An entity must apply Exception 1 before using Exception 2.The entity should consider the portions of the trail that can and cannot fully comply with the specific provisions in 1017 and the extent of compliance where full compliance cannot be achieved when determining whether it would be impracticable for the entire trail to comply with 1017. The determination is made on a case-by-case basis. Federal agencies must document the basis for their determination when using Exceptions 1 or 2, and must notify the Access Board when using Exception 2. See F201.4.1.

1017.2 Surface. The surface of trails, passing spaces, and resting intervals shall be firm and stable.

> Advisory 1017.2 Surface. A firm trail surface resists deformation by indentations. A stable trail surface is not permanently affected by expected weather conditions and can sustain normal wear and tear from the expected uses between planned maintenance.

1017.3 Clear Tread Width. The clear tread width of trails shall be 36 inches (915 mm) minimum.

1017.4 Passing Spaces. Trails with a clear tread width less than 60 inches (1525 mm) shall provide passing spaces complying with 1017.4 at intervals of 1000 feet (300 m) maximum. Where the full length of a trail does not fully comply with 1017, a passing space shall be located at the end of the trail segment that fully complies with 1017. Passing spaces and resting intervals shall be permitted to overlap.

> Advisory 1017.4 Passing Spaces. Entities should consider providing either a 60 inches (1525 mm) minimum clear tread width or passing spaces at shorter intervals if the clear tread width is less than 60 inches (1525 mm), where a trail is:
> • Heavily used; or
> • A boardwalk or otherwise not at the same level as the ground surface adjoining the trail.
> Where the full length of the trail does not fully comply with 1017, locating a passing space at the end of the trail segment that fully complies with 1017 enables a person who uses a mobility device to turn and exit the trail.

1017.4.1 Size. The passing space shall be either:

1. A space 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum; or
2. The intersection of two trails providing a T-shaped space complying with 304.3.2 where the base and the arms of the T-shaped space extend 48 inches (1220 mm) minimum beyond the intersection. Vertical alignment at the intersection of the trails that form the T-shaped space shall be nominally planar.

> Advisory 1017.4.1 Size. Where the passing space is the intersection of two trails, the intersection must be as flat as possible so that all of the wheels of a mobility device touch the ground when turning into and out of the passing space.

1017.5 Tread Obstacles. Tread obstacles on trails, passing spaces, and resting intervals shall not exceed 1/2 inch (13 mm) in height measured vertically to the highest point.

EXCEPTION: Where the surface is other than asphalt, concrete, or boards, tread obstacles shall be permitted to not exceed 2 inches (50 mm) in height measured vertically to the highest point.

> Advisory 1017.5 Tread Obstacles. The vertical alignment of joints in concrete, asphalt, or board surfaces can be tread obstacles. Natural features such as tree roots and rocks within the trail tread can also be tread obstacles. Where possible, tread obstacles that cross the full width of the trail tread should be separated by a distance of 48 inches (1220 mm) minimum.

1017.6 Openings. Openings in the surface of trails, passing spaces, and resting intervals shall not allow the passage of a sphere more than 1/2 inch (13 mm) in diameter.

> Advisory 1017.6 Openings. Elongated openings should be placed so that the long dimension is perpendicular, or as close to perpendicular as possible, to the dominant direction of travel.

1017.7 Slopes. The slopes of trails shall comply with 1017.7.

1017.7.1 Maximum Running Slope and Segment Length. Not more than 30 percent of the total length of a trail shall have a running slope steeper than 1:12 (8.33%). The running slope of any segment of a trail shall not be steeper than 1:8 (12%). Where the running slope of a segment of a trail is steeper than 1:20 (5%), the maximum length of the segment shall be in accordance with Table 1017.7.1, and a resting interval complying with 1017.8 shall be provided at the top and bottom of each segment.

