VENTA SPUR TRAIL/JEFFREY ROAD PEDESTRIAN/BICYCLE BRIDGE FEASIBILITY REPORT

Prepared for

The City of Irvine

By

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I EXECUTIVE SUMMARY

The City of Irvine (City) has initiated this study to assess the feasibility of a new grade-separated pedestrian/bicycle crossing at Jeffrey Road to connect the Venta Spur Trail to the Jeffrey Open Space Trail (JOST). Because Northern Irvine residents expressed interest in a Venta Spur Trail grade separation, and pedestrian and bicycle activity are expected to increase when the Irvine Great Park is in place, a grade-separated crossing at this location was identified as a high priority, Tier 1 Project in the City of Irvine 2006 Bicycle Transportation Plan (BTP). This BTP designation prompted the City of Irvine Public Works/Project Development Staff, under the direction of the Irvine City Council, to initiate this feasibility study.

As it exists today, the Venta Spur Trail runs from the Peters Canyon Wash Trail to the west side of Jeffrey Road. The JOST runs perpendicular to the Venta Spur Trail along the east side of Jeffrey Road. A fence in the Jeffrey Road median prevents pedestrians and bicyclists from crossing directly between the trails. A pedestrian or bicyclist from the Venta Spur Trail must walk north along Jeffrey Road and cross east at Irvine Boulevard to enter the JOST. A grade-separated crossing between the trails would provide a direct connection between Northwood and the JOST without crossing Jeffrey Road at-grade.

Specific tasks performed as part of this study included:

- Research and Data Collection
- Review of Regional Trail Connectivity
- Analysis of Pedestrian, Bicycle, and Vehicular Traffic
- Preparation of Grade Separation Alternatives
- Cost Estimates for Selected Alternatives

A. Analysis Summary

Stakeholders/Public Meeting

In 2002, Community workshops for the Jeffrey Open Space Spine (JOSS), now called the Jeffrey Open Space Trail (JOST) identified Interstate 5, Venta Spur Trail, Irvine Boulevard, and Trabuco Road as high priority candidates for grade-separated crossings. Further analysis and conceptual engineering identified potential visual impacts, site constraints and high construction costs for several of the priority candidates, including the Venta Spur Trail. As a result of these findings, these crossings were not included in the adopted JOST.

As part of this study, a Community Open House was held in July 2006 to inform North Irvine residents and trail users about this study and to gather and record their comments to a Venta Spur Trail grade separation. As a result of the meeting, 13 comments supported the project, 81 comments were in opposition, and 4 comments were neutral.

Trail Connectivity

One of the bikeways proposed in the City of Irvine 2006 Bicycle Transportation Plan (BTP) begins at the Venta Spur Trail terminus at Jeffrey Road, travels southeast through Woodbury, and connects to a future on-street bikeway along Sand Canyon Avenue. This proposed bikeway would serve as an extension of the Venta Spur Trail if an at-grade or a grade-separated crossing were provided across Jeffrey Road. However, no easement has been reserved for an off-street bikeway through Woodbury directly across the existing Venta Spur Trail. Instead the Woodbury Development has provided an off-street trail along Bryan Avenue east of Jeffrey Road to Sand Canyon Avenue.

Another point of note is that the Venta Spur Trail is not a continuous, connected trail from end to end. There are five at-grade crossing locations along the trail where there are no crosswalks provided between segments, and pedestrians and bicyclists must travel off of the trail along the

cross street to the nearest intersection to access the next trail segment. While a grade-separated crossing between the Venta Spur Trail and the JOST would be convenient for those who wish to travel from one trail to the other, it would not significantly improve the regional trail connectivity.

Pedestrian, Bicycle, and Vehicular Traffic Analysis

Jeffrey Road is a six-lane divided major arterial that carries an average of about 15,000 vehicles per day within the study area. At the intersection of Jeffrey Road and Irvine Boulevard, the afternoon peak hour level of service (LOS) is E, and Jeffrey Road and Bryan Avenue operates at LOS D. Large numbers of pedestrian crossings can prevent a traffic signal from running at the optimal cycle timing, but the existing impact of pedestrian volumes on vehicular operations at these intersections is minor.

If pedestrian volumes at the study intersections increase in the future due to ambient growth or trips generated by the Irvine Great Park, it may have an impact on operations. However, the number of crossings would have to increase considerably (fifty or more additional pedestrians on one leg of the intersection) before a change in level of service would result. If large volumes of pedestrians or bicyclists are observed in the future, then a grade crossing may be warranted at that time.

Grade Separation Alternatives

A number of alignment alternatives to connect the Venta Spur Trail to the JOST were prepared and evaluated based on interface with the existing trail alignments, utility constraints, material and construction costs, surrounding land uses, and right of way impacts. Bridge types and associated ramps and landings were prepared and evaluated based on interface with feasible alignments, available landing area, utility constraints, material and construction costs, right of way impacts vertical clearances, impacts associated with column locations, and aesthetic compatibility to the adjacent developments and to the JOST. As a result, additional design was performed for the two most feasible alignment alternatives and documented in this report.

The bridge design for Option 1 is a straight alignment which may be constructed with cast-in-place concrete or steel truss. Option 2 is a curved bridge alignment that may use precast concrete, cast-in-place concrete or steel truss.

