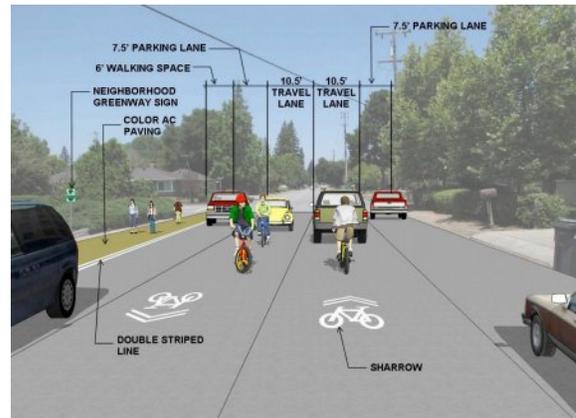

Four Cities Coordinated Stevens Creek Trail Feasibility Study



Prepared for:
**Cities of Sunnyvale, Cupertino,
Los Altos, Mountain View and
Santa Clara Valley Water District**

In conjunction with:
**Four Cities Working Team
Citizens Working Group**

March 2015

Four Cities Coordinated Stevens Creek Trail Feasibility Study

Prepared for:
**Cities of Sunnyvale, Cupertino,
Los Altos and Mountain View with
Santa Clara Valley Water District**

In conjunction with:
**Four Cities Working Team
Citizens Working Group**

Prepared by:
**Sokale Environmental Planning
Hill Associates
Mark Thomas & Company
Fehr and Peers
Cotton, Shires and Associates**

March 2015

Joint Cities Working Team

Jeannie Bruins, Councilmember, City of Los Altos
Ronit Bryant, Councilmember, City of Mountain View
Nai Hsueh, Director, District 5, Santa Clara Valley Water District
Patrick Kwok, Boardmember, District 5, Santa Clara Valley Water District*
Orrin Mahoney, Councilmember, City of Cupertino
Tara Martin-Milius, Councilmember, City of Sunnyvale
Tom Means, Councilmember, City of Mountain View*
Chris Moylan, Councilmember, City of Sunnyvale*
Megan Satterlee, Mayor, City of Los Altos*

Citizens Working Group

LaNae Avra, City of Los Altos
Judy Fulton, City of Los Altos
Rocky Gunderson, City of Cupertino
Camie Hackson, City of Sunnyvale
Gary Hedden, City of Los Altos
Ross Heitkamp, City of Mountain View
Rodney Jenny, City of Cupertino
Larry Klein, City of Sunnyvale
Anne Ng, City of Cupertino
Tim Oey, City of Sunnyvale
Jasneet Sharma, City of Mountain View
Greg Unangst, City of Mountain View

Public Agency Staff

City of Sunnyvale

Kent Steffens, Director of Public Works
Manuel Pineda, Assistant Director of Public Works
Jack Witthaus, Transportation & Traffic Manager
Patricia Lord, Senior Management Analyst*
Carla Ochoa, Traffic Engineer
Christina Uribe, Administrative Aide - Confidential

City of Cupertino

Mark Linder, Director of Parks and Recreation*
Gail Seeds, Park Restoration & Improvement Manager

City of Los Altos

Cedric Novenario, Transportation Services Manager

City of Mountain View

J.P. de la Montaigne, Community Services Director
Bob Kagiyama, Deputy Public Works Director*
John Marchant, Recreation Manager

Santa Clara Valley Water District

Chris Elias, Lower Peninsula Watershed Deputy Operating Officer*
Liang Lee, Hydraulics Unit Manager
Pat Showalter, Senior Project Manager

County of Santa Clara, Parks and Recreation Department

Jane Mark, Senior Park Planner*
Will Fourt, Park Planner

* Denotes Past Member

This page is intentionally left blank.