Table 1017.7.1 Maximum Running Slope and Segment Length

Running Slope of Trail Segment		Maximum Length of Segment
Steeper than	But not Steeper than	
1:20 (5%)	1:12 (8.33%)	200 feet (61 m)
1:12 (8.33%)	1:10 (10%)	30 feet (9 m)
1:10 (10%)	1:8 (12%)	10 feet (3050 mm)

> Advisory 1017.7.1 Maximum Running Slope and Segment Length. Gradual running slopes on trails are more useable by individuals with disabilities. Where the terrain results in steeper running slopes, resting intervals are required more frequently. Where running slopes are less severe, resting intervals are permitted to be further apart.

1017.7.2 Cross Slope. The cross slope shall be not be steeper than 1:48.

EXCEPTION: Where the surface is other than concrete, asphalt, or boards, cross slopes not steeper than 1:20 shall be permitted when necessary for drainage.

1017.8 Resting Intervals. Resting intervals shall comply with 1017.8.

1017.8.1 Length. The resting interval length shall be 60 inches (1525 mm) long minimum.

1017.8.2 Width. Where resting intervals are provided within the trail tread, resting intervals shall be at least as wide as the widest segment of the trail tread leading to the resting interval. Where resting intervals are provided adjacent to the trail tread, the resting interval clear width shall be 36 inches (915 mm) minimum.

1017.8.3 Slope. Resting intervals shall have slopes not steeper than 1:48 in any direction.

EXCEPTION: Where the surface is other than concrete, asphalt, or boards, cross slopes not steeper than 1:20 shall be permitted when necessary for drainage.

1017.8.4 Turning Space. Where resting intervals are provided adjacent to the trail tread, a turning space complying with 304.3.2 shall be provided. Vertical alignment between the trail tread, turning space, and resting interval shall be nominally planar.

1017.9 Protruding Objects. Constructed elements on trails, passing spaces, and resting intervals shall comply with 307.

> Advisory 1017.9 Protruding Objects. Protruding objects on trails, passing spaces, and resting intervals can be hazardous for individuals who are blind or have low vision. Signs and other post mounted objects are examples of constructed elements that can be protruding objects.

1017.10 Trailhead Signs. Trail information signs at trailheads shall include the following:

1. Length of the trail or trail segment;
2. Surface type;
3. Typical and minimum tread width;
4. Typical and maximum running slope; and
5. Typical and maximum cross slope.

1019 Conditions for Exceptions

1019.1 General. Exceptions to specific provisions in 1011, 1013, 1014, 1015, 1016, 1017, and 1018 shall be permitted when an entity determines that any of the following conditions does not permit full compliance with the provision:

1. Compliance is not practicable due to terrain.
2. Compliance cannot be accomplished with the prevailing construction practices.
3. Compliance would fundamentally alter the function or purpose of the facility or the setting.
4. Compliance is limited or precluded by any of the following laws, or by decisions or opinions issued or agreements executed pursuant to any of the following laws:

- Endangered Species Act (16 U.S.C. §§ 1531 et seq.);
- National Environmental Policy Act (42 U.S.C. §§ 4321 et seq.);
- National Historic Preservation Act (16 U.S.C. §§ 470 et seq.);
- Wilderness Act (16 U.S.C. §§ 1131 et seq.); or
- Other federal, state, or local law the purpose of which is to preserve threatened or endangered species; the environment; or archaeological, cultural, historical, or other significant natural features.

Advisory 1019.1 General. Exceptions in the following sections require compliance to the extent practicable when an entity determines that a condition in 1019 does not permit full compliance with a specific provision:

- 1011.2 Exception (clear ground space in alterations to outdoor constructed features);
- 1013.2 Exception (any provision for tent pads and tent platforms);
- 1014.1 Exception 1 (any provision for camp shelters);
- 1015.1 Exception (any provision in alterations to viewing areas);
- 1016.1 Exception 1 (any provision for outdoor recreation access routes in alterations to existing camping facilities, picnic facilities, and trailheads);
- 1016.1 Exception 2 (any provision for outdoor recreation access routes at viewing areas);
- 1017.1 Exception 1 (any provision for trails); and
- 1018.1 Exception 1 (any provision for beach access routes).

