

CITY OF ALISO VIEJO
**STREETS AND TRAILS
AMENITIES**

**MASTER PLAN
SUMMARY REPORT**

September 14, 2005 Draft
October 24, 2005 revised
November 14, 2005 revised
November 29, 2005 revised
January 26, 2006 revised
March 14, 2006 revised
April 5, 2006 revised

Prepared for:

City of Aliso Viejo
12 Journey, Suite 100
Aliso Viejo, CA 92656

Prepared by:

RJM Design Group Inc.
31591 Camino Capistrano
San Juan Capistrano, CA 92675



LIST OF FIGURES

Fig. 1: Location map for the City of Aliso Viejo.....	11	Fig. 42: Major and Minor Entries, and Special Intersections.....	44
Fig. 2: Aliso Viejo City Boundary.....	12	Fig. 43: Plan view of major entry enhancement - Aliso Creek Road.....	45
Fig. 3: Aliso Viejo Residential Land Use Designations.....	13	Fig. 44: Section A - Major entry enhancement.....	45
Fig. 4: Aliso Viejo Commercial Land Use Designations.....	14	Fig. 45: Section B - Major entry enhancement.....	45
Fig. 5: Aliso Viejo Open Space Land Use Designations.....	15	Fig. 46: Section C - Major entry monument.....	45
Fig. 6: Conservation/Open Space Policy Map.....	16	Fig. 47: Plan view of prototypical minor entry.....	46
Fig. 7: Aliso Viejo Major Destinations with 0.5 Mile Walkability Radius.....	17	Fig. 48: Section/Elevation view of prototypical minor entry.....	46
Fig. 8: Aliso Viejo Schools with .25 and 0.5 Walkability Radius.....	18	Fig. 49: Cross-section view of prototypical minor entry.....	46
Fig. 9: Aliso Viejo Parks, Open Space, Major Destinations and Schools.....	19	Fig. 50: Plan view of intersection enhancements.....	47
Fig. 10: Existing Roadways within Aliso Viejo.....	20	Fig. 51: Elevation view of Intersection enhancement.....	47
Fig. 11: Existing Bus Stops and Routes within Aliso Viejo.....	21	Fig. 52: Suggested paving enhancements.....	48
Fig. 12: Existing Bikeways within Aliso Viejo.....	21	Fig. 53: Suggested lighting elements and bollards.....	49
Fig. 13: Existing Pathways and Trails.....	21	Fig. 54: Bus stops and routes.....	50
Fig. 14: Existing Pathways, Trails, Bikeways, Bus Routes and Roadways.....	21	Fig. 55: Conceptual illustration of a prototypical bus shelter.....	51
Fig. 15: Circulation Paths with Major Destinations, Schools and Open Space.....	22	Fig. 56: Elevation of a prototypical bus shelter.....	51
Fig. 16: Participants in the "Taking Part" Workshop.....	24	Fig. 57: Existing restroom facilities at Community Parks.....	52
Fig. 17: Participants in the "Taking Part" Workshop during the planning process.....	25	Fig. 58: Consensus Plan of Trails with Potential Trail Connections.....	54
Fig. 18: Participant presenting their group ideas during the workshop.....	26	Fig. 59: Potential trail connection at Hollyleaf.....	55
Fig. 19: Participants presenting their group plans during the workshop.....	27	Fig. 60: Potential trail connections at Canyon Vista Park and Peppertree.....	55
Fig. 20: Group 1 Plan.....	28	Fig. 61: Potential trail connection at Soka University of America.....	55
Fig. 21: Group 2 Plan.....	29	Fig. 62: Potential pedestrian bridge at Aliso Niguel High School.....	55
Fig. 22: Group 3 Plan.....	30	Fig. 63: Potential pedestrian passageway under Aliso Viejo Parkway.....	55
Fig. 23: Program amenities suggested by the "Taking Part" Workshop.....	31	Fig. 64: Potential trail connection along west end of SCE Easement.....	55
Fig. 24: Consensus Plan of Workshop Groups.....	32	Fig. 65: Artist's concept of pedestrian passageway under Aliso Viejo Pkwy.....	56
Fig. 25: Conceptual Master Plan.....	34	Fig. 66: Plan view Citrus Orchard/Garden Trail.....	56
Fig. 26: Section - Collector Roadways.....	37	Fig. 67: Logos for Thematic Trails throughout Aliso Viejo.....	57
Fig. 27: Existing Prototypical Collector.....	37	Fig. 68: Proposed Thematic Loop Trails.....	58
Fig. 28: Alternative A Collector.....	38	Fig. 69: Prototypical multi-use rural character trail.....	59
Fig. 29: Alternative B Collector.....	38	Fig. 70: Italian Stone Pine - one of the speciality trees.....	59
Fig. 30: Alternative C Collector.....	38	Fig. 71: Prototypical benches and trash receptacles.....	60
Fig. 31: Section - Secondary Roadway.....	39	Fig. 72: Prototypical community center bike rack.....	61
Fig. 32: Existing Prototypical Secondary Roadway.....	39	Fig. 73: Prototypical street bike rack.....	61
Fig. 33: Alternative A Secondary.....	40	Fig. 74: Prototypical bus bike rack.....	62
Fig. 34: Alternative B Secondary.....	40	Fig. 75: Prototypical bus shelter with bicycle lockers.....	62
Fig. 35: Section - Primary and Major Roadways.....	41	Fig. 76: Prototypical long-term bicycle lockers.....	62
Fig. 36: Existing Prototypical Primary Roadway.....	41	Fig. 77: Town Center Thematic Trail Loop Enhancement.....	66
Fig. 37: Offset Median.....	42	Fig. 78: Prototypical pedestrian/cyclist enhancement.....	67
Fig. 38: Alternative A Primary.....	42	Fig. 79: Artist's concept of prototypical bus stop enhancement.....	68
Fig. 39: Alternative B Primary.....	42	Fig. 80: Artist's concept of pedestrian/cyclist enhancement.....	69
Fig. 40: Prototypical dimensions for street enhancements.....	43	Fig. 81: Example of a color coated bike lane.....	69
Fig. 41: Prototypical bioswales.....	43		

EXECUTIVE SUMMARY	7
Purpose.....	7
Planning Principles.....	7
Process.....	7
Concepts.....	8
INTRODUCTION	9
History.....	9
Authority.....	9
Report.....	9
EXISTING CONDITIONS	11
Location.....	11
Urban Form.....	12
Land Use.....	12
Destinations and Walkability.....	17
Circulation.....	20
THE WORKSHOP PROCESS	24
Workshop Activities.....	25
Overview of Workshop Results.....	26
Design Charette - Group Plans.....	27
Consensus Plan.....	31
MASTER PLAN CONCEPT	34
Master Plan Concept.....	35
Streetscape Recommendations.....	37
Trails and Greenway System.....	53
Amenities and Features.....	60
Potential Projects.....	63
Amenity Matrix.....	64
Project Priority Methodology.....	65
Ranking.....	65
Proposed Town Center Project - Phase 1.....	67
Funding.....	70
APPENDIX	71
Community Workshop Summary.....	72
Traffic Calming Strategies and Devices.....	77
Bus Shelters.....	78
Community Gardens.....	80
Public Art.....	81
Pedestrian Walkways and Hiking Trails.....	82
Trail Signage.....	83
Bikeways, Bike Paths and Bike Trails.....	85
Bike Security / Bike Racks / Bike Lockers.....	88
City of Aliso Viejo Landscape Plant Palette.....	90
Preliminary Opinion of Probable Construction Costs.....	91



This page left intentionally blank

This report describes the existing conditions, the process used to reach the proposed recommendations, and the proposed improvements for Aliso Viejo Streets and Trails Amenities, to help create an environment that is safe and friendly for pedestrians and bicyclists.

PURPOSE

The purpose of this study is to develop alternative concepts to enhance the streets and trails throughout Aliso Viejo so that the city can become a more walkable and livable community, in addition to aesthetically enhance the existing street system. Walkable communities are desirable places to live, work, learn, and play, and, therefore, a key component of smart growth. Their desirability comes from three factors. First, walkable communities located within an easy and safe walk goods (such as housing, offices, and retail) and services (such as transportation, schools, libraries) that a community resident or employee needs on a regular basis. Second, by definition, walkable communities make pedestrian activity possible, thus expanding transportation options and creating a streetscape that better serves a range of users — pedestrians, bicyclists, transit riders, and automobiles. Third, walkable communities improve their identity and aesthetics through landscape and streetscape elements. The City Council has already taken action to adopt the General Plan policy guidelines; Street Median Program; Bikeway Master Plan; and a Multi-Use Trail and Greenways Master Plan, to attain the goals of a walkable and more livable community. This Streets and Trails Amenities Master Plan will encompass those projects for an overall community wide master plan.

PLANNING PRINCIPLES

The following planning principles have been identified to guide the development of conceptual studies, streetscapes, and trail design concepts:

- Provide safe, functional, aesthetic design. The amenities provided in the project area should respond to stakeholder input, environmental context, and functional intent.
- Develop recommendations, which will enhance and support pedestrian and bicycle linkages to existing “destination” land uses in the community.
- Utilize existing site resources where feasible.
- Develop City Design Standards appropriate for public facilities.

PROCESS

The development of streetscapes and trail concepts and amenities was based on the compilation of data from a detailed analysis of existing documents and site conditions, the “Taking Part” Community Workshop, staff input, and council review. During the workshop held on June 23, 2005, background information about the community was reviewed, a site awareness tour was conducted, issues were discussed, and a planning charette accomplished. A detailed description of the process is included in the Appendix of this report.

In addition, the results of the workshop were presented to the City Council for feedback on four topics: (1) Trail Network and Linkages; (2) Streetscape Concepts; (3) Thematic Trail Concepts; and (4) Citywide



Streetscape and Trail Amenities/Features. The Council responded with several suggestions which are addressed within this report.

CONCEPTS

In general the Development Concepts include a trail network with proposed pedestrian/bikeways, enhanced existing pedestrian/bikeways, trail identification, trailheads, site amenities, thematic concepts, public art, bus shelter design, landscape maintenance standards, and trail standards. The following recommendations with respect to general planning principles and site-specific factors were developed:

- The streetscape and trail facilities should be tailored to the needs of the community as indicated by current and historic uses as well as input from staff, council, and the “Taking Part” Workshop process.
- Unique site characteristics should be preserved and enhanced as the project is developed. The design should be particularly responsive to the existing topography, drainage, vegetation, views, habitat, etc.
- Consider topographic features, “natural” and man-made corridors and vista opportunities to enhance trail experience (as potential themes).
- The architectural theme of various structures such as, bus shelters, public restrooms should provide a unifying element and fit the environmental context.
- Bicycle and pedestrian circulation routes should be designed to fit into the existing “fabric” and environmental context of the community.
- Outdoor furniture, fencing, security lighting, etc., should be carefully selected to be vandal resistant, low maintenance, compliment selected design themes, and utilize sustainable materials.
- Landscaping and lighting fixture design and placement should mitigate light spill onto adjacent areas. Security lighting for walkways should be designed to meet the current “open space” standards of sensitivity and promote habitat value.
- Landscape treatment should be appropriate to the climatic conditions of the region.
- Emergency vehicular access should be accommodated where appropriate.
- A variety of sign types should be considered for use along the trail to enhance the users’ experience and ability to navigate trails as well as provide a safe environment.
- Themes have emerged from the process that are intended as a tool to promote public interest.
- Educational efforts will focus on fostering stewardship and enhance the trail experience. The goal is to provide a focused educational presentation for all ages and users about local culture, history, and environment.

HISTORY

Aliso Viejo was originally part of the 22,000-acre Moulton Ranch. The Moulton family took title in the 1890's to land originally granted to Juan Avila by the Mexican government in 1842. In 1976, the Mission Viejo Company purchased the last 6,600 acres for a new planned community that is now part of the City of Aliso Viejo. The first residential units were offered in March of 1982 and the first residents arrived in November of the same year.

Aliso Viejo became Orange County's 34th city on July 1, 2001, the first planned community in Orange County, and began with 7,600 residents in 1990. By 2000, the population expanded by 32,000 residents, making it the fastest growing city in Orange County.

Surrounding Aliso Viejo on three sides is the 3,400-acre Aliso and Wood Canyons Wilderness Park. It is home to over 90 species of birds and provides miles of hiking and biking trails, a fresh-water stream and marsh, scenic canyons, rock formations as well as mature sycamore and oak groves.

In response to the dynamics of rapid growth and meeting changing needs of the community, a review and evaluation of the potential to enhance bicycle and pedestrian circulation through the development of a streets and trails amenities master plan was determined.

AUTHORITY

In January 2005, the City of Aliso Viejo entered into an agreement with RJM Design Group, Inc. to facilitate a community process (including a site awareness tour, individual and small group sessions, and a planning charette), and prepare a Streets and Trails Amenities Master Plan. This report incorporates discussion, evaluation, and the recommendations for streets and trails amenities for Aliso Viejo.

REPORT

This report identifies streets and trails amenity needs; alternative solutions to facility requirements; and recommended actions that will support the city's vision of an enhanced walkable and bikeable community. In addition, the suggested improvements will enhance the city's multi-modal system of roadways, sidewalks, trails and bikeways safely linking together major community activity centers and enhance the city's identity and character.



This page left intentionally blank

LOCATION

Aliso Viejo contains approximately seven square miles of land (4,430 acres) and is located in south Orange County four miles from the Pacific Ocean. Figure 1 shows the location of Aliso Viejo within the region. The community is divided by the San Joaquin Hills Transportation Corridor (SR-73) which extends to the northwest connecting Aliso Viejo to cities such as Costa Mesa, Irvine, and Newport Beach, and to the southeast connecting to San Juan Capistrano and offering access to San Diego County. The city is bordered on the west by Laguna Beach, on the east by the Cities of Laguna Niguel and Laguna Hills, and on the north by the City of Laguna Woods.

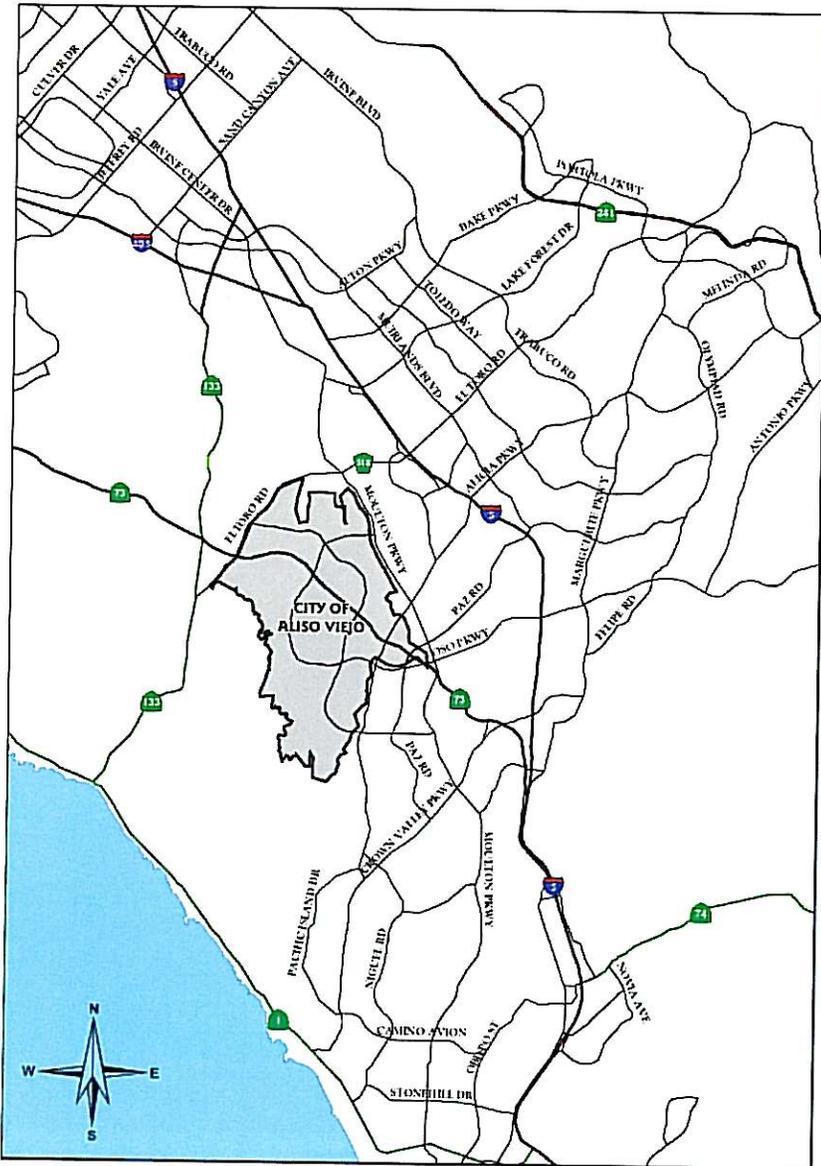


Figure 1: Location map for the City of Aliso Viejo

The planning area for the Aliso Viejo Streets and Trails Amenities consists solely of areas within the city limits approved at the time of incorporation in 2001. As all of the land surrounding the City is under the jurisdiction of other cities and the county, Aliso Viejo does not have a sphere-of-influence to be addressed by future development plans. The study area included evaluations of important connections to local parks and the county regional wilderness area surrounding the community.



URBAN FORM

The city's urban form is defined by varied topography and the concentration of intense uses surrounding Aliso Viejo Town Center, with less intense uses radiating from this central core. These combined features give the city an attractive, diverse appearance as citizens drive, walk, or bike through the community. They also characterize the visual form of the community as viewed from San Joaquin Hills Toll Road, Aliso Viejo Parkway and other major thoroughfares. Maintaining this unique form and enhancing physical connections for pedestrian and cyclists between the central core and outlying areas are important priorities for the city. High-speed vehicular traffic corridors throughout the city lack facilities for pedestrians and diminish the quality of life for communities through which they pass. A new approach to roadway design, called traffic calming, is gaining acceptance in the United States; in other countries such as Europe and Canada it has a thirty-year track record. Traffic calming originated from safety concerns; it also has significant potential to reduce environmental damage from roads.

The challenge for transportation planners, highway engineers, and bicycle and pedestrian user groups is to balance their competing interest in a limited amount of right-of-way. In addition, develop a transportation infrastructure that provides access for all and safety in equal measures for each mode of travel.

From this information some of the primary elements reviewed during the research and analysis of the community included designated bicycle routes, trails, bus routes, and major streets.

LAND USE

Aliso Viejo is fortunate to have good shopping and entertainment options for residents and visitors alike, as well as a large, relatively new supply of housing. city businesses also have the opportunity to benefit from a large number of visitors associated with several corporations that have located national or international headquarters in Aliso Viejo.

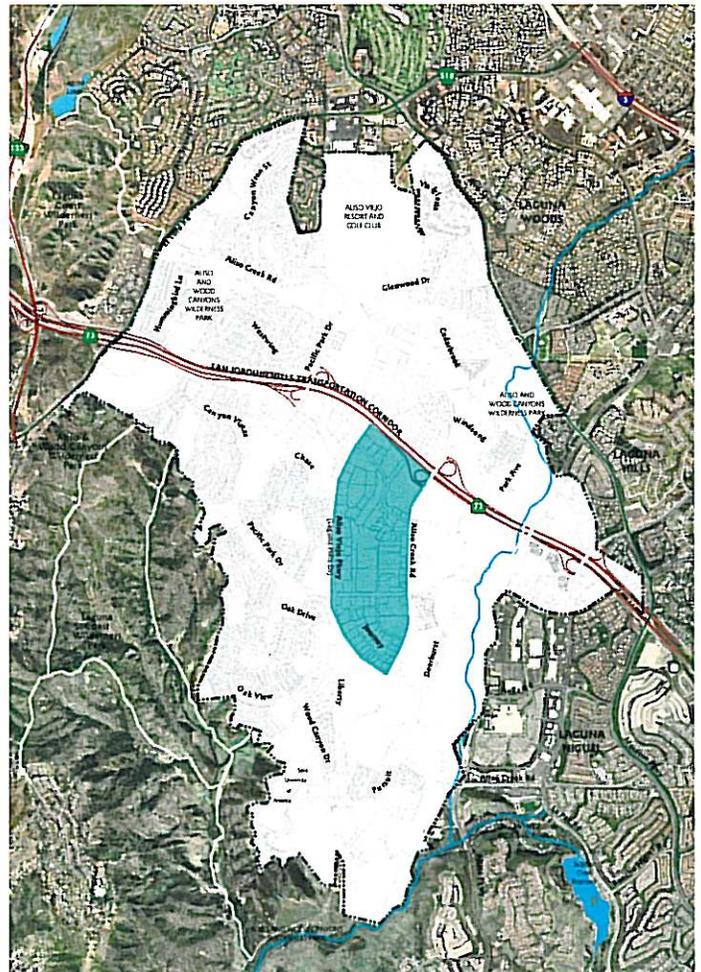
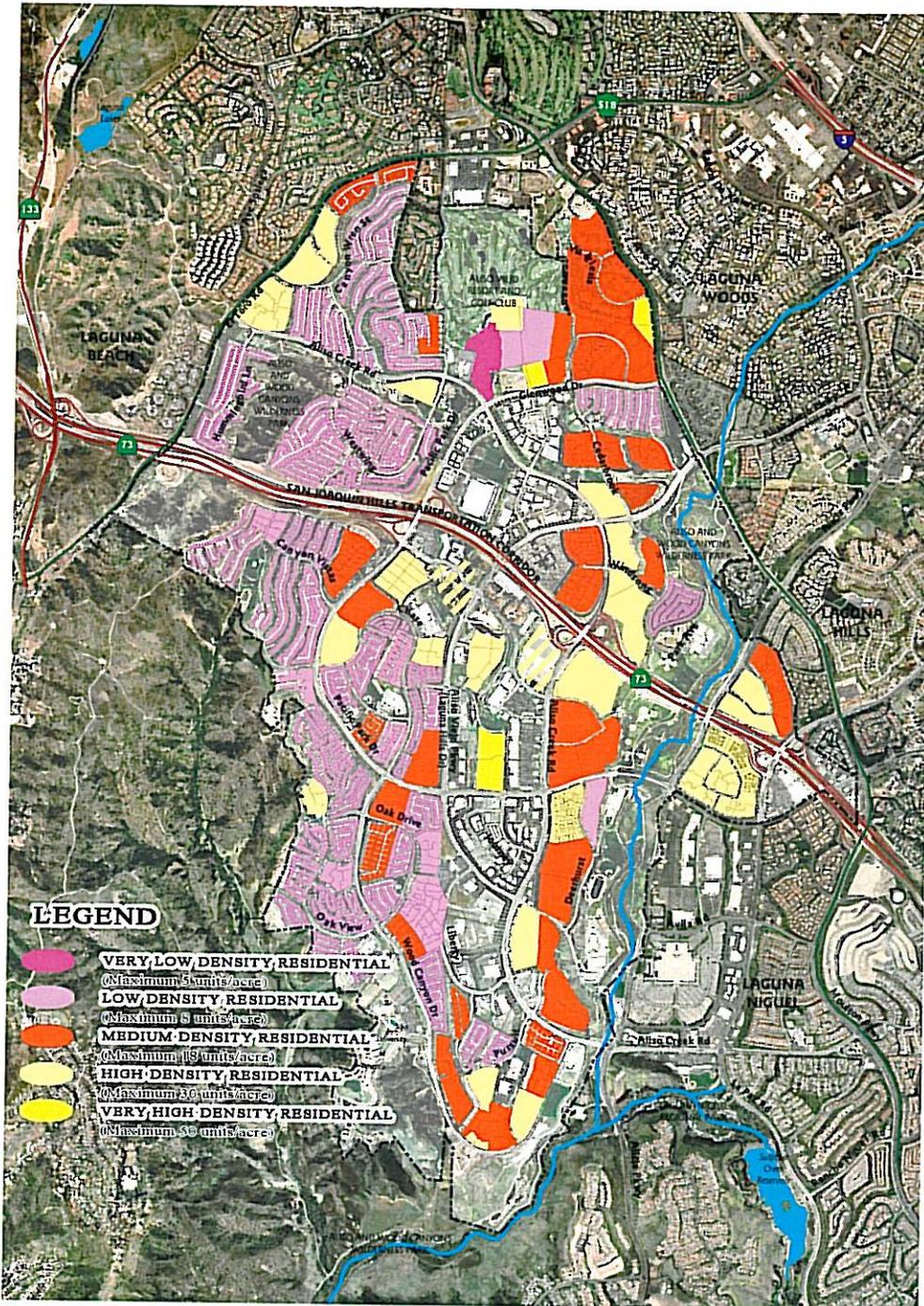


Figure 2: Aliso Viejo City Boundary



Residential Land Use
Higher density multiple-family dwelling units and senior housing are located primarily within the Aliso Viejo Town Center and along Moulton Parkway in the northeast portion of the city. Decrease in housing density radiates from the Town Center.

Figure 3: Aliso Viejo Residential Land Use Designations¹



Commercial, Industrial, and Professional Land Use

Town Center provides a mixture of uses including: community retail and commercial services, theaters, art galleries and entertainment facilities, hotels/motels and restaurants, recreation and community facilities. Commercial land uses vary throughout the community from recreation commercial to light industrial to professional office land use.

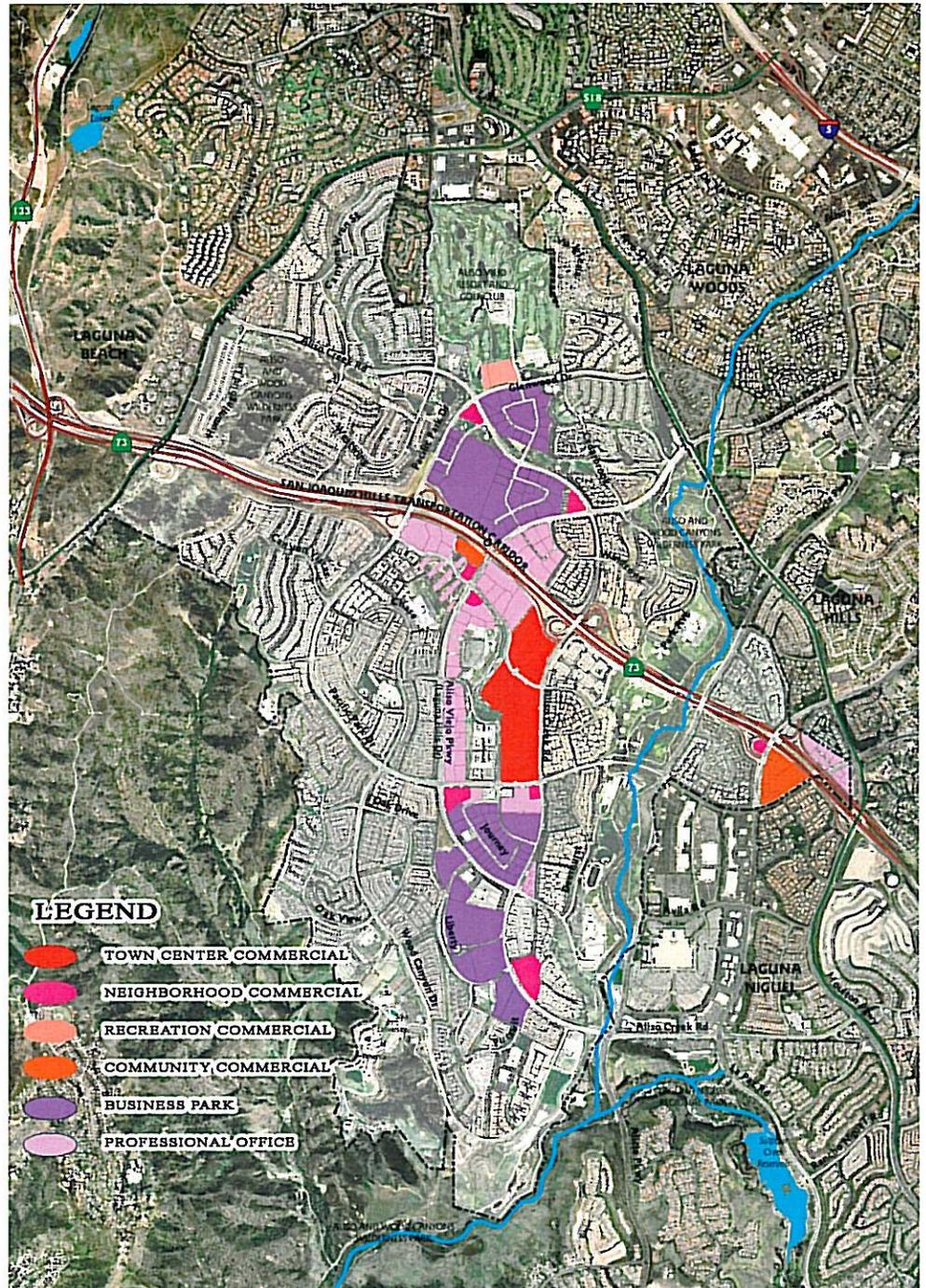


Figure 4: Aliso Viejo Commercial Land Use Designations²

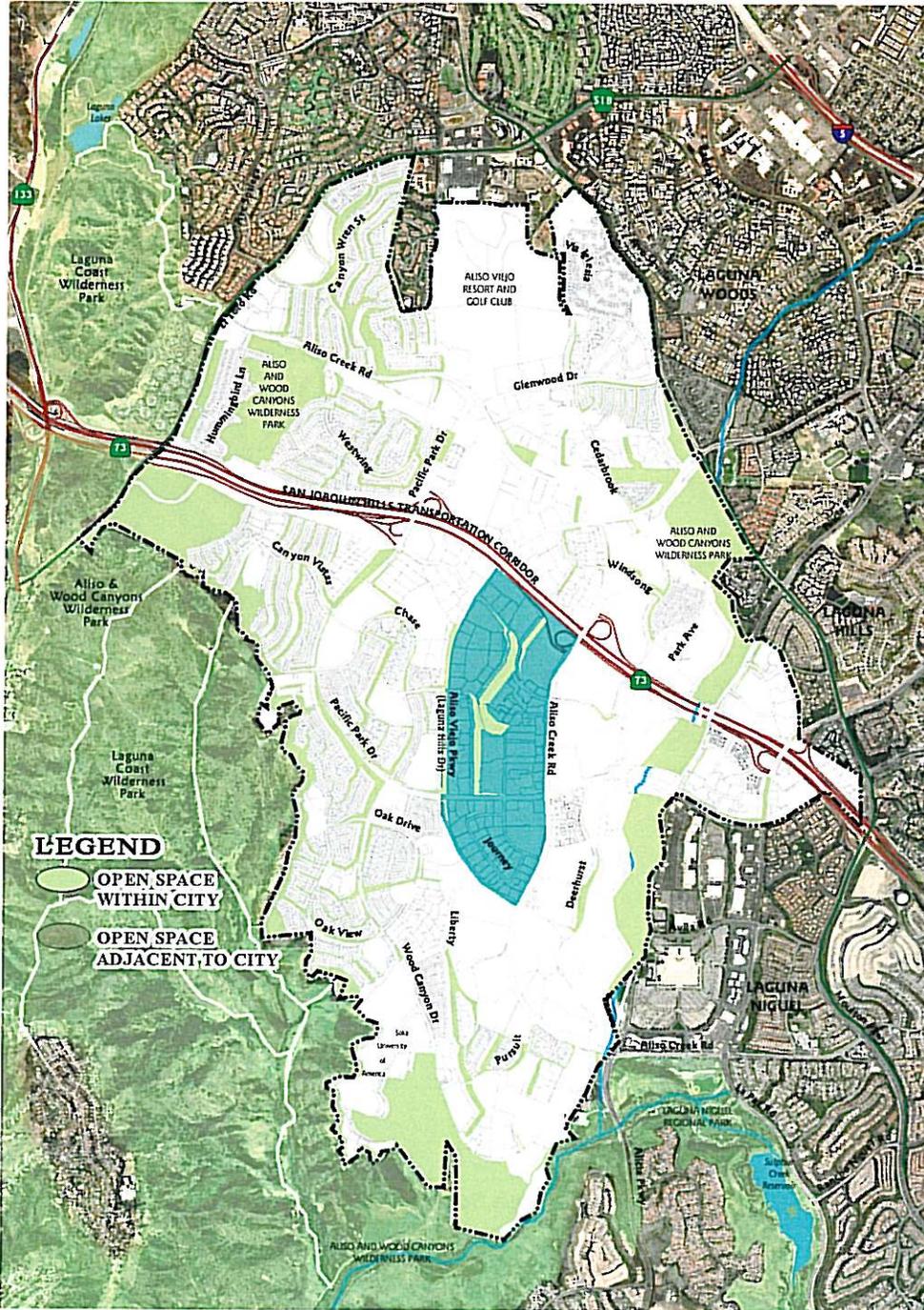


Figure 5: Aliso Viejo Open Space Land Use Designations³

Open Space
 The Open Space designation provides open space for outdoor recreation, buffering of incompatible land uses, preservation of natural resources, management of those resources and protection of health and public safety. Areas designated as Open Space include: streams and washes, open space easements, and other private and public open space. In addition, Aliso Viejo is adjacent to two major regional parks: Laguna Coast Wilderness Park and Aliso and Wood Canyons Wilderness Park. Aliso Viejo does not have an abundance of vacant undeveloped land. Those few opportunities that do remain are extremely important components of the future vision of the community.



Scenic Qualities

Public and private portions of Aliso Viejo bordering the Aliso and Wood Canyons Wilderness Park are situated with beautiful viewsheds or scenic overlooks of the canyons. The unique character and aesthetic qualities of these canyons make preservation of these viewsheds an important consideration. The Local Coastal Program also requires protection of viewsheds along the western edge of the city. In addition, several city roadways have been designated Scenic Highways and are depicted on the Conservation/ Open Space Policy Map.

The criteria for designating scenic roadways are as follows:

Viewscape Corridor - A route that traverses a corridor within which unique or unusual scenic resources and aesthetic values are found. This designation is intended to minimize the impact of the highway and land development upon significant scenic resources along the route.