Construction Cost

Planning level construction cost estimates were prepared for the two alignment alternatives, and varied from $1,600,000 to $2,300,000 depending on the option and materials used. Option 1 is estimated to cost between $1,800,000 and $2,300,000. Option 2 is estimated to cost between $1,600,000 and $2,000,000. The estimated costs are for planning purposes only.

B. Conclusions

1. Trail connectivity

   The extension of the Venta Spur Trail through Woodbury does not appear to be feasible. No easement has been reserved for an off-street bikeway in this location, which has been fully developed with residential parcels. Rather, an off-street trail is proposed along Bryan Ave through the Woodbury development, eventually providing access across the SR-133 into the Great Park.

   The existing Venta Spur Trail between Peters Canyon Wash and Jeffrey Road is not a continuous, connected trail from end to end. There are five at-grade crossing locations along the trail where there are no crosswalks provided between segments, and pedestrians and bicyclists must travel off of the trail along the cross street to the nearest intersection to access the next trail segment. The Venta Spur Trail discontinuities are at Amargosa, Rosenblum, Westwood, Yale Avenue, and Eastwood.

2. Existing Pedestrian Crossing Volumes

During a weekday observation of the AM peak hour, eight pedestrians and no bicycles crossed through the intersection of Jeffrey Road and Irvine Boulevard, and five pedestrians and no bicycles crossed through the intersection of Jeffrey Road and Bryan Avenue. During a weekday observation of the PM peak hour, one pedestrian and nine bicycles crossed through the intersection of Jeffrey Road and Irvine Boulevard, and six pedestrians and one bicycle crossed through the intersection of Jeffrey Road and Bryan Avenue. The existing pedestrian and bicycle crossing volumes were observed to be low; however future activity levels could change once the Irvine Great Park and other developments in the area are complete. In general, pedestrian activity on a recreational trail is dependent on a variety of factors and is difficult to forecast. The National Travel Household Survey (NHTS) has compiled extensive non-motorized travel survey data, but empirical relationships between land uses and pedestrian and bicycle activity are not available.

3. Community Support

While there are a number of Irvine residents that support the construction of a grade separated crossing over Jeffrey Road, the majority of the residents that attended the July 2006 Open House were not in favor of the project. Property owners adjacent to the Venta Spur Trail cited safety, security, and privacy issues and expressed concern that people on the bridge structure would be able to see into their yards. Comments were also received regarding aesthetics and potential visual impacts of a crossing structure.

Next Steps

The information provided in this report may be utilized by the City of Irvine to make a determination on the feasibility of implementing a grade-separated crossing between the Venta Spur Trail and the JOST. Pedestrian, bicycle, and vehicular volumes may change in the future as the surrounding area continues to develop. The City of Irvine may consider revisiting this study with updated pedestrian and bicycle counts once the Great Park is in place. The City may consider providing the missing sidewalk on the west side of Jeffrey Road between the Venta Spur Trail terminus and Bryan Avenue. This would allow pedestrians/bicyclists using the Venta Spur Trail to safely cross Jeffrey Road at Bryan Avenue to connect to the JOST. Additionally, an off-street trail is provided through the Woodbury neighborhood which will provide a direct connection to the Great Park.

An environmental document that complies with both the California Environmental Quality Act, (CEQA) and the National Environmental Policy Act, (NEPA) requirements will need to be completed if a grade-separated crossing is determined to be feasible to identify site specific impacts and associated mitigation. Additional engineering to support the environmental document will also need to be performed.

II STUDY BACKGROUND AND PURPOSE

The City of Irvine (City) has successfully secured funding for numerous bikeway projects throughout the City from a variety of sources. With funding occasionally available for bikeway projects that improve transportation systems or enhance quality of life, residents in Northern Irvine are continuing to express interest in grade separating the Venta Spur Trail bikeway across Jeffrey Road, directly linking the trail to the Jeffrey Open Space Trail (JOST) (formerly called Jeffrey Open Space Spine or JOSS). The proposed project study area is shown in ***Figure A***.

The City of Irvine 2006 Bicycle Transportation Plan ranked the Venta Spur Trail grade separation over Jeffrey Road as a high priority, Tier 1 Project. The high ranking was attributed to the Venta Spur Trails future contribution potential to directly link regional and local trails to eastern Irvine and the Great Park. In addition, the link would provide more options and redundancy to the trail network, making it more efficient and user friendly.

With Northern Irvine Residents expressing interest in a Venta Spur Trail grade separation and the 2006 Bicycle Transportation Plan identifying the Venta Spur Trail grade separation as a high priority, the City of Irvine Public Works/Project Development Staff, at the direction of the Irvine City Council initiated this study to further assess the feasibility of this grade separation. If the City determines that the grade separation is feasible, the next step would consist of preparing preliminary design documents and an environmental document in compliance with the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA) requirements.

A. Project History

Venta Spur Trail

The Venta Spur Trail is a predominately off-street bikeway/pedestrian trail that branches off from the north/south Peters Canyon Wash Trail, just east of the SR-261 Toll Road and runs approximately 2.0 miles southeasterly through a former railroad right-of-way to its terminus along the west side of Jeffrey Road in Northwood. The trail is located parallel to, and in-between Irvine Boulevard and Bryan Avenue. The trail consists of an eight-foot concrete path that serves both pedestrians and bicyclists on the same travel way. Various connections to the trail lead to sidewalks in adjacent residential tracts. (See ***Figure B***).