Lead Consultant

**Sokale Environmental Planning
Newark, California**

Jana Sokale, Principal Planner

Subconsultants

**Hill Associates, Landscape Architecture
Aptos, California**

Bruce Hill, Principal Landscape Architect

Dominic Lopez, Landscape Architect

**Mark Thomas & Company, Civil and Structural Engineering
San Jose, California**

Po Chen, Structure Division Manager

**Fehr & Peers, Traffic Engineering
San Jose, California**

Nikki Nagaya, Senior Transportation Engineer

Alexandra Sweet, Transportation Planner

Ian Moore, Senior Associate

**Cotton, Shires and Associates, Consulting Engineers and Geologists
Los Gatos, California**

Ted Sayre, Principal Engineering Geologist

David Schrier, Principal Geotechnical Engineer

This page is intentionally left blank.

Executive Summary	i
Chapter 1 – Purpose and Benefits	1
Purpose	2
Regional Setting	2
Watershed Setting	2
History of the “Stevens Creek Park Chain” Concept	3
Stevens Creek: A Plan of Opportunities	4
Regional Trail Planning Efforts	4
Past City Trail Planning Efforts	5
Current Status of Trail Development	5
Los Altos Stevens Creek Trail Feasibility Report	5
Mountain View Stevens Creek Trail, Reach 4, Segment 2 Final EIR	6
Bicycle and Pedestrian Goals and Policies of the Four Cities	6
Sunnyvale General Plan	6
Los Altos General Plan	8
Cupertino General Plan	8
Mountain View General Plan	10
Feasibility Study Goals	13
Study Methodology	14
Trail Planning Process	14
Technical Evaluations	15
Outreach to Agencies	15
Community Meetings	15
Benefits and Significance	15
Inclusion in Regional Trail Plans	17
Connections to City Parks, Recreation Facilities and Attractions	17
Transportation Benefits	17
Environmental Benefits	18
Enhancement of Natural Resources.....	18
Improved Air Quality	19
Chapter 2 – Feasibility Criteria and Existing Conditions	21
Land Availability	22
Ownership.....	22
Trail Design Guidelines	22
Top-of-Bank Width	27
Habitat Sensitivity	28
Riparian Forest	28
Oak Woodland	29
Urban Open Space	30
Special Status Species	31
Invasive Plant Species	32
Evaluation of Grade-Separations at Bridges along Stevens Creek	33
Other Grade-Separation Investigations	34
Design Criteria for On-Street Bicycle and Pedestrian Facilities	36
California Department of Transportation Highway Design Manual:	37
Chapter 1000 Bicycle Transportation Design	
Santa Clara Valley Transportation Authority Bicycle Technical Guidelines	38
AASHTO Guide for the Development of Bicycle Facilities	38
AASHTO Guide for the Planning, Design and Operation of Pedestrian Bicycle	38
Facilities	
Summary of Referenced Design Guidelines	39

TABLE OF CONTENTS

Unique Traffic Conditions	40
Bicycle and Pedestrian Collisions	40
On-Street Feasibility Summary	41
Feasibility Report Definitions	41
Engineered Structures	41
Chapter 3 – Alignment Options	47
Creek Corridor and Bernardo Paths.....	48
Connecting to Foothill.....	48
Connecting to I-280 Overpass	48
Creek Corridor Path and City Streets	50
Fremont Ave/Grant Rd Option	50
Fallen Leaf Lane Option	50
Belleville Way Option	50
Partial Creek Corridor Path to Mary Avenue	51
All City Streets	51
Chapter 4 – Pedestrian/Bicycle Paths	53
Creek Corridor Path.....	54
Location and Ownership	54
Site Analysis Summary	54
Creek Character, Plant Communities and Wildlife	54
Conceptual Alignments	55
Access to the Open Space from the North	55
Option 1 – Relocate the Soundwall	55
Option 2 – Extend Trail behind Parking Lot at Heatherstone Apartments....	55
Option 3 – Use City Streets to Mockingbird Lane	56
Crossing the Creek	56
Access from the Open Space to Fremont Avenue	58
Option 1 – Trail Underpass beneath State Route 85	58
Option 2 – Pedestrian Overcrossing to Bernardo Avenue.....	60
Option 3 – Pedestrian Overcrossing to Mountain View High School	63
Option 4 – Pedestrian/Bicycle Bridge to West Remington Drive.....	63
Bernardo Avenue Path	63
Roadway Conditions	63
Conceptual Alignment	63
Crossing State Route 85 at Homestead Road.....	64
Fallen Leaf Lane Path	64
Fremont Avenue/Grant Road Path	65
Foothill Expressway Path.....	65
Interstate 280/Foothill Expressway Interchange Modifications.....	66
Pedestrian Overcrossing at Interstate 280.....	69
Grade Separated Crossing at Stevens Creek Boulevard	70
Connection to Rancho San Antonio County Park	70
Chapter 5 – On-Street Routes	73
Study Segment 1	75
Existing Facilities	75
Feasible Facilities	75
Study Segment 2	77
Existing Facilities	77
Feasible Facilities	77
Study Segment 3.....	79