Landscape Corridor - A corridor that traverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement.⁴

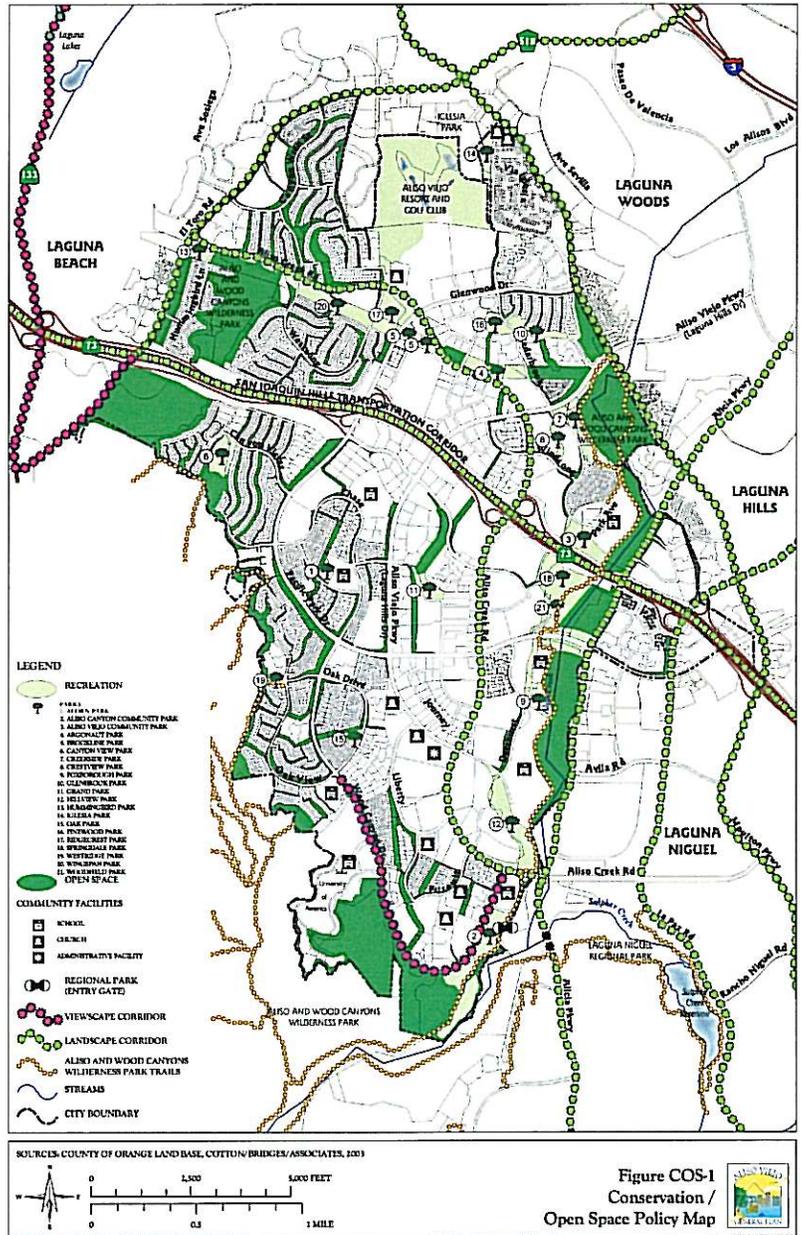
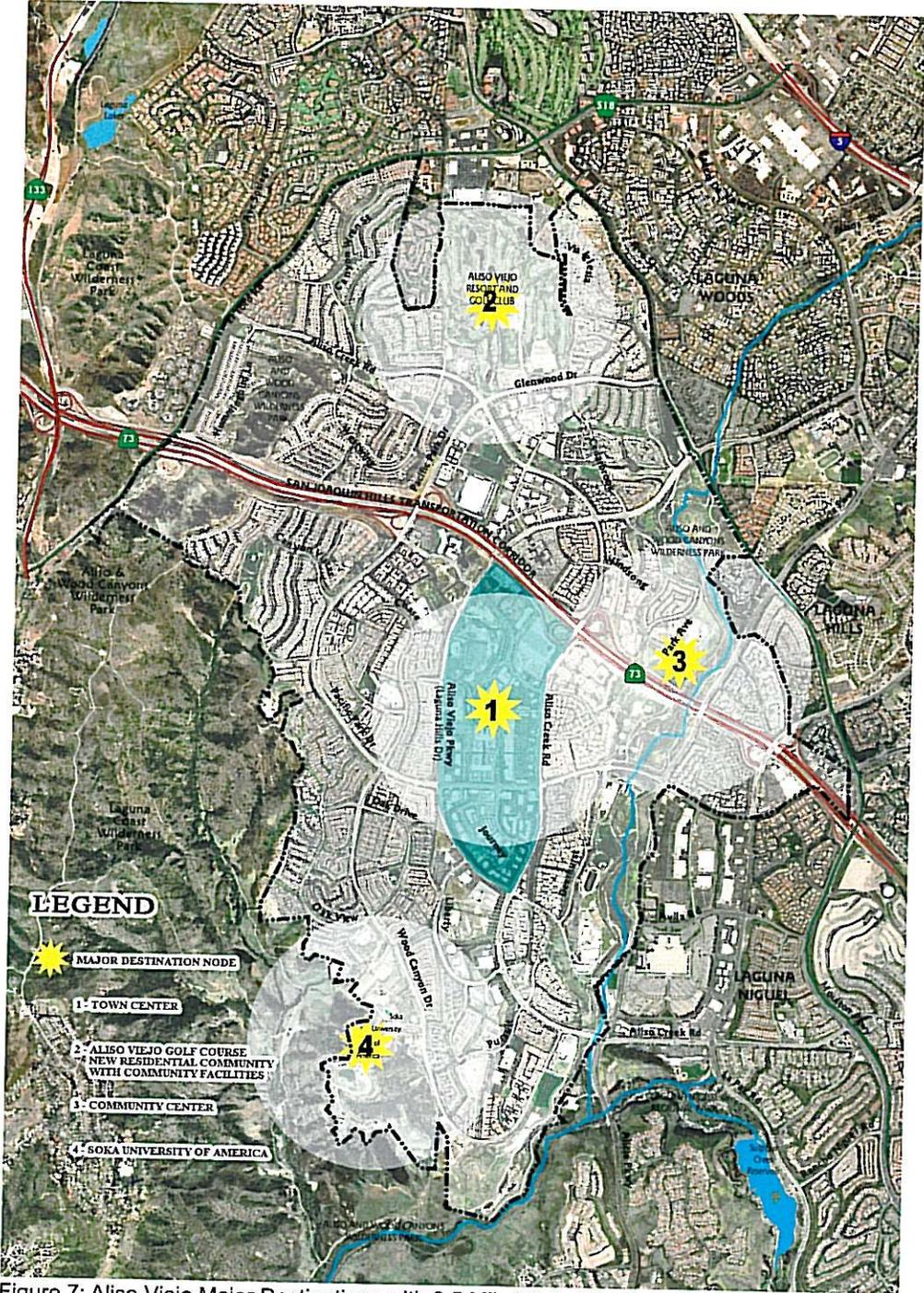


Figure 6: Conservation/Open Space Policy Map showing Viewscapes and Landscape Corridors⁵

CONSERVATION/ OPEN SPACE ELEMENT



Destinations and Walkability
Within the city four major destination nodes have been identified: (1) Town Center; (2) Aliso Viejo Golf Course, which includes a new residential community with future aquatic community facilities; (3) the future Ranch Community Center; and (4) Soka University of America. The viable walkability to these destinations is identified by a 0.5 mile radius.

Figure 7: Aliso Viejo Major Destinations with 0.5 Mile Walkability Radius



Schools

City residents are served by three school districts: Capistrano Unified School District, Saddleback Valley Unified School District, and Laguna Beach Unified School District. One-half (0.5) mile is approximately a 20-minute walk for most healthy adults. It is generally considered a significant threshold in distance, beyond which some segments of the population will tend to decline walking opportunities. Hence, for most of Aliso Viejo, .5 mile will be the service area distance goal. However, for a variety of walking abilities, age groups, and steep topography, a smaller service area radius of 0.25 miles is considered. Therefore, the walkability to elementary schools is also indicated by a 0.25 mile (for young children) as well as a 0.5 mile radius.

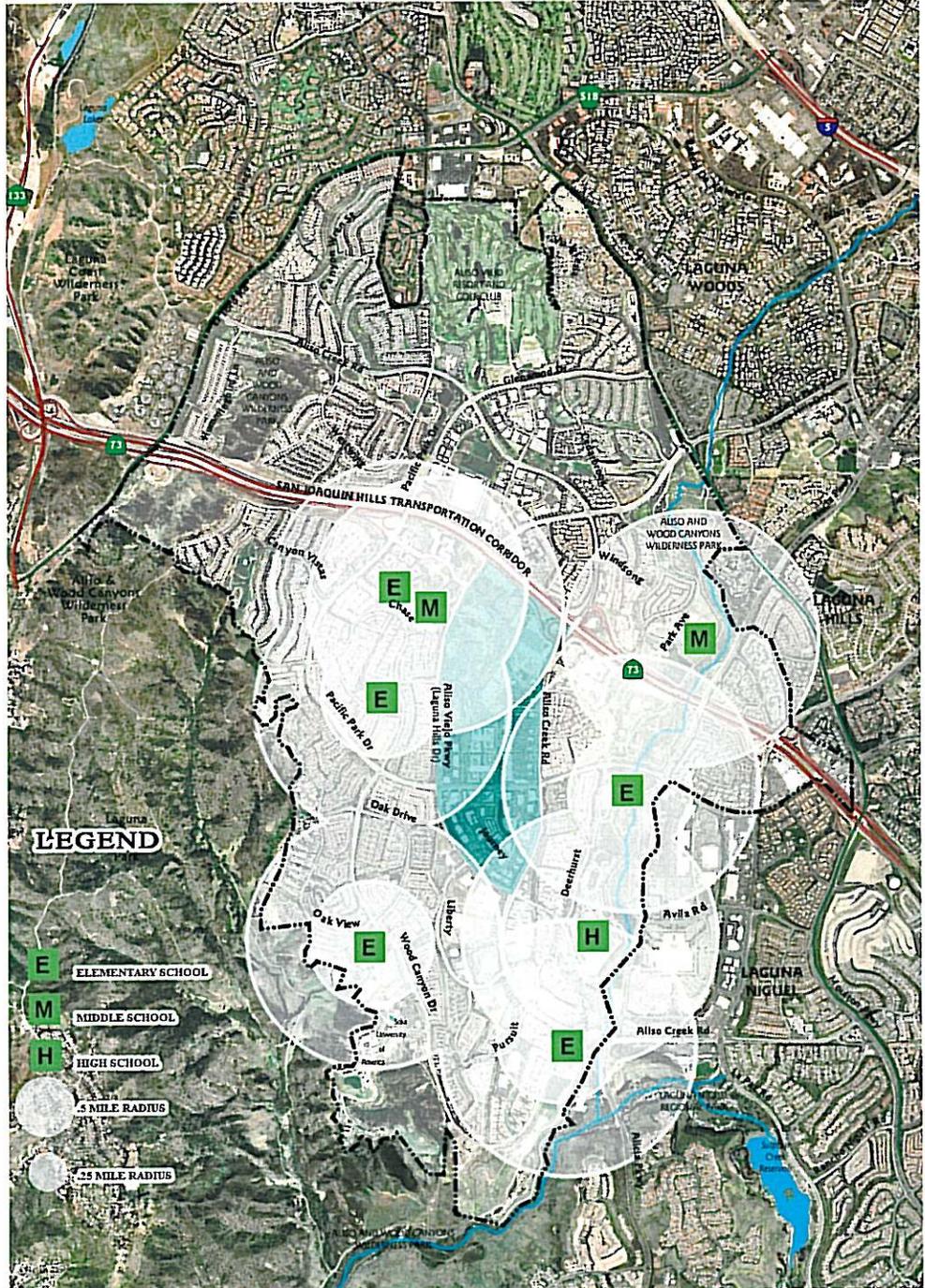


Figure 8: Aliso Viejo Schools with .25 and 0.5 Mile Walkability Radius

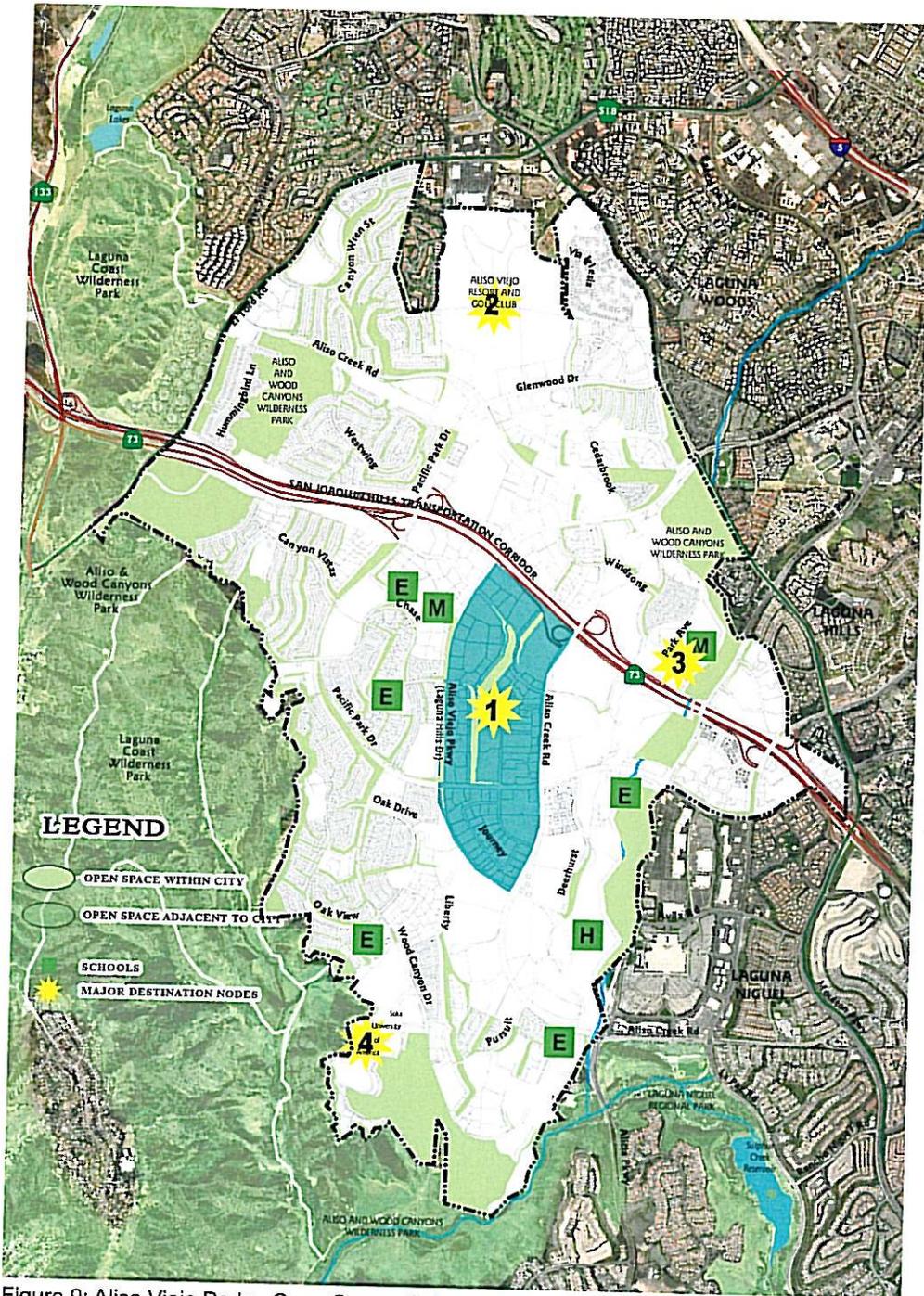


Figure 9: Aliso Viejo Parks, Open Space, Schools, and Major Destinations

Parks and Open Space
 Most of the recreational facilities and active parkland in Aliso Viejo were established during the development of the community. Aliso Viejo has 22 parks, with a total of 257 acres of parkland for the enjoyment of community residents. The map shows destination nodes, schools, parks and open space.

Aliso Viejo will continue to coordinate with the County of Orange to secure access easements and establish trailheads to Aliso and Wood Canyons Wilderness Park.

In addition, the city will continue to work with AVCA and the County of Orange to complete a trail connecting the city to the beach through Aliso and Wood Canyons Wilderness Park.



Circulation

Efficient and well-designed, Aliso Viejo's circulation system consists primarily of arterials and local streets. Transit service is provided by the Orange County Transit Authority (OCTA) allowing an alternative to private vehicular transportation and enabling inter-jurisdictional connections. Aliso Viejo has an extensive network of walking, hiking and biking routes taking advantage of community sidewalks and hiking trails in the adjacent regional parks (Aliso and Wood Canyons Wilderness Park and Laguna Coast Wilderness Park). The following maps indicate various existing modes of transportation within the city.

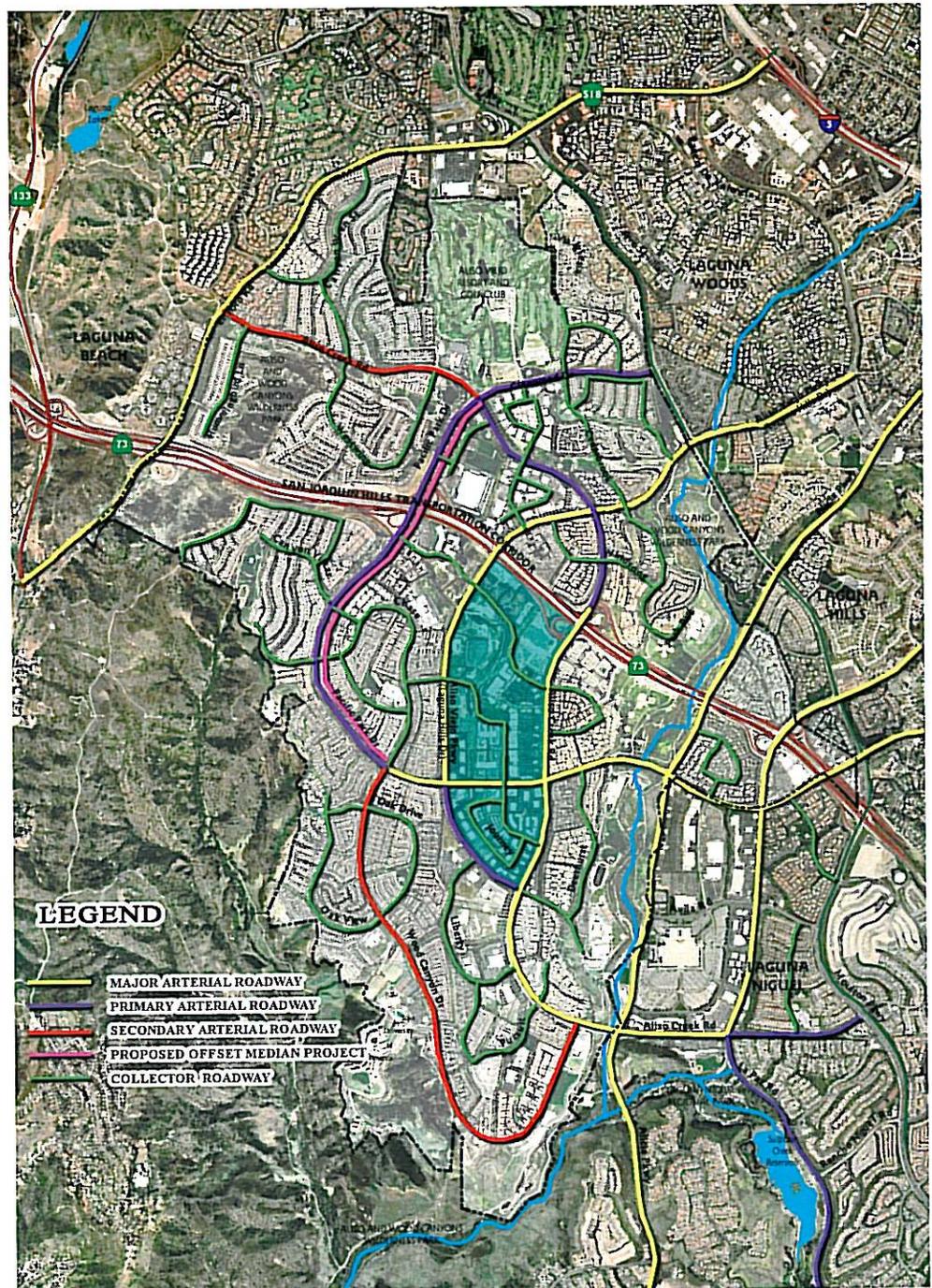


Figure 10: Existing Roadways within Aliso Viejo⁶

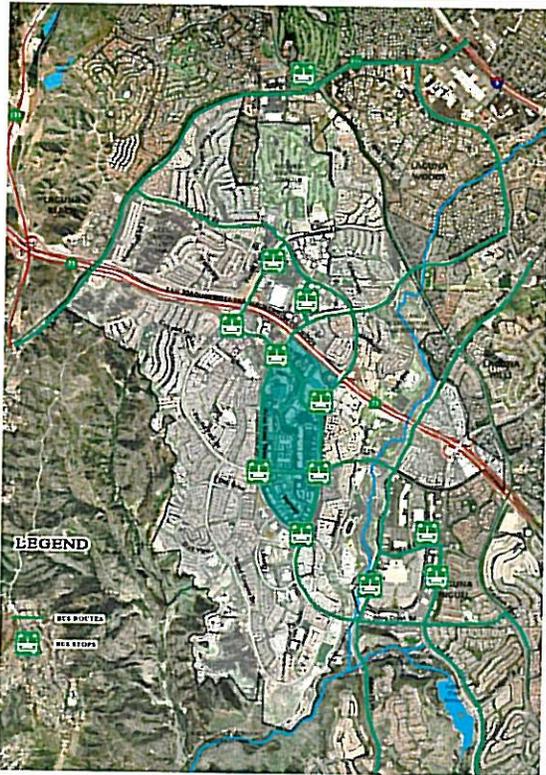


Figure 11: Existing Bus Stops and Routes within Aliso Viejo⁷

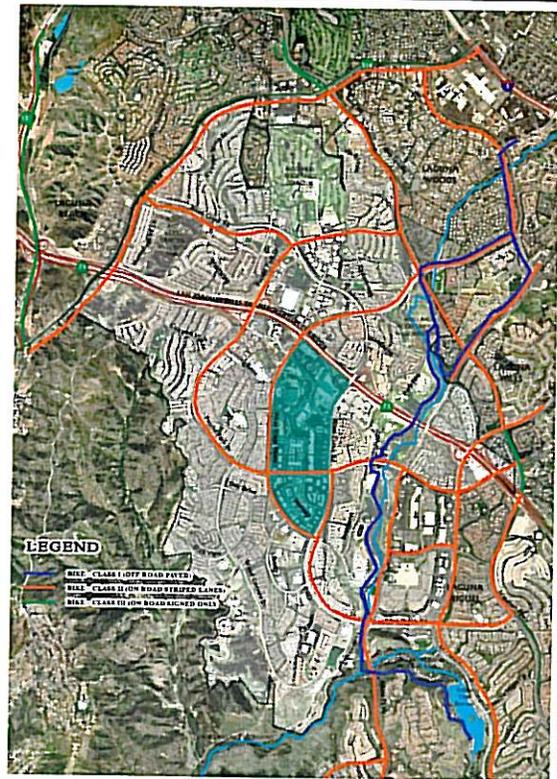


Figure 12: Existing Bikeways within Aliso Viejo⁸

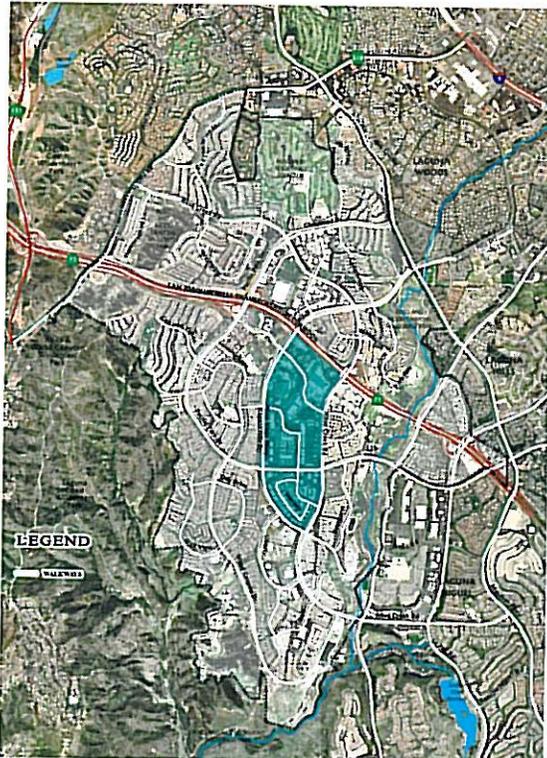


Figure 13: Existing Pathways and Trails⁹

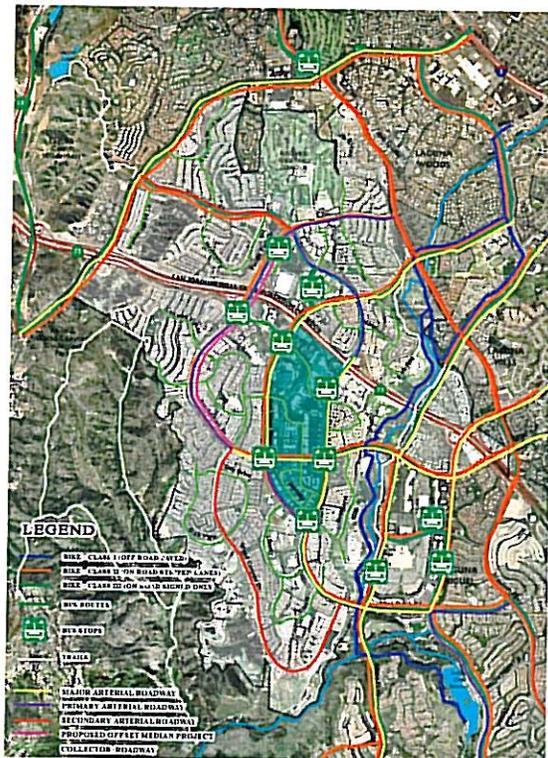


Figure 14: Existing Pathways, Trails, Bikeways, Bus Routes and Roadways¹⁰

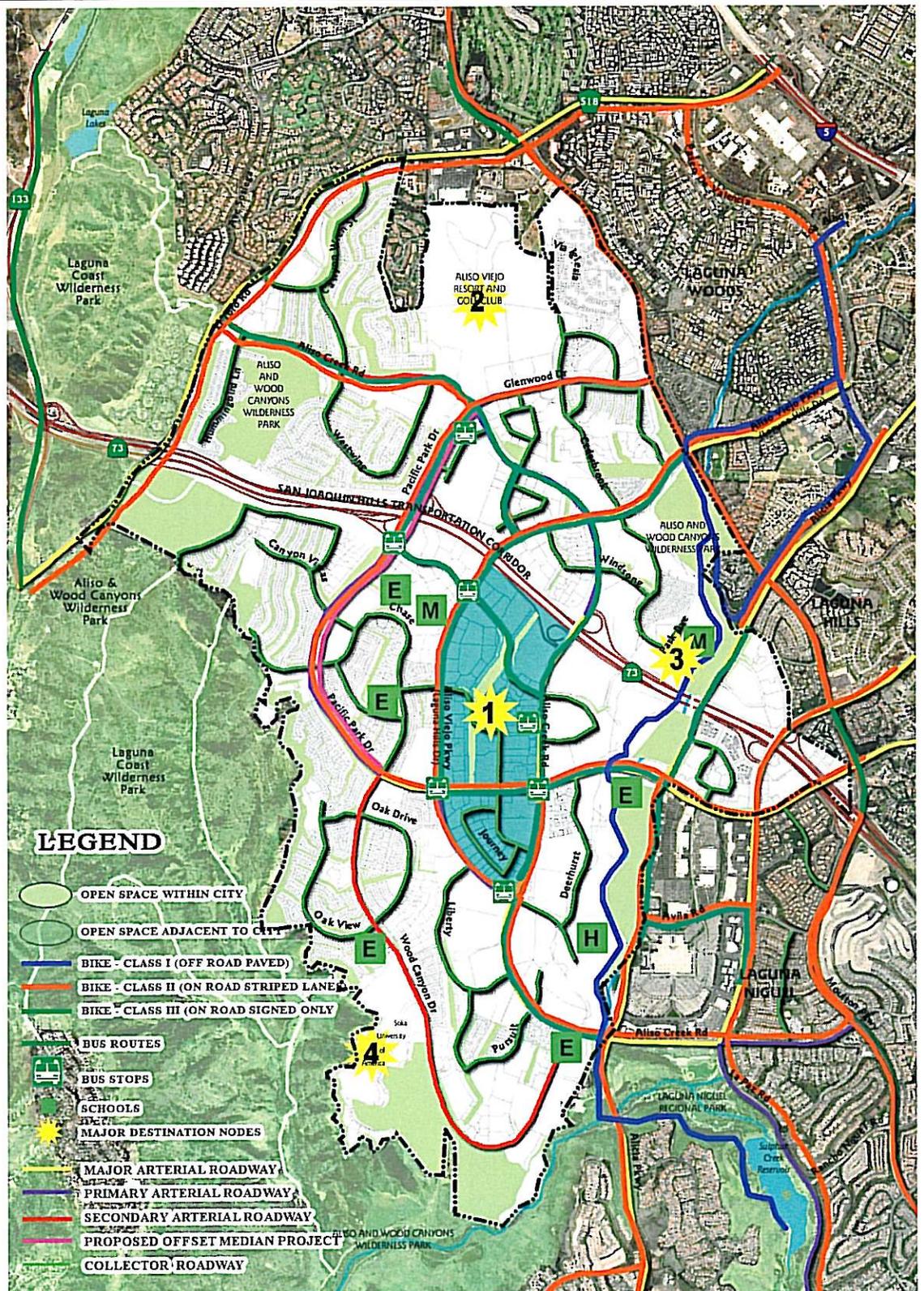


Figure 15: Circulation Paths with Major Destinations, Schools and Open Space¹¹

This page left intentionally blank

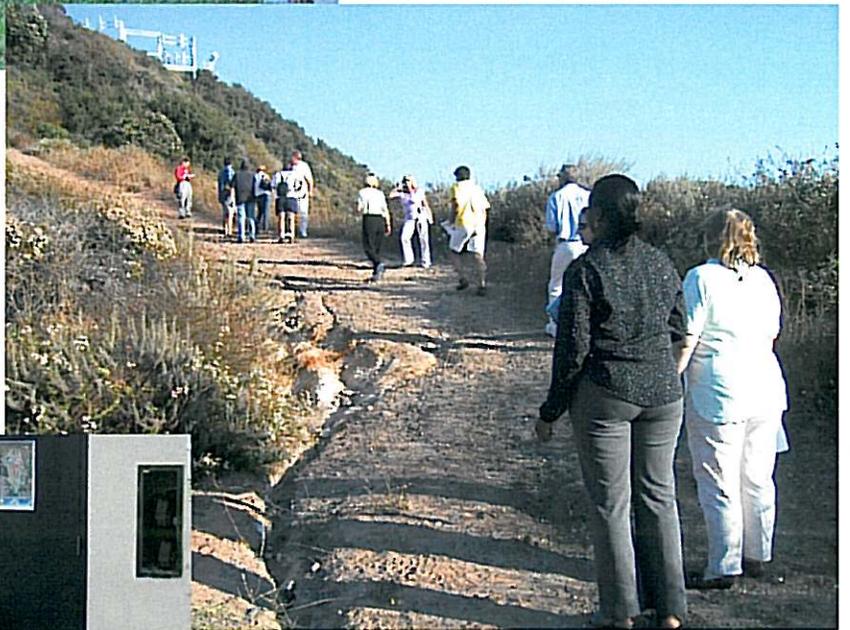


Figure 16: Participants in the "Taking Part" Workshop on the Site Awareness Tour and during workshop activities

THE WORKSHOP PROCESS

This Street and Trails Amenities Master Plan process began with research and fact finding. The project team, consisting of city staff and consultants, met initially to review the approach and methodology. Data collection began to establish a comprehensive database through a thorough review and analysis of existing pertinent information including the city's General Plan.

A detailed analysis included the entire community and adjoining land uses. The critical region of investigation focused upon areas within the city limits and effective links to regional recreation areas.

Following the initial data collection, review, and site analysis, a site awareness tour/workshop was conducted in June 2005. The objective of the Community Workshop was to meet with interested members of the community, city staff, and council to discuss the streets and trails amenities planning process and potentials. A presentation of background information and the site analysis was conducted. Input from the community was solicited through a project workbook, individual and small group exercises, and a "hands-on" design charette as to the opportunities and alternatives for present and future potential enhancements of streets and trails amenities.

Workshop Activities

After completing a site awareness walk, the workshop participants were divided into small groups to develop a list of additional elements that could be considered for inclusion, as well as a list of concerns that might influence the design and development of streetscapes and trails in Aliso Viejo. Individually the participants answered questions related to the site and collectively within each group were asked to indicate their consensus response to "Likes", "Dislikes", "Encouraging Cycling and Walking", and "Trail Linkages."

The following is a brief summary of workshop exercises (see Appendix for detail workshop information):



Figure 17: Participants in the "Taking Part" Workshop during the planning process



OVERVIEW OF WORKSHOP RESULTS

The following are the four questions discussed by community participants and the associated consensus results:

- Q1. What do you like most about the Aliso Viejo streets, trails, and pedestrian amenities you have seen on the tour?

Workshop participants indicated the top likes in Aliso Viejo are **trails, views/vistas, and parks.**

- Q2. What do you dislike most about the Aliso Viejo streets, trails, and pedestrian amenities you have seen on the tour?

Participants indicated that **lack of directional and interpretive signage, lack of shade and lack of connectivity were their top dislikes.**

- Q3. What additions, connections, or improvements do you suggest to encourage more people to walk or bicycle in Aliso Viejo?

In general, participants believed that **directional or interpretive signage, destination and connections** were significant to encourage more people to walk or bicycle in Aliso Viejo.

- Q4. What do you believe are the most important “trail linkages” in making Aliso Viejo a more walkable/bikeable community?

Participants identified several linkages:
1) **Town Center**, 2) **Schools/University**,
and 3) **East-West Edison Easement.**



Figure 18: Participant presenting their group ideas during the workshop

**DESIGN
CHARETTE-
GROUP PLANS**

Each group was asked to take the ideas and issues discussed and utilize their creative energy to develop a plan for the project area. Based upon the participants input, three alternatives were prepared by the participants of the workshop. The plans were then redrawn using common iconography to be used for evaluation.