Landscaping along the trail includes grass, flowering plants, cacti, rock-lined streambed and the remains of a eucalyptus windrow. The trail is well lighted for early morning or evening use. Additional details related to street crossings and safety is provided in Section III – Bicycle/Pedestrian and Traffic Analysis.

Jeffrey Open Space Trail

The JOST, a recreation and open space Corridor Park along Jeffrey Road which was formerly called Jeffrey Open Space Spine or JOSS, is an important element in the City's overall Open Space system. Once complete, the trail will link the conservation and open space lands within the City, and provide a connection to regional trails from the Pacific Ocean to the Santa Ana Mountains and Cleveland National Forest.

The JOST also will provide links to trails leading to the City's planned Great Park at the former El Toro Marine Corps Air Station and the 50-acre Gateway Park situated at the end of the JOST.

With portions of the trail constructed, it is already benefiting residents of Irvine and others by providing foot paths and bike trails through undulating “woodsy” landscaped land forms as an alternative to on-street bike lanes and sidewalks.

Figure A: Project Area

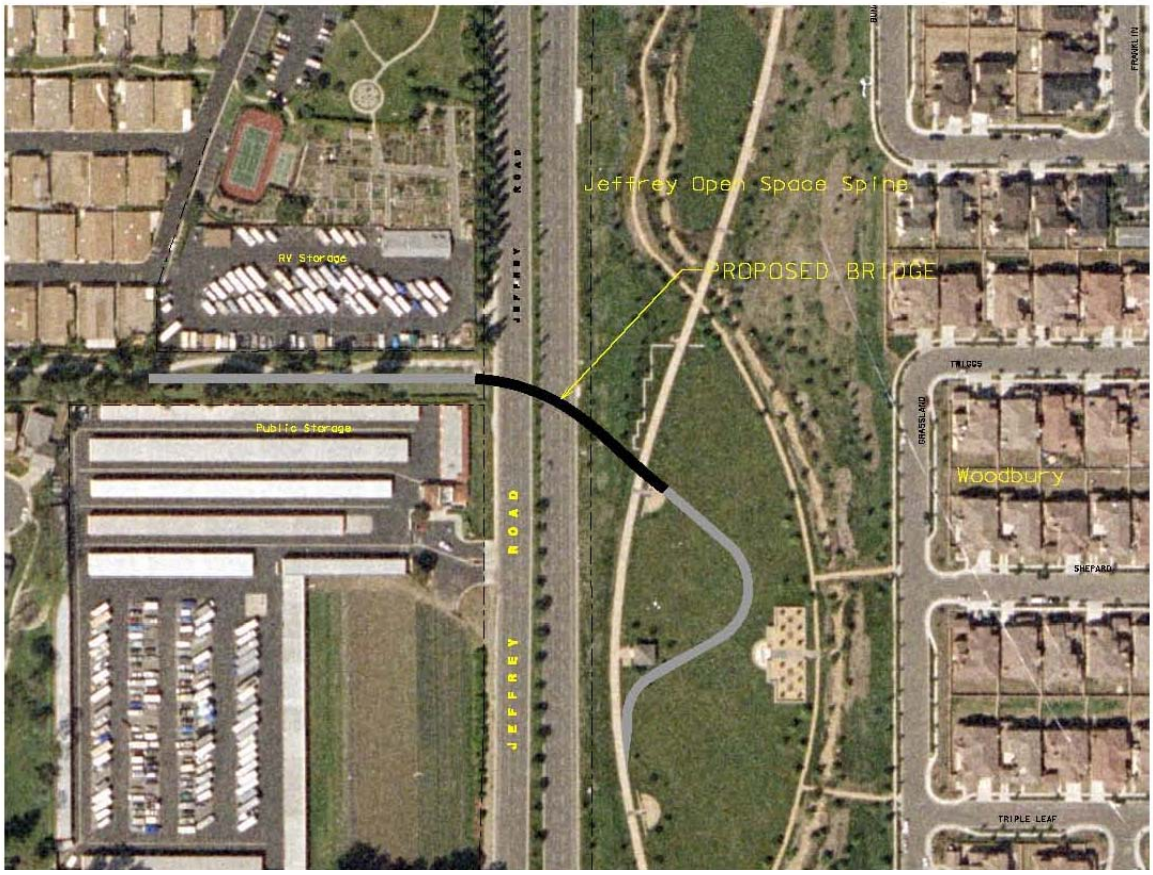
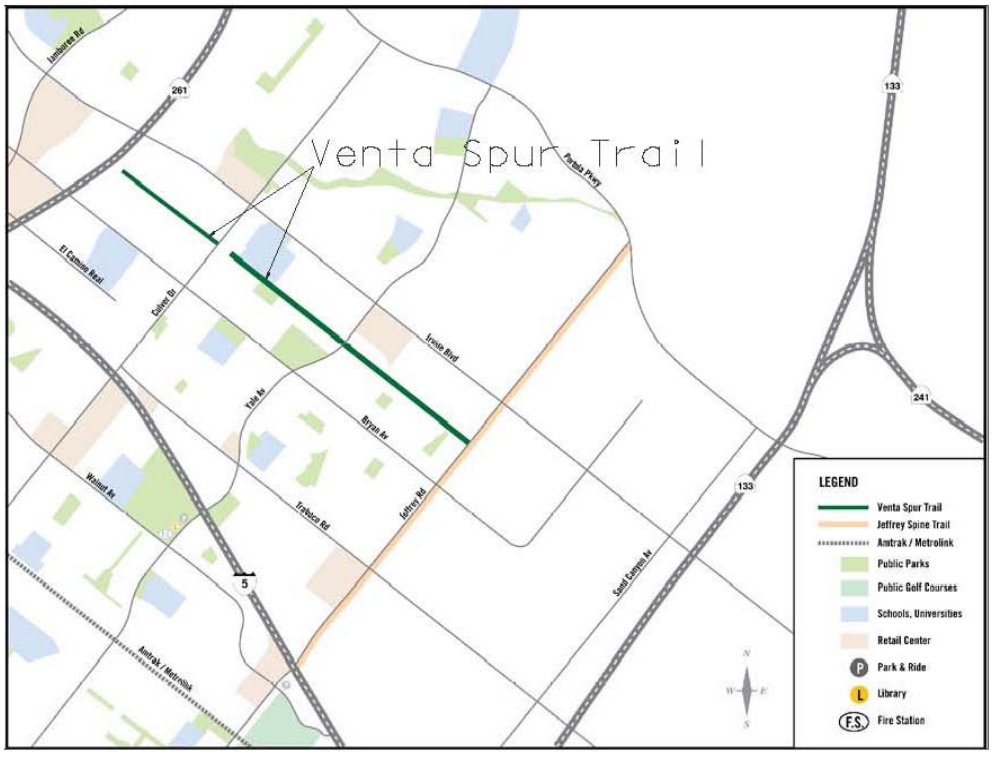