Entities should consider all design options before using the exceptions. On outdoor recreation access routes, trails, and beach access routes, the exceptions apply only on the portion of the route where the condition applies. The outdoor recreation access route, trail, or beach access route is required to fully comply with the provisions in 1016, 1017, and 1018, as applicable, at all other portions of the route where the conditions do not apply. There are additional exceptions that apply to an entire trail or beach access route in 1017.1 and 1018.1.

Condition 4 allows the following to be a basis for using the exceptions:

- Opinions issued by the Secretary of the Interior pursuant to the Endangered Species Act stating how a federal agency can implement an action without jeopardizing the continued existence of any endangered species or threatened species, or destroying or adversely modifying the habitat of such species (16 U.S.C. 1536 (b) (3) (A));
- Decisions issued by a federal agency pursuant to the National Environmental Policy Act in actions requiring environmental impact statements stating how it will avoid or minimize environmental harm (42 U.S.C. 4332; 40 CFR 1505.2);
- Agreements executed or decisions issued by a federal agency pursuant to National Historic Preservation Act stating how it will avoid, minimize, or mitigate adverse effects on historical properties (16 U.S.C. 470f and 470h-2; 36 CFR 800.6 (b) (iv) and 800.7 (c) (4)); and
- Provisions in the Wilderness Act that require federal agencies to preserve the wilderness character of designated wilderness areas and prohibit any structure or installation within such areas (16 U.S.C. 1131 (b) and (c)).

Condition 4 also applies where archaeological, cultural, historical, or other significant natural features are eligible for protection under federal, state, or local law.

APPENDIX B:

Referenced Figures:

1. Figure 2: Current Proposed Alignment and Analysis.

2. Figure 3: Alternative 1: Continuous 5% Grade with Proposed Alignment.

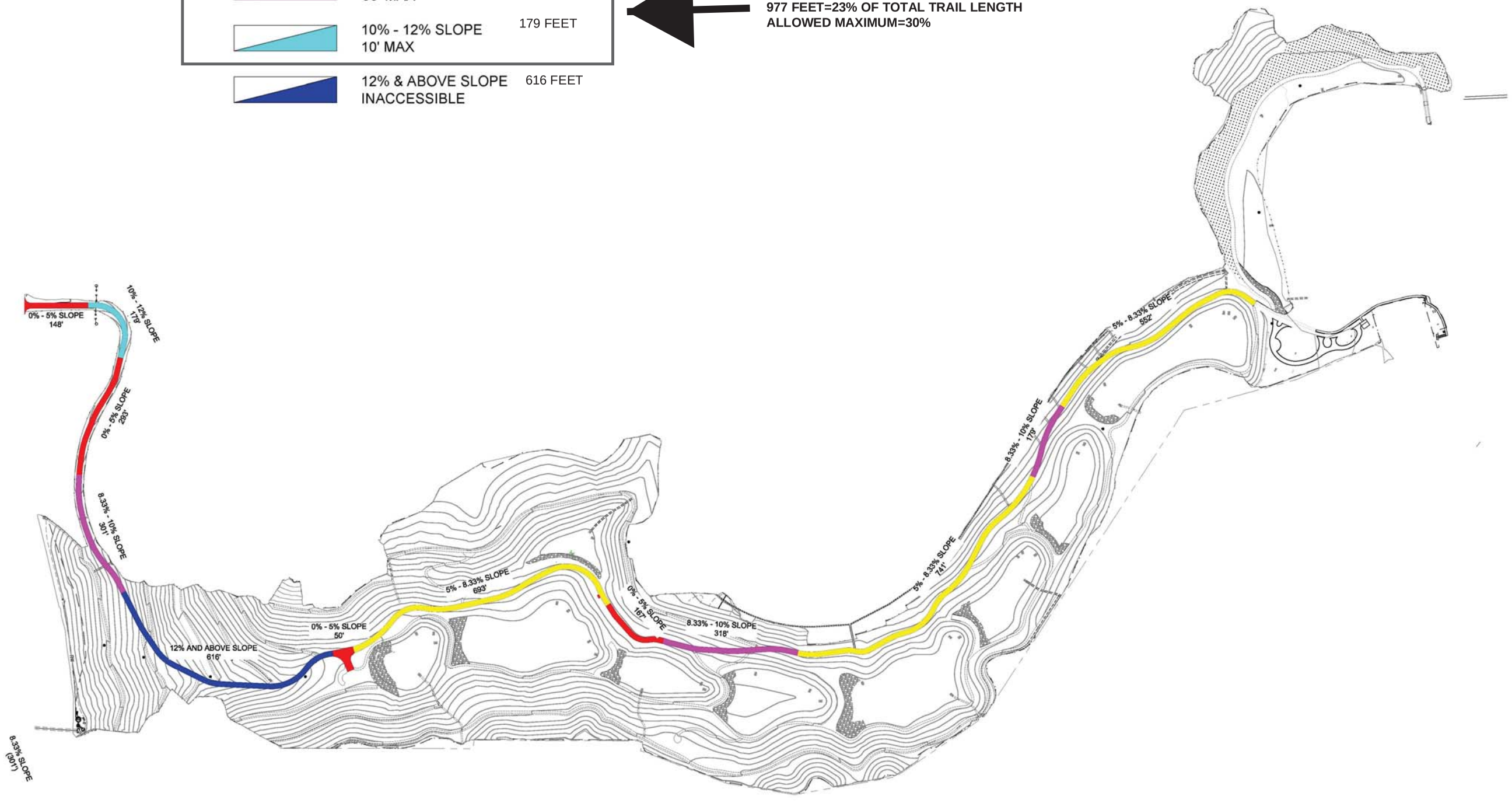
3. Figure 4: Alternative 2: Selective Modification of Incompliant Sections of Trail (Switchback Design).