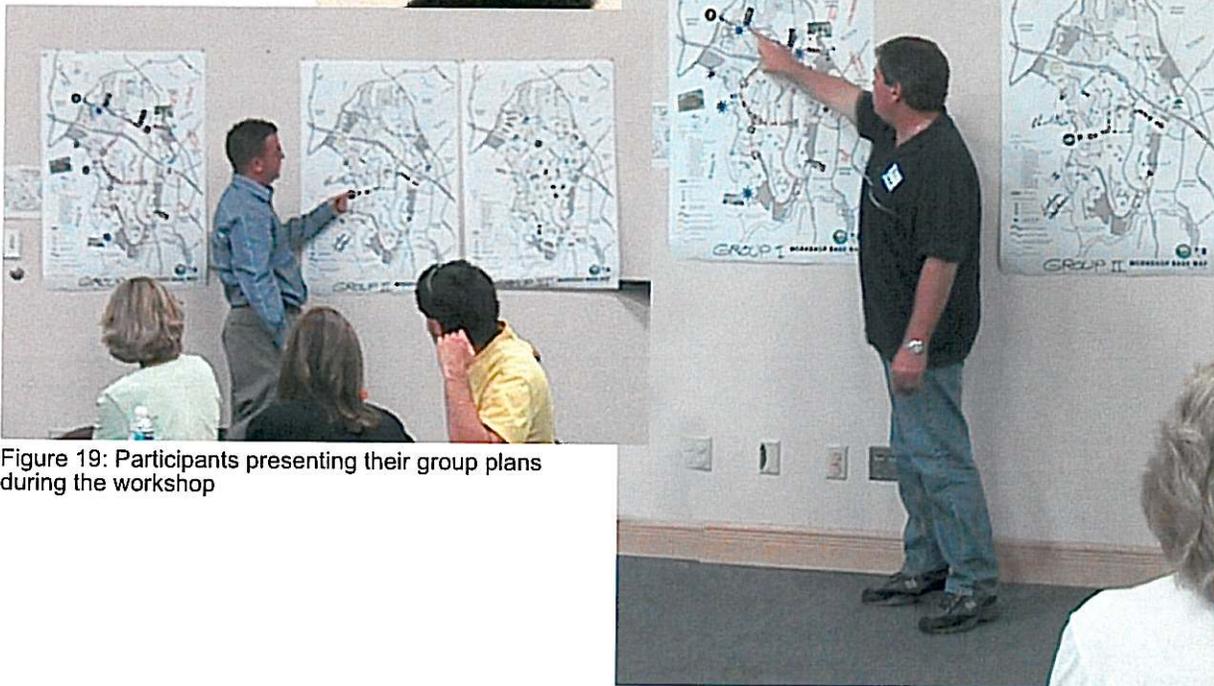
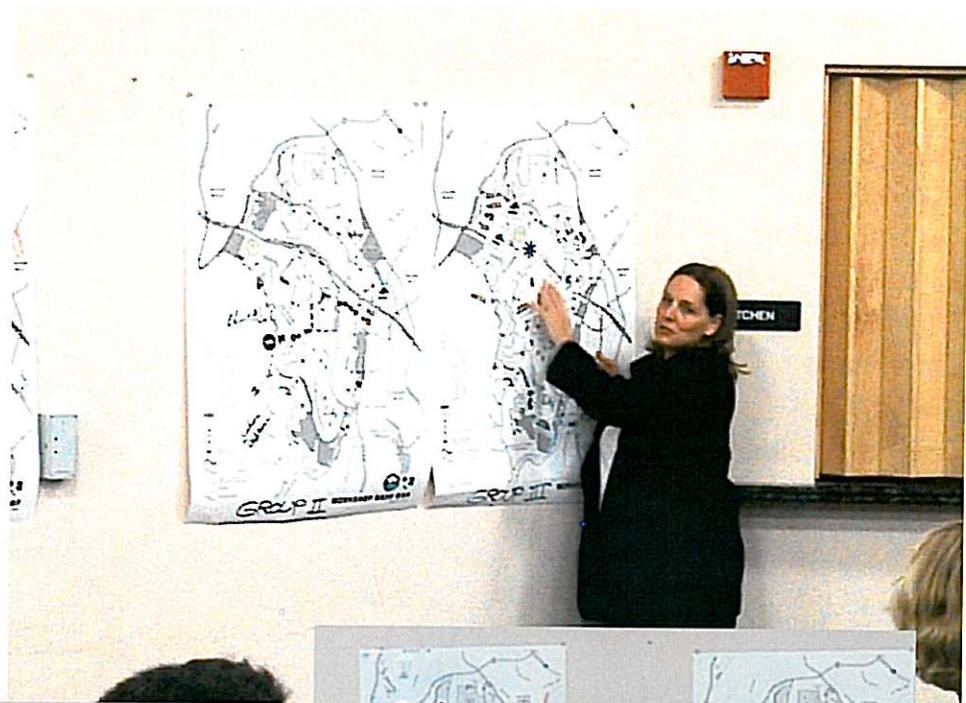


Figure 19: Participants presenting their group plans during the workshop



**Group #1
Streets and Trail Amenities Highlights:**

- Shuttle Bus with Racks
- Pedestrian Bridge
- Orchard Trail
- Under-crossing
- Lighting
- Overlooks
- Bike Racks
- Public Art
- Benches

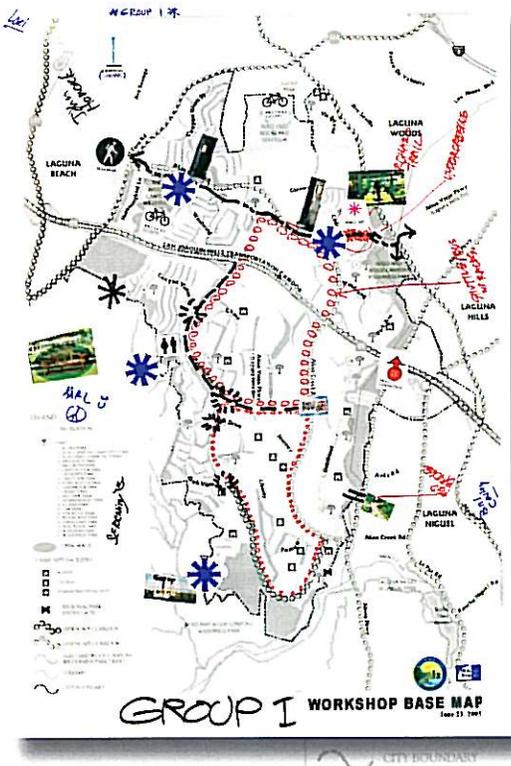
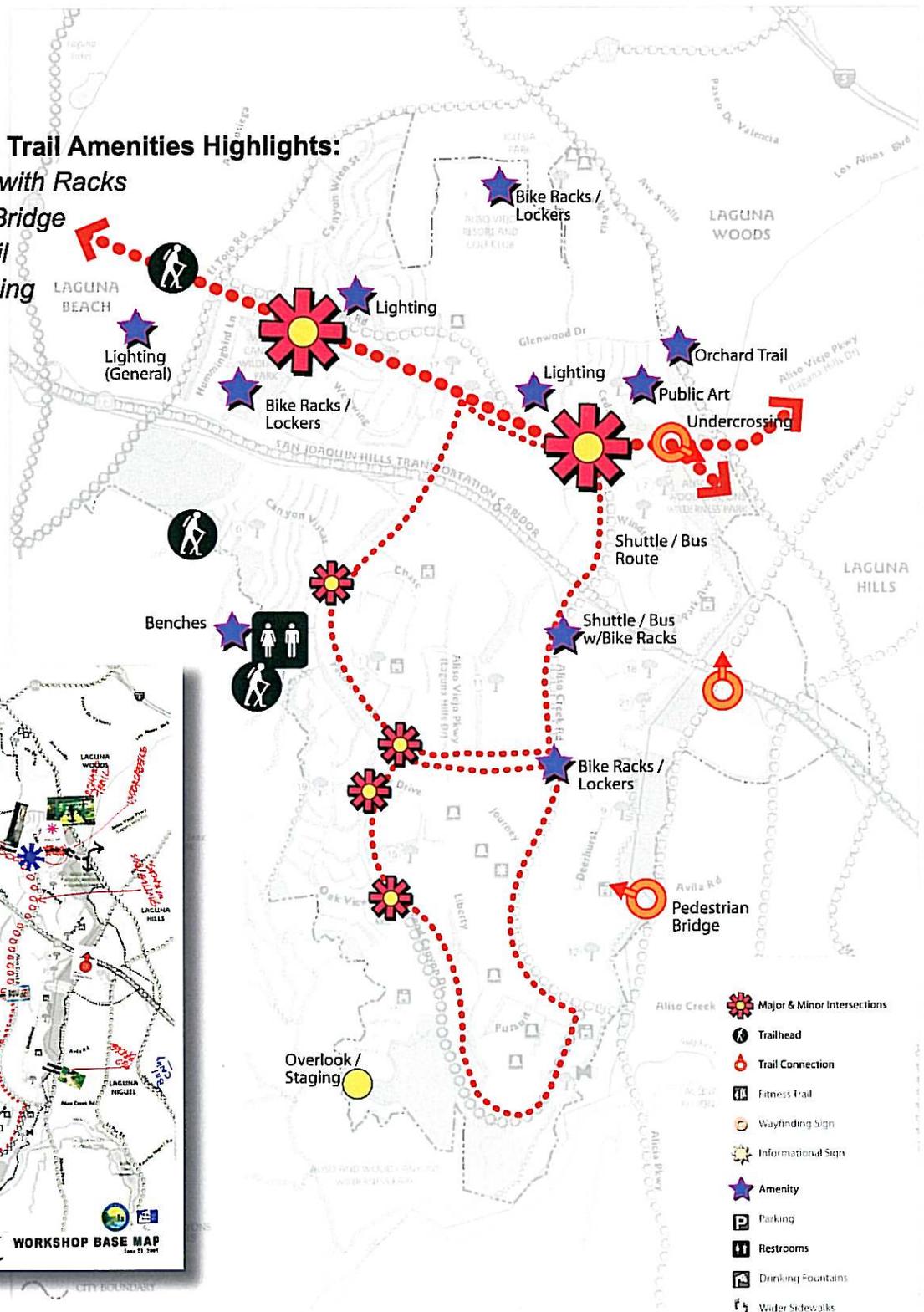


Figure 20: Group 1 - Original plan as inset and redrawn plan with common iconography

Group #2
Streets and Trail Amenities Highlights:
 Town Center Shuttle Bus Route
 Bike Racks
 Restrooms
 Trail Connections
 Trailhead
 Fitness Elements
 Signs
 Parking

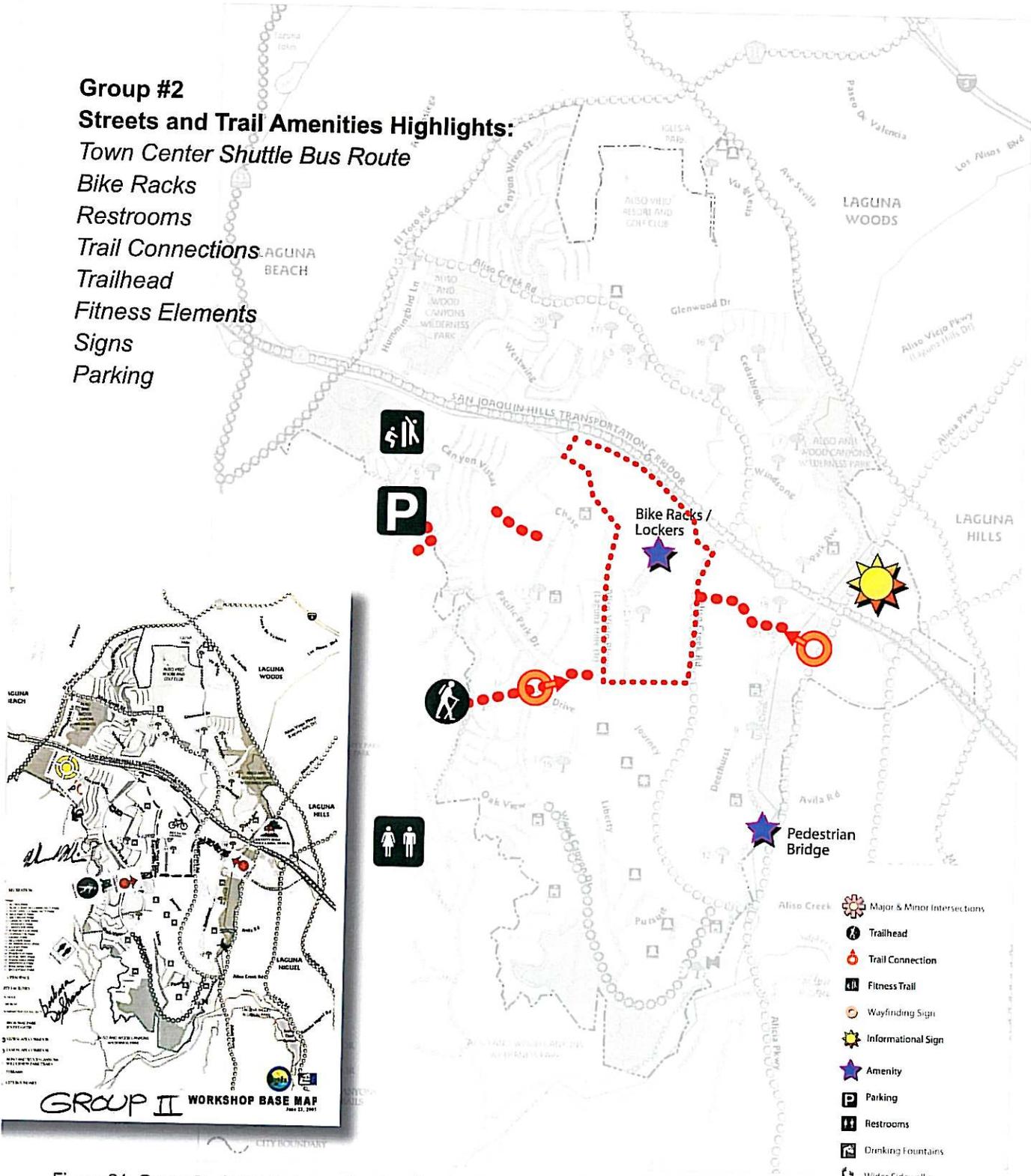


Figure 21: Group 2 - Original plan as inset and redrawn plan with common iconography



Group #3

Streets and Trail Amenities Highlights:

- Bike Racks*
- Fitness Elements*
- Wider Sidewalks*
- Trail Connections*
- Shade Elements*
- Drinking Fountains*
- Parking*
- Public Art*
- Landscape*
- Signs*
- Restrooms*

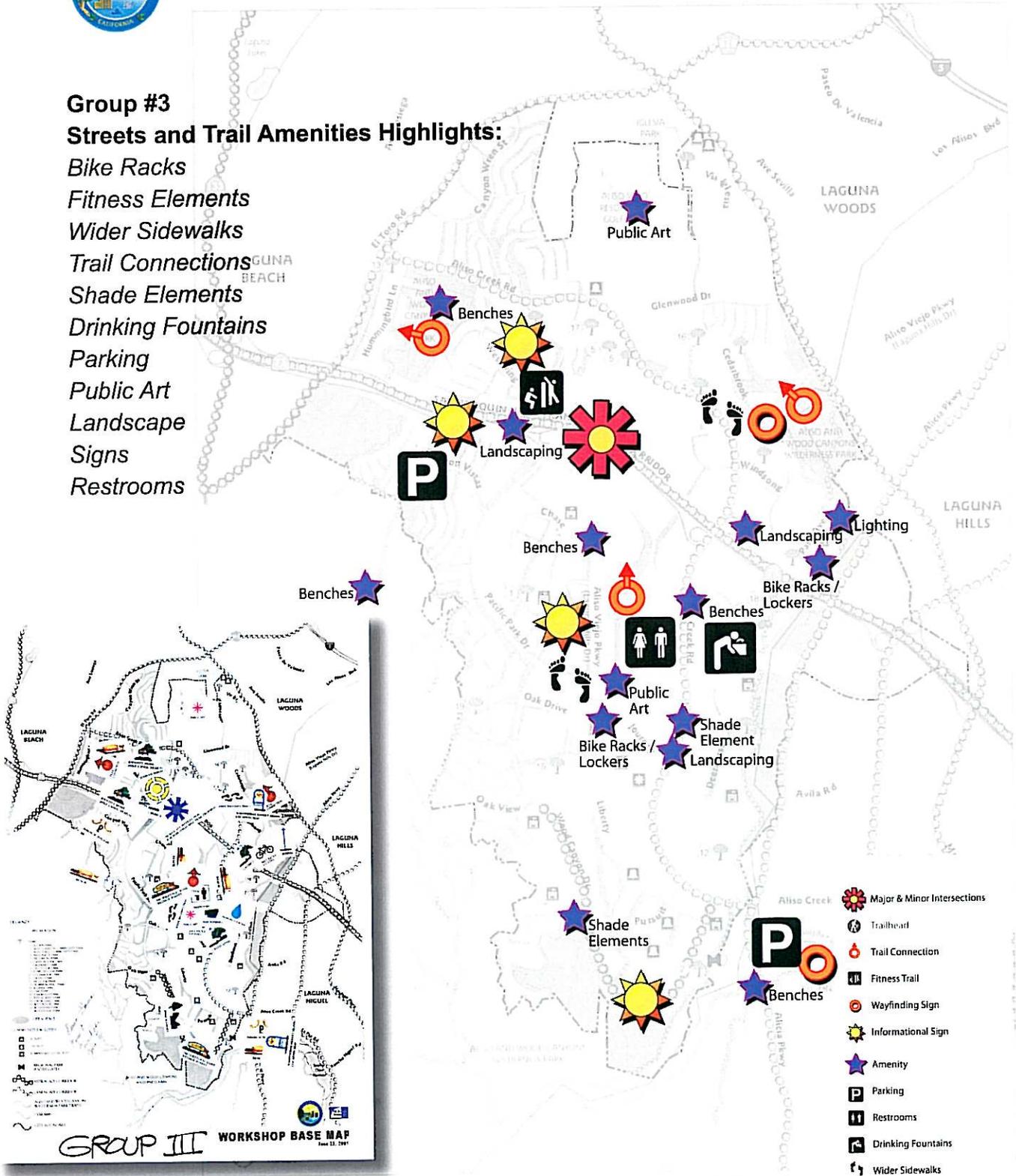


Figure 22: Group 3 - Original plan as inset and redrawn plan with common iconography

CONSENSUS PLAN

The group plans indicated a number of unique design ideas and program elements. In some cases, all three of the group plans were consistent in providing specific elements and the same general location.

All three group plans indicated new trail connections and incorporated parking opportunities nearby. All three group plans showed an important pedestrian/bicycle circulation route in the center of the city around Town Center. And all three group plans showed numerous amenities such as, signage, restrooms, bus shelters, bike racks throughout the city.

Two group plans indicated trail connections from Aliso and Wood Canyons Wilderness Park on the east to Laguna Coast Wilderness Park on the west via the Edison Easement. Two of the group plans show a pedestrian bridge connecting the Aliso Niguel High School at Aliso Creek to parking areas along Alicia Parkway.

In addition, group plans showed amenities to be included such as public art, overlook areas, shade elements, restrooms, benches, and drinking fountains.

Figure 23 shows the program amenities suggested by the workshop participants.

Type of Enhancement	Workshop 06/23/05		
	Group 1	Group 2	Group 3
Orchard	✓		
Overlooks/Trailheads/Destination Pts	✓	✓	
Pedestrian Bridge / Passageway	✓	✓	
Shuttle Bus		✓	✓
Trail Linkage: Edison Easement	✓		✓
Trail Linkage: Schools/University	✓	✓	
Trail Linkage: Town Center	✓	✓	✓
Wider Walkways/Trails	✓		✓
Lighting (esp. path)	✓		
Parking (esp. at Trailheads)		✓	✓
Restrooms	✓	✓	✓
Signs: Identity	✓	✓	✓
Signs: Informational	✓	✓	✓
Signs: Wayfinding	✓	✓	✓
Benches/Seating	✓		✓
Bike Racks / Lockers	✓	✓	✓
Drinking Fountains			✓
Fitness Elements (specific type of trail)		✓	✓
Public Art	✓		✓
Shade Amenities		✓	✓

Figure 23: Program amenities suggested by the "Taking Part" Workshop participants. Three areas of focus emerged related to the trail system (yellow), trail support (blue) and trail features (pink) of the streetscape and trail amenities plan

Consensus Plan

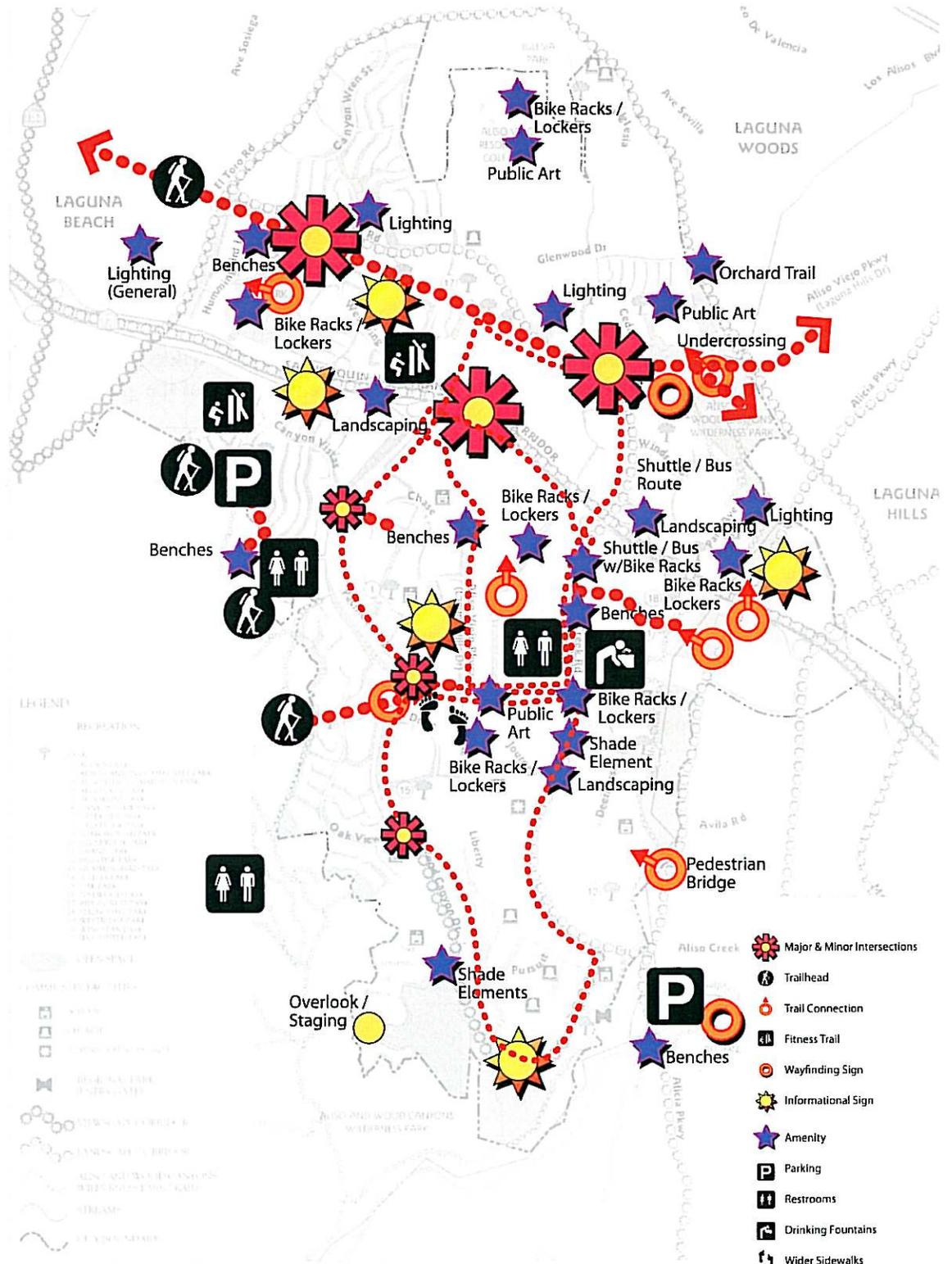


Figure 24: Consensus Plan of Workshop Groups

This page left intentionally blank

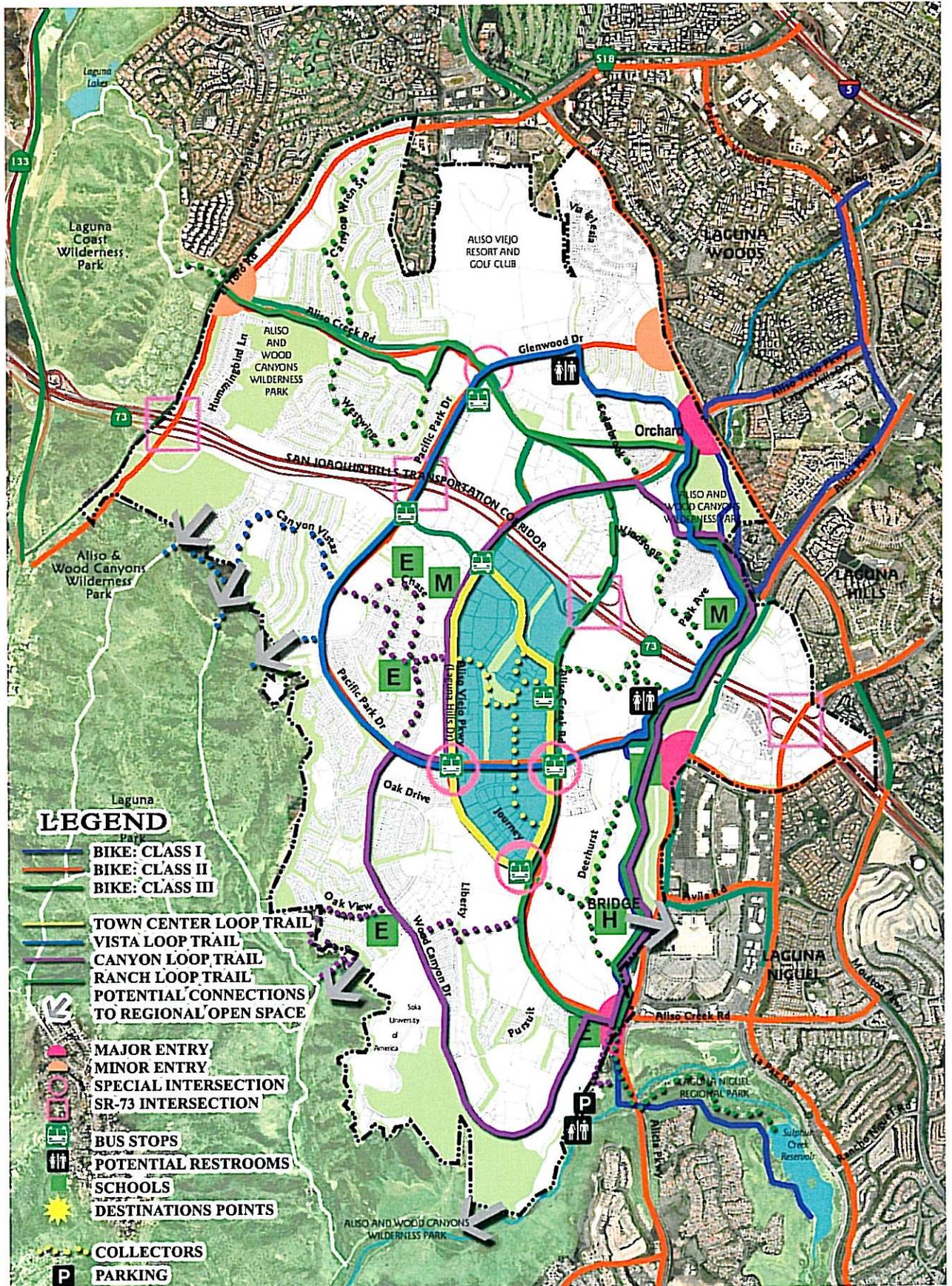


Figure 25: Conceptual Master Plan

MASTER PLAN CONCEPT

A consensus plan was prepared based on thorough evaluation of each alternative concept from each group participating at the workshop, staff input, council review and the experience of the consulting design firm.

The consensus design was refined with continual evaluation of streets and trails amenities that would be best suited for Aliso Viejo and what uses could be accommodated. A preliminary conceptual master plan PowerPoint® was presented to the City of Aliso Viejo staff and Council for review and comment. Their comments and suggestions have been incorporated into the Master Plan Concept and this report.

Proposed Streetscape Enhancement

Nationwide, engineers, planners, and communities are reducing street widths to make their communities safer and more efficient. The streets become multi-modal and more productive. Often these changed roads set the stage for millions of dollars in new commercial and residential development. The change can increase value of existing properties. In some cases costs of reconstructing roadways are repaid in as little as one year through increased sales tax or property tax revenue. Road conversion may be undertaken to create safer, more efficient ways to provide access and mobility for pedestrians, bicycle riders and transit users, as well as motorists. They can improve livability and quality of life for residents and shoppers. In addition, these enhancements can change the city into a more robust, vital, and economically sound community.

Aliso Viejo has a wealth of open space and wilderness trails surrounding the community. However, within the city there is minimal accommodation for walking and biking. The streets are wide, encouraging high-speed vehicular traffic, which makes unpleasant for pedestrians, bicycle riders, and transit users. These wide “fat” multi-lane roadways often generate excessive speeds due to motorists’ tendency to match speeds of “other” drivers. Therefore, the imprudent, speeding driver sets the prevailing speed of traffic. With current traffic calming practices many communities are putting their “fat” streets on a “diet” resulting in traffic moving at more uniform speeds with the prudent drivers setting the prevailing speeds. In many cities this has resulted in more efficient traffic flow with an increase in Average Daily Traffic (ADT) and decrease in accidents¹².

A major portion of the recommendations in this report deal with streets within the city limits. In addition, there is a significant trail linkage opportunity on the east-west Southern California Edison Corridor, north of SR-73. It provides a critical link between Laguna Coast Wilderness Park and Aliso and Wood Canyons Wilderness Park. Details for a variety of streets and trails amenities are provided to improve the streets and trail network within the city and enhance the identity and character of Aliso Viejo.



Traffic Calming

Traffic Calming (also called Traffic Management) refers to various design features and strategies intended to reduce vehicle traffic speeds on a particular roadway. The table, 'Traffic Calming Strategies and Devices,' in the Appendix describes some of these strategies. Traffic Calming projects can range from minor modifications of an individual street to comprehensive redesign of a road network. Traffic Calming involves *Context Sensitive Design* practices, which means that roadway planners and engineers have flexible standards that can accommodate community values and balanced objectives. It can make urban streets safer and quieter. It can increase residential property values and local economic activity.

Traffic Calming changes street design to give greater emphasis to pedestrians, cyclists, and residents. It often involves reallocating road space to increase the portion of right-of-way devoted to bicycle lanes, sidewalks, and greenspace. Some features, such as wider sidewalks and improved crosswalks, support Universal Design objectives (making transportation systems accommodate people with disabilities and other special needs).

Traffic Calming programs are usually implemented by local engineering departments. These programs involve educating planners and traffic engineers about Traffic Calming strategies (see Appendix), establishing policies and guidelines for implementing Traffic Calming projects, and developing funding sources. Many of the recommendations in this document utilize Traffic Calming elements. Specific project applications will need to be evaluated by a traffic engineer.

STREETSCAPE RECOMMENDATIONS

The streets and trails of Aliso Viejo are important components in unifying the community through an identifiable and cohesive landscaped network. The following recommendations seek to implement unifying criteria for prototypical streetscape categories as defined per the Aliso Viejo General Plan Circulation Element, April 2004.

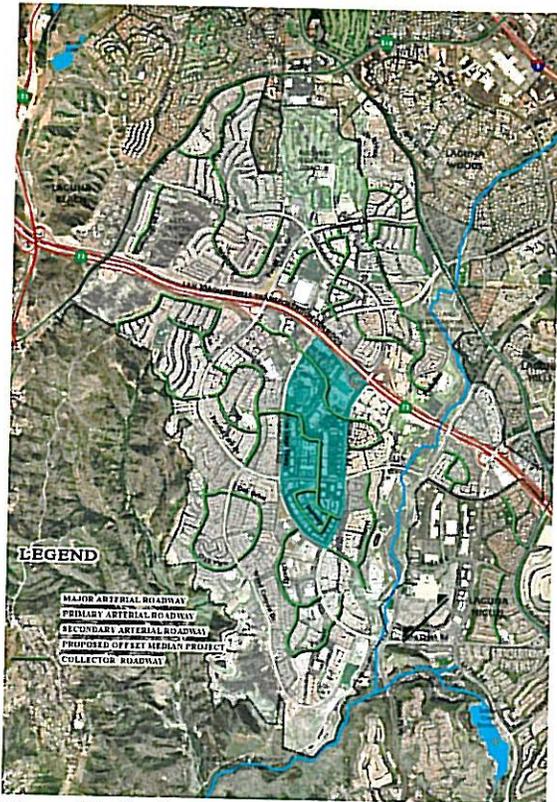


Figure 26: Section -- Collector Roadways

Collectors

Collectors are two-lane roadways with no median or with painted medians for two-way left turn movements at selected intersections. The right-of-way width for collectors varies from 40 feet to 56 feet, depending on location. The 56-foot cross sections are typically located within industrial areas. Collectors provide for curbside parking, but parking is restricted near intersection approaches where a separate right turn lane is provided. Due to varying standards, collector roadways are not identified in the Circulation Element of the General Plan (collector streets were identified through field observation and discussion with the City Engineer).

Example: Briarglen

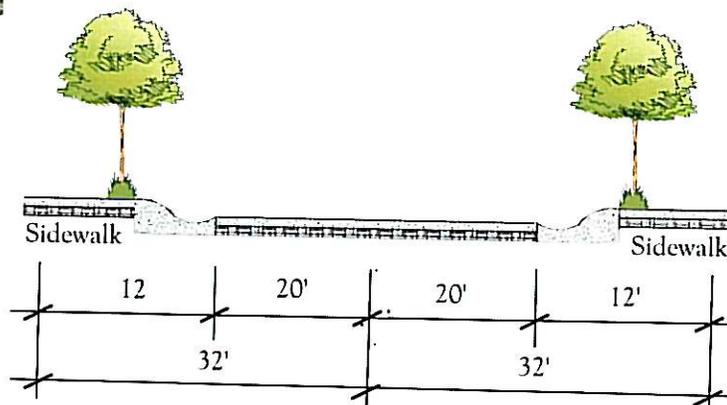


Figure 27: Existing Prototypical Collector¹³



Collector Alternatives

The following diagrams describe alternatives to collector roads that enhance the walkability and character of the city's streetscapes. A single alternative is not intended to be the universal solution, rather a menu of alternatives is suggested to be able to respond to specific street conditions that may occur.