Figure B: Vicinity Map



The JOST was planned in conjunction with the Northern Sphere planning process by the City of Irvine and The Irvine Company. One of the initial steps was an extensive community design process, in which residents participated in a series of workshops focused on identifying the key elements and landscape characteristics of the trail based on the following concepts:

- Wherever feasible, the Trail should include both a bike trail and a "smaller" alternative footpath.
- Uses within the Trail should be primarily passive in nature.
- The Trail can vary in width, allowing for the development of larger open spaces
- Visual separation from Jeffrey Road should be achieved through the use of extensive grading and understory planting.
- The landscape character of the Trail should be "woodsy" consisting primarily of undulating land forms, trees, shrubs and ground cover. Lawn should be utilized sparingly.
- There was no consensus from the community as to whether the existing drainage channel should be covered.
- Majority of participants did not give strong support to preserve the Irvine Valencia Growers Packing House.
- Priorities for grade-separated crossings were:
    - Interstate 5.
    - Venta Spur
    - Irvine Boulevard.
    - Trabuco Road.

Following the Community Workshops, the City of Irvine and The Irvine Company worked jointly with key representatives from the City's various departments to refine the plan and address cost effectiveness, safety, security and maintenance issues. The results of this process were documented in the "Jeffrey Open Space Spine Community Consensus Plan" which was adopted by the City and serves as the design guidelines for the JOST.

Grade-Separated Crossings

Community workshops held during the development of the Community Consensus Plan identified grade-separated trail crossings as desired improvements for the JOST. Interstate 5 Freeway, Venta Spur Trail, Irvine Boulevard, and Trabuco Road were identified as high priority candidates for grade-separated crossings. Further screening, including analysis and conceptual engineering identified potential visual impacts, site constraints and high construction costs for several of the priority candidates including the Venta Spur Trail. As a result of these findings the Venta Spur Trail crossing was deemed unfeasible and was not included in the adopted JOST.

Grade-separated crossings have been proposed at the following locations within the Overall Plan:

- Portola Parkway (underpass)
- Irvine Boulevard (overpass)
- Existing Hines Nursery Underpass (redesign for bikes and pedestrians)
- Hines Entry Drive into PA 9B (underpass)
- Bryan Avenue (underpass)

In addition, The Irvine Company has committed to construct an underpass from the existing Hicks Canyon Trail along Portola, west of Jeffrey, under Jeffrey Road to the JOST.

Bicycle Transportation Plan

The City of Irvine 2006 Bicycle Transportation Plan is a guiding document for the development and maintenance of a city bicycle system that is safe, efficient and enjoyable, and that promotes bicycling as both a viable transportation alternative and an enjoyable recreational pastime. The report was prepared with the following objectives:

- Assess the existing bicycle network.
- Incorporate public input into the Bicycle Plan.
- Develop new bikeways.
- Improve bicycle safety.
- Promote bicycling as a positive alternative for commuting and recreation.
- Increase funding for bicycle facilities.

The Bicycle Plan was developed in accordance with City goals, objectives and policies established by the Circulation Element of the General Plan and are consistent with regional planning efforts and California Streets and Highways Code Section 891.2. The Plan includes a detailed description of the City's current bicycle network, including on-street bicycle lanes, off-street bikeways, connectivity and relation to existing land use and settlement patterns, grade separations and bicycle amenities. Additionally, the plan sets forth a program for future development of new components of this bicycle system, including the identification of funding sources, the formation of prioritization criteria, and the establishment of design guidelines for all aspects of the network.

A community outreach effort was undertaken in the development of the Bicycle Plan, which included a community workshop, a community open house event, and the distribution of a community survey. The data gathered from the community outreach efforts guided the development of the Bicycle Plan's recommendations for the future development and maintenance of the City's bicycle transportation system.