4. Figure 5: Alternative 3: Exercise “Conditions for Exceptions” and Maximize Accessibility to the Extent Practicable.

FIGURE 2

LEGEND	MAX ALLOWED LENGTH BETWEEN RESTING INTERVALS	TOTAL LENGTH-ALL SEGMENTS-THIS ALIGNMENT
	0% - 5% SLOPE ANY DISTANCE	658 FEET
	5% - 8.33% SLOPE 200' MAX	1986 FEET
	8.33% - 10% SLOPE 30' MAX	798 FEET
	10% - 12% SLOPE 10' MAX	179 FEET
	12% & ABOVE SLOPE INACCESSIBLE	616 FEET

TOTAL LENGTH OF TRAIL WITH SLOPE > 8.33%
977 FEET=23% OF TOTAL TRAIL LENGTH
ALLOWED MAXIMUM=30%



40' 0' 40' 80'

SCALE: 1"=120'

POTRERO CANYON ROAD
12' WIDE ACCESS ROAD
RUNNING SLOPES ANALYSIS

FIGURE 3

ALTERNATIVE 1

12' WIDE ACCESS ROAD CONTINOUS
5% GRADE WITH PROPOSED ALIGNMENT

PALISADES PARK
RECREATION
CENTER

LEGEND

- 0% - 5% SLOPE
  ANY DISTANCE
- 5% - 8.33% SLOPE
  200' MAX EACH RUNNING SLOPE
  SEGMENT LENGTH
- 8.33% - 10% SLOPE
  30' MAX EACH RUNNING SLOPE
  SEGMENT LENGTH
- 10% - 12% SLOPE
  10' MAX EACH RUNNING SLOPE
  SEGMENT LENGTH
- 12% & ABOVE SLOPE
  INACCESSIBLE

NO CHANGE TO CURRENT PROPOSED
12' WIDE ACCESS ROAD LAYOUT
RET WALL TOTAL LENGTH = 3,000'
RET WALL HEIGHT = 40' - 75'

NO CHANGE TO CURRENT PROPOSED
12' WIDE ACCESS ROAD LAYOUT
RET WALL TOTAL LENGTH = 3,000'
RET WALL HEIGHT = 40' - 75'