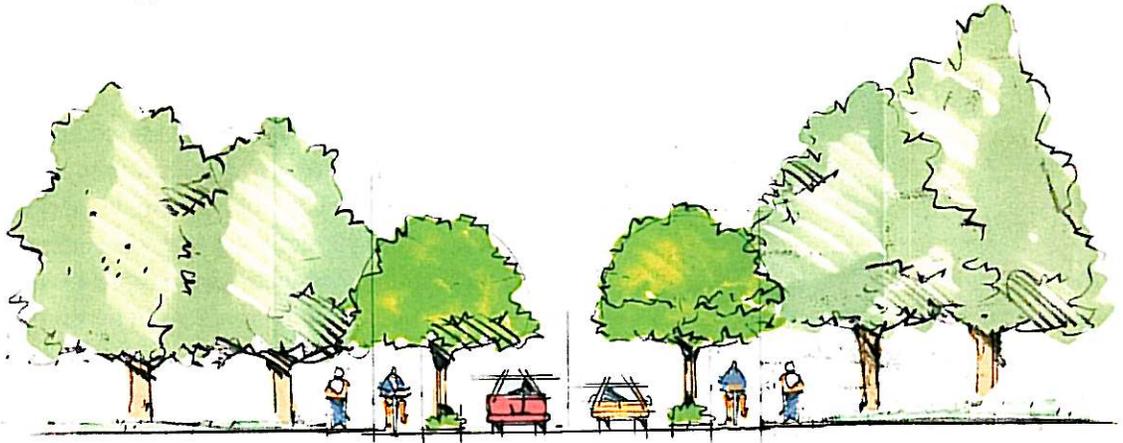


Figure 28: Alternative A — One-way bike lane with landscape separation on two sides. Maintains two vehicles travel lanes. Provides one-way directional bike lane on each side of the street. Existing pedestrian walkways remain. Landscape planters separate the bicycles and pedestrians from vehicular traffic, provide shade, and reduce the scale of the street.

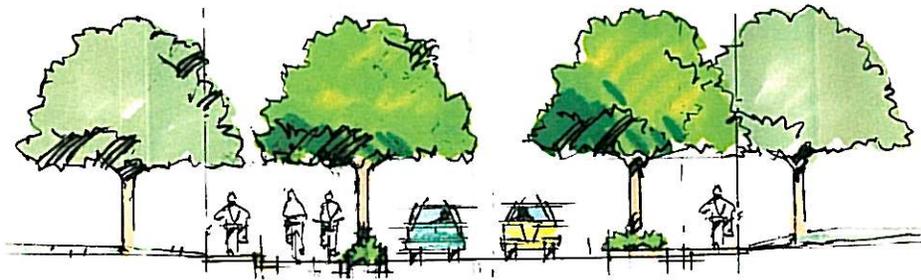


Figure 29: Alternative B — Two-way bike lanes with landscape separation on one side and sidewalk two sides. Moves all bicycle traffic to one side of the street. This alternative could accommodate an 8' parallel parking lane on one side of the street.



Figure 30: Alternative C — Two-way bike lanes with landscape separation on one side and sidewalk one side. Moves all bicycle and pedestrian traffic to one side of the street.

Secondary Roadway

Secondary roadways are four-lane undivided roadways without medians. The right-of-way width for secondary roadway is 80 feet and 64 feet curb-to-curb. Direct access from private residential properties is avoided where possible unless medians are provided at such access points. While the secondary roadway provides for curbside parking, such parking is prohibited near intersections where left-turn lane striping is provided.

Example: Wood Canyon Drive (Pacific Park Drive to Aliso Creek Road), Aliso Creek Road (north of Glenwood Drive), and Aliso Viejo Parkway (south of Pacific Park Drive).

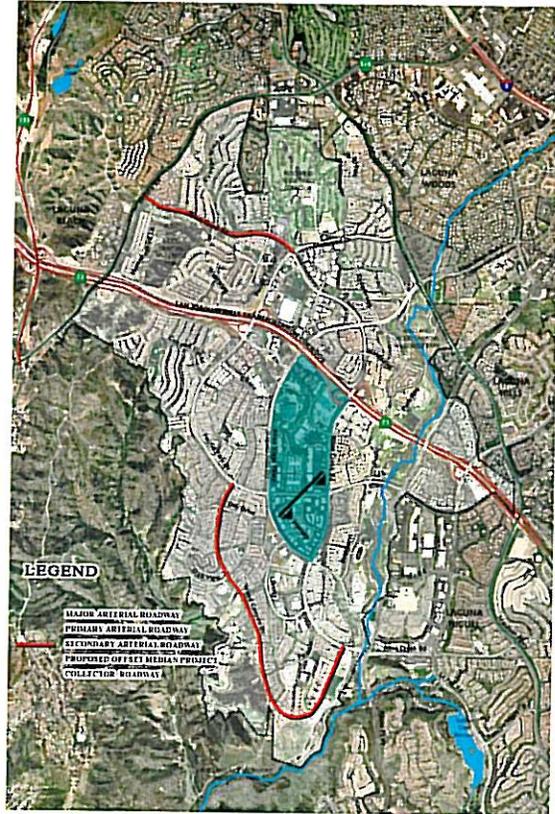


Figure 31: Section – Secondary Roadways

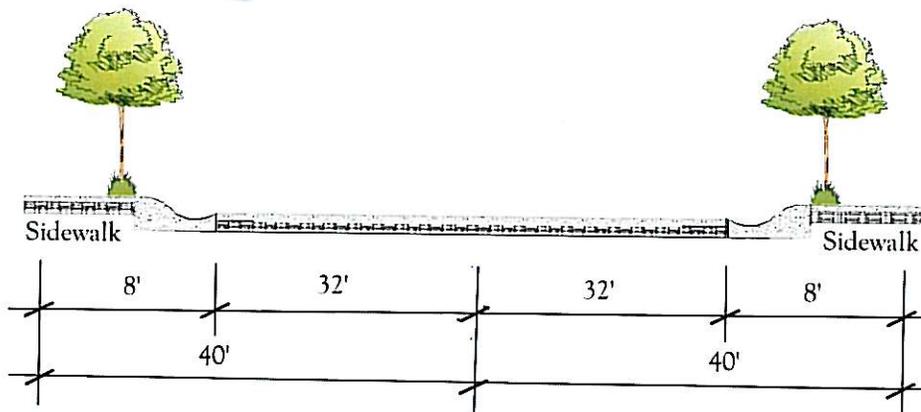


Figure 32: Existing Prototypical Secondary Roadway¹⁴.



Secondary Roadway Alternatives

The following diagrams describe alternatives to secondary roads that enhance the walkability and character of the city's streetscapes. A single alternative is not intended to be the universal solution, rather a menu of alternatives is suggested to be able to respond to specific street conditions that may occur.

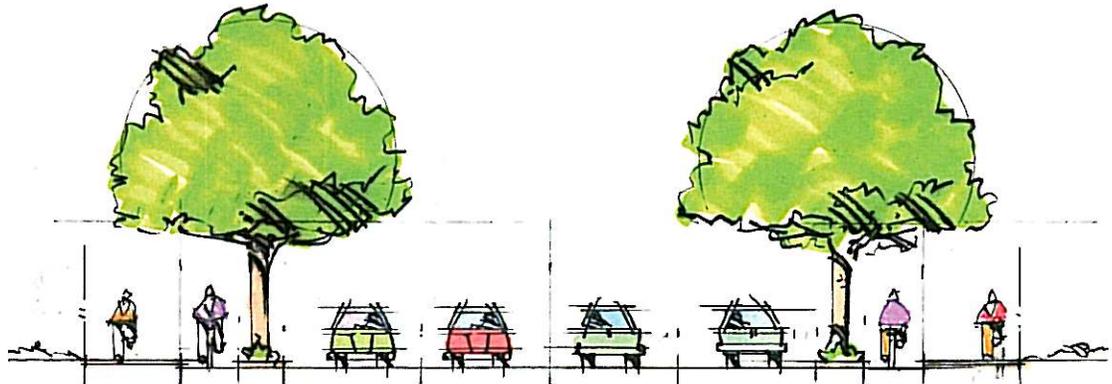


Figure 33: Alternative A – One-way bike lane with landscape separation on two sides. Maintains four vehicle travel lanes*. Provides one-way directional bike lane on each side of the street. Existing pedestrian walkways remain. Landscape planters separate the bicycles and pedestrians from vehicular traffic, provide shade, and reduce the scale of the street.

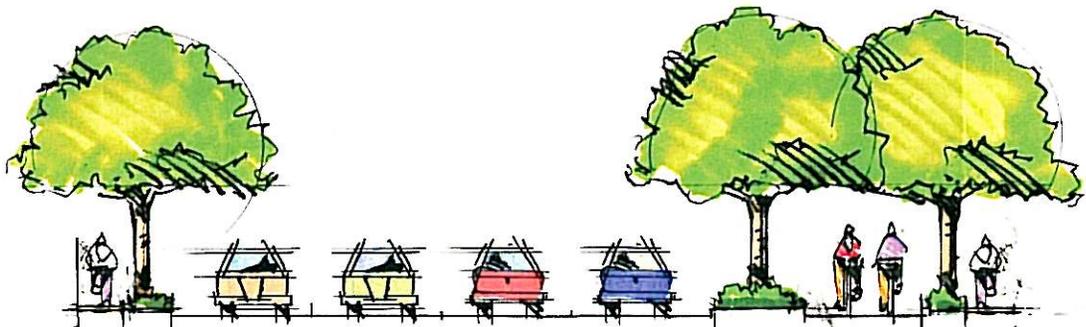


Figure 34: Alternative B – Two-way bike lanes with landscape separation on one side. Moves all bicycle traffic to one side of the street. This alternative could accommodate an 8' parallel parking lane on one side of the street.

*NOTE: Many examples of successful traffic calming strategies suggest a three-lane configuration to further improve traffic conditions.

Primary and Major Roadways

Primary and Major arterials are four- and six-lane roadways with painted or raised landscaped medians. Left-turn restrictions are generally placed at minor unsignalized driveways. The right-of-way width for a primary roadway is 100 feet and 84 feet curb-to-curb. The right-of-way width for a major roadway is 120 feet and 102 feet curb-to-curb. As a significant traffic carrier, curbside parking is not appropriate along the more heavily traveled primary and major arterial street segments within the city, particularly in cases where a Class II bikeway is also placed on the roadway.

Primary Roadway Examples: Aliso Creek Road (SR-73 to Glenwood Drive); Pacific Park Drive (north of Wood Canyon Drive); Glenwood Drive.

Major Roadway Examples: Alicia Parkway, Aliso Creek Road (south of SR-73); Aliso Viejo Parkway (north or Pacific Park); La Paz Road; Pacific Park Drive (east of Wood Canyon Drive).

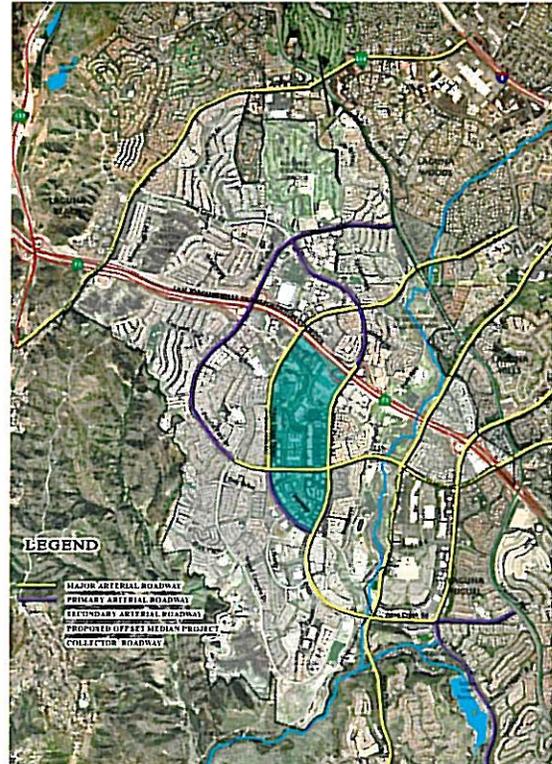


Figure 35: Section -- Primary and Major Roadways

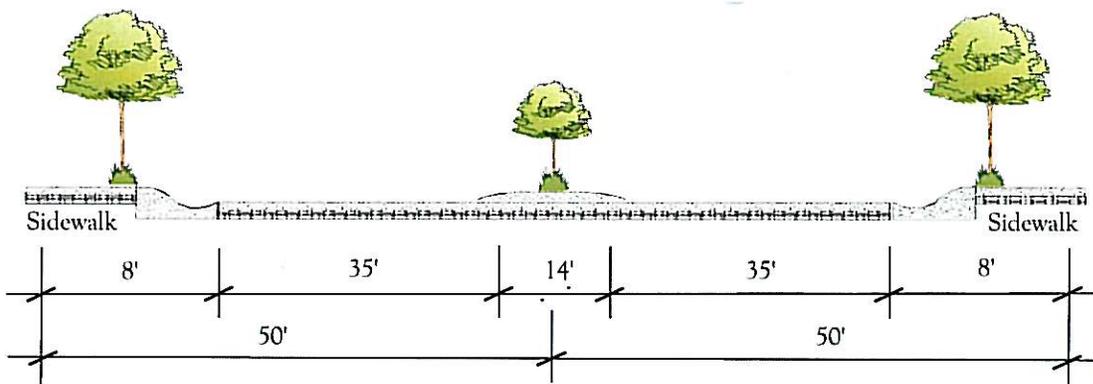


Figure 36: Existing Prototypical Primary Roadway¹⁵



Primary and Major Roadway Alternatives

The following diagrams describe alternatives to primary roads that enhance the walkability and character of the city's streetscapes. A single alternative is not intended to be the universal solution, rather a menu of alternatives is suggested to be able to respond to specific streets conditions that may occur.

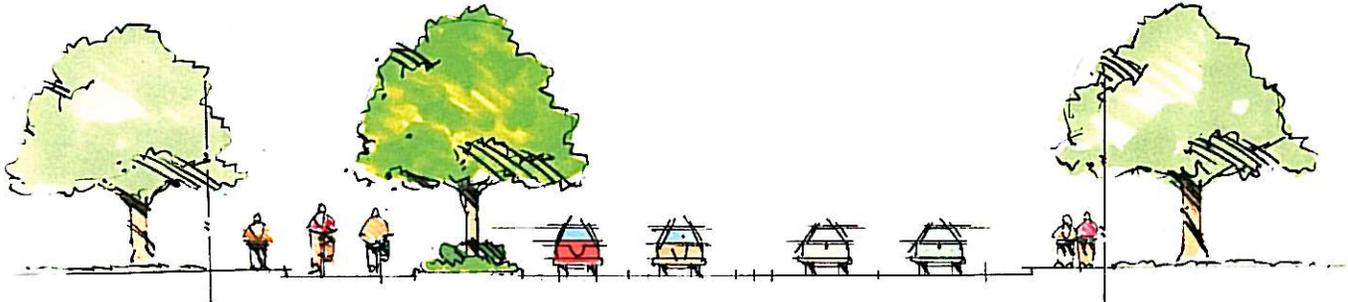


Figure 37: Offset Median maintains vehicular travel lanes*. Moves the stand center median to one side of the streets to provide separation of two-way bike lanes and pedestrian walkways.

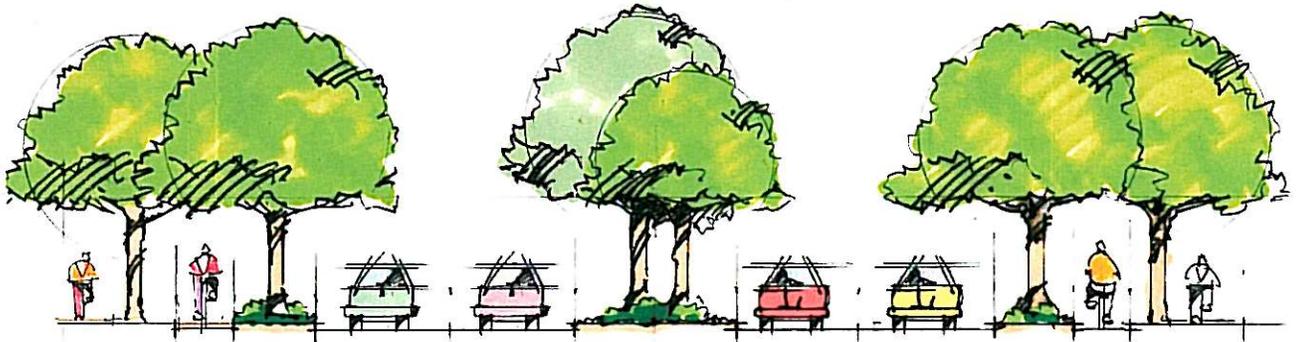


Figure 38: Alternative A -- One-way bike lane with landscape separation on two sides and landscape median to separate traffic. Maintains four-six vehicle travel lanes. Provides one-way directional bike lanes on each side of the street. Existing pedestrian walkways remain. Landscape planters separate the bicycles and pedestrians from vehicular traffic, provides shade, and reduces the scale of the street.

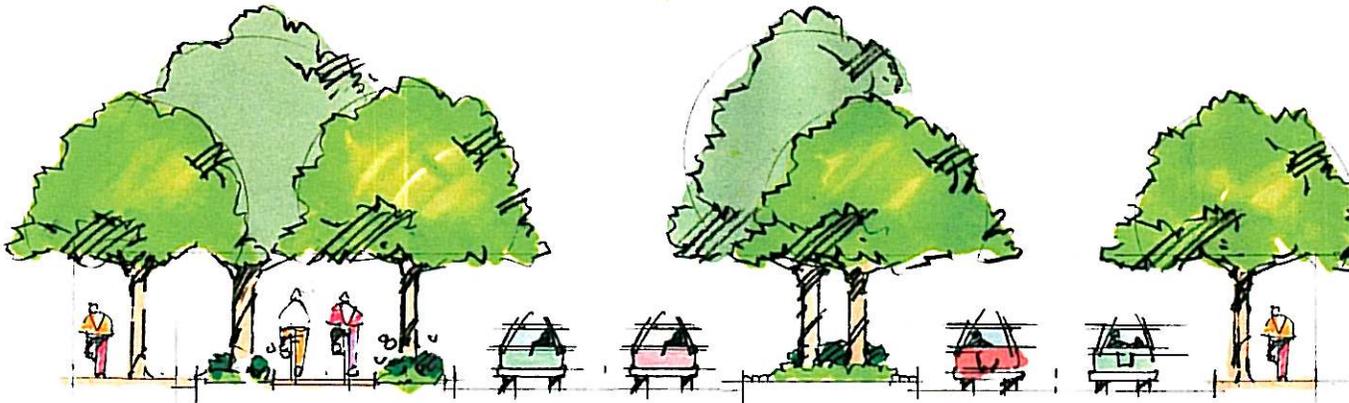


Figure 39: Alternative B -- Two-way bike lanes with landscape separation (offset median) on one side and landscape median to separate traffic. Moves all bicycle traffic to one side of the street. This alternative could accommodate an 8' parallel parking lane on one side of the street.

*Offset Median currently planned for Pacific Park Drive from Aliso Creek Road to Aliso Viejo Parkway.

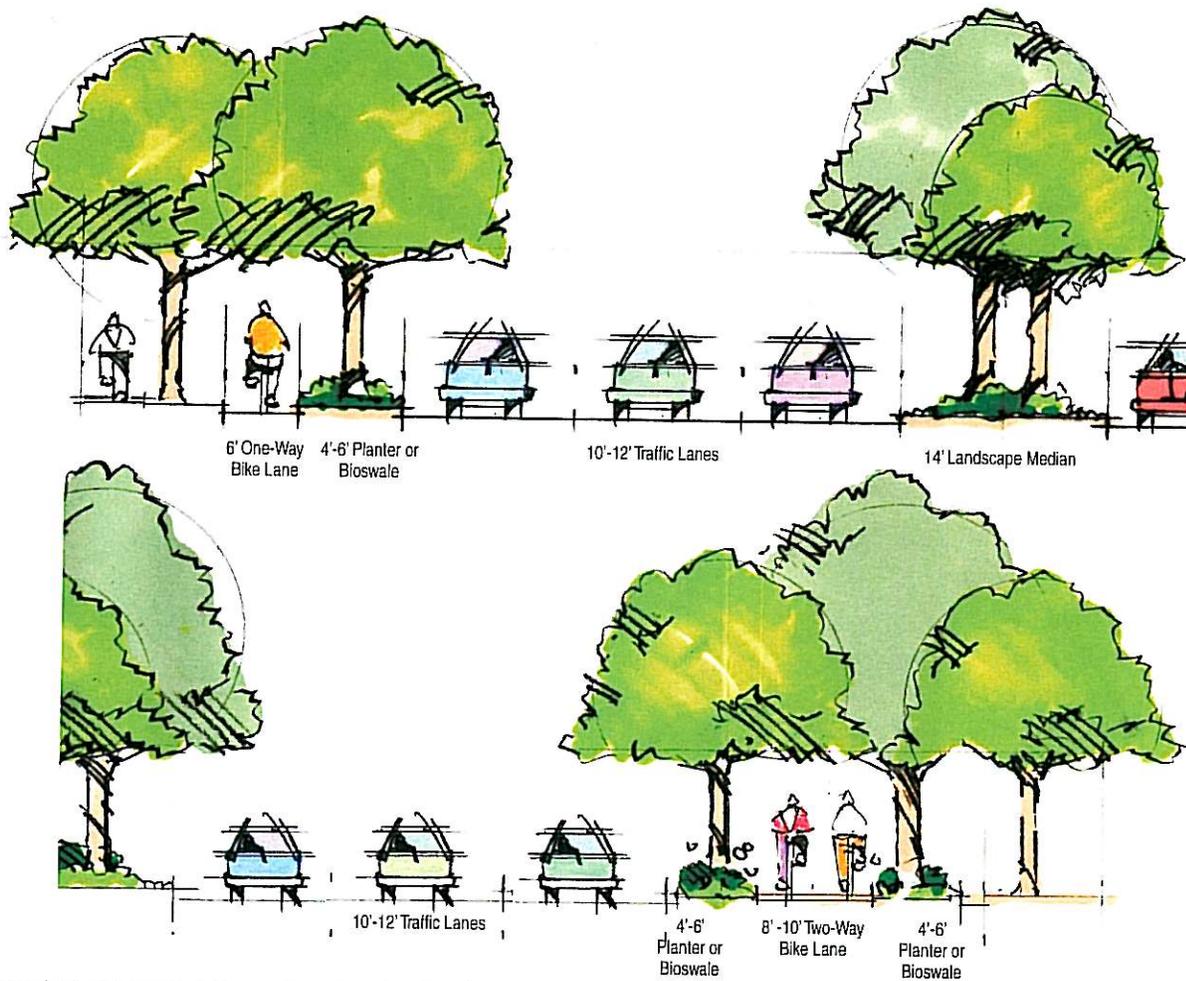


Figure 40: Prototypical dimensions for street enhancements



Figure 41: Prototypical bioswales

Bioswales

Vegetated swales or bioswales are linear, planted, gently sloped drainage channels that retain and infiltrate stormwater and improve water quality beside roads and parking areas. Soil amendments and native plantings in conjunction with bioswales provide an effective infiltration system for a more environmentally-friendly way to manage the community’s stormwater. In addition, when used in concert with permeable paving bike lanes and walkways, virtually all surface runoff from streets could be intercepted before reaching the storm drain system.



Entries and Intersections

In addition to the alternatives for bicycling and pedestrian separation from vehicular traffic suggested in the previous section, it is important to announce to motorists that they are leaving the “race track” environment and entering a more pedestrian friendly zone...namely Aliso Viejo. The figure shows the suggested locations for major and minor entries, special intersections and SR-73 intersections.

The following pages describe design concepts and details for entries, special intersections, bus stops, and restrooms. The design of SR-73 (San Joaquin Tollroad) intersections are not included in this study.

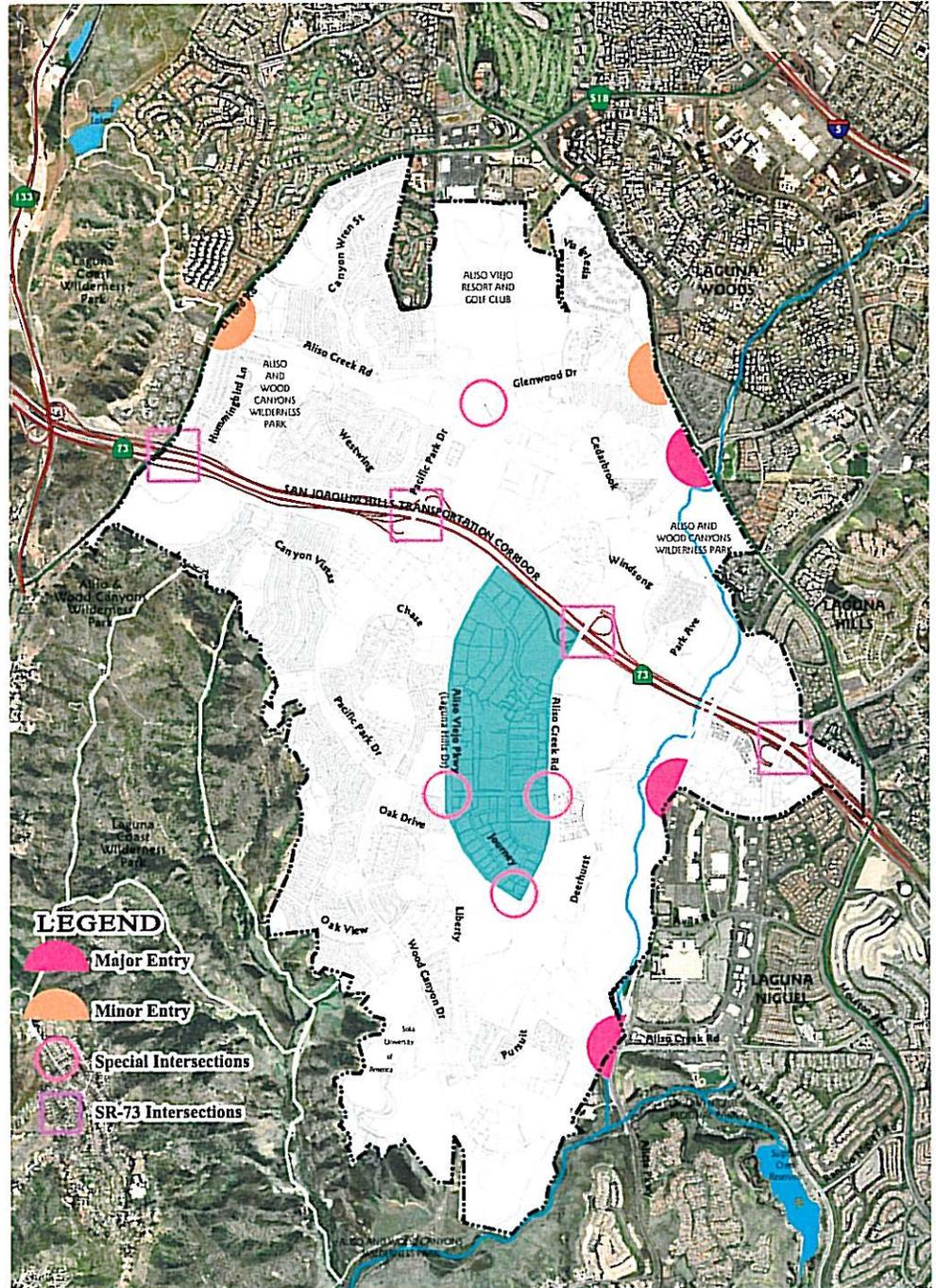


Figure 42: Major Entries, Minor Entries, and Special Intersections

City Entry Enhancements

Entry enhancements encourage a positive image of Aliso Viejo to residents, visitors, and those passing through Aliso Viejo. Provide visually inviting entrances to Aliso Viejo and to encourage design treatments that respect the character of the particular roadway with improvements such as monument signs, lighting, stone walls, accent trees, and landscaping.

Major Entries

1. Aliso Viejo Parkway at Moulton Parkway
2. Pacific Park Drive at Alicia Parkway
3. Aliso Creek Road at Alicia Parkway

Minor Entries

1. Aliso Creek Road at El Toro Road
2. Glenwood Drive at Moulton Parkway

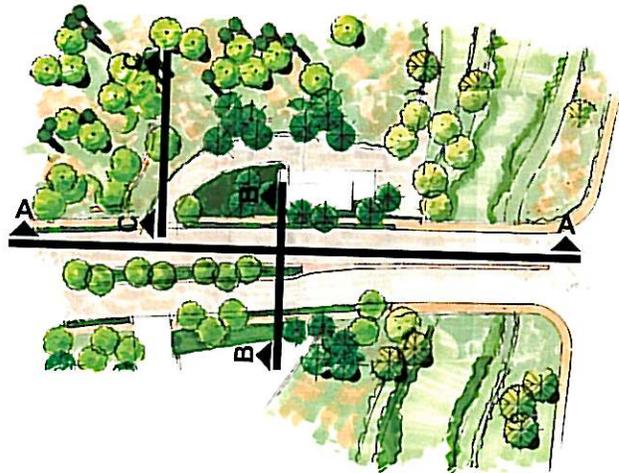


Figure 43: Plan view of major entry enhancement - Aliso Creek Road

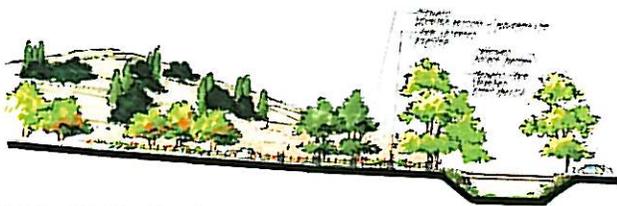


Figure 44: Section A - Major entry enhancement



Figure 45: Section B - Major entry enhancement



Figure 46: Section C - Major entry monument

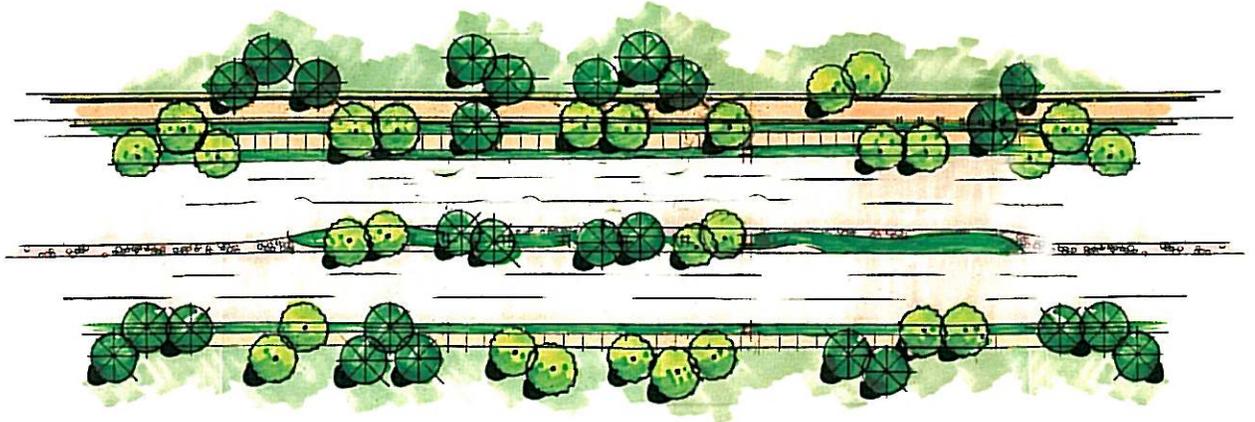


Figure 47: Plan view of prototypical minor entry

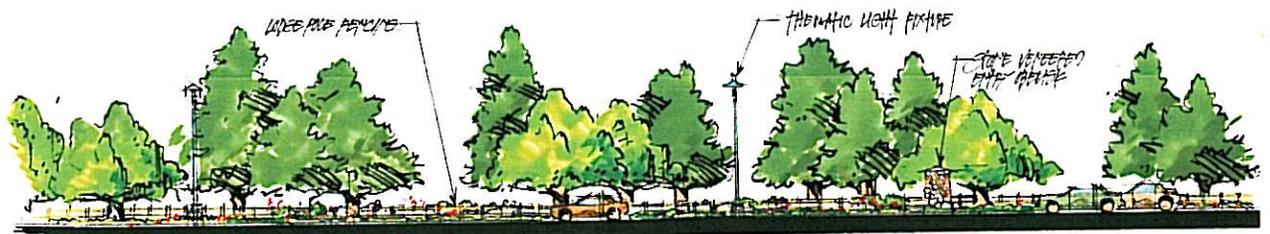


Figure 48: Section/Elevation view of prototypical minor entry



Figure 49: Cross-section view of prototypical minor entry

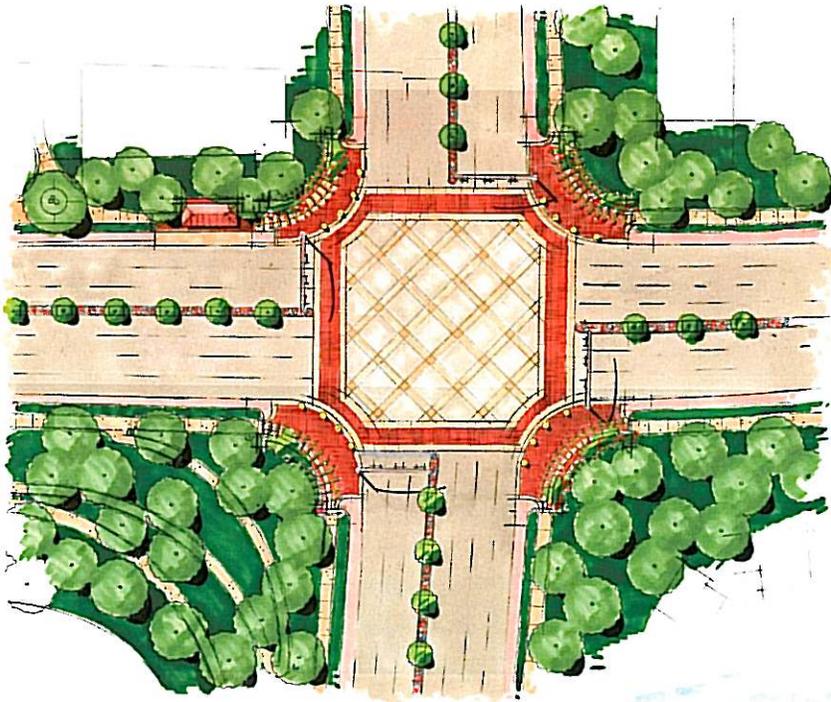


Figure 50: Plan view of intersection enhancements with special paving, crosswalks, street lighting and ramps

Special Intersection Enhancements

Intersection enhancements serve as regional markers to identify and “punctuate” bicycle and pedestrian trail crossings at major street intersections. They also further add community identity and lend a sense of “place” to Aliso Viejo. These intersections include addition of handicap accessible ramps, pedestrian crosswalks, special paving, scoring, street lighting, public art features, and site furnishing.