As part of the Bicycle Plan, a comprehensive assessment of the existing bicycle system was completed and the information was used to identify gaps in the bicycle network. In addition to projects that closed existing network gaps, projects were also proposed that would improve existing roadway crossings, provide more direct and efficient ways to travel by bicycle within the City, and connect existing development with those areas planned for future development.

Proposed project lists were developed for on-street, off-street and grade separation projects, and include both developer obligated and city obligated projects. The lists will be modified over time to maintain sufficient bicycle circulation. Using a ranking checklist, the Bicycle Plan developed a list of priority projects to be implemented and constructed to maintain or improve the existing bicycle system. The checklist awarded points to projects based on a variety of factors, including:

- The type and number of land uses the project would connect;
- The potential for the project to increase bicycle commuter rates;
- The proximity of the project to schools, universities and employment centers;
- Whether a project provides an alternative to crossing a wide roadway or freeway ramps;
- Whether the project is identified in the City's General Plan; and
- Whether the community identified the project as important through the community outreach effort.

For purposes of the Bicycle Plan, developer obligated bikeway projects are not ranked with the ranking checklist, as these projects are the direct responsibility of a private developer to construct or fund. The ranking checklist is applied to projects that are currently City obligated, to aid the City in determining where bikeway funding should be first applied.

Projects that ranked high were identified as 'Tier 1' projects, and represent those projects the City should implement first.

The Extension of the Venta Spur Trail, between Jeffrey and SR-133 is identified in the Bicycle Plan as a developer obligated, future Class I off-street bikeway trail.

The City of Irvine's Bicycle Transportation Plan ranked the Venta Spur Trail grade separation over Jeffrey Road as a high priority, Tier 1 Project. The Bike Plan cited several factors contributing to the high ranking including:

- The Venta Spur Trail is currently linked to the Peters Canyon Regional Trail to the west.
- The Venta Spur Trail is currently linked to Culver Drive and Yale Avenue, two high volume traffic and pedestrian corridors.
- The Venta Spur Trail would be directly linked to the JOST with a grade separation over Jeffrey.
- The Extension of the Venta Spur Trail, between Jeffrey and SR-133 is identified in the Bicycle Plan as a developer obligated, future Class I off-street bikeway trail. This segment would then complete the link to the Great Park from the Venta Spur Trail.
- The JOST will provide a link to the Great Park.

All of these links to existing and future trails will provide options and redundancy to the trail network making the network more efficient and friendly to trail users.

III RESEARCH AND DATA COLLECTION

A. Stakeholders/Public Meeting

On July 12, 2006 A Community Open House was held from 6:00 to 8:00 pm at Irvine City Hall where Irvine City Staff and City representatives were present. The meeting was held for North Irvine residents, trail users, and others interested stakeholders to:

- Provide details of the feasibility study to be prepared for the Venta Spur/Jeffrey Road Pedestrian/Bicycle overcrossing
- Provide information from previous studies of this overcrossing
- Provide an update on the JOST
- Listen to the communities issues and suggestions

Comments collected from attendees included 13 comments in support of the project, 81 comments in opposition, and 4 comments were neutral. Safety for pedestrians/cyclists, improved access and a direct link were the primary "categories" cited in support of the grade separation. Compromised safety for residents, visual impacts, privacy, cost, and bridge aesthetics were the primary "categories" cited in opposition of the grade separation.

Flyers, mailers, handouts and comment sheets made available at the Open House are provided in the ***Appendix***.

B. Physical Constraints

Utility Constraints

The only major utility constraint is the existing Orange County Flood Control Facility east of Jeffrey Road. The easement contains an underground reinforced concrete box. Any part of the structure must span over the easement. The remaining wet and dry utilities run within the travel way of Jeffrey Road. See ***Figure C*** for all Right of Way and easements areas.

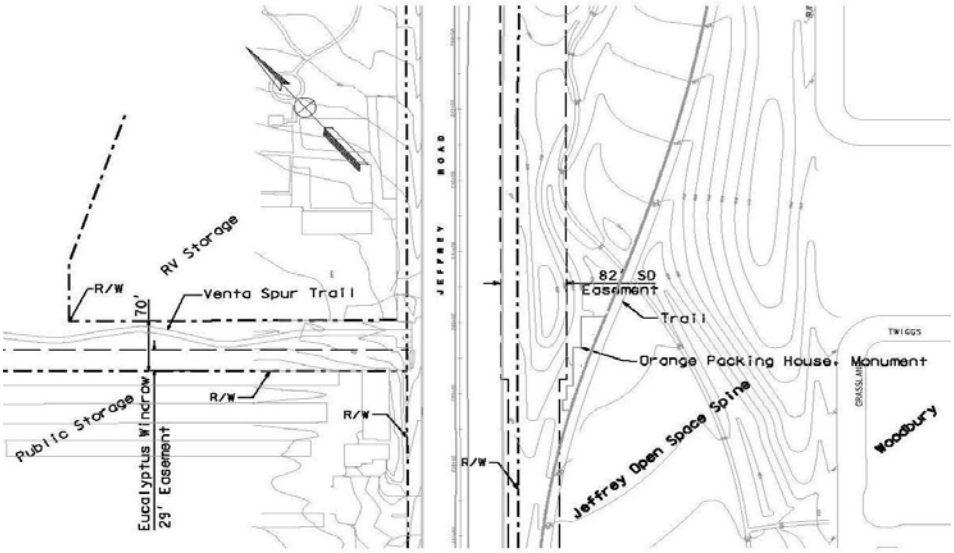


Figure C: Right of Way Project Map

OCFCD Underground Channel Constraints

East of Jeffrey Road, an OCFCD storm drain runs in the north-south direction. The underground storm drain lies within an 82' wide easement, see ***Figure C***. The easement area must not be disturbed or used for any structure support or landing. Bridge columns and foundations must be placed outside of the easement.