Existing Facilities	79
Feasible Facilities	79
Study Segment 4	82
Existing Facilities	82
Feasible Facilities	82
Chapter 6 – Development Challenges	83
Budget Assumptions	83
Unit Cost Estimates for On-Street Bicycle and Pedestrian Improvements.....	85
Creek Corridor Path Construction Budget Estimate.....	86
Bernardo Avenue Path Construction Budget Estimate.....	87
State Route 85 Crossing at Homestead Road Construction Budget Estimate.....	88
Foothill Expressway Path Construction Budget Estimate.....	89
Pedestrian Overcrossing at Interstate 280 Construction Budget Estimate.....	90
Staging Area and Trail Access to Rancho San Antonio County Park	91
Construction Budget Estimate	
Land Acquisitions and Easements	92
Chapter 7 – References	
Agencies Contacted	95
Bibliography	97
Appendices	
Appendix A – Summary of Meetings	
Appendix B – Summary of Studied Routes	
Appendix C – Summary of Public Comment (bound separately)	
Maps	
Map 1 – Study Area Map	2
Map 2 – Study Segment 1: Dale/ Heatherstone to Fremont Avenue Ownership Map ..	23
Map 3 – Study Segment 2: Fremont Avenue to Homestead Road Ownership Map	24
Map 4 – Study Segment 3: Homestead Road to Stevens Creek Boulevard	26
Ownership Map	
Map 5 – Study Segment 1: Dale/ Heatherstone to Fremont Avenue Habitat and	28
Land Availability Map	
Map 6 – Study Segment 2: Fremont Avenue to Homestead Road Habitat and	29
Land Availability Map	
Map 7 – Study Segment 3: Homestead Road to Stevens Creek Boulevard Habitat	30
and Land Availability Map	
Map 8 – Alignment Options Map.....	49
Map 9 – Study Segment 1: Dale/ Heatherstone to Fremont Avenue Alignments Map...	61
Map 10 – Study Segment 2: Fremont Avenue to Homestead Road Alignments Map	62
Map 11 – Study Segment 3: Homestead Road to Stevens Creek Boulevard	67
Alignments Map	
Map 12 – Study Segment 4: Stevens Creek Boulevard Connection to Rancho	68
San Antonio County Park Alignments Map	
Illustrations	
Illustration 1 – Trail underpass beneath State Route 85 north of Fremont Avenue	59
Illustration 2 – Astoria to The Dalles on Bernardo	64
Illustration 3 – The Dalles to Helena on Bernardo	64
Illustration 4 – Fallen Leaf Lane as a Signed Bike Route.....	79
Illustration 5 – Fallen Leaf Lane as a Neighborhood Greenway with Walking Space.....	79