Figure 51: Elevation view of intersection enhancement with special paving, crosswalks, street lighting, arbor, bus shelter, and site furnishing



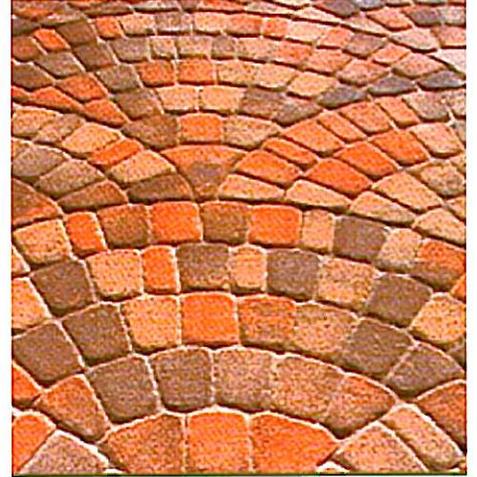


Figure 52: Suggested paving Enhancements for Special Condition Intersections and City Entries



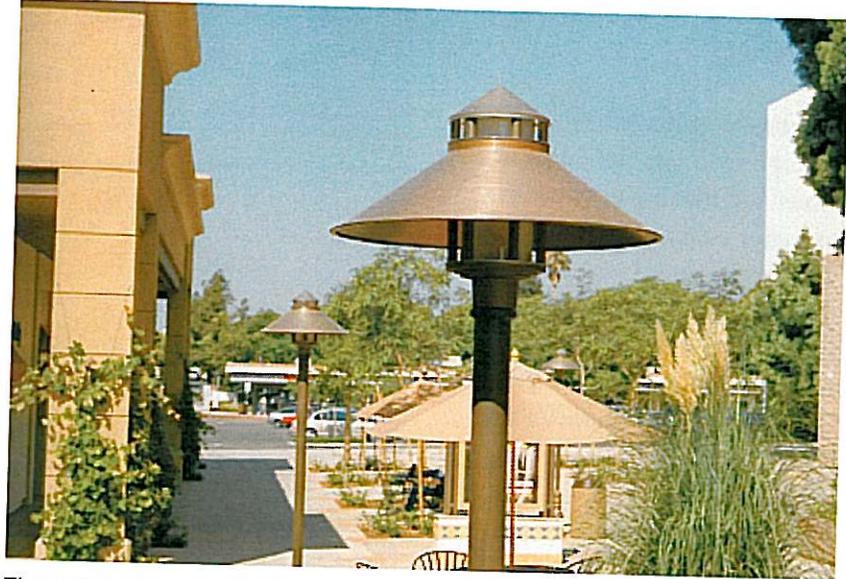
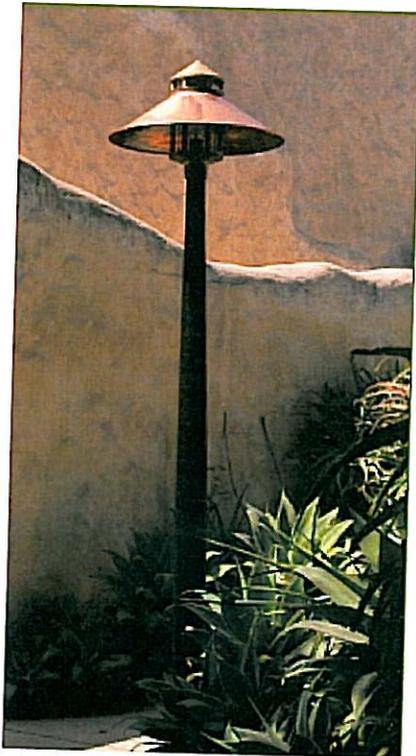
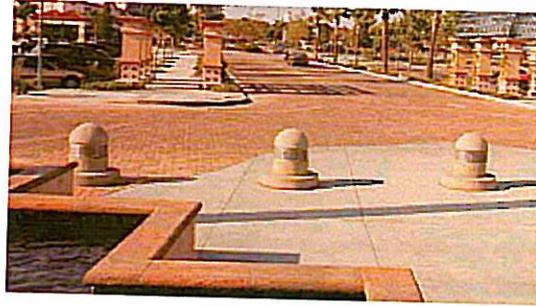


Figure 53: Suggested lighting elements and bollards reflecting the city's historic ranch character utilizing warm earth tone colors



OCTA Transit Connections

There are two main bus routes through Aliso Viejo: 187 and 490, with eight bus stop locations. There will be seven bus stops along the proposed trail network that could provide a rest stop with seating, shade, informational signage, and water (at selected locations).

The bus stops have been incorporated into the fabric of the street and trail amenity package as major structural elements that serve as landmark waystations along the trail system, provide an interface to the regional transit network, and help knit together the community’s character and identity.

Community-Oriented Transit Programs

A community-oriented transit program such as a shuttle bus serves a relatively well-defined area like: an office park, “last-mile” connections from a single line transit station, or a shopping center. The routes generally cover approximately five-square miles. Many cities, such as Boulder and Denver, Colorado; Emeryville, Laguna Beach, and San Clemente, California offer these types of programs. San Clemente’s program offers a shopper shuttle which is available three days per

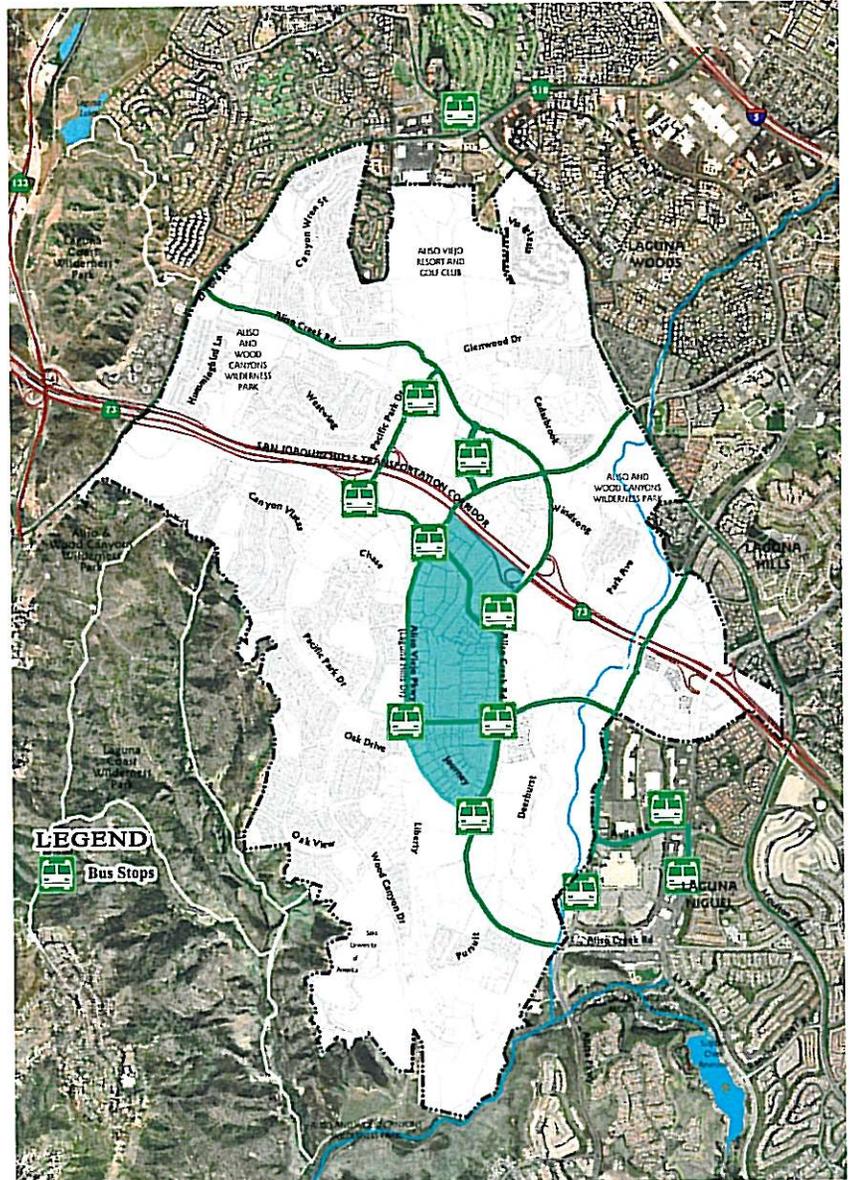


Figure 54: Bus stops and routes - 490 Aliso Viejo/ Laguna Niguel Metrolink Station and 187 Laguna Hills/ Dana Point¹⁶

week for up to three hours each of the days and allows senior citizens to be picked up at their door and transported to the many shopping centers in San Clemente. Aliso Viejo could also offer a similar

shuttle service for their Town Center area while integrating that service into the existing OCTA service.



Figure 55: Conceptual Illustration of a prototypical bus shelter

Bus Shelters

A good bus shelter is an essential part of any successful multi-modal transit system. A good shelter is one that provides shade and seating, has low maintenance requirements, and is vandal resistant. In addition, an ideal shelter is one that allows visibility and easy access to the bus, is comfortable and convenient, provides clear information, and is safe. A well-designed, comfortable shelter can make waiting for a bus a pleasant — and even interesting — experience! (See Appendix for details.)

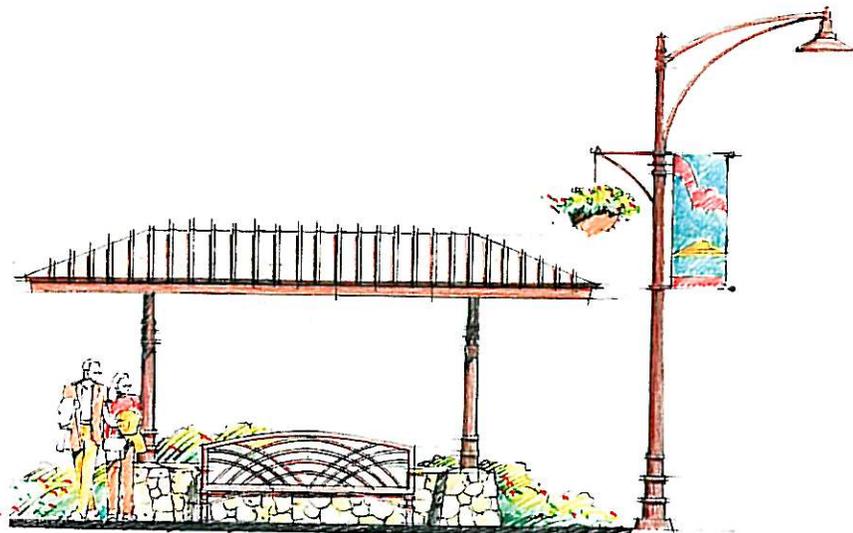


Figure 56: Elevation of a prototypical bus shelter, street light and city street banner using earth tones, stone, and wood



Restroom Facilities

An additional consideration to trail users is the convenience of accessing restrooms within the community's park system.

Safe and convenient public restroom facilities are important to enhance the utilization of the trail network. Aliso Viejo Community Association (AVCA) has recently installed restrooms in some of the parks in Aliso Viejo. Existing restrooms are located at Acorn Park, Aliso Viejo Community Park, Iglesia Park, and Woodfield Park. Existing portable toilets are located in Aliso Canyon Community Park, Argonaut Park, Canyon View Park, Creekside Park, Foxborough Park, Hummingbird Park, Oak Park, Pinewood Park, Ridgecrest Park, Springdale Park, and Wingspan Park.

Potential locations for future restrooms may include Grand Park, Canyon View Park, and the future Aliso Canyon Community Park.

Signage and directions to convenient facilities would be provided for users along the adjacent trails.

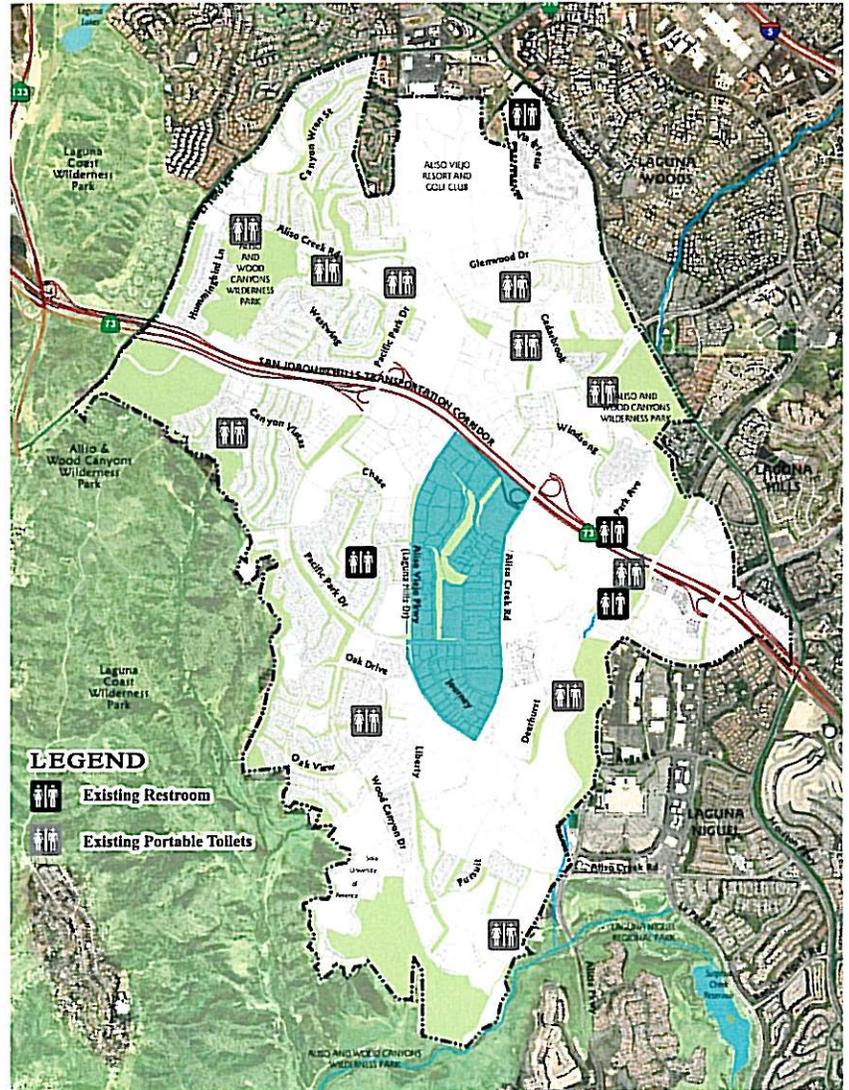


Figure 57: Existing restroom facilities at community parks for trail convenience

TRAILS AND GREENWAY SYSTEM

Trails and greenways underpin our quality of life. Well-designed and implemented planning policies for trails and greenways are therefore fundamental to the community development process. Greenways are interconnected networks of green space that vary in size and can traverse urban, suburban, or rural areas. A greenway system is an ideal way to link people to destinations of interest and recreation. Trails and greenways can be used to get to destinations of interest, such as schools, shops, community centers, or workplaces. They provide an alternate means (non-motorized) of transportation that allows users to be physically active. Both can help promote active living, a way of life that integrates physical activity into daily routines.

Research has shown that people with access to parks are more likely to be physically active and that trails may help promote physical activity among women, children, and the sedentary. Trails and greenways that promote active living should be safe, linked to destinations of interest, and designed for multiple purposes and users. These include:

- *Supporting community development while keeping the city's unique characteristics* – local networks of high-quality, well-managed, and maintained parks, trails and greenways help create environments that are attractive, clean, and safe. Green spaces in heavily developed communities perform a vital function for nature conservation, biodiversity, and by acting as 'green lungs' can assist in meeting objectives to improve air quality.
- *Health and well-being* – the potential impacts can benefit air quality, traffic congestion, and quality of life; yet the primary rationale is to improve health by increasing physical activity levels. The scientific evidence linking the built environment to physical activity is established and growing. It is also well documented that active people, i.e. those achieving the recommended of 30 minutes of moderate intensity physical activity on most days, are less likely to develop chronic diseases.
- *Promoting more sustainable development* – by ensuring that parks, trails, and greenways are easily accessible by walking and cycling and that more heavily used or intensive sports and recreational facilities are planned for locations well served by public transport.
- *Promotion of social inclusion and community cohesion* – well-planned and maintained trails, open spaces, and quality recreational facilities can play a major part in improving people's sense of well being in the place they live.

A walking and bicycle friendly community is a more livable community where people of all ages and abilities can travel safely and conveniently. The following takes the information from the workshop, city meetings, and city staff input to develop a trail system that includes connections to regional recreation, mass transit, major destinations, schools, entries, and public conveniences. The trail system begins to address some of the issues for a more walkable and bikeable community.



Trails System

Improving connections from the community to the surrounding regional open space and trail network is of vital importance. Several locations to improve access throughout the community were suggested by residents and staff. We refer to these critical locations as “missing links.” Some of the more important missing links include access points along the west side of the community to Aliso and Wood Canyons Wilderness Park (A, B, C); a pedestrian bridge at Aliso Niguel High School (D); a pedestrian passageway to Aliso and Wood Canyons Wilderness Park under Aliso Viejo Parkway at SCE easement near Moulton Parkway (E); and improvements to the Southern California Edison Corridor to enhance east-west access in the community and access to Laguna Coast Wilderness Park (F).

All suggested locations were field checked. Some of the suggested connections were not feasible due to existing site conditions, particularly steep topography. Some of the recommended connections may require multiple agency/jurisdictional cooperation and approvals. However, since they would benefit all trail users within and surrounding the community, they should be pursued.

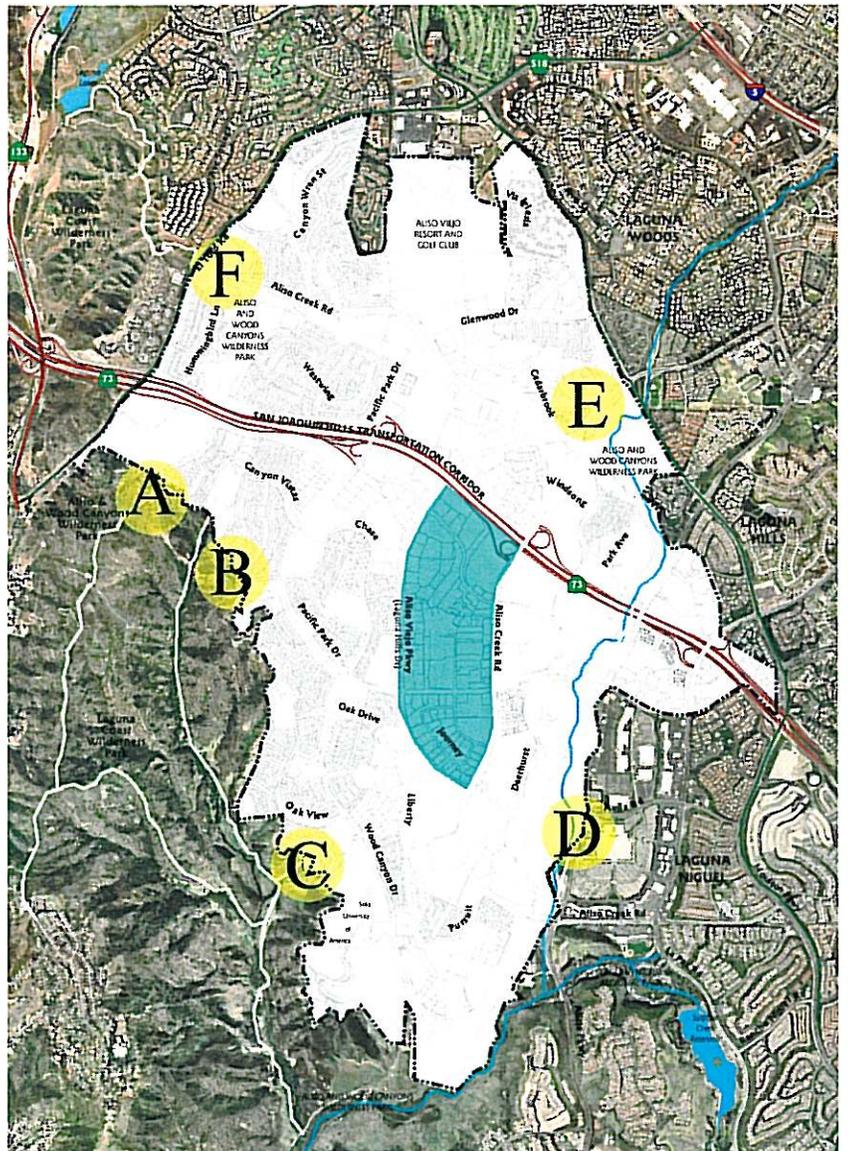


Figure 58: Potential trail connections (A-F)

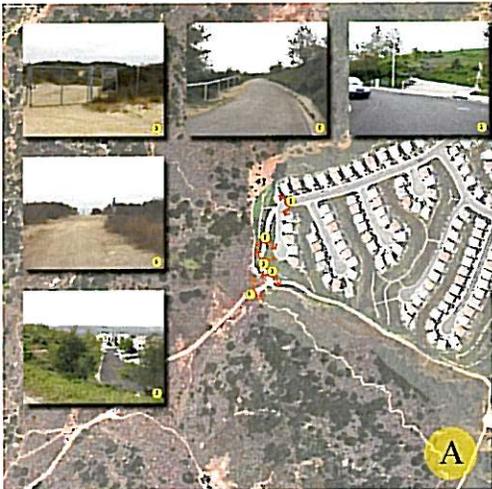


Figure 59: Potential trail connection at Hollyleaf

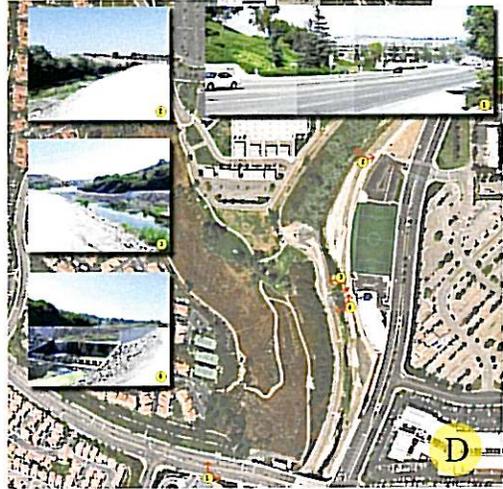


Figure 62: Potential pedestrian bridge at Aliso Niguel High School

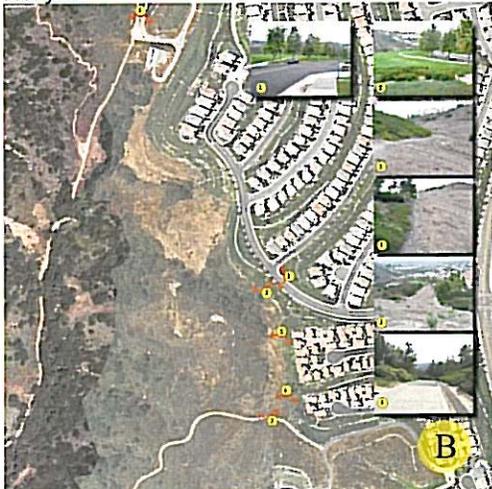


Figure 60: Potential trail connections at Canyon Vista Park and Peppertree

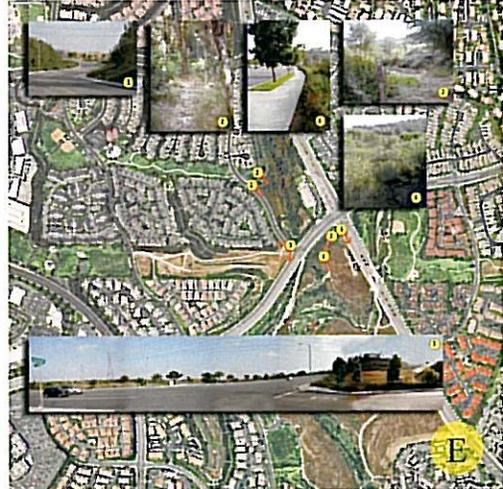


Figure 63: Potential pedestrian passageway under Aliso Viejo Parkway

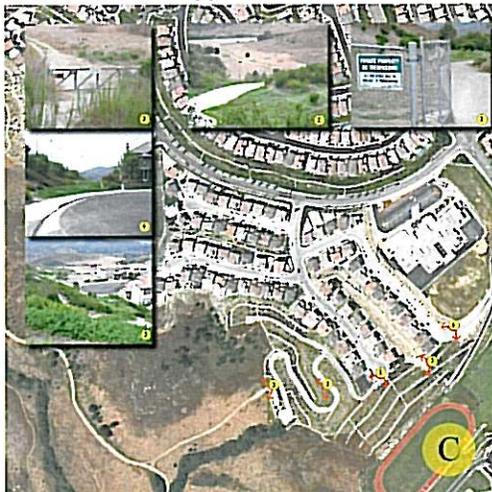


Figure 61: Potential trail connection at Soka University of America

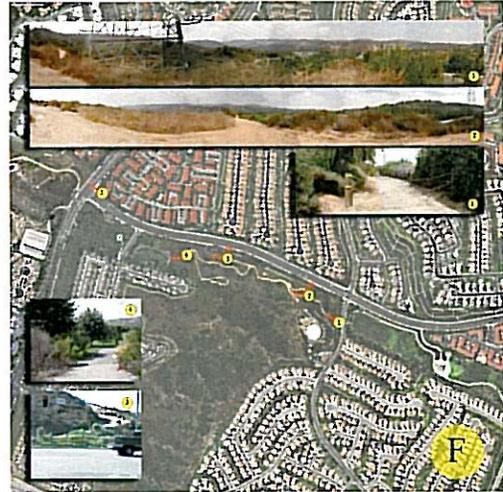


Figure 64: Potential trail connection along west end of SCE Easement



Figure 65: Artist's concept of a pedestrian passageway under Aliso Viejo Parkway at SCE Easement near Moulton Parkway with Citrus Orchard Trail

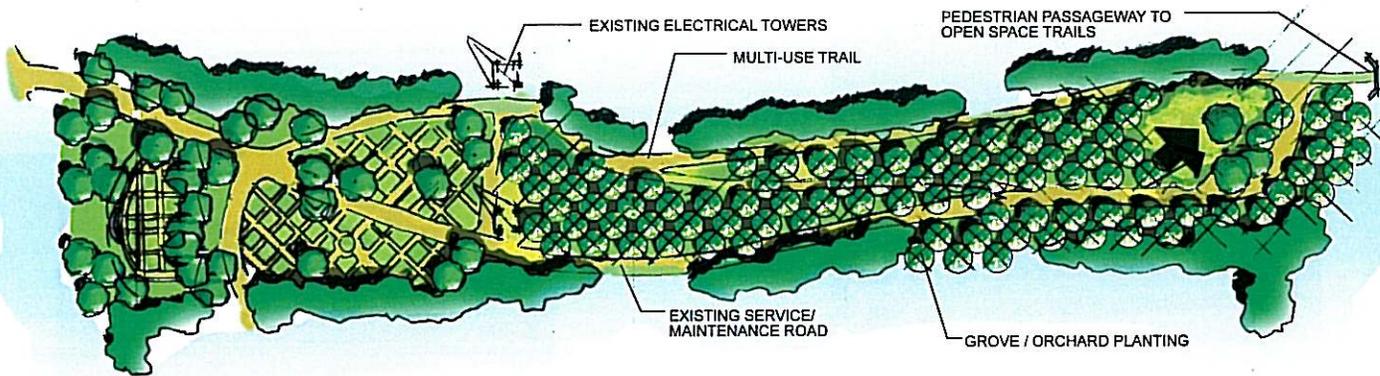
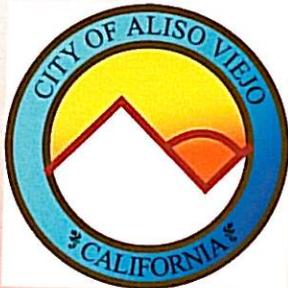


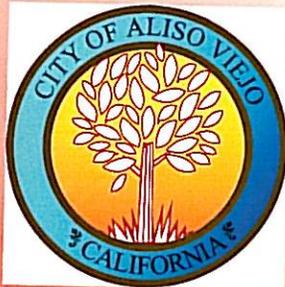
Figure 66: Plan view of Citrus Orchard/Garden Trail at SCE Easement near Aliso Viejo Parkway



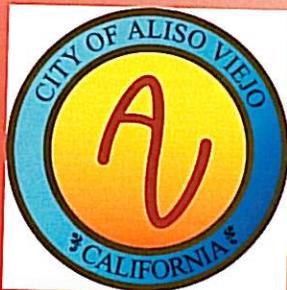
Town Center Trail - 3.1 Miles / 5K



Vista Trail - 6.2 Miles / 10K



Canyon Trail - 7.0 Miles



Ranch Trail - 8.0 Miles

Figure 67: Logos for Thematic Trails throughout Aliso Viejo: Town Center Trail, Vista Trail, Canyon Trail and Ranch Trail.*

Thematic Loop Trail Concepts

Thematic concepts for the trail system were developed from input of residents, staff, and council, to enhance trail users' experience, encourage broader utilization of the trail network, and codify access and distances to key destinations along thematic loop routes.†

The primary objective of creating a thematic loop trail is to connect the community with the cultural, historical, educational, and environmental context that can be experienced during their walk.

Four different themes emerged from site specific opportunities and community input. The first theme is focused on the Town Center. The second theme explains the "Ranch History of Aliso Viejo", the third theme is dedicated to the local environment and the fourth theme will be the "Scenic Vistas of Aliso Viejo." Each trail will tell a story through signage, graphics, art, materials, and exhibits. In addition, each trail will have its own designated theme accent/specialty tree.

To begin with the first trail called Aliso Viejo Town Center is a 3.1 mile/5K loop which will follow the main streets that surround the center of town. It provides amenities such as seating, bike racks, drinking fountains, trash receptacles, fitness elements, bus shelters, and easy access to businesses. The possible accent/specialty tree may be the Arizona Mesquite. A color-coated bike lane follows the trail around the town center and a fitness route is proposed along Grand Park.

The Vista Trail is 6.2 miles/10K, it highlights Aliso Viejo's historic connection to Moulton Ranch. The trail begins at Laguna Coast Wilderness Park at El Toro Road and Aliso Creek Road in the northwestern quadrant of the city winding its way through the Southern California Easement, parallels Aliso Creek Road with moderate elevation gain, south toward Laguna Niguel, and ending at Aliso and Wood Canyons Wilderness Park. The trail may feature plaques in the sidewalks or signage to denote historical information on ranch life during the 1800's and early 1900's. The accent/specialty tree may be the California Pepper.

The second longest trail explains the local environment and will be known as Canyon Trail, approximately 7.0 miles long, beginning at

* It has been suggested to further engage the community in the development of the trail system to involve them in a thematic trail naming process and development of the thematic story line.

Orange County Natural History Museum at Awma Road, north to Aliso Creek Road onto Wood Canyon Drive that offer desirable views of the canyons, north on Aliso Viejo Parkway and over to Aliso Wood Canyons Regional Park. The accent/specialty tree may be the Engelmann Oak and focus the interpretive signage on the surrounding environment.

The Ranch Trail is approximately 8 miles long. The trail begins at Laguna Coast Wilderness Park Trailhead at El Toro Road and Aliso Creek Road in the northwestern quadrant of the city, winding its way up into the scenic Southern California Easement, which parallels Aliso Creek Road with a moderate elevation gain with views of the city. The trail provides easy access to various parks as it moves south toward Laguna Niguel, which ends at Aliso and Wood Canyons Wilderness Park. The accent/specialty tree may be the Italian Stone Pine.

Trail signage will identify destination points along the trail, distance markers and orientation maps. See Appendix for specific trail details.

Pedestrian Walkways and Trail Landscaping

The landscape concept for the trails and greenways is to reinforce a natural or rural character while maintaining the city's chosen plant palette (see Appendix) winding through the otherwise suburban setting. Throughout portions of the community there is a presence of mature vegetation which not only adds to the natural beauty of the trail experience, but more pragmatically, minimizes the amount of new landscaping necessary to improve the appearance of trails and screening the trail from undesirable views and adverse adjacent trail conditions.

In areas where the appearance of the trails warrant improvement and no existing native vegetation is present, planting of native and naturalized trees, shrubs, and groundcover should be installed to create a natural setting



Figure 69: Prototypical multi-use rural character trail

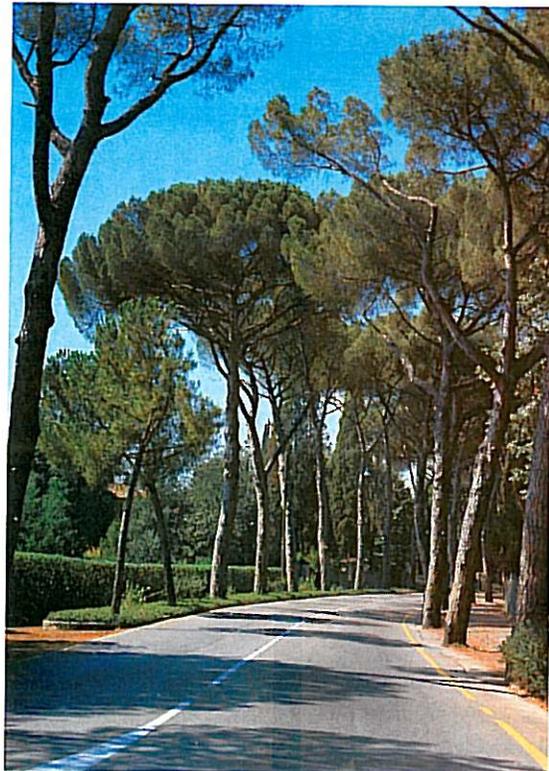


Figure 70: Italian Stone Pine — one of the speciality trees that could be used along the thematic trail system



alongside the trail. New plantings should also be used to identify and improve entry points and trailheads. Plant palette choice should follow the city’s recommended list of drought tolerant plants. In addition, plantings should be used to screen certain land uses adjacent to trails (such as industrial buildings) and to separate the trail from other sensitive or non-compatible uses along the right-of-way.

Landscape treatment along walkways will include speciality trees that reflect the four thematic trails developed for the Master Plan, native or naturalized shrubs and groundcover (see Appendix for City Plant Palette), and wayfinding signage if applicable.

AMENITIES AND FEATURES

A community’s “walkability” and “safety” is a strong indicator of its livability. More and more people are expressing a desire to live in places where their children can safely walk or bike to school, where they don’t have to hop in a car for a short trip to the grocery store, and where they can take an after-dinner stroll along pleasant, neighborhood streets.

The development of Aliso Viejo streetscapes and trails will include site furnishings to accommodate the needs of pedestrians and cyclists throughout the community. Amenities such as benches, informal seating areas, bicycle racks, bicycle lockers, information kiosks, drinking fountains, trash receptacles, and shade elements will be clustered together at specific locations as well as placed alongside the trails at regular intervals.