Eucalyptus Windrow Constraints

There is a 29-foot wide eucalyptus windrow easement within the 70-foot wide Venta Spur Trail right of way, west of Jeffrey Road. The windrow is on the south side of the Venta Spur Trail right-of-way, see ***Figure C***. The approach and any other improvements must be done outside of this easement, therefore the bridge approach and the trail connecting the Venta Spur Trail to the Jeffrey Road sidewalk were placed on the north half of the Venta Spur Trail right-of-way.

Jeffrey Open Space Trail

Valencia Growers Packing House mitigations site within the JOST, historical markers made of wood timbers from the original 1929 Valencia Growers Packing House outline portions of the actual footprint of the building. These markers cannot be removed, relocated or disturbed. The bridge would either need to span over the site or the bridge landing would need to built to the north or south of the site.

Trail Improvements such as grading, landscaping and hardscape would be impacted as part of the bridge approach and landing, the severity of the impacts depends on the type of approach, bridge length and landing of the overcrossing. The level of impacts to the JOST improvements would be considered as part of the final bridge alternative.

Public Storage Facility

A Public Storage facility lies south of the Venta Spur Trail right-of-way and west of Jeffrey Road The adjacent property is composed of a number of single story buildings. The property will soon be improved to include a multi-story storage building. The Public Storage property includes a building along the property line shared with the Venta Spur Trail right-of-way. Under these circumstances, the bridge approach cannot be built within 10 feet of the Public Storage property to provide maintenance access to the bridge approach. Additionally, a 20 foot wide by 200 foot long right turn southbound lane is required to provide access to the Public Storage facility (planned for building expansion).

Grove Mobile Home Park

The Venta Spur easement shares the northern right-of-way line with the Grove Mobile Home Park. The area of the Mobile Home Park that is adjacent to the Venta Spur Trail is used mainly as an RV storage lot. Since the property is occupied by residents, the visual impacts caused by the bridge must be kept to a minimum. The bridge approach is to be placed as far as possible to the property line shared by the Groves Mobile Home Park.

Jeffrey Road

This pedestrian/bicycle bridge proposes the crossing of Jeffrey Road perpendicular to the roadway center line. The current curb-to-curb width of Jeffrey Road is approximately 102 feet with a 16-ft wide center landscaped median. Jeffrey Road only provides sidewalk on the west side where the existing Venta Spur Trail ends. The sidewalk begins at the terminus and continues north to Irvine Blvd. The east curb of Jeffrey Road is adjacent to the JOST and provides no sidewalk other than the JOST along Jeffrey road.

IV REGIONAL TRAIL CONNECTIVITY

A. Trail Connectivity

Planning efforts by City staff and community interest groups have focused on the common goal of building a bikeway network that provides access to recreational and business land uses throughout the City of Irvine. The existing bikeway network includes on-street bikeways on most major arterials, and a number of off-street trails that travel through the northwest half of the City. The imminent development of the Irvine Great Park in the northeast corner of the City has generated increased interest in extending the off-street bikeways into this area.

The City of Irvine 2006 Bicycle Transportation Plan shows a future off-street bikeway that would extend from the Venta Spur Trail to a future bikeway on Sand Canyon Avenue. The system would also include a bikeway that connects the Irvine Great Park to the bikeway network at Sand Canyon Avenue and Trabuco Road. Figure D is an excerpt from Figure 6-2 of the 2006 Bicycle Transportation Plan that shows existing and planned on-street and off-street bikeways in the study area.