NO CHANGE TO CURRENT PROPOSED
12' WIDE ACCESS ROAD LAYOUT

NO CHANGE TO CURRENT PROPOSED
12' WIDE ACCESS ROAD LAYOUT
RET WALL TOTAL LENGTH = 583'
RET WALL HEIGHT = 2' - 40'

10%

5.0%

PACIFIC COAST HIGHWAY

STATE PROPERTY
(WILL ROGERS STATE BEACH)

200' 0 200' 400'

SCALE: 1"=200'

PLANS PREPARED BY:

MARRS SERVICES, INC.
340 E. Commonwealth Ave
Fullerton, CA 92832
PH (714) 213-8650 FAX (714) 213-8657

ENGINEER SIGNATURE DATE

FIGURE 4

ALTERNATIVE 2

12' WIDE ACCESS ROAD
SELECTIVE MODIFICATION TO INCOMPLIANT SECTIONS OF TRAIL (SWITCHBACK DESIGN)

PALISADES PARK RECREATION CENTER

LEGEND

0% - 5% SLOPE
ANY DISTANCE

5% - 8.33% SLOPE
200' MAX EACH RUNNING SLOPE SEGMENT LENGTH

8.33% - 10% SLOPE
30' MAX EACH RUNNING SLOPE SEGMENT LENGTH

10% - 12% SLOPE
10' MAX EACH RUNNING SLOPE SEGMENT LENGTH

12% & ABOVE SLOPE
INACCESSIBLE

NO CHANGE TO CURRENT PROPOSED 12' WIDE ACCESS ROAD LAYOUT

LOW POINT

HIGH POINT

CURRENT DESIGN SLOPE = 3.0% - 5.0%
NEW DESIGN SLOPE = 4.75% - 5.00%

CURRENT DESIGN SLOPE = 7.75% - 8.33%
NEW DESIGN SLOPE = 5.00%

3' RET WALL

275' OF RET WALL REQUIRED
HEIGHT = 3' - 7'

7' RET WALL

3' RET WALL

SWITCHBACK DESIGN WITH 12'-14' RADIUS
ADDITIONAL 1,260' OF 12' WIDE ACCESS ROAD REQUIRED
RET WALL TOTAL LENGTH = 3,987'
RET WALL HEIGHT = 1' - 45'

NO CHANGE TO CURRENT PROPOSED 12' WIDE ACCESS ROAD LAYOUT

CURENT 12' WIDE ACCESS ROAD LAYOUT

CURRENT DESIGN SLOPE = 8.33% - 15.00%
NEW DESIGN SLOPE = 5.00%

9' RET WALL
9' RET WALL
6' RET WALL
20' RET WALL
13' RET WALL
23' RET WALL
15' RET WALL
30' RET WALL
20' RET WALL
25' RET WALL
25' RET WALL
22' RET WALL
33' RET WALL
19' RET WALL
19' RET WALL
41' RET WALL
15' RET WALL
45' RET WALL
15' RET WALL
35' RET WALL
9' RET WALL
3' RET WALL
4' RET WALL
5' RET WALL
7' RET WALL
5' RET WALL
4' RET WALL
10' RET WALL
5' RET WALL
13' RET WALL
10' RET WALL
18' RET WALL
16' RET WALL
20' RET WALL
1' RET WALL
17' RET WALL

PACIFIC COAST HIGHWAY

STATE PROPERTY
(WILL ROGERS STATE BEACH)

200' 0 200' 400'

SCALE: 1"=200'

PLANS PREPARED BY:

MARRS SERVICES, INC.
340 E. Commonwealth Ave
Fullerton, CA 92832
PH (714) 213-8650 FAX (714) 213-8657