Figure 71: Prototypical benches and trash receptacles to enhance the city’s identity

Together with landscaping and trail signage, site furniture will be among the most visible elements along the trail, setting the tone for the overall image of the trail system and the community in the minds of the users. It is important that design standards for the trail's site furnishings be established to ensure overall consistency of design and trail image. In addition, specific design considerations will respond to the City's "Crime Prevention Through Environmental Design (CPTED)" strategies as needed.

Benches (Seating)

Seating is recommended to be placed at least every 1000'-1200' along a trail system (approximately 4-5 benches per mile) particularly when considering the young, seniors and people with disabilities¹⁷. It also seems appropriate given the varied topography of Aliso Viejo.

Trash Receptacles

Recycling receptacles are ideal for communities wishing to expand their public space recycling programs without sacrificing aesthetics. Litter and recycling receptacles can be placed adjacent to each other with the recycle version distinguished by a triangular opening and easy-to-understand graphics and litter receptacles to further reduce maintenance of sidewalks and landscaping.

Bike Security / Bike Racks / Bike Lockers

One of the key factors which encourage additional cycle trips to be made is the provision of correctly located, well-designed, secure cycle parking close to the cyclist's intended destination. Providing good quality



Figure 72: Prototypical community center bike rack



Figure 73: Prototypical street bike rack

cycle parking can greatly enhance the attractiveness of the city and help increase cycle use. Cycle parking is vastly cheaper than car park provision and money spent instead on cycle parking can realize considerable savings; especially since one car parking space can provide sufficient space for 12 bicycles.

Short-term Bicycle Parking

Short-term bicycle parking provides shoppers, customers, messengers and other visitors who generally park for two hours or less a convenient and readily accessible place



to park bicycles. Old fashioned racks that hold only the wheel of the bicycle can cause damage.

Long-term Bicycle Parking

Long-term bicycle parking provides employees, students, residents, commuters, and others who generally stay at a site for several hours a secure and weather-protected place to park bicycles. The measure of security for long-term bicycle parking should be greater than that provided by short-term parking.

Long-term bicycle parking is intended to protect against theft of the entire bicycle, its components, and accessories. Three common ways of providing secure long-term bicycle parking are: 1) fully enclosed lockers accessible only by the user; 2) a continuously monitored facility that provides at least medium term type bicycle parking facilities; and 3) restricted access facilities in which short-term type bicycle racks are provided and access is restricted only to the owners of the bicycles stored therein.

Bicycle Lockers

Prolonged exposure to rain can rust a bike's metal frame and components and the sun's ultraviolet rays can deteriorate a bike's soft seat and tires.

Perhaps the easiest retrofit is a bicycle locker. Generally they are as strong as the locks on the door. Good protection from the weather is another benefit. Bike lockers tend to be used most for long-term bicycle commuter parking in areas without a lot of continuous oversight. (See Appendix for more details.)



Figure 74: Prototypical bus bike rack



Figure 75: Prototypical bus shelter with bicycle lockers



Figure 76: Prototypical long-term bicycle lockers

POTENTIAL PROJECTS

The general and specific recommendations in this document have been incorporated into a list of nine potential projects. They encompass all of the recommendations shown on the conceptual Master Plan. The projects are intended to have a positive impact for the community relative to landscape or streetscape enhancements; improved walkability and bikeability; enhanced community identity; and traffic calming strategies. Projects were identified based on location, constructability, and potential significance to the community. Each project could be phased for budget or construction sequencing. Also shown with the list of projects are probable stakeholders having jurisdiction, ownership or easement interest.

Project	Ownership/Jurisdiction
Bridge at Aliso Niguel High School	City of Aliso Viejo / AVCA / School District / High School / ACOE / OCHBP / OCFC / Laguna Niguel / RWQCD / Federal
Entries*	City of Aliso Viejo/AVCA
Intersections**	City of Aliso Viejo/AVCA
Orchard/Gardens at SCE Easement	City of Aliso Viejo / SCE / AVCA
Pedestrian passageway to Aliso and Wood Canyons Wilderness Park at SCE Easement	City of Aliso Viejo / AVCA / SCE / OCHBP /
Thematic Trail Loop: Canyon	City of Aliso Viejo / AVCA / OCHBP / OCFC
Thematic Trail Loop: Ranch at SCE Right-of-Way	City of Aliso Viejo / SCE/ AVCA
Thematic Trail Loop: Town Center	City of Aliso Viejo / OCHBP / AVCA / Businesses
Thematic Trail Loop: Vista (Pacific Park Dr.)	City of Aliso Viejo / AVCA / Local HOA's

*Entries:

Major

1. Aliso Creek Road west of Alicia Parkway
2. Pacific Park Drive west of Alicia Parkway
3. Aliso Viejo Parkway west of Moulton Parkway

Minor

1. Aliso Creek Road at El Toro Road
2. Glenwood Drive at Moulton Parkway

**Intersections:

1. Aliso Viejo Parkway and Pacific Park Drive
2. Aliso Creek Road and Pacific Park Drive
3. Aliso Creek Road and Aliso Viejo Parkway
4. Aliso Creek Road and Glenwood Drive



AMENITY MATRIX

The following amenities were identified by various participants during the planning process. They are identified here as they relate to each of the potential projects.

PROJECT	Benches	Bike Lane Painting	Bike Lockers	Bike Racks	Bus Shelters	Drinking Fountains	Fitness Elements	Kiosks	Lighting	Overlook	Parking	Paving Enhancement	Public Art	Restrooms	Shade Structures	Shuttle Bus	Signage	Trash Receptacles
Bridge at Aliso Niguel High School									•				•				•	
Entries*	•								•			•					•	
Intersections**					•				•			•	•				•	•
Orchard/Gardens at SCE Easement	•					•			•				•				•	•
Pedestrian passageway to Aliso and Wood Canyons Wilderness Park at SCE easement									•				•					
Thematic Trail Loop: Canyon	•	•		•					•	•	•	•	•				•	•
Thematic Trail Loop: Ranch at SCE easement	•	•		•		•	•		•				•	•			•	•
Thematic Trail Loop: Town Center	•	•	•	•	•	•	•	•	•			•	•	•		•	•	•
Thematic Trail Loop: Vista (Pacific Park Dr.)	•	•		•	•		•	•	•		•	•	•	•			•	•

*Entries:

Major

1. Aliso Creek Road west of Alicia Parkway
2. Pacific Park Drive west of Alicia Parkway
3. Aliso Viejo Parkway west of Moulton Parkway

Minor

1. Aliso Creek Road at El Toro Road
2. Glenwood Drive at Moulton Parkway

**Intersections:

1. Aliso Viejo Parkway and Pacific Park Drive
2. Aliso Creek Road and Pacific Park Drive
3. Aliso Creek Road and Aliso Viejo Parkway
4. Aliso Creek Road and Glenwood Drive

PROJECT PRIORITY METHODOOGY

The project team prepared a sample ranking system based upon three criteria deemed to be significant in terms of how it affects a project’s preference relative to a potential sequence of construction:

(A) Benefit – a project having the greatest benefit to the community;
1 = Greatly benefits community 2 = Moderately benefits community 3 = Slightly benefits community

(B) Implementation – a project having the fewest constraints to implement;
1 = No constraints 2 = Moderate constraints 3 = Significant constraints

(C) Cost – a project having the lowest relative cost to construct.
1 = Lower relative cost 2 = Moderate relative cost 3 = Higher relative cost

RANKING

This ranking was used to prioritize the nine projects identified during the planning process. A preliminary opinion of probable construction costs is also included.

(1a) Thematic Trail Loop: Town Center — Phase 1 only	\$650,000
(1b) Thematic Trail Loop: Town Center — Phase 2	\$1.3M
(2) Thematic Trail Loop: Vista	\$2.9M
(3) Intersections 4@\$400,000.....	\$1.6M
(4a) Major Entries 3@\$130,000.....	\$390,000
(4b) Minor Entries 2@\$100,000.....	\$200,000
(5) Orchard/Gardens at SCE Easement	\$1M
(6) Thematic Trail Loop: Canyon	\$7.3M
(7) Thematic Trail Loop: Ranch at SCE Easement	\$6.5M
(8) Bridge at Aliso Niguel High School.....	\$370,000
(9) Pedestrian passageway to Aliso and Wood Canyons Wilderness Park at SCE Easement	Unknown

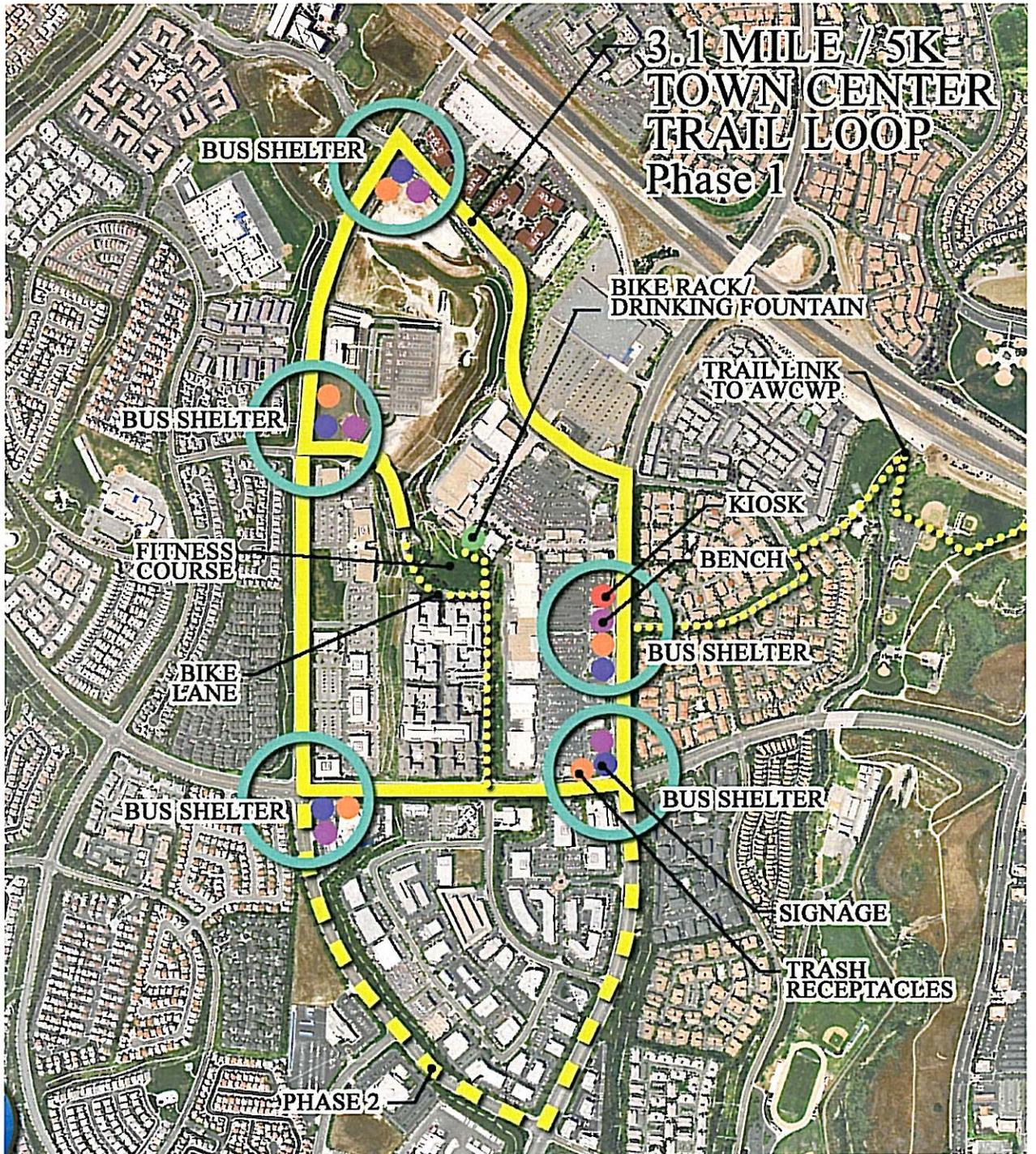


Figure 77: Town Center Thematic Trail Loop Enhancement

PROPOSED TOWN CENTER PROJECT - PHASE 1

Aliso Viejo has a wealth of open space and wilderness trails surrounding the community. However, within the city there is minimal accommodation for walking and biking. The streets are wide encouraging high-speed vehicular traffic, making it unpleasant for pedestrians, bicycle riders and transit users. With current traffic calming practices many communities are putting their “fat” streets on a “diet” resulting in traffic moving at more uniform speeds with the prudent drivers setting the prevailing speeds. In many cities this has resulted in more efficient traffic flow with an increase in Average Daily Traffic (ADT) and decrease in accidents¹².

Thematic Loop Trail Concepts

Thematic concepts for the pedestrian/bicycle trail system were developed with the input of residents, staff, and city council to enhance trail users’ experience, encourage broader utilization of the trail network, and codify access and distances to key destinations along thematic loop routes.

The primary objective of creating a thematic loop trail system is to encourage use of alternative modes of transportation (i.e., walking and biking) by connecting the community with the cultural, historical, educational, and environmental context that can be experienced during their walk or ride.

Four different themes emerged from site-specific opportunities and community input. The first theme explains the “Ranch History of Aliso Viejo”, the second theme is dedicated to the “Scenic Vistas of Aliso Viejo”, the third theme explains the local environment, and the fourth theme enhances the “main street” image surrounding Aliso Viejo Town Center. Each trail will tell a story through signage, graphics, art, materials, and exhibits. Each trail will have its own designated theme accent/specialty tree. Trail signage and information kiosks will identify destination points along the trail and provide distance markers and orientation maps.

The first phase will be the Town Center Loop enhancements. Town Center Loop is approximately three miles long, consisting of the main street that surrounds and links to downtown Aliso Viejo. The first phase will focus on improving the pedestrian connection to downtown from bus stops with provisions for bus shelters, benches, trash receptacles, bike racks, and

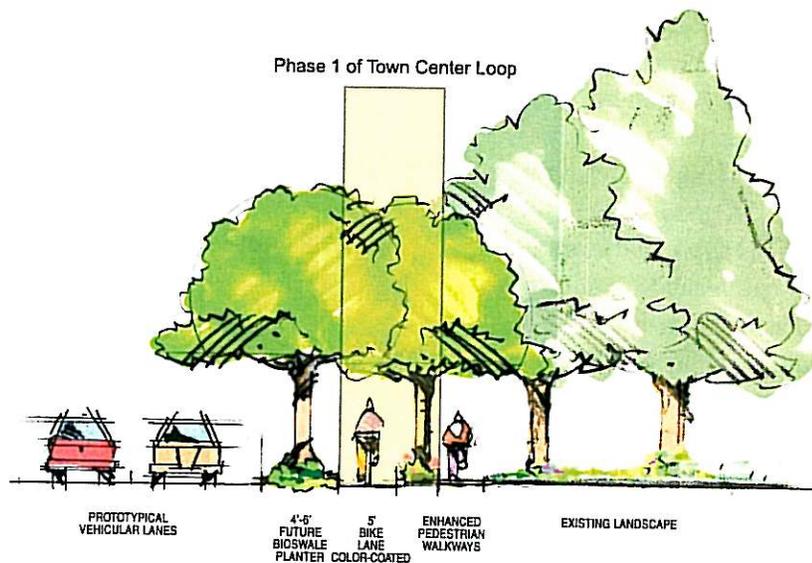


Figure 78: Prototypical Pedestrian/Cyclist Enhancement



drinking fountains. Pedestrian walkways will be enhanced through drought-tolerant landscaping, signage, public art, seating, and lighting. Future bikeway improvements along Autumn Glen (at Aliso Creek Road) will connect the Town Center Loop with Springdale Park through to the Aliso and Wood Canyon Regional Park trail system. In addition, the second phase will complete the trail and offer the community a 3.1 mile or 5K loop to enjoy.

OCTA Transit Connections

There are two main bus routes through Aliso Viejo: 187 and 490, with eight bus stop locations. There will be seven bus stops along the proposed trail network that will provide a rest stop with seating, shade, informational signage, and water (at selected locations). A good bus shelter is an essential part of any successful multi-modal transit system. A good shelter is one that provides shade and seating, has low maintenance requirements, and is vandal resistant. In addition, an ideal shelter is one that allows visibility and easy access to the bus, is comfortable and convenient, provides clear information, and is safe. A well-designed, comfortable shelter can make waiting for a bus a

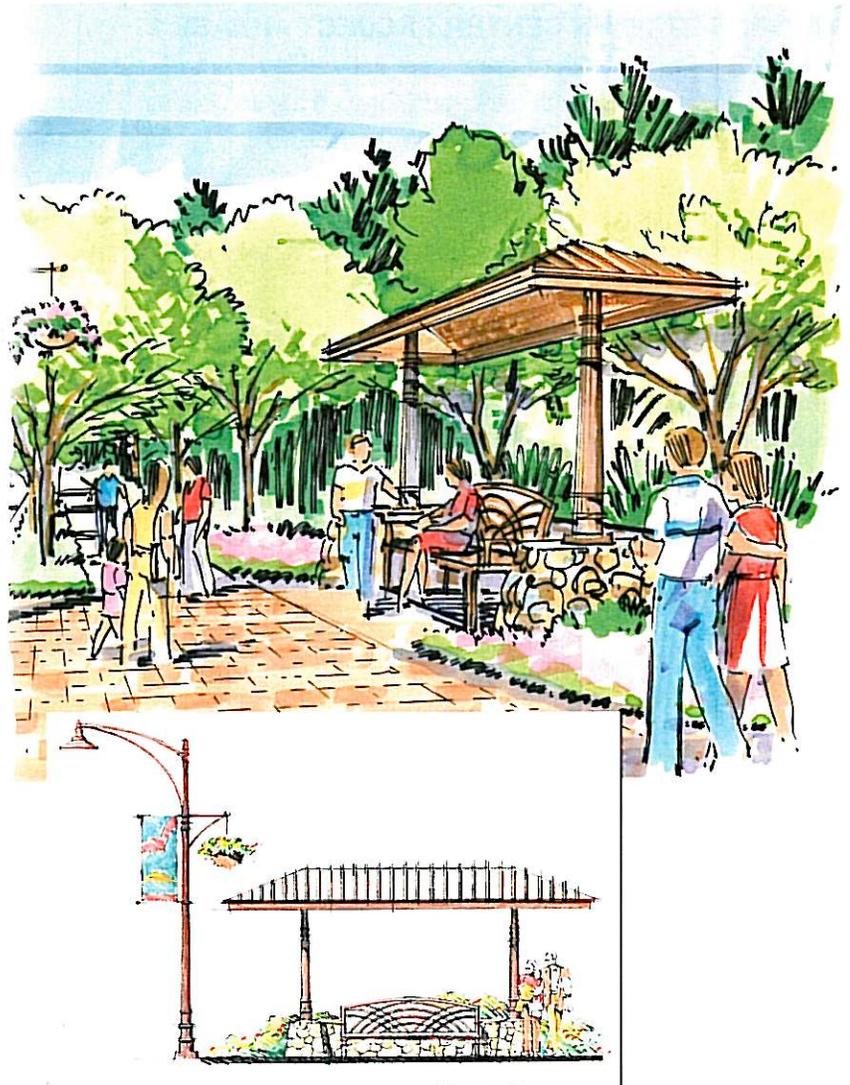


Figure 79: Artist concept of prototypical bus stop enhancement

pleasant — and even interesting — experience! The Town Center Loop has several bus stops that are incorporated into the fabric of the proposed street and trail amenities as major structural elements that will serve as

landmark waystations along the loop trail system.

These enhancements to the Town Center Loop will improve the quality of life by promoting walking and bicycling within the



Figure 80: Artist concepts of pedestrian/cyclist enhancements throughout the loop

community, provide an interface to the regional transit network, and help strengthen the community’s character and identity.

Landscaping

The following are drought-tolerant plant materials that are derived from the City of Aliso Viejo’s Master Plan Plant Palette. The City Engineer and the Planning Director have the discretion to discuss, review, and approve alternate plant materials on a project-by-project basis and accept other materials, which are considered low-water, drought-tolerant. The proposed 24” box accent tree for the Town Center Loop is the Italian Stone Pine (*Pinus pinea*). The various 1- and 5-gallon shrubs that would complement the existing medians would be Rockrose (*Cistus* spp.), Fortnight Lily (*Diets bicolor* and *Diets vegeta*), Munstead English Lavendar (*Lavandula angustifolia* ‘Munstead’), Myrtle (*Myrtus communis* ‘Compact’), Dwarf Purple Fountain Grass (*Pennisetum setaceum* ‘Rubrum Dwarf’), and Rosemary (*Rosmarinus officinalis*).



Figure 81: Example of a color coated bike lane



FUNDING

Most funding programs can be classified as federal, state, regional, local, and private. There are many other sources such as environmental, recreational, and health grants. Mitigation funding from major government and private projects could also provide funding. Private, foundation, and corporate funding should also be pursued.

Bicycle, Pedestrian, and Inter-Modal Projects

Bicycle Transportation Account (BTA)
Bikes Belong Coalition
Caltrans Bicycle Lane Account
Congestion Management and Air Quality
(CMAQ)
Environmental Enhancement and Mitigation
Program (EEMP)
Habitat Conservation Fund
Intelligent Transportation System Integration
Program (TEA 21)
Los Angeles County Metropolitan
Transportation Authority's (LACMTA)
Office of Traffic Safety Program (OTS)
Petroleum Violation Escrow Account (PVEA)
Safe Routes to School
State Highways Operations Planning Program
(SHOPP)
Transportation Enhancements (TE)

Recreation / Trails

Competitive Prop 40 Urban Parks and Park Poor
Communities
Prop 40 per capita funds
Prop 40 Roberti-Zieberg
Regional Parks District Funds
Federal Highway Administration (FHWA)
Recreational Trails Program (RTP)
Transportation Enhancement Activities
National Scenic Byways Program
Land and Water Conservation Fund
US Forest Service Grant Programs
US Fish and Wildlife Service Grant Programs

APPENDIX

Community Workshop Summary..... 72

Traffic Calming Strategies and Devices..... 77

Bus Shelters..... 78

Community Gardens 80

Public Art 81

Pedestrian Walkways and Hiking Trails..... 82

Trail Signage 83

Bikeways, Bike Paths and Bike Trails 85

Bike Security / Bike Racks / Bike Lockers..... 88

City of Aliso Viejo Landscape Plant Palette 90

Preliminary Opinion of Probable Construction Costs..... 91



Aliso Viejo Streets and Trails Amenities Master Plan
COMMUNITY WORKSHOP SUMMARY
D-R-A-F-T
JULY 6, 2005

On Thursday evening, June 23, 2005, approximately fifteen (15) representatives of the community participated in workshop activities involving the streets and trails amenities throughout Aliso Viejo.

A PowerPoint presentation outlined the master planning process and provided examples of street and trail amenities.

After a Site Awareness Tour, participants were divided into random discussion groups. Individuals were given a sheet of colored paper and asked a series of questions regarding street and trail amenities in Aliso Viejo. The workshop participants were asked to record their group's top 5 answers to each question.

Group responses were tabulated and the overall workshop results (group consensus) was presented to the participants.

SUMMARY OF FINDINGS

- 1. What do you like most about the Aliso Viejo streets, trails, and pedestrian amenities you have seen on the tour?**
 - ❖ Trails
 - ❖ Views / Vistas
 - ❖ Parks

- 2. What do you dislike most about the Aliso Viejo streets, trails, and pedestrian amenities you have seen on the tour?**
 - ❖ Lack of Signage
 - ❖ No Shade
 - ❖ No Connectivity

- 3. What additions, connections, or improvements do you suggest to encourage more people to walk or bicycle in Aliso Viejo?**
 - ❖ Directional / Interpretive Signage
 - ❖ Connections to Destinations

- 4. What do you believe are the most important "trail linkages" in making Aliso Viejo a more walkable/ bikeable community?**
 - ❖ Town Center
 - ❖ School / University
 - ❖ East-West (Edison Easement)

GROUP CONSENSUS:

What do you like most about the Aliso Viejo streets, trails, and pedestrian amenities you have seen on the tour?

GROUP 1	GROUP 2	GROUP 3
Potential for Improved Connectivity	Natural, Undeveloped Settings with Great <u>Views</u>	<u>Trails</u> – walking, user friendly and natural setting
Wideness / Width of <u>Trails</u>	Bike <u>Trails</u> Away From Roads (Aliso Creek)	<u>Views</u> – <u>Vista</u> Points
Destination Points / <u>Vistas</u>	Size of <u>Parks</u> – Great for Picnics or Even Ball Games	The Clean Streets
Quality of Infrastructure	Shortcuts and Interconnects Between Parks and Town Center	
Grand <u>Park</u> Design		
Access Points to Nature Reserves		

TOP LIKES
TRAILS
VIEWS / VISTAS
PARKS



GROUP CONSENSUS:

What do you dislike most about the Aliso Viejo streets, trails, and pedestrian amenities you have seen on the tour?

GROUP 1	GROUP 2	GROUP 3
No Parking	Lack of Shade	No Shade Trees
Lack of Signs / Maps	Narrow Sidewalks	Boring Landscape
Crossings Over Arterials	High-speed Cars	No Directional, Interpretive Signs
Not Enough Amenities (benches, lighting, etc.)	Not Enough ADA Compliant Parks and Trails	Tollroad On/Off Ramps Unattractive
No Connectivity	Trash and Dog Poo	No Connectivity
Car Centricity	More Maps and Signage	
No Branding (sense of place)	Lighting/Safety at Night	
	Lack of Entrances	

TOP DISLIKES
LACK OF DIRECTIONAL / INTERPRETIVE SIGNAGE
NO SHADE
NO CONNECTIVITY

GROUP CONSENSUS:

What additions, connections, or improvements do you suggest to encourage more people to walk or bicycle in Aliso Viejo?

GROUP 1	GROUP 2	GROUP 3
Signs / Directions / Kiosks	Shortcuts / Connecting Trails	Wayfinding/Map Education on Trails, "You are Here"
Interpretive Features / Destination Points	Mounted Maps and Markers	Connectivity / Trail Linkages
Bicycle Enhancements / Shuttle	Raising Awareness (signage)	Amenities (trees, benches, shade structures) that calm traffic and promote safety
Parking	Separation of Sidewalks and Streets	
Solar Lighting		
Wider Trails / SW		

TOP ADDITIONS/CONNECTIONS/IMPROVEMENTS
DIRECTIONAL / INTERPRETIVE SIGNAGE
DESTINATIONS / CONNECTIONS



GROUP CONSENSUS:

What do you believe are the most important "trail linkages" in making Aliso Viejo a more walkable/ bikeable community?

GROUP 1	GROUP 2	GROUP 3
Edison Easement Connectivity East to West	Connection to Town Center / Schools	To Town Center (2-3 miles)
School/University Connections	Signage / Lighting / Signals / Rest Areas	To James Dilly Preserve
Town Center Linkages		El Toro to Aliso Wood to Laguna (vertical link)

TOP TRAIL LINKAGES
TOWN CENTER
SCHOOL / UNIVERSITY
EAST-WEST (EDISON EASEMENT)

Traffic Calming Strategies and Devices¹⁸

TYPE	DESCRIPTION
Curb extensions "pinch points"	Curb extensions, planters, or centerline traffic islands that narrow traffic lanes to control traffic and reduce pedestrian crossing distances. Also called "chokers."
Speed tables, raised crosswalks	Ramped surface above roadway, 7-10 cm high, 3-6 m long.
Mini-circles	Small traffic circles at intersections.
Median islands	Raised island in the road center (median) narrows lanes and provides pedestrian with a safe place to stop.
Channelization islands	A raised island that forces traffic in a particular direction, such as right-turn-only.
Tighter corner radii	The radius of street corners affects traffic turning speeds. A tighter radius forces drivers to reduce speed. It is particularly helpful for intersections with numerous pedestrians.
Speed humps	Curved 7-10 cm high, 3-4 m long hump.
Rumble Strips	Low bumps across road which makes noise when driven over.
Chicanes	Curb bulges or planters on alternating sides, forcing motorists to slow down.
Roundabouts	Medium to large circles at intersections.
Pavement treatments	Special pavement textures (cobble, bricks, etc.) and markings to designate special areas.
Bike lanes	Marking bike lanes narrows traffic lanes.
"Road Diets"	Reducing the number and width of traffic lanes.
Horizontal shifts	Lane centerline that curves or shifts.
2-Lanes narrow to 1-Lane	Curb bulge or center island narrows 2-lane road down to 1-lane, forcing traffic for each direction to take turns.
Semi-diverters, partial closures	Restrict entry/exit to/from neighborhood. Limit traffic flow at intersections.
Street closures	Closing off streets to through vehicle traffic at intersections or midblock.
Stop signs	Additional stop signs, such as 4-way-stop intersections.
"Neo-traditional" street design	Streets with narrower lanes, shorter blocks, T-intersections, and other design features to control traffic speed and volumes.
Perceptual design features	Patterns painted into road surfaces and other perceptual design features that encourage drivers to reduce their speeds.
Street trees	Planting trees along a street to create a sense of enclosure and improve the pedestrian environment.
Speed reductions	Traffic speed reduction programs, with increased enforcement of speeding violations.



BUS SHELTERS

A good bus shelter is an essential part of any successful urban mass-transit system. A good shelter is one that has low-maintenance requirements and is vandal resistant. In addition, an ideal shelter is one that allows visibility and easy access to the bus, is comfortable and convenient, provides clear information, and is safe. An unused shelter is a waste of money and an unnecessary maintenance problem. A well-designed, comfortable shelter can make waiting for a bus a pleasant — and even interesting — experience!

- Good locations for bus shelters are near retail stores that have products related to bus riders' needs (e.g. bakery, flower shop, newsstand) and are open late at night; near office building entrances within view of a security guard; near street vendors; and in conjunction with other amenities such as telephones, benches, and so on.
- Bus shelters near intersections should be set back from the crosswalk approximately 10 feet to avoid conflicts with pedestrian traffic. If a bus stop is on the far side of an intersection, the shelter should be located a minimum of 40 feet from the crosswalk to allow adequate room for the bus to stop.
- A distance of 3 feet should be allowed between the bus shelter and the curb for free movement in boarding and exiting from the bus.
- Bus shelters should have their long side parallel to the sidewalk to minimize interference with pedestrian traffic.
- Exit and entry openings should be oriented so that people are protected from the wind. However, it is important to keep the side of the shelter facing the street open to allow passengers to board or exit the bus easily.
- Elements such as information kiosks or vendors that can obstruct the view of oncoming buses should be located "down-stream" from the shelter.

A bus shelter should be designed to reflect the city in which it is located. This can be accomplished through the use of local materials and by the design details. Often standard shelters can be adapted to reflect the unique characteristics of the area in which they are located.

Within this context there are four general qualities that any well-designed bus shelter should have. These qualities are visibility, accessibility, comfort and convenience, and information.

Visibility

People must be able to see the bus coming. Poorly designed shelters that obstruct views of approaching buses will force people to leave the shelters to watch for oncoming buses.

Accessibility

People must be able to board the bus conveniently. To many riders this is the most important aspect of a bus shelter's design, because people like to be close to the point where the bus door will open so they will be sure of getting on. The shelter should not obstruct this process of boarding.

Comfort and Convenience

Shelters should provide a place to sit, protection from weather, and a feeling of safety and security.

Information

People need to know when a bus will arrive and where it will go. This is especially important for people who are unfamiliar with the service, such as tourists.

Design Guidelines

Side Panels: The following design guidelines can be used in designing or selecting a bus shelter:

- Side panels should generally not be used on the curbside of the shelter, except on very narrow streets with heavy traffic. If side panels are used on the curbside, an opening at least 3 feet wide needs to be provided to allow people access to the buses.
- Side panels should be mounted 3 inches off the ground so that debris will not collect inside the shelter. If more than 3 inches off the ground, they will not keep out drafts.
- Side panels should be made of clear glass, as noted below.

Roof:

- A pitched roof should be used to prevent the collection of rain, snow and debris.

Seating and Leaning Rails:

- The amount of seating should be based on both the number of people who will use the shelter and the amount of time people will spend waiting. Where people wait for a long time, or where the shelter is used by the elderly or infirm, more seating is generally needed than in areas where the bus comes more frequently.
- Leaning rails should be provided whenever possible. A wood rail at 3 feet 6 inches above the ground is best.

Lighting:

- Lights should be housed in a protective casing to reduce vandalism, and directed so that they illuminate the waiting and boarding areas. Solar LED lighting technology is suggested for its reliability, cost-effectiveness, and visibility at night compared to conventionally-powered shelter lighting.

Signage:

- Schedule, route information, and a map should be located in or next to bus shelters but not so that the view of the oncoming bus is blocked.

Size:

- The size of a bus shelter depends on the climate as well as the number of people who are expected to use it. (In order to determine the expected use, count the number of people who currently use a particular stop at different times of day and week.) Where there are large fluctuations between peak and off-peak use, a bus shelter can be designed with leaning rails, overhangs, and seating areas outside of the shelter to accommodate the differences.



Maintenance and Management

To be durable, bus shelters should be composed of structural members and inset panels, not snap-together “curtain walls” or decorative sections that are easily vandalized. In general, a steel structure is best. Wood is not as durable and concrete tends to be monolithic in appearance and tends to discolor and soil easily. For flexibility, installation should be by means of bolted attachment rather than by casting in place.

There should be few movable parts, as they are easily broken. Parts should be easy to reorder and replace and should not require removal of other parts or sections for access to make the repair. Materials should be vandal-, graffiti-, weather-, salt-, and rust-resistant, and easy to clean. A protective finish can be applied to steel in cases where salt damage is severe. Herculite glass side panels resist scratching, are strong, shatter-resistant, and easy to clean. Plastic or Plexiglas is not recommended as it tends to discolor and scratch easily, reducing visibility from the shelter. The manufacturer of the bus shelter should be consulted as to the best combination of materials and finishes for a particular area.

In addition to these specific issues it is also important to consider the bus shelter within the context of the overall transit system. Cooperation is necessary, therefore, among the city, the transit company, and any other parties involved in the maintenance and management of the shelter. This requires a commitment by the city to a high level of maintenance and management. There is considerable research that shows that a well-maintained bus shelter will be better respected and less subject to vandalism and other abuses than one that is poorly maintained. A good maintenance program is also contingent upon a bus shelter that is designed to minimize the amount of litter collection, cleaning, and minor repairs needed, as was described previously. A good maintenance program should include a program for monitoring the use of bus shelters once they are installed.

Financing

Alternative financing mechanisms for bus shelters are becoming increasingly popular in many cities. Using private contractors to construct and maintain the shelters is one way to obtain and maintain shelters at no public cost. Private contractors typically use revenues generated by advertisements on the shelters. If this method of financing is used, it is especially important that the design, locations, and amenities that are to be provided within the shelter be specified in the contract between the city and the contractor.

COMMUNITY GARDENS

Encourage and support community gardens as important open space resources that build communities and provide a local food source.