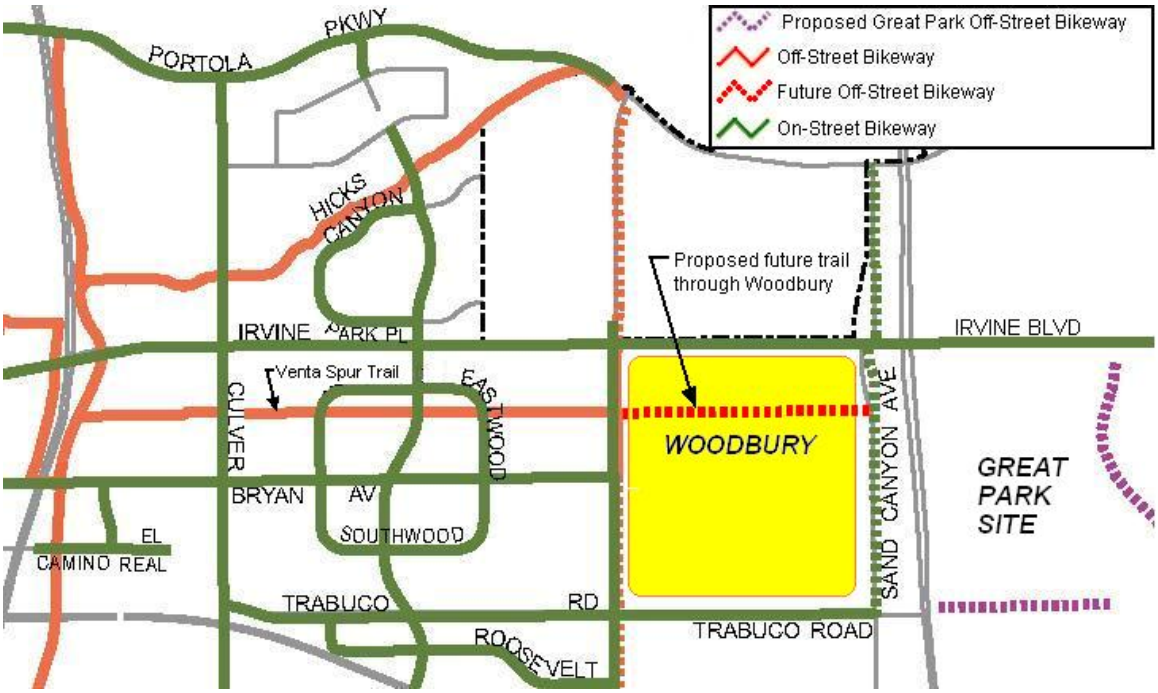


Figure D: City of Irvine 2006 Bicycle Transportation Plan existing and future bikeways

The Woodbury residential development was recently constructed on the south side of Irvine Boulevard east of Jeffrey Road. No apparent easement has been reserved for an off-street bicycle path to travel through Woodbury in the location indicated in Figure D. Construction of a new trail segment in line with the Venta Spur Trail is no longer feasible at this time with the approved Woodbury development.

The Irvine Company (TIC) developed a bikeway plan that is similar to the City of Irvine 2006 Bicycle Transportation Plan, except that the off-street bikeway through Woodbury is not in line with the Venta Spur Trail, but rather runs along Bryan Avenue instead. An excerpt of the TIC Trail Concept Map is shown in ***Figure E***.

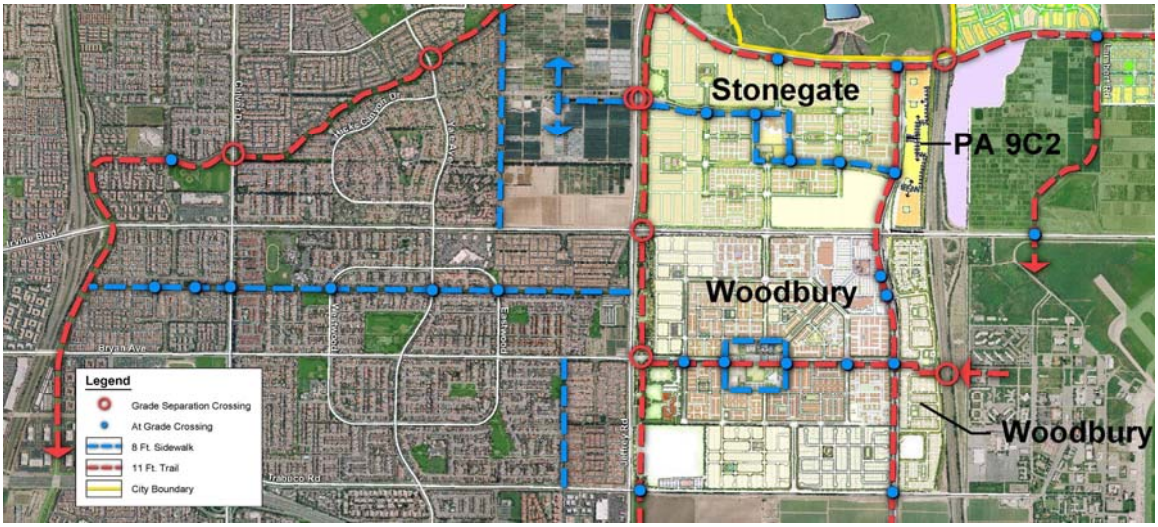


Figure E: Excerpt from the TIC Trail Context Map

While it is the City's General Plan goal to investigate opportunities for grade separation crossings at intersections of trails with roadways, it was determined not to be a priority to provide these grade separated crossings at all locations. A grade separated crossing at the Venta Spur Trail, while identified as a key priority in the Community Consensus Plan, was deemed infeasible because of the depth of the existing utilities under Jeffrey Road and the limited width (+/- 90 feet) of the existing Venta Spur Right-Of-Way west of Jeffrey Road. The connection of the Venta Spur Trail to the JOST is proposed in the community consensus plan as an 11 foot trail along the west side of Jeffrey Road from the Venta Spur Trail terminus to the signalized crossing at Bryan Avenue 500 feet south of the Venta Spur Trail terminus.

Venta Spur Trail: Depth of existing utilities under Jeffrey Road would require an undercrossing 25' deep. An overcrossing would require massive retaining wall within a limited 90' wide right-of-way adjacent to existing residents, and require reconstruction of a portion of the existing Venta Spur Trail and JOST.