TABLE OF CONTENTS

Figures

Figure 1 – Sunnyvale General Plan goals and polices relating to pedestrian and bicycle facilities.	7
Figure 2 – Los Altos General Plan goals and polices relating to the movement of pedestrian and bicycle facilities.	8
Figure 3 – Cupertino General Plan goals and polices relating to pedestrian and bicycle facilities.	9
Figure 4 – Cupertino General Plan goals and polices relating to trails and creeks.	10
Figure 5 – Mountain View General Plan goals and polices relating to pedestrian and bicycle facilities.	11
Figure 6 – Mountain View General Plan goals and polices relating to parks, open space and trails.	12
Figure 7 – Trail planning process.	14
Figure 8 – Summary of parks, schools and attractions within the study area.	16
Figure 9 – 1995 Santa Clara Countywide Trails Master Plan Definitions.	18
Figure 10 – Countywide Trails Master Plan Guideline G-2 – Shared Use Trail – Paved Tread Double Track.	25
Figure 11 – Top-of-Bank Land Availability Criteria.	27
Figure 12 – Wildlife species with the potential to occur within the study area.	32
Figure 13 – Summary of grade-separated crossing feasibility at existing roadway bridges along Stevens Creek.	34
Figure 14 – Summary of grade-separated crossing feasibility at other structures in the study area.	35
Figure 15 – Caltrans Bikeway Designations.	37
Figure 16 – Bicycle Lane Widths on Arterials/Collectors at a Range of Posted Speeds.	39
Figure 17 – Summary of 2008-2013 Bicycle and Pedestrian Collisions on Studied Roadways.	40
Figure 18 – Dale/Heatherstone to Fremont Avenue feasibility of studied roadways to support pedestrian and bicycle facilities for linking the Stevens Creek Trail.	43
Figure 19 – Fremont Avenue to Homestead Road feasibility of studied roadways to support pedestrian and bicycle facilities for linking the Stevens Creek Trail.	44
Figure 20 – Homestead Road to Stevens Creek Boulevard feasibility of studied arterial roadways to support pedestrian and bicycle facilities for linking the Stevens Creek Trail.	45
Figure 21 – Homestead Road to Stevens Creek Boulevard feasibility of studied residential streets to support pedestrian and bicycle facilities for linking the Stevens Creek Trail.	46
Figure 22 – Trail behind Heatherstone Apartment with reconstructed soundwall.	56
Figure 23 – Engineering solutions for constrained areas along State Route 85 soundwall.	58
Figure 24 – Grade-separated options for connecting to Fremont Avenue.	60
Figure 25 – Plan view of path parallel to Foothill Expressway.	66
Figure 26 – Cross-section of reconfigured Foothill Expressway underpass beneath Interstate 280.	66
Figure 27 – Potentially feasible pedestrian overcrossings of Interstate 280.	70
Figure 28 – Staging Area and Trail Connection Concept Plan.	71
Figure 29 – Dale/Heatherstone to Fremont Avenue existing and feasible on-street bicycle facilities.	76
Figure 30 – Fremont Avenue to Homestead Road existing and feasible on-street bicycle facilities.	78
Figure 31 – Homestead Road to Stevens Creek Boulevard existing and feasible on-street bicycle facilities on collector and arterial streets.	80
Figure 32 – Homestead Road to Stevens Creek Boulevard existing and feasible on-street bicycle facilities on residential streets.	81

Figure 33 – Unit Cost Estimates for On-Street Bicycle and Pedestrian Improvements 85
Figure 34 – Creek Corridor Path Construction Budget Estimate..... 86
Figure 35 – Bernardo Avenue Path Construction Budget Estimate..... 87
Figure 36 – State Route 85 Crossing at Homestead Road Construction Budget Estimate 88
Figure 37 – Foothill Expressway Path Construction Budget Estimate..... 89
Figure 38 – Pedestrian Overcrossing at Interstate 280 Construction Budget Estimate..... 90
Figure 39 – Staging Area and Trail Access to Rancho San Antonio County Park 91

This page is intentionally left blank.

This feasibility report explores the potential for extending the Stevens Creek Trail through the cities of Mountain View, Sunnyvale, Los Altos and Cupertino. The study evaluated the technical feasibility of developing bicycle and pedestrian facilities along approximately four miles of creek corridor and surrounding city streets. The goal of the study was to assess the feasibility of a wide range of potential alignments that could close the gap in the trail between the Dale/Heatherstone pedestrian overcrossing in Mountain View and Stevens Creek Boulevard in Cupertino.

The study area boundaries extend from Heatherstone Way to the north, Mary Avenue to the east, Grant Road to the west and to Stevens Creek Boulevard to the south. The study area also includes the open space lands along Stevens Creek Boulevard and adjacent to Rancho San Antonio County Park in Cupertino.