- Encourage neighborhood groups to organize, design, and manage community gardens particularly where space is available that is not suitable for housing, parks, pathways, or recreation facilities. Ensure that garden plots are allocated according to a fair and equitable formula.
- Require all publicly subsidized community gardens to maintain regular “open to the public” hours.
- Include community gardens in the planning for the Edison Right-of-Way.

- Pursue community gardens in high-density areas with little private open space suitable for gardening.
- Increase support for community gardens through partnerships with other government agencies, particularly neighborhood groups, businesses, and civic and gardening organizations.
- Support school-based gardens and the involvement of youth in growing and preparing their own food.

PUBLIC ART

The authors of *Livable Cities* proposed excellent criteria for evaluating art in public places that they feel “should make a positive contribution to the life of the city, and to the well-being of its inhabitants...[it] should generously give the public some positive benefit — delight, amenity, fantasy, joy, sociability — in a word, a sense of well-being” (Crowhurst-Lennard and Lennard 1987, 89, 90). Among the criteria they suggest are that art in a public place should...

1. Create a sense of joy, delight, and wonder at the life of the city.
2. Stimulate play, creativity, and imagination by drawing on legend, metaphor, mythology, or history and/or by creating a form that can be manipulated, sat on, or walked under.
3. Promote contact and communication.
4. Provide comfort and amenity by incorporating steps, ledges, or railings for sitting or leaning within or close to the work of art.
5. Encourage interaction.

Public art will play an important role in creating an attractive and interesting environment for Aliso Viejo. Encourage the provision of public art in the shopping centers, open spaces and public buildings. Support the “percent for art” policy in large developments where 1% of the development costs are set aside for the provision of public art. Public art projects should be undertaken with, and driven by the community. Emphasis will be placed on public art that reinforces the character of each neighborhood, and may take the following form:

- Signs: posters, maps, texts, inscriptions, and banners.
- Street signage set into pavements.
- Street furniture: decorative seating, lighting, clocks, canopies, railings, and gates.
- Floor works: paving, mosaics, tiles ceramics, or pebbles.
- Wall works: glass, murals, and photography.
- New media: film, video, light, contemporary technology.
- Events: composition of music, dance, or festivals as part of celebrations.

Camillo Sitte, in his book, *The Art of Building Cities* (1889/1945, 72) reminded us: “*It must be remembered that art has a legitimate and vital place in civic arrangement, for it is this kind of art alone that daily and hourly influences the great mass of people...*”



PEDESTRIAN WALKWAYS AND HIKING TRAILS

Aliso Viejo has an extensive network of well-maintained sidewalks, privately-owned trails within and connecting residential and commercial areas, as well as hiking trails in the Aliso and Wood Canyons Wilderness Park. The guidelines will define and give direction for refining and strengthening the existing trail network and roadways as ongoing improvements are implemented, especially between Town Center and other commercial districts, office complexes, neighborhoods and schools.

Pedestrian Walkways

- The use of permeable surfaces are encouraged, e.g. pervious concrete.
- When asphalt, concrete, or any other surface is the material of choice, it shall be of the highest quality and craftsmanship.
- Separate pedestrian walkway from vehicular traffic by use of a parkway or tree medians.

Hiking Trails (specifically SCE Easement)

- The width of hiking trails shall vary depending on the conditions of the terrain and on the need to provide maintenance and emergency vehicle access.
- The minimum hiking trail tread width shall be two feet, recommended five feet. Trails shall be punctuated with rock outcrops and benches to provide resting areas along the trail.
- Brush, shrubs, and tree branches shall be cleared a maximum of two feet on each side of the hiking trail tread for safety and to allow hikers room to step to the side as necessary.
- All overhanging trees shall be pruned to allow for a maximum of eight-foot clearance along the trail.
- Trails shall be constructed using natural soil, decomposed granite, or road base.
- Destination points along trail routes should be clearly marked with signage and mapping.
- Clearly marked trailheads are vital to providing access to regional recreation opportunities.

Trail Fencing

Trail fencing should be provided where needed to control trespass, confine users within the trail width, or for safety, such as at steep slope areas, bridges, adjacent to the golf course, high-speed traffic, and other potentially hazardous areas. Fences shall be made of sustainable wood products, or recycled plastic or concrete wood-look products, and wire cable. Plantings such as trees, hedges, or large rocks can also serve as trail fencing or barriers.

Pedestrian Walkways and Trail Lighting

There are several important reasons for pedestrian lighting: (1) increases safety in areas that people use, such as pathways and bus stops; (2) aids in geographic orientation, as people can use well-lit focal points (fountains, buildings, bridges, towers, sculpture, etc.) as landmarks to help them find their way; (3) highlights the identity and history of an area, for well-lit historic details draw attention to the uniqueness of an area; and (4) creates a sense of drama for the city.

Lighting the edges of the path — particularly any interesting gateposts, fences, and specimen trees visible from the adjacent street — help define and identify the interior space. Lighting sculpture, fountains, bridges, tunnel, and other major elements in a city, especially those visible to passing pedestrians and vehicles, provide another form of wayfinding.

The difference between a pedestrian-lit street and a highly illuminated highway automatically signals drivers that they have entered a new and different zone and compels them to slow their driving speed.

The off-road trails are intended for use during daylight hours only other than active recreation areas; therefore, it is not anticipated that those trails will be lighted. However the installation of security lighting at trailheads, road crossings, bridges, and other activity areas should be considered if conditions warrant.

TRAIL SIGNAGE

A variety of sign types should be considered for use along the trail to enhance the trail users' ability to navigate and to provide a safe environment for users. These include:

Trail identity signs: It is important that the trails be identified for the public in an appropriate and consistent manner. The trail identity sign is intended to serve two functions: identify points along a trail and establish a consistent and lasting identity for the project to the public, based on the thematic trail concepts discussed. It is important that these signs incorporate a trail logo, signage, and landscaping unique to each trail.

Directional signs: Along the trail, there should be directory signs that give general guidance information to trail users, such as nearby points of interest, trail support facilities, or “you are here” orientation. These signs will help users access many of the key destinations throughout Aliso Viejo and will encourage the use of trails as a means of accessing those destinations.

Distance/Mile markers: Mile markers serve many functions: orientation for trail users and emergency personnel and travel distance for trail users. Distance along the trail should be marked in quarter-mile intervals by a mileage marker sign placed off the side of the trail. Information included on the markers should be distance in miles and the specific logo for each portion of the trail system that enable users to follow a designated route on interconnecting trails. Marking routes in this manner is a convenient and effective way of giving users a self-guided experience.

Orientation signs: Welcome panel, showing a map of Aliso Viejo trails amenities and larger regional trail system, needs to be positioned at various access points: El Toro Road/Aliso Creek Road; Cedarbrook Avenue/Edison Easement; Aliso Creek Road/Wood Canyon Drive; Pacific Park Drive/Aliso Viejo Parkway; etc.

Regulatory signs: Regulatory signs will provide information on the operational requirements for trail users — this includes right-of-way (e.g. bicyclists yield to pedestrians), speed limits, stop signs, and prohibitions on motor vehicles. Warning signs are generally used near intersections, where a trail narrows, near driveways, and



other locations where there is a change that could impact user safety. Keep the tone constructive and upbeat when creating regulatory signs. Users are more apt to obey rules that are presented in a positive way.

Durability: Provide a durable sign that will withstand the outdoor environment.

- *Guidelines:*
 - o Durable woods such as redwood or cedar
 - o Aluminum
 - o Plastic
 - o Ceramic
 - o Fade resistant paint and ink should withstand weathering and UV light

Readability: Provide a sign that will be easily readable.

- *Guidelines:*
 - o Clean lines
 - o Color coded
 - o A simple shape that can be well executed

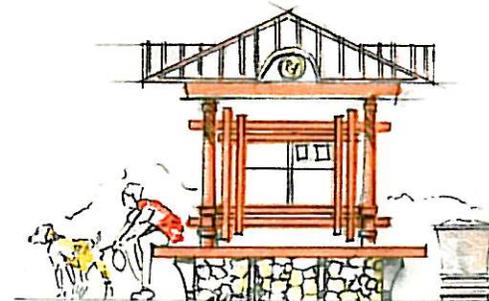
Sign size should be the minimum required to convey the message to the viewer. The size of lettering should be determined by considering legibility factors such as distance, mode of transportation, and speed at which the intended audience is traveling. One-inch letters are adequate for most signs.

Safety/etiquette signs: Signage may also be used as a means of enhancing user safety along the trail routes. There will be points along the trail where bicyclists and pedestrians may encounter potential conflicts, either with motor vehicles or each other. Traffic safety signs can raise the awareness of motorists to the presence of bicyclists and pedestrians and can help ensure that the range of trail users – including bicyclists, pedestrians, and wheelchair users – are respectful of one another and behave in a safe manner.

Trail etiquette signs: Right of way signs that use international symbols show the order of yielding: riders first, pedestrians second, cyclists third. (Source: www.americantrails.org)

Kiosk Bulletin Board Signs: Kiosk bulletin board signs should be provided at each trailhead. Kiosk bulletin board signs should include, at the minimum:

- Information advising trail users of the rules and regulations, trail etiquette, potential hazards, permitted trail uses, and emergency information.
- Explanation of accessibility levels in practical clear writing.
- A map(s) of the trail and/or trail system, showing:
 - o Each trail, including trail name, allowed users, length to the nearest ¼-mile, and elevation points of the trail.
 - o Location of rest areas and/or trailheads
 - o Trail highlights, such as vista points
 - o Any hazards and seasonal conditions, if applicable
 - o Wetland or habitat areas, if applicable



- o Common plants (i.e. poison oak) and animals
- o Hours of operation, if applicable
- o Phone number where to obtain other information

Sign placement: It is recommended that signs be placed within 19” of the trail’s edge at a height of 30-34” from panel bottom to the trail surface. Standard, low profile interpretive panels should be mounted at a 45-degree angle for maximum viewing by all visitors including those in wheelchairs. Vertical signs should be mounted at a height of 24-28” from panel bottom to the trail surface. Point size should range from 60-72 point for titles to 18 point for captions. For readability, the body text is typically flush left and ragged right. Visual images should be used consistently and frequently. Tactile exhibits need to be mounted at a maximum height of 36” to accommodate children and visitors in wheelchairs. Visual media should be integrated throughout.

Sign maintenance: At least once a month during routine ground maintenance, the interpretive panels and frames should be wiped down with a clean damp cloth free of solvents and cleansers. Graffiti, if present, should be treated immediately.

BIKEWAYS, BIKE PATHS AND BIKE TRAILS

The City of Aliso Viejo has the potential to be a place where bicycling and walking are encouraged and fostered, where all streets are bikeways, and where safety, environmental education, and convenience facilities are provided as an ongoing part of transportation and recreational planning and programs.

The four greatest impediments for commuters choosing cycling or walking to work for errands are safety, weather, distance, and inadequate facilities for storage or changing at destinations. While Aliso Viejo cannot control weather or people’s commuting distance, the city benefits from the walk-ability of its downtown and bike-ability along the many bike lanes, paths, and trails. In locations such as the Town Center where the infrastructure is in place, bicycling and walking trips can take the place of short auto trips. Improvements such as new and expanded bike paths, bicycle storage facilities, and safe sidewalks and crossings can encourage more bicycling and walking in and around the city. An outreach program could be developed with a Bike/Pedestrian Committee and/or other interested organizations in town to promote increased bicycling and walking.

Shifting an additional 10 trips from single occupant automobiles to bicycles or walking through implementation of an outreach program and new trails and bike paths could reduce up to 9,234 pounds of CO₂ a year and could save Aliso Viejo commuters up to \$563 a year in fuel savings¹⁸.

CALCULATIONS:

- 10 reduced round trips per day – or 20 total auto trips reduced per day
- Trips would average 2 miles each (distance from Town Center to most residential locations)



- *Each day 40 vehicle miles (20 total trips x 2 miles each) would be removed from the network*
- *The 40 vehicle miles equate to roughly 2.0 fewer gallons of fuel burned each day (40 miles / 21 avg mpg)*
- *The 2.0 fewer gallons of fuel burned each day equates to 38.5 pounds of CO₂ each day, or approximately 9,234 pounds of CO₂ over eight months.*
- *The 2.0 fewer gallons of fuel burned each day equates to \$2.75 saved each day, or approximately \$563 per year*

Guidelines

When considering the development of a long-range project in several phases to be accomplished over many years, it is important to establish design guidelines in order to ensure consistency in each phase of development.

- Bikeways shall be standardized to the extent feasible in a comprehensive Master Plan.
- Bicycle roadways shall be separated from other slower moving non-motorized routes with a physical barrier.
- Trail design criteria should comply with the following:
 - AASHTO – American Association of State Highway and Transportation Officials;
 - ADA – Americans with Disabilities Act of 1990;
 - Caltrans Highway Design Manual;
 - Local Building Codes; and
 - Aliso Viejo General Plan

Bicycle Lanes

Bike lanes will not address the needs of all cyclists. Cyclists are diverse and they have different motives for using bicycles. These differences affect their needs. Adult cyclists using their bicycles as transportation require the shortest, quickest route. While children use their bicycles for play and can behave unpredictably, sports and racing cyclists tend to form groups and travel fast. These differences make it impossible to design cycle routes that simultaneously satisfy all users. However, one essential design element to foster bicycling use is safety¹⁹.

Bicycle lanes are desirable to delineate available road space for use by bicyclists while accommodating motorists and to provide a safe environment for more predictable movements by each. Bicycle lane markings can increase a bicyclist's confidence in motorists not straying into his/her path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid bicyclists on their right. Median parkways that separate the bicyclist from pedestrians and vehicles have been proven to be the most effective in public safety.

Nationally, around 800 bicyclists die annually. Essentially all of these deaths involve a motor vehicle collision. The Federal Highway Administration in 1995 set a long-term goal of cutting the number of motor

vehicle fatalities of bicyclist by 35% by 2005. Essentially an investment in an extensive bike lane system (94% of arterial streets) has created a safer environment for bicyclists. The most important measure to enhance safety is separation of people, bicycles, and vehicles, as well as controlling vehicle speed. A survey of bicyclists report that “streets with bike lanes clearly have the lowest frequency of crashes.”²⁰

Creating bicycle-friendly streets means designing and operating all streets with the needs of bicyclists considered. Initial steps include developing a system of bike lanes with varying facility designations. That system would be coordinated with existing and proposed regional bikeways.

Class I, II, & III Facility Designations

- **Class I Bikeway (Bike Path)** – Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow minimized.
- **Class II Bikeway (Bike Lane)** – Provides a striped lane for one-way bike travel on a street or highway, which gives additional width where bicycles should ride.
- **Class III Bikeway** – On-street shared-use designated bicycle routes. These are signed routes that provide improved conditions and direct connections to destinations or between other bike facilities.

The Caltrans *Highway Design Manual*, Chapter 1000, entitled “Bikeway Planning and Design,” is the design standard for all bicycle facilities in California. This document will be used for Class I, II, and III bikeways throughout the trail alignment. Included in this section are criteria for trail width, vertical, and horizontal clearance to obstructions, sight distance, grades, drainage, lighting, signing, and striping.

Caltrans Highway Design Manual

	Class I (2-way paths) Bikeway		Class II (1-way bike lanes) Bikeway	
	minimum	recommended	minimum	recommended
Width	7.9'	11.8'	3.9' without gutter, 4.9' with gutter	5.9' – 7.9'
Vertical clearance	8.2'	9.8'	8.2'	9.8'
Horizontal clearance	2.0'	3.2'	4.0'	5.0'-7.9'
Grade	5% max		N/A	N/A

Under ideal conditions, the minimum one-way bicycle lane width is 3.9' feet. However, certain edge conditions dictate additional desirable bicycle lane width (4.9 feet). Bicycle lanes should be located between the motor vehicle lanes and the roadway shoulders. A width of 5.9-7.9 feet is preferable especially where substantial truck traffic is present or where vehicle speeds exceed 35 mph (55km/h). However, bike lanes in excess of 6 feet in width can be undesirable as they encourage riding two abreast and also may be mistaken for a motor vehicle lane.

Uphill bicycle traffic should be provided a climbing lane – a maintained shoulder or bike lane that has a minimum width of 4 feet. Narrow shoulders are not appropriate for bicyclists traveling downhill at a high



rate of speed. A wide outside lane is preferred. If a climbing lane is provided on the uphill, and no shoulder or bike lane is provided on the downhill, it is important to apply an uphill arrow to the pavement on the climbing side, along with other bike lane symbols, so that bicyclists understand that the climbing lane is one-way.

Bike lanes provide a significant benefit to safe and efficient bicycle circulation. Conflicts between bikes and autos are dramatically reduced when on-street lanes are installed. Having separate identifiable areas on the street for bikes and autos places the travelers in predictable locations.

When considering bike path striping some thermoplastic tapes can be slippery when wet and therefore, should be avoided. Four-inch wide edge stripes and centerlines help guide bicyclists at night, as well as route bicyclists around curves and other hazards. The stripes are sometimes used as a substitute to path lighting.

Replace drainage grates with approved bicycle-safe grates for use according to varying types of water flow. As an alternate drainage grates can be placed outside of the lane sharing area.

Signalized intersections along the trail route will include bicycle-sensitive loop detectors on the roadway. If there are bike lanes on the intersecting street, the city will, wherever possible, install separate detectors in the bike lanes. Push-button signals or loop detectors will be provided for trail users to facilitate crossing the intersection.

BIKE SECURITY / BIKE RACKS / BIKE LOCKERS

Short-Term Parking

Short-term bicycle parking provides shoppers, customers, messengers and other visitors who generally park for two hours or less a convenient and readily accessible place to park bicycles. Old-fashioned racks that hold only the wheel of the bicycle can cause damage.

Locate racks within 50 feet of a main entrance - short-term parking should be near the entrance bicyclists' use. Distribute short-term parking - where there is more than one building on a site, or where a building has more than one main entrance, the parking must be distributed to serve all buildings or main entrances. Cover if more than 10 short-term spaces are required, at least 50% should be covered. Locate parking in visible and prominent locations, if cyclists are unaware of the parking it won't be used. Locate parking in areas where there is high pedestrian activity having lots of eyes and ears nearby adds to bicyclists' perception of security. A bicycle rack that is visually or physically isolated will not be used and is a target for thieves.

Long-Term Parking

Long-term bicycle parking provides employees, students, residents, commuters and others who generally stay at a site for several hours a secure and weather-protected place to park bicycles. The measure of security for long-term bicycle parking should be greater than that provided by short-term parking. Locate on site or within 750 feet of the site - daily bicycle commuters are generally willing to walk a short distance,

about three blocks, if they are confident the parking is secure. At least 50% of long-term bicycle parking should be covered. Security can be achieved in at least one of the following ways:

- A locked room or area enclosed by a fence with a locked gate;
- Within view or within 100 feet of an attendant or security guard;
- An area that is monitored by a security camera; or
- A location that is visible from employee work areas.

Secure locations allow bicyclists to park where they are confident their bicycle will be there upon return. Locate in well-lit areas where lighting increases security of property and personal safety. Install lockers in areas where security is in question or where there is limited opportunity to provide weather protection – enclosed bike lockers are the best solution. Bicycle racks must be visible or the racks will become targets for thieves.

Covered Bicycle Parking / Bicycle Lockers

Prolonged exposure to rain can rust a bike's metal frame and components and the sun's ultraviolet rays can deteriorate a bike's soft seat and tires. A bicycle parking facility is intended for long-term parking and is protected against theft of the entire bicycle and its components and accessories. Three common ways of providing secure long-term bicycle parking are: 1) fully enclosed lockers accessible only by the user; 2) a continuously monitored facility that provides at least medium term type bicycle parking facilities; and 3) restricted access facilities in which short-term type bicycle racks are provided and access is restricted only to the owners of the bicycles stored therein.

Perhaps the easiest retrofit is a bicycle locker. Generally, they are as strong as the locks on the door. They are designed to secure individual bikes with panniers, computers, lights, etc, left on the bike. Some designs of bike lockers can be stacked so there is twice the parking density. Good protection from the weather is another benefit. Bike lockers tend to be used most for long-term bicycle commuter parking in areas without a lot of continuous oversight.

Spacing and Placement Standards

Each bicycle parking space should be easily accessible. Cyclists should be able to securely lock their bicycles without undue inconvenience and their bicycles should be reasonably safeguarded from intentional or accidental damage. Consider the space that a rack full of bicycles will take up, not just the rack itself. Also consider that cyclists require a sufficient pathway in and out of the parking area. Each parking space must be accessible without moving another bicycle (generally, allow for 2 feet by 6 feet for each bicycle parking space). Provide an aisle at least 5 feet wide behind all bicycle parking to allow room for maneuvering, just as automobile drivers need additional space to maneuver in and out of parking spaces, so do cyclists. Staggered racks 17-inch on center allow room for more bicycles to be parked. By installing bicycle racks too close to a wall or too close to each other it can cut capacity as much as 90%.



CITY OF ALISO VIEJO LANDSCAPE PLANT PALETTE

The following listing of plant materials comprise the City of Aliso Viejo's plant palette of low water plants and is to be used for all public and private improvement projects within the City. The City Engineer and the Planning Director have the discretion to discuss, review, and approve alternate plant materials on a project-by-project basis and accept other materials, which are considered low water drought tolerant.

TREES	
Botanical Name	Common Name
<i>Albizia julibrissin</i>	Silk Tree
<i>Arbutus 'Marina'</i>	N.C.N.
<i>Brachychiton discolor</i>	Queensland Lacebark
<i>Brachychiton populneus</i>	Bottle Tree
<i>Chitalpa tashkentensis</i>	Chitalpa
<i>Geijera parvifolia</i>	Australian Willow
<i>Koelreuteria paniculata</i>	Goldenrain Tree
<i>Laurus nobilis</i>	Sweet Bay
<i>Leptospermum laevigatum</i>	Australian Tea Tree
<i>Metrosideros excelsus</i>	New Zealand Christmas Tree
<i>Pinus eldarica</i>	Afgan Pine
<i>Pinus halepensis</i>	Aleppo Pine
<i>Pinus pinea</i>	Italian Stone Pine
<i>Prosopis chilensis</i>	Mesquite
<i>Prosopis velutina</i>	Arizona Mesquite
<i>Quercus agrifolia</i>	Coast Live Oak
<i>Quercus engelmannii</i>	Engelmann Oak
<i>Quercus ilex</i>	Holly Oak
<i>Quercus virginiana</i>	Southern Live Oak
<i>Rhus Lancea</i>	African Sumac
<i>Schinus molle</i>	California Pepper
<i>Schinus terebinthifolius</i>	Brazilian Pepper

SHRUBS	
Botanical Name	Common Name
<i>Aeonium arboreum 'Atropurpureum'</i>	N.C.N.
<i>Agave attenuata 'Nerva'</i>	Agave
<i>Aloe striata</i>	Coral Aloe
<i>Anigozanthos hybrid 'Red'</i>	Kangaroo Paw
<i>Arbutus unedo 'Compacta'</i>	Dwarf Strawberry Tree
<i>Baccharis pilularis 'Pigeon Point'</i>	Dwarf Coyote Brush
<i>Ceanothus 'Heart's Desire'</i>	Heart's Desire Ceanothus
<i>Ceanothus spp.</i>	Ceanothus
<i>Cistus spp.</i>	Rockrose
<i>Dietes bicolor</i>	Fortnight Lily
<i>Dietes vegeta</i>	Fortnight Lily
<i>Dudleya caespitosa</i>	Dudleya
<i>Encelia californica</i>	California Encelia
<i>Festuca mairei</i>	Atlas Fescue
<i>Festuca ovina 'Glauca'</i>	Blue Fescue
<i>Hesperaloe parviflora</i>	Red Yucca
<i>Heteromeles arbutifolia</i>	Toyon
<i>Lantana montevidensis</i>	Lantana
<i>Lavandula angustifolia 'Munstead'</i>	English Lavender
<i>Mimulus hybrids</i>	Monkey Flower
<i>Myrtus communis 'Compacta'</i>	Myrtle
<i>Nandina domestica</i>	Nandina
<i>Opuntia littoralis</i>	Prickly Pear
<i>Pennisetum setaceum 'Rubrum Dwarf'</i>	Dwarf Purple Fountain Grass
<i>Penstemon heterophyllus</i>	Foothill Penstemon
<i>Pyracantha spp.</i>	Firethorn
<i>Romneya coulteri</i>	Matilija Poppy
<i>Rosmarinus officinalis</i>	Rosemary
<i>Salvia sonomensis 'Dara's Choice'</i>	Creeping Sage
<i>Salvia spp.</i>	Sage
<i>Senecio mandraliscae</i>	German Ivy
<i>Verbena tamari</i>	Verbena

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS

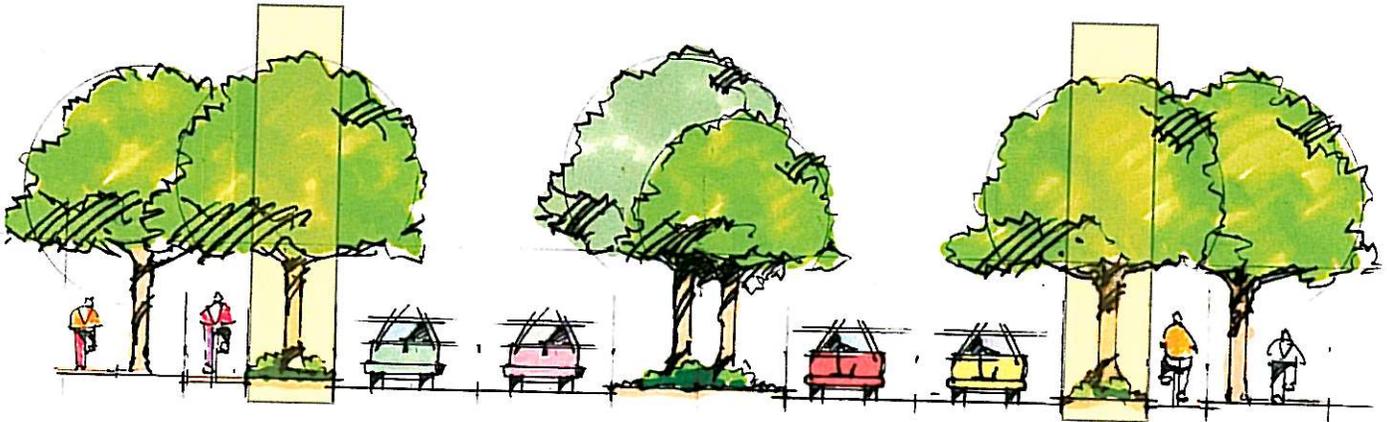
The following information is broken down into prototypical components that could apply to several different projects. The component items, quantity, and unit price information is not site specific; therefore, the opinion of probable costs are approximate and reflect an order of magnitude estimate only.

The estimate does not include permits or fees, utility connections, infrastructure, traffic control, street lighting, etc. RJM Design Group, Inc. has prepared this estimate of probable construction cost on the basis of its best professional judgment and experience with the construction industry. The estimate, however, represents assumptions and opinions of the construction market and contractors' methods of determining actual construction costs over which RJM Design Group, Inc. has no control. If the client(s) wishes greater assurance as to the construction cost, he (they) shall employ an independent cost estimator. A more precise estimate will be completed when more detailed development of plans and thorough site specific research on a case-by-case basis is performed.



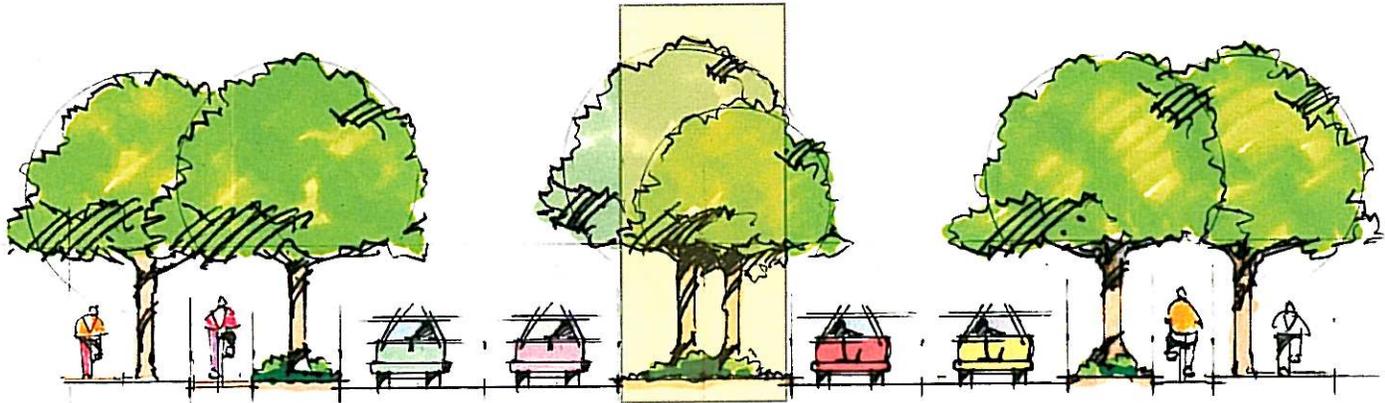
1-Way Bike Lane (5' wide x 200 LF) Color Coat Asphalt Surface

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1	Color Coat (5' wide x 200 LF)	1000	SF	\$0.15	\$150
2	Signing	100	SF	\$1.50	\$150
	<i>SUB-TOTAL</i>				\$300
	<i>+ 20% Contingency</i>				\$60
	TOTAL				\$360
	Price Per Linear Foot - 1 Side of Street				\$1.80



Prototypical Parkway Planter (5' Wide x 200 L.F.) with Concrete Bands and Bioswale

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1	Sawcut and remove existing A.C. (6' wide x 200 LF)	1,200	SF	\$2.50	\$3,000
2	Soil Excavation (1,200 s.f. at 30" deep)	112	CY	\$22.00	\$2,464
3	Import and Compact Topsoil (4' wide x 200 LF at 30" deep)	75	CY	\$24.00	\$1,800
4	4" PVC Drain and Area Drain	1	EA	\$575.00	\$575
5	Drywell	1	EA	\$750.00	\$750
6	Concrete Band (200 LF x 2 edges) w/Botts' Dots 1-edge	400	LF	\$15.00	\$6,000
7	Concrete Curb & Gutter (2 ends x 16 LF)	32	LF	\$22.00	\$704
8	A.C. Patch (6" x 200 LF)	100	LF	\$6.00	\$600
9	Irrigation (4' wide x 200 LF)	800	SF	\$2.50	\$2,000
10	Soil Preparation / Fine Grading (2-sides)	800	SF	\$0.30	\$240
11	24" Box Trees (30' o.c.)	7	EA	\$250.00	\$1,750
12	5-Gallon Container Plants (400 s.f. at 30" o.c.)	64	EA	\$18.00	\$1,152
13	1-Gallon Container Plants (400 s.f. at 18" o.c.)	176	EA	\$8.00	\$1,408
14	3" Mulch (800 s.f.)	7.5	CY	\$45.00	\$675
15	90-Day Maintenance: <i>one-time only</i>	800	SF	\$0.40	\$320
	SUB-TOTAL				\$23,428
	<i>+ 20% Contingency</i>				\$4,700
	TOTAL				\$28,128
	Price Per Linear Foot - 1 Side				\$140



Prototypical Median (14' Wide) with Vehicular Curb Only

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1	Sawcut and A.C. Removal (16' wide x 200 LF)	3,200	SF	\$2.50	\$8,000
2	Soil Excavation (3,200 s.f. at 30" deep)	296	CY	\$22.00	\$6,512
3	Import and Compact Topsoil (13' wide x 200 LF x 30" deep)	117	CY	\$24.00	\$2,808
4	Concrete Curb and Gutter (200 LF x 2-sides)	400	LF	\$22.00	\$8,800
5	Drywell	2	EA	\$750.00	\$1,500
6	A.C. Patch (6" x 200 LF x 2 sides)	400	LF	\$6.00	\$2,400
7	Irrigation (13' wide x 200 LF)	2,600	SF	\$2.50	\$6,500
8	Soil Preparation / Fine Grading	2,600	SF	\$0.30	\$780
9	24" Box Trees (30' o.c. staggered)	9	EA	\$250.00	\$2,250
10	5-Gallon Container Plants (1300 s.f. at 30" o.c.)	208	EA	\$18.00	\$3,744
11	1-Gallon Container Plants (1300 s.f. at 18" o.c.)	572	EA	\$8.00	\$4,576
12	3" Mulch (2600 s.f.)	24	CY	\$45.00	\$1,080
13	90-Day Maintenance: <i>one-time only</i>	1,300	SF	\$0.40	\$520
	SUB-TOTAL				\$49,470
	<i>+ 20% Contingency</i>				\$9,900
	TOTAL				\$59,370
	Price Per Linear Foot				\$297

Pedestrian Bridge at Aliso Niguel High School

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1.	Mobilization (2% of Sub-Total)	1	LS	Allow	\$5,000
2.	Pedestrian Bridge (10' wide x 120' long) installed	120	LF	\$2,10.000	\$252,000
3	Abutments	2	EA	\$50,000.00	\$100,000
	<i>SUB-TOTAL</i>				\$357,000
	<i>+ 20% Contingency</i>				\$71,400
	TOTAL				\$428,400

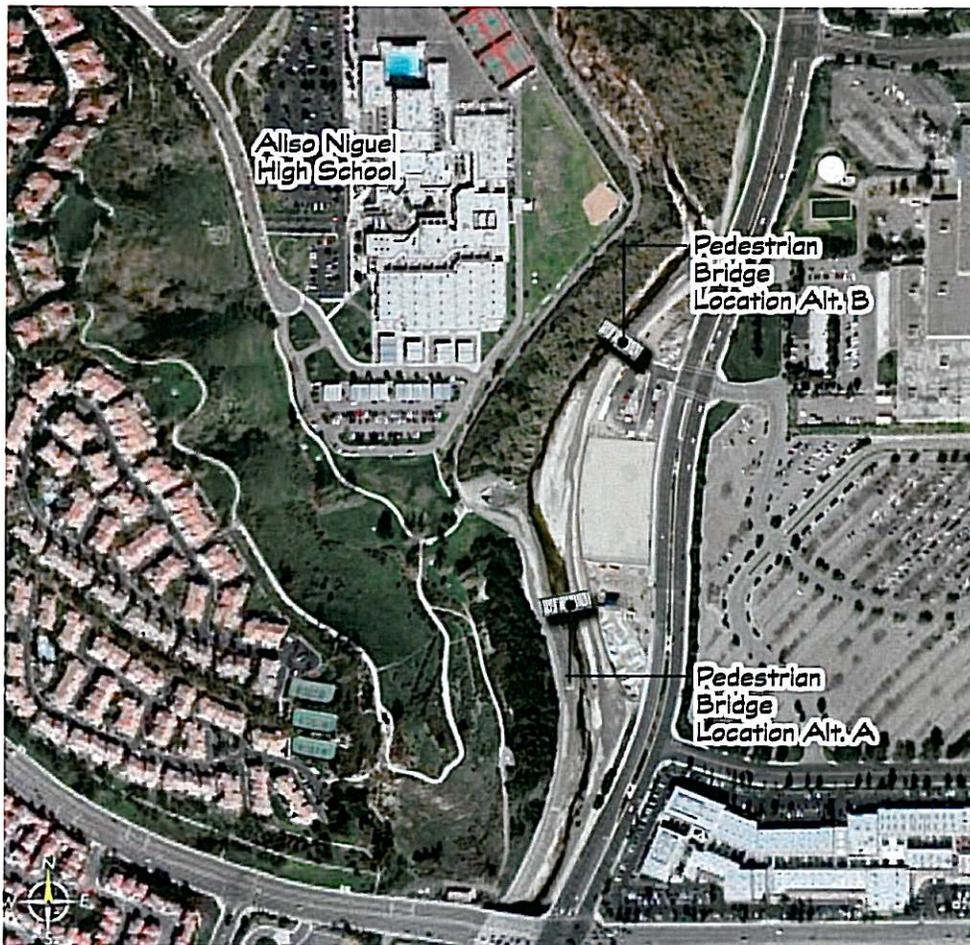


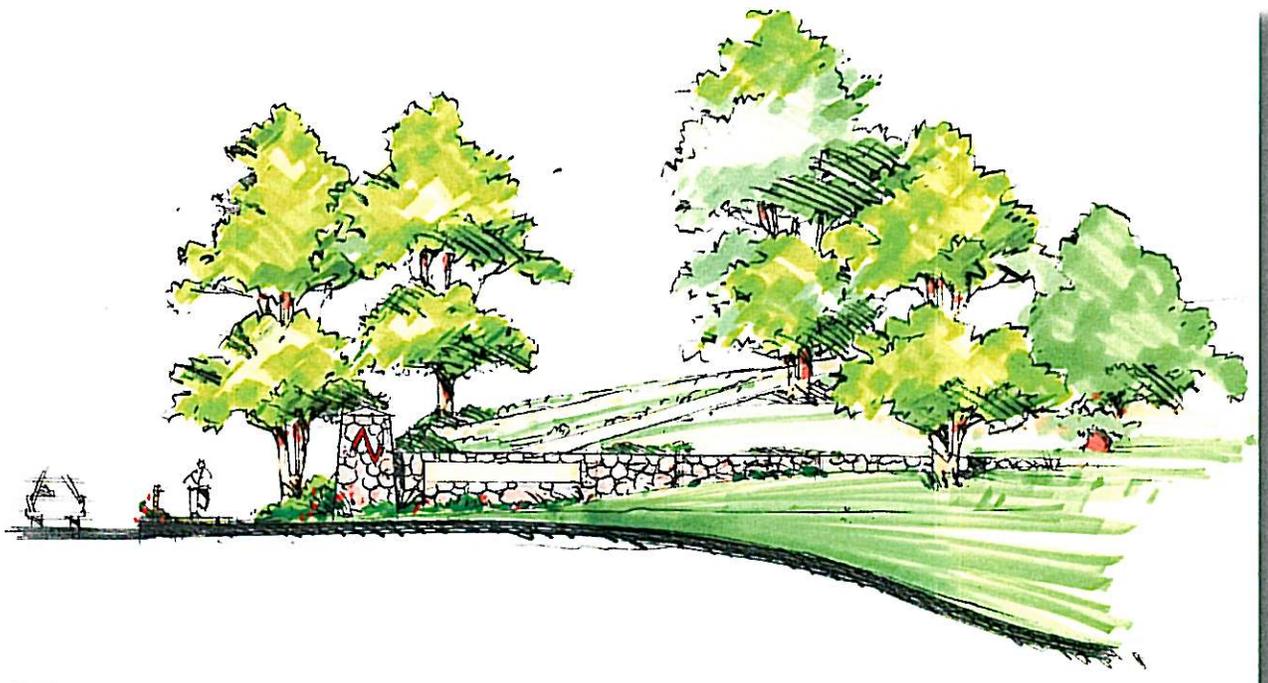
Figure 77: Alternative locations for Pedestrian Bridge to serve Aliso Niguel High School.