ENGINEER SIGNATURE

DATE

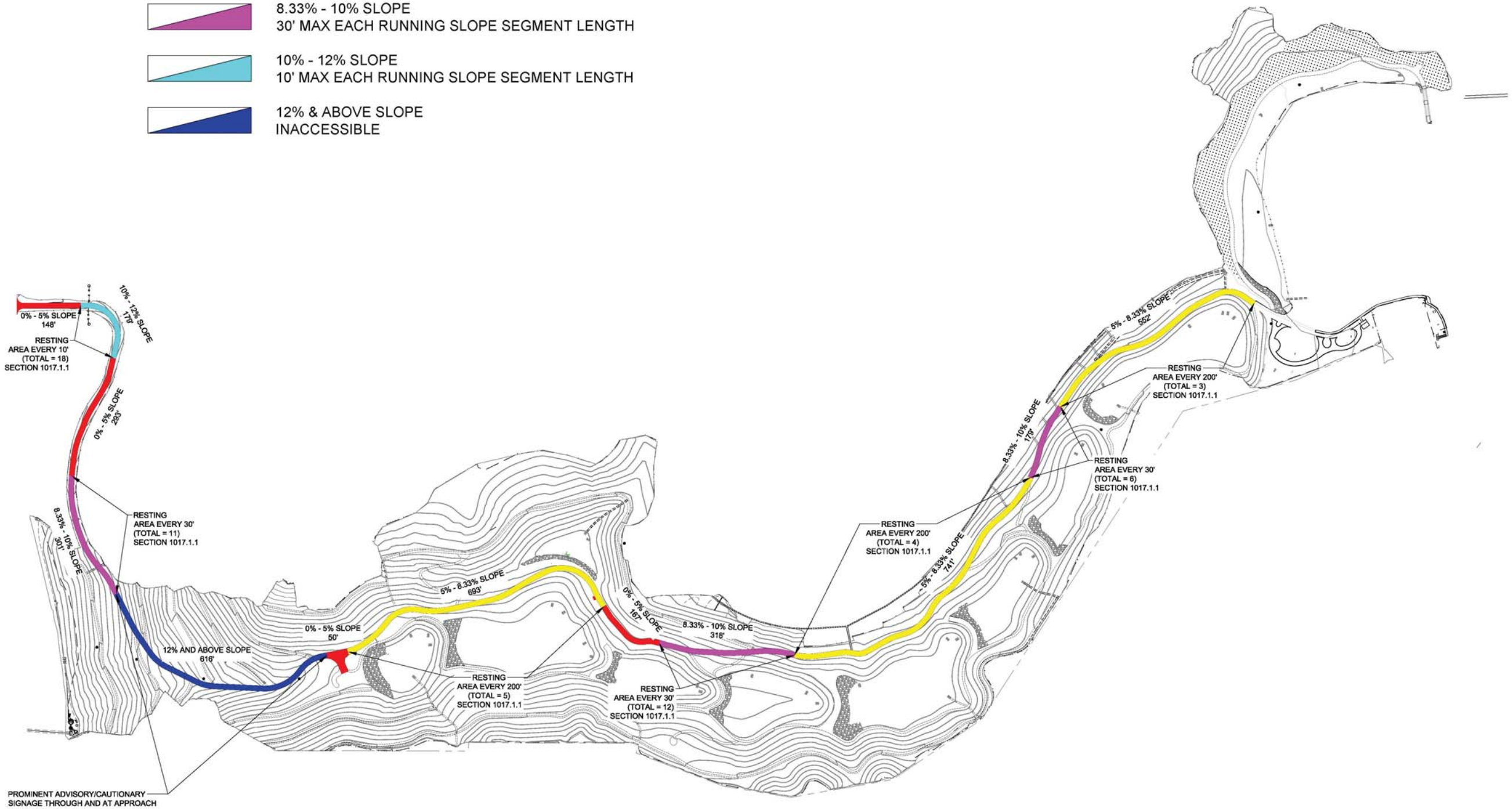
FIGURE 5

ALTERNATIVE 3

LEGEND

- 0% - 5% SLOPE
  ANY DISTANCE
- 5% - 8.33% SLOPE
  200' MAX EACH RUNNING SLOPE SEGMENT LENGTH
- 8.33% - 10% SLOPE
  30' MAX EACH RUNNING SLOPE SEGMENT LENGTH
- 10% - 12% SLOPE
  10' MAX EACH RUNNING SLOPE SEGMENT LENGTH
- 12% & ABOVE SLOPE
  INACCESSIBLE