The four cities initiated this study and have worked collaboratively to identify options to complete the Stevens Creek Trail. Goals and policies regarding the development of the Stevens Creek Trail have been integrated into the long-range planning documents of all the cities. The trail could provide access to eleven city parks, two regional parks and open space preserves, 16 K-12 schools and DeAnza College. The trail currently connects to the San Francisco Bay Trail and the Bay Area Ridge Trail providing access to other regional open space lands. The trail also provides access to Caltrain and Light Rail in downtown Mountain View providing opportunities for multi-modal commuting.

The feasibility study determined that a variety of routes and facility types are feasible through the four cities, but challenges are associated with each alignment. This feasibility study assessed the potential for developing the routes against a variety of adopted design guidelines for bicycle and pedestrian facilities and by establishing criteria to measure land availability, habitat sensitivity and roadway and creek

crossings. The report provides decision makers with an assessment of the technical feasibility for extending the trail by identifying potential alignments and conceptual engineering solutions.

The feasibility study is the first step in a trail planning process. The feasible alignments provide a range of choices for decision makers to consider for completing the trail through the four cities. The next step would involve the development of a trail master plan, which would be evaluated under the California Environmental Quality Act (CEQA). All future trail planning and environmental review will provide opportunities for public involvement.

The study area was divided into four study segments to facilitate the presentation of the feasibility findings. The segments vary by length and begin and end at city streets. The four study segments include (*See Maps 9-12 – Alignment Maps*):

- ◆ Study Segment 1: Dale Avenue/ Heatherstone Way to Fremont Avenue
- ◆ Study Segment 2: Fremont Avenue to Homestead Road
- ◆ Study Segment 3: Homestead Road to Stevens Creek Boulevard
- ◆ Study Segment 4: Trail Connections to Rancho San Antonio County Park via Stevens Creek Boulevard

The feasibility report consists of seven chapters. An introductory page precedes each chapter and describes the specific content.

Chapter 1 – Purpose and Benefits describes the purpose, provides an overview of the study area, summarizes the history and current status of trail planning, introduces the adopted pedestrian and bicycle transportation goals and policies of the four cities, discusses the feasibility study methodology and details the significance and benefits of the trail to the community.

Chapter 2 – Feasibility Criteria and Existing Conditions describes criteria used to evaluate the feasibility for connecting the Stevens Creek Trail along city streets and through open space lands along the stream corridor. Land availability, habitat sensitivity, roadway and creek crossings were evaluated within the creek corridor. Roadway width, traffic volume and speed, roadway intersections and pedestrian and bicycle collision history were evaluated for on-street routes. This chapter also defines the types of pedestrian and bicycle facilities and engineered structures evaluated for the trail.

Chapter 3 – Alignment Options provides an introduction to the feasible alignments for completing the trail through the four cities. These alignments represent complete routes through the four cities, but do not represent every feasible segment or type of facility studied (*See Map 8 – Alignment Options Map*).

Chapter 4 – Pedestrian/Bicycle Paths details the feasible pedestrian/bicycle paths. These routes most closely approximate the trail user experience present in the constructed sections of the trail in Mountain View and Cupertino. The assessments of land availability, habitat sensitivity and roadway, creek and on-street crossing feasibilities are highlighted for each feasible alignment. These routes provide for the exclusive use of pedestrians and bicyclists and minimize roadway crossings. Pedestrian/bicycle paths are feasible both in the open space parcels along the creek and within the public right-of-way of a few streets. This chapter also describes the engineered structures needed for the routes.

Chapter 5 – On-Street Routes describes the feasible on-street bicycle and pedestrian facilities. Roadway width, traffic volume and speed, roadway intersections and pedestrian and bicycle collision history were evaluated for on-street routes to determine the opportunities and

constraints. This feasibility study reviewed a wide range of on-street routes and identifies the types of bicycle and pedestrian facilities that are feasible on each street.

Chapter 6 – Development Challenge provides unit cost estimates for constructing on-street bicycle and pedestrian facilities and preliminary budget estimates for constructing pedestrian/bicycle path segments. This chapter also identifies six areas along the pedestrian/bicycle path alignments where acquisition of land or easements would facilitate construction.

Chapter 7 – References identifies reports, plans, studies, databases, ordinances, maps and record drawings reviewed in the preparation of the feasibility report. This chapter also identifies all persons contacted during the study.