Major Entry Enhancement:

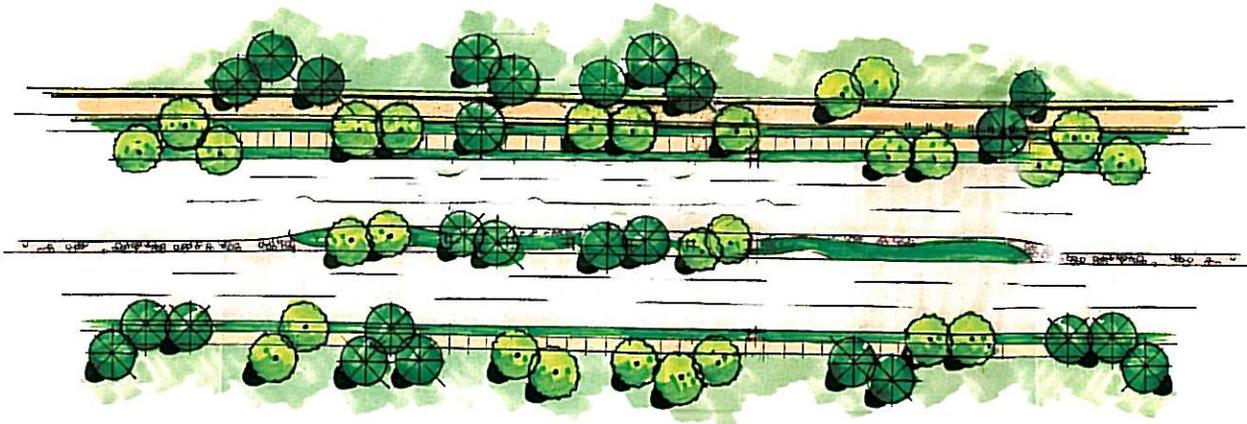
Monument wall with pilaster, lodge-pole fencing, two pilasters with landscaping and signage

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1	Demo (Clear & Grub)	5,250	SF	\$0.45	\$2,363
2	Earthwork	389	CY	\$11.50	\$4,472
3	Entry Pilasters	2	EA	\$20,000.00	\$40,000
4	Stone Veneered Wall & Pilaster (5' high x 50' taper out with 9' pilaster)	1	LS	Allow	\$17,500
5	Accent Lighting	1	LS	Allow	\$5,500
6	Irrigation	5,250	SF	\$1.25	\$6,565
7	Landscaping	1	LS	Allow	\$10,000
8	Entry Signage	1	LS	Allow	\$9,500
9	Lodge Pole Fencing: 3 rail	200	LF	\$50.00	\$10,000
10	90-Day Maintenance	5,250	SF	\$0.40	\$2,100
	<i>SUB-TOTAL</i>				\$108,000
	<i>+ 20% Contingency</i>				\$21,600
	TOTAL				\$129,600



**Minor Entry Enhancement (Prototypical ~10' wide x 200 LF):
Lodge-pole fencing, two pilasters with landscaping**

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1	Demo (Clear & Grub)	4,000	SF	\$0.45	\$1,800
2	Pilaster	2	EA	\$15,000.00	\$30,000
3	Accent Lighting	1	LS	Allow	\$5,000
4	Irrigation	4,000	SF	\$1.25	\$5,000
5	15-Gallon Trees	28	EA	\$327.00	\$9,160
6	5-Gallon Container Plants (1000 s.f. at 30" o.c.)	320	EA	\$18.00	\$5,760
7	1-Gallon Container Plants (1000 s.f. at 18" o.c.)	880	EA	\$8.00	\$7,040
8	Lodge Pole Fencing - 3 rail	400	LF	\$50.00	\$20,000
	<i>SUB-TOTAL</i>				\$83,760
	<i>+ 20% Contingency</i>				\$16,752
	TOTAL				\$100,512

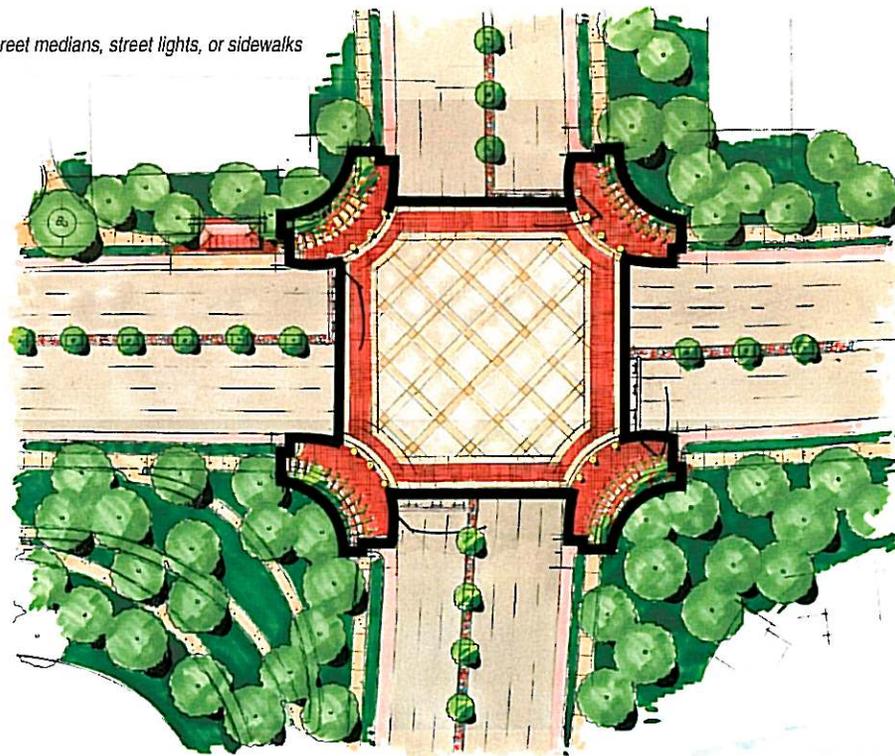




Intersection Enhancement (~14,500 sq. ft area)*

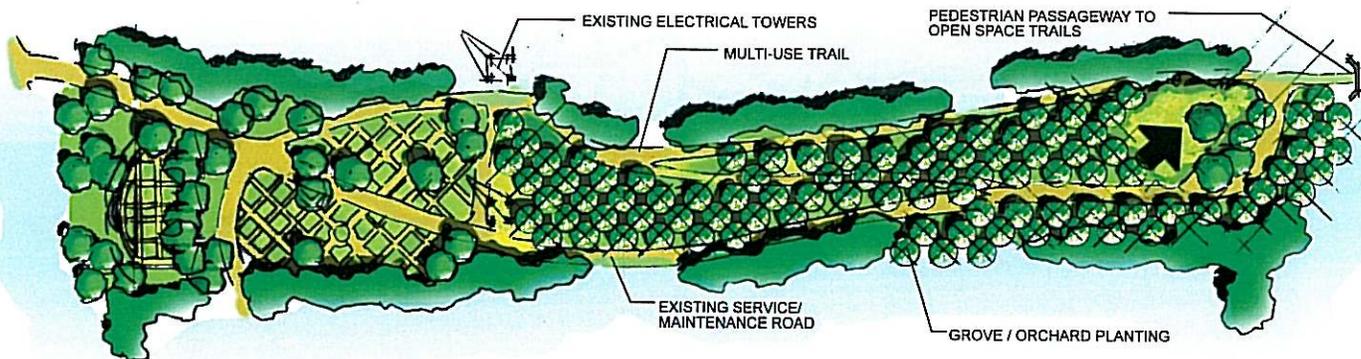
Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1	Demolition	1	LS	Allow	\$30,000
2	Saw Cut and Remove	1000	LF	\$1.15	\$1,150
3	Arbor (10' high x 12' deep x 55' wide)	4	EA	\$34,000.00	\$136,000
4	Bollards	20	EA	\$1,200.00	\$24,000
5	Concrete Bands (30" wide)	1460	LF	\$25.00	\$36,500
6	Concrete Fields	3400	SQ	\$8.50	\$28,900
7	Curb and Gutter	400	LF	\$22.00	\$8,800
8	Interlocking Pavers - Pedestrian	2400	SF	\$10.00	\$24,000
9	Interlocking Pavers - Vehicular	2800	SF <td \$12.00	\$33,600	
10	Landscaping	1	LS	Allow	\$25,000
	<i>SUB-TOTAL</i>				\$347,950
	<i>+ 20% Contingency</i>				\$69,590
	TOTAL				\$417,540

* Does not include street medians, street lights, or sidewalks



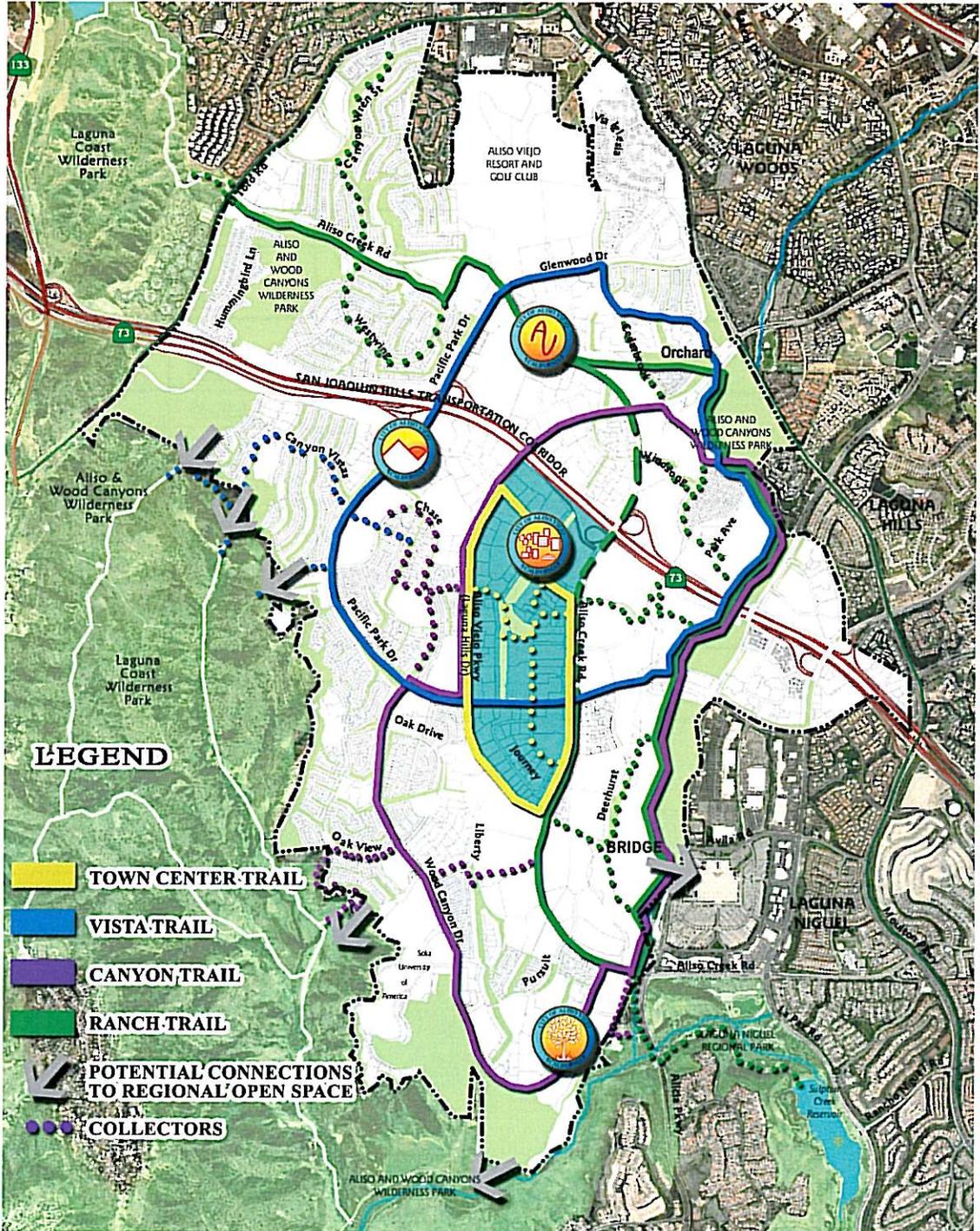
Orchard/Gardens at SCE Easement (~6.5 acres)

Item No.	Description	Est. Qty	Unit	Unit Price	Subtotal
1.	Earthwork	10,000	CY	\$11.50	\$115,000
2.	Demolition (Clear and Grub)	292,837	SF	\$0.07	\$20,500
3.	Walkways DG (Stalok) (10' wide x 3810 LF)	38,100	SF	\$2.88	\$109,728
4.	Walkway (Stalok) Steel Edging (3810 LF 2-sides)	7620	LF	\$2.30	\$17,526
5.	Chain-link Fencing around gardens 6' high w/ Gate	1500	LF	\$30.00	\$45,000
6.	Irrigation	292,837	SF	\$1.25	\$366,046
7.	Soil Preparation	92,917	SF	\$0.38	\$35,308
8.	1-Gallon Shrubs	3,125	EA	\$8.00	\$25,000
9.	5-gallon Citrus Tree	94	EA	\$20.00	\$1,880
10.	Mulch	860	CY	\$38.00	\$32,680
11.	Seating/Bench	2	EA	\$1,200.00	\$2,400
12.	Picnic Table	2	EA	\$1,500.00	\$3,000
13.	Trash Receptacles	1	EA	\$800.00	\$800
14.	Security Lights	5	EA	\$4,500	\$22,500
15.	Provide 90-Day Maintenance	292,837	SF	\$0.10	\$29,283
	<i>SUB-TOTAL</i>				\$826,651
	<i>+ 20% Contingency</i>				\$165,330
	TOTAL				\$991,981





Thematic Trail Loops



City of Aliso Viejo Streets and Trails Amenities
Preliminary Opinion of Probable Construction Costs of Thematic Loop Trails

Town Center Thematic Loop Trail = Total of 3.1 Mile / 5K Loop					
Roadway Segment	Bike Lane (TWO SIDES)	Bioswale Planter (TWO SIDES)	Median	Sub-Total	Notes
<i>multiplied by 2 per segment</i>	\$0.90	\$140.00			
	L.F.	L.F.			
Aliso Creek Rd. - Major Arterial (From Enterprise - Autumnnglen)	918 \$0.00	918 \$0.00	\$89,973.18	\$89,973.18	§ **
Aliso Creek Rd. - Major Arterial (From Autumnnglen - Pacific Park Dr)	951 \$0.00	951 \$0.00	\$93,207.51	\$93,207.51	§ **
Aliso Creek Rd. - Major Arterial (From Pacific Park Dr - Journey)	1,300 \$2,340.00	1,300 \$364,000.00	\$193,050.00	\$559,390.00	**
Aliso Creek Rd - Primary Arterial (From Journey - Aliso Viejo Pkwy)	1,018 \$1,832.40	1,018 \$285,040.00	\$241,876.80	\$528,749.20	**
Aliso Viejo Pkwy - Primary Arterial (From Aliso Viejo Pkwy - Liberty)	1,115 \$2,007.00	1,115 \$312,200.00	\$165,577.50	\$479,784.50	
Aliso Viejo Pkwy - Primary Arterial (From Liberty - Pacific Park Dr.)	1,716 \$3,088.80	1,716 \$480,480.00	\$407,721.60	\$891,290.40	
Aliso Viejo Pkwy - Primary Arterial (From Pacific Park Dr. - Grand)	2,059 \$3,706.20	2,059 \$0.00	\$489,218.40	\$492,924.60	**
Aliso Viejo Pkwy - Primary Arterial (From Grand - Enterprise)	2,018 \$3,632.40	2,018 \$565,040.00	\$299,673.00	\$868,345.40	**
Enterprise - Collector (From Aliso Viejo Pkwy - Aliso Creek)	2,680 \$4,824.00	2,680 \$750,400.00	\$0.00	\$755,224.00	
<i>Sub-Total</i>	\$21,430.80	\$2,757,160.00	\$1,980,297.99	\$4,758,888.79	
<i>Additional Segments - Collectors</i>					
Grand Park - Collector (From Aliso Viejo Pkwy - Horizon)	1,831 \$3,295.80	1,831 \$512,680.00		\$515,975.80	
Horizon - Collector (From Grand - Pacific Park Dr.)	1,267 \$2,280.60	1,267 \$354,760.00		\$357,040.60	
Journey - Collector (From Pacific Park Dr. - Aliso Creek Rd)	1,675 \$3,015.00	1,675 \$469,000.00		\$472,015.00	
<i>Sub-Total</i>	\$8,591.40	\$1,336,440.00		\$1,345,031.40	
**Overlap from another trail system					
§ Street designated for no bikeways					

**City of Aliso Viejo Streets and Trails Amenities
Preliminary Opinion of Probable Construction Costs of Thematic Loop Trails**

Vista Thematic Loop Trail = Total of 6.2 / 10K Mile Loop					
Roadway Segment	Bike Lane	Bioswale	Median	Sub-Total	Notes
	(TWO SIDES)	(TWO SIDES)			
<i>multiplied by 2 per segment</i>	\$0.90	\$140.00			
	L.F.	L.F.			
Cedarbrook Rd. - Collector (From Glenwood Dr. - Glenbrook Park)	1,106 \$1,990.80	1,106 \$309,680.00	\$0.00	\$311,670.80	
Glenbrook Park (through to Aliso Viejo Pkwy)	0 \$0.00	0 \$0.00	\$0.00	\$0.00	
Pacific Park Dr. - Major Arterial (From Woodfield - Deerhurst)	512 \$921.60	512 \$143,360.00	\$121,651.20	\$265,932.80	
Pacific Park Dr. - Major Arterial (From Deerhurst-Aliso Creek Rd)	712 \$1,281.60	712 \$199,360.00	\$169,171.20	\$369,812.80	
Pacific Park Dr. - Major Arterial (From Aliso Creek Rd - Journey)	790 \$1,422.00	790 \$221,200.00	\$117,315.00	\$339,937.00	
Pacific Park Dr. - Primary Arterial (From Journey - Aliso Viejo Pkwy)	1,150 \$2,070.00	1,150 \$322,000.00	\$170,775.00	\$494,845.00	
Pacific Park Dr. - Primary Arterial (From Aliso Viejo Pkwy - Wood Canyon Rd)	1,227 \$2,208.60	1,227 \$343,560.00	\$182,209.50	\$527,978.10	
Pacific Park Dr. - Offset Median (From Wood Canyon Rd - Chase)	2,830 \$0.00	2,830 \$0.00			N/A ¥
Pacific Park Dr. - Offset Median (From Chase - Canyon Vistas)	1,220 \$0.00	1,220 \$0.00			N/A ¥
Pacific Park Dr. - Offset Median (From Canyon Vistas - Enterprise)	1,954 \$0.00	1,954 \$0.00			N/A ¥
Pacific Park Dr./Glenwood - Offset Median (From Enterprise - Aliso Creek Rd)	3,460 \$0.00	3,460 \$0.00			N/A ¥
Glenwood Dr. - Primary Arterial (From Aliso Creek Rd - Golf Dr)	974 \$1,753.20	974 \$272,720.00	\$95,461.74	\$369,934.94	
Glenwood Dr. - Primary Arterial (From Golf Dr - Cedarbrook)	893 \$1,607.40	893 \$250,040.00	\$132,610.50	\$384,257.90	
<i>Sub-Total</i>	\$13,255.20	\$2,061,920.00	\$989,194.14	\$3,064,369.34	
<i>Additional Segments</i>					
Canyon Vistas - Collector (From Pacific Park Dr. - Canyon View Park)	2,334 \$4,201.20	2,334 \$653,520.00		\$657,721.20	
Peppertree - Collector (From Pacific Park Dr. - end of street)	2,157 \$3,882.60	2,157 \$603,960.00		\$607,842.60	
<i>Sub-Total</i>	\$8,083.80	\$1,257,480.00		\$1,265,563.80	
**Overlap from another trail system					
§ Street designated for no bikeways					
¥ Street designated for offset median -- already in progress					

**City of Aliso Viejo Streets and Trails Amenities
Preliminary Opinion of Probable Construction Costs of Thematic Loop Trails**

Canyon Thematic Loop Trail = Total of 7.0 Mile Loop					
Roadway Segment	Bike Lane (TWO SIDES)	Bioswale (TWO SIDES)	Median	Sub-Total	Notes
<i>multiplied by 2 per segment</i>	\$0.90	\$140.00			
	L.F.	L.F.			
Aliso Creek Rd. - Major Arterial (From Alicia Pkwy - Wood Canyon Dr)	672 \$1,209.60	672 \$188,160.00	\$997.92	\$190,367.52	
Wood Canyon Rd. - Secondary Arterial (From Aliso Creek Rd - Knollwood)	852 \$1,533.60	852 \$238,560.00	\$0.00	\$240,093.60	
Wood Canyon Rd. - Secondary Arterial (From Knollwood-Colony Wy)	1,745 \$3,141.00	1,745 \$488,600.00	\$0.00	\$491,741.00	
Wood Canyon Rd. - Secondary Arterial (From Colony Wy-Tivoli)	975 \$1,755.00	975 \$273,000.00	\$0.00	\$274,755.00	
Wood Canyon Rd. - Secondary Arterial (From Tivoli - Oak View Dr)	5,254 \$9,457.20	5,254 \$1,471,120.00	\$0.00	\$1,480,577.20	
Wood Canyon Rd. - Secondary Arterial (From Oak View Dr - Westridge Dr)	2,500 \$4,500.00	2,500 \$700,000.00	\$0.00	\$704,500.00	
Wood Canyon Rd. - Secondary Arterial (From Westridge Dr - Pacific Park Dr)	892 \$1,605.60	892 \$249,760.00	\$0.00	\$251,365.60	
Pacific Park Dr. - Primary Arterial (From Wood Canyon Dr - Aliso Viejo Pkwy)	1,227 \$2,208.60	1,227 \$343,560.00	\$182,209.50	\$527,978.10	*
Aliso Viejo Pkwy - Major Arterial (From Pacific Park Dr - Grand)	2,059 \$3,706.20	2,059 \$576,520.00	\$489,218.40	\$1,069,444.60	*
Aliso Viejo Pkwy - Major Arterial (From Grand - Enterprise)	2,018 \$3,632.40	2,018 \$565,040.00	\$299,673.00	\$868,345.40	*
Aliso Viejo Pkwy - Major Arterial (From Enterprise - Columbia)	1,588 \$2,858.40	1,588 \$444,640.00	\$0.00	\$447,498.40	***
Aliso Viejo Pkwy - Major Arterial (From Columbia - Aliso Creek Rd)	1,493 \$2,687.40	1,493 \$418,040.00	\$146,328.93	\$567,056.33	
Aliso Viejo Pkwy - Major Arterial (From Aliso Creek Rd- Cedarbrook)	596 \$1,072.80	596 \$166,880.00	\$58,413.96	\$226,366.76	
Cedarbrook - Collector (From Aliso Viejo Pkwy - Starcrest)	1,000 \$1,800.00	1,000 \$280,000.00	\$0.00	\$281,800.00	
<i>Sub-Total</i>	\$41,167.80	\$6,403,880.00	\$1,176,841.71	\$7,621,889.51	
<i>Additional Segments - Collectors</i>					
Chase - Collector (From Pacific Park Dr - Aliso Viejo Parkway)	4,000 \$7,200.00	4,000 \$1,120,000.00		\$1,127,200.00	
Wood Canyon - Collector (From Pacific Park Dr - Grand Ave)	1,700 \$3,060.00	1,700 \$476,000.00		\$479,060.00	
Sherwood - Collector (From Wood Canyon Dr. - Aliso Creek)	0 \$0.00	0 \$0.00		\$0.00	
Oak View Dr - Collector (From Wood Canyon Dr. - Gatewood Dr)	0 \$0.00	0 \$0.00		\$0.00	
<i>Sub-Total</i>	\$10,260.00	\$1,596,000.00		\$1,606,260.00	
**Overlap from another trail system					
§ Street designated for no bikeways					

City of Aliso Viejo Streets and Trails Amenities
Preliminary Opinion of Probable Construction Costs of Thematic Loop Trails

Ranch Thematic Loop Trail = Total of 8.0 Miles (6.5 Mile Loop and 1.5 Mile Linear Trail)					
Roadway Segment	Bike Lane (TWO SIDES)	Bioswale (TWO SIDES)	Medlan	Sub-Total	Notes
	\$0.90	\$140.00			
<i>multiplied by 2 per segment</i>	L.F.	L.F.			
Aliso Creek Rd. - Major Arterial (From El Toro - Westwing)	3195 \$5,751.00	3,195 \$894,600.00	\$189,783.00	\$1,090,134.00	
Aliso Creek Rd. - Major Arterial (From Westwing - Eastwing)	2317 \$4,170.60	2,317 \$648,760.00	\$137,629.80	\$790,560.40	*
Eastwing - Collector (From Wingspan Park - Aliso Creek Rd)	965 \$1,737.00	965 \$270,200.00	\$0.00	\$271,937.00	
Aliso Creek Rd. - Major Arterial (From Eastwing-Glenwood Dr)	1027 \$1,848.60	1,027 \$287,560.00	\$152,509.50	\$441,918.10	
Aliso Creek Rd. - Major Arterial (From Glenwood Dr - Brookline)	484 \$871.20	484 \$135,520.00	\$71,874.00	\$208,265.20	
Aliso Creek Rd. - Major Arterial (From Brookline - Columbia/Argonaut)	1097 \$1,974.60	1,097 \$307,160.00	\$260,647.20	\$569,781.80	
Aliso Creek Rd. - Major Arterial (From Columbia/Argonaut - Aliso Viejo Pkwy)	1844 \$3,319.20	1,844 \$516,320.00	\$438,134.40	\$438,134.40	§
Aliso Creek Rd. - Major Arterial (From Aliso Viejo Pkwy - Enterprise)	4108 \$7,394.40	4,108 \$1,150,240.00	\$4,158.00	\$4,158.00	§
Aliso Creek Rd. - Major Arterial (From Enterprise - Autumnnglen)	918 \$1,652.40	918 \$257,040.00	\$89,973.18	\$89,973.18	**
Aliso Creek Rd. - Major Arterial (From Aulumnglen-Pacific Park Dr)	951 \$1,711.80	951 \$266,280.00	\$93,207.51	\$93,207.51	§ **
Aliso Creek Rd. - Major Arterial (From Pacific Park Dr - Journey)	1300 \$2,340.00	1,300 \$364,000.00	\$193,050.00	\$559,390.00	**
Aliso Creek Rd. - Major Arterial (From Journey - Aliso Viejo Pkwy)	1018 \$1,832.40	1,018 \$285,040.00	\$241,876.80	\$528,749.20	**
Aliso Creek Rd. - Major Arterial (From Aliso Viejo Pkwy - Liberty)	1635 \$2,943.00	1,635 \$457,800.00	\$242,797.50	\$703,540.50	
Aliso Creek Rd. - Major Arterial (From Liberty - Pursuit)	852 \$1,533.60	852 \$238,560.00	\$83,504.52	\$323,598.12	
Aliso Creek Rd. - Major Arterial (From Pursuit - Wood Canyon Dr)	890 \$1,602.00	890 \$249,200.00	\$87,228.90	\$338,030.90	
Aliso Creek Rd. - Major Arterial (From Wood Canyon Dr - Alicia Pkwy)	672 \$1,209.60	672 \$188,160.00	\$99,792.00	\$289,161.60	**
Sub-Total	\$27,813.60	4,326,560	2,386,166	\$6,740,539.91	
Additional Segments - Collectors					
Wolverine - Collector (From Aliso Creek Rd - Hillview Park)	1,707 \$3,072.60	1,707 \$477,960.00		\$481,032.60	
Deerhurst - Collector (From Wolverine - Foxborough Park)	2,300 \$4,140.00	2,300 \$644,000.00		\$648,140.00	
Summerfield - Collector (From Aliso Creek Rd - Springdale Park)	1,570 \$2,826.00	1,570 \$439,600.00		\$442,426.00	
Windsong - Collector (From Wood Canyon Dr. - Aliso Creek)	1,300 \$2,340.00	1,675 \$469,000.00		\$471,340.00	
Cedarbrook - Collector (From Wood Canyon Dr. - Aliso Creek)	850 \$1,530.00	850 \$238,000.00		\$239,530.00	
Sub-Total	\$13,908.60	\$2,268,560.00		\$2,282,468.60	
*Could use trail within park					
**Overlap from another trail system					
§ Street designated for no bikeways					



END NOTES

1. County of Orange Land Base, Colton/Bridge/Associates, 2003
2. County of Orange Land Base, Colton/Bridge/Associates, 2003
3. County of Orange Land Base, Colton/Bridge/Associates, 2003
4. Aliso Viejo General Plan Circulation Element, April 2004
5. Aliso Viejo General Plan Circulation Element, April 2004
6. County of Orange Land Base, Colton/Bridge/Associates, 2003
7. County of Orange Land Base, Colton/Bridge/Associates, 2003
8. County of Orange Land Base, Colton/Bridge/Associates, 2003
9. County of Orange Land Base, Colton/Bridge/Associates, 2003
10. County of Orange Land Base, Colton/Bridge/Associates, 2003
11. County of Orange Land Base, Colton/Bridge/Associates, 2003
12. Dan Burden and Peter Lagerwey, *Road Diets: Fixing the Big Roads*, Walkable Communities, Inc., March 1999
13. County of Orange Land Base, Colton/Bridge/Associates, 2003
14. County of Orange Land Base, Colton/Bridge/Associates, 2003
15. County of Orange Land Base, Colton/Bridge/Associates, 2003
16. County of Orange Land Base, OCTA, Austin-Foust Associates, Colton/Bridge/Associates, 2003
17. Clare Cooper Marcus, *People Places*, 1998 and Victor Regnier, *Design for Assisted Living*, 2002
18. Transportation Demand Management (<http://www.vtpi.org/tm/index.php#overview>), 2005.
19. Boudewijn Bach and Norman Pressman, *Climate-Sensitive Urban Space*, Pulicalieburo, Delft, The Netherlands, 1992.
20. National Center for Health Statistic. *Health, US, 1995*. Hyattsville, MD: US Department of Health and Human Services, 1996.
21. DKS Associates, *Vancouver Traffic Management Plan: Street Design to Serve Both Pedestrians and Drivers*, City of Vancouver, Washington (www.ci.vancouver.wa.us/transportation/ntmp/seindex.html), 2002.

† City Council discussion item addressed here.

Page 18	<i>Walkability around Major Destinations and Schools</i>
Pages 35-36	<i>Traffic Calming</i>
Pages 44-49	<i>Community "Branding"</i>
Pages 53-56	<i>Walkable Community</i>
Pages 57-59	<i>Thematic Trail Loops</i>
Pages 63-65	<i>Project Priorities, Agency Identification, Amenities</i>
Page 77	<i>Traffic Calming Strategies</i>
Pages 90-104	<i>Cost of Projects</i>