POTRERO CANYON ROAD
12' WIDE ACCESS ROAD
RUNNING SLOPES ANALYSIS
EXERCISE "CONDITIONS FOR EXCEPTIONS"
AND MAXIMIZE ACCESSIBILITY TO THE
EXTENT PRACTICABLE



- PROMINENT ADVISORY/CAUTIONARY SIGNAGE THROUGH AND AT APPROACH TO SECTIONS WHERE SLOPES EXCEED 12% OVER RUNNING LENGTH
- HAND RAILS ALONG STRETCHES WHERE SLOPES EXCEED 12% OVER RUNNING LENGTH.
- GUIDE RAILS ALONG STRETCHES WHERE SLOPES EXCEED 12% OVER RUNNING LENGTH.
- OVERLAY OF ANTI-SKID/HIGH FRICTION SURFACING ON PORTIONS WHERE SLOPES EXCEED 12%.
- LUMINOUS MARKING/STRIPING OF PORTIONS WHERE SLOPES EXCEED 12%.

40' 0' 40' 80'

SCALE: 1"=120'

APPENDIX C:

Referenced Cost Estimate:

1. Random Order of Magnitude (ROM), Preliminary Opinion of Probable Costs (POPCC)

Random Order of Magnitude: Preliminary Opinion of Probable Construction Cost (ROM POPCC)

CA08225-City of Los Angeles-Trail Accessibility Study

ROM estimate for ADA Access Road

Item	Description	Unit	Qty	Unit Cost	Extended	Comment
1	**Alternative 1**					
	Figure 3 shows additional 3000' of retaining wall 40' to 75' (Avg=60')					
	Unclassified excavation Export (Truck Haul, 1 mile max.)	CY/LF	250	$10	$2,504	
	Backfill & compaction	CY/LF	193	$8	$1,547	
	Hauling of Extra excavated soil (Truck Haul, 4 mile max)	CY/LF	57	$10	$570	
	Retaining Wall	CY/LF	30	$500	$15,185	
	Misc. construction works	LS/LF	1	$600	$600	
	Subtotal Hard Costs				**$20,406**	
	General Conditions @ 15% of Bare Construction Cost	15.00%			$3,061	
	Subtotal - 1				$23,467	
	Contingency @ 15% of Subtotal - 1	15.00%			$3,520	
	Subtotal - 2				$26,987	
	Escalation to mid-2018	4.00%			$1,079	
	ROM Estimated Construction Cost Per LF of Retaining wall				**$28,066**	
	ROM Estimated Extra Construction Cost for Alternative-1	**LF**	**3000**	**$28,066**	**$84,198,932**	
2	**Alternative-2**					
	Figure 4 shows additional 1260' of 12' wide access road and 3987' of retaining wall 1' to 45' (avg 24')					
	Extra access road (1260')	LF	1260	$73	$91,728	
	Earth work for retaining wall	LF	3987	$800	$3,189,600	
	Retaining wall, 24' avg height	LF	3987	$3,600	$14,353,200	
	Misc. construction works	LS	1	$500,000	$500,000	
	Subtotal Hard Costs				**$18,134,528**	
	General Conditions @ 15% of Bare Construction Cost	15.00%			$2,720,179	
	Subtotal - 1				$20,854,707	
	Contingency @ 15% of Subtotal - 1	15.00%			$3,128,206	
	Subtotal - 2				$23,982,913	
	Escalation to mid-2018	4.00%			$959,317	
	ROM Estimated Extra Construction Cost Alternative-2				**$24,942,230**	

3	**ESTIMATED COST : PROPOSED CURRENT ALIGNMENT** **12' Wide, 12" thk soil cement Access Road -Preliminary Opinion of Probable Construction Cost:**	**$240,832**	**(Ref: Task B-Potrero Canyon Park Design Services)**

APPENDIX D:

Guideline Documents:

1. United States Accessibility Guidelines:
    - Americans with Disabilities Act (ADA)
    - Architectural Barriers Act (ABA Standards)
2. Potrero Canyon Improvement Plans