B. Trail connection compatibility to the JOST improvements

- If a bridge were proposed across Jeffrey Road at the Venta Spur Trail terminus, the landing east of Jeffrey Road would reflect the overall visual characteristics of the existing Jeffrey Open Space landscape. The two optimized alternatives for the bridge landing, shown on ***Figures K and L***, with respect to the JOST and its surrounding will minimize impacts to landscape or features of the JOST. The bridge landing will most likely be placed on graded soil to meet the bridge deck. The current JOST features rolling landscaped terrain which will be matched if disturbed in order to accommodate the bridge.
- The connection to the trail within the JOST was also analyzed. (See ***Figure L***). Based on the predominant pedestrian and bicyclist movement patterns expected in the future condition, the connection from the bridge to the trail would be more efficiently made in the southbound direction of the JOST, since most of the bridge traffic would follow the new bike travel patterns to the south.

V IMPACTS TO EXISTING DEVELOPMENT

The proposed Venta Spur Trail Bridge would have some impacts to the neighboring developments. The west end of the bridge will require an approach approximately 400 feet in length in order to accommodate a pedestrian/bicycle bridge approach. No right-of-way acquisition will be required with implementation of retaining walls. The Groves RV Storage Lot to the north and the Public Storage Building to the south will have some visual impacts.

The east end of the bridge would either span over the existing Irvine Valencia Growers Packing House foundation monument (Option 1), or land south of the monument (Option 2). The landing on the east side of the bridge would be within the JOST requiring re-grading and landscape replacement, landscaped to minimize visual differences within the JOST. The adjacent Woodbury residents would experience visual impacts that have not been defined at this time, but would be analyzed and documented in future environmental studies. The approximate distance between the structure and the adjacent Woodbury residents would be 250 feet.

On the basis of an initial study evaluation checklist, it appears a Mitigated Negative Declaration would likely be the environmental document prepared for this project. This is based on the project having a significant effect on the environment based on potential visual impacts and cultural resource impacts. A copy of the check list is included in Appendix D.

VI BICYCLE, PEDESTRIAN AND VEHICULAR TRAFFIC ANALYSIS

This section documents the results of a bicycle, pedestrian and vehicular traffic analysis of existing conditions in the vicinity of the Venta Spur Trail terminus at Jeffrey Road. A discussion of existing travel patterns and how potential changes in land uses and facilities may affect future travel patterns is also included in this section.

Definitions of some terms used in this report are included for reference. These definitions are from the Caltrans Highway Design Manual and the City of Irvine 2006 Bicycle Transportation Plan.

At-Grade Crossing: When a Class I bikeway intersects with a roadway, and no grade separation is present to allow bicyclist to bypass crossing automobile traffic. At-grade crossings may or may not be signalized.

Bikeway: A facility that provides primarily for bicycle travel.

Caltrans Design Standards: Standards for the size and shape of bicycle facilities, as well as the use of signs, markings, and traffic signals established by the Caltrans Highway Design Manual, Chapter 1000.

Class I Bikeway (Bicycle Path): Provides an off-street separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow minimized. Class I bikeways are built to a minimum 8-foot paved width with an additional 2-foot clear space on each side of the bikeway.

Class II Bikeway (Bicycle Lane): Provides a striped lane designated for one-way bicycle travel on a street or highway.

Class III Bikeway (Bicycle Route): Provides for on-street shared use with bicycle travel and motor vehicle traffic.

Grade: The running slope of a bikeway facility. The maximum generally accepted grade for a Class I bikeway is five percent (5%), with two percent (2%) for sustained distances.

Grade Separation: When a Class I bikeway crosses over or under a roadway, allowing bicyclists to cross without interacting with automobile traffic. A grade separated pedestrian path or bikeway may also be referred to as an:

- Overcrossing – when the pedestrian/bicycle facility bridges over the vehicular roadway.
- Undercrossing – when the ped/bike facility passes beneath the vehicular roadway.

Shared Roadway: Any roadway not designated for bicycles. In California, bicyclists cannot be banned from public streets, but can be banned from freeways. Therefore, all streets that are not freeways and have no bicycle designation are shared roadways.

A. Existing Venta Spur Trail

The Venta Spur Trail is approximately 2.0 miles long and extends from the Peters Canyon Wash Trail to the west side of Jeffrey Road in Northwood. The trail is located parallel to and in between Irvine Boulevard and Bryan Avenue, and winds through landscaped former railroad right-of-way between residential back yards. The concrete trail which is 8 feet wide in most areas along the trail, serves both pedestrians and bicyclists on the same travel way, with various connections to the trail that lead to sidewalks in adjacent residential tracts.

Landscaping along the trail includes grass, flowering plants, cacti, rock-lined streambed and the remains of a eucalyptus windrow. The trail is well lighted for early morning or evening use.

Existing Pedestrian and Bicyclist Destinations and Travel Patterns

Land uses adjacent to the Venta Spur Trail are primarily residential, with some school and park uses. Sierra Vista Middle School and Silkwood Park are directly accessible from the trail, and Northwood Community Park is located one block south of the trail near Yale Avenue. There is a commercial plaza on the corner of Irvine Boulevard and Yale Avenue that is within 150 yards of the trail. Based on observed travel patterns, most pedestrians on the trail are local residents who walk for leisure or exercise. Bicyclists may use the trail as part of a longer route that includes on-street bike paths or other off-street trails.

A bird's eye view of the Venta Spur Trail terminus at Jeffrey Road is pictured in ***Figure F***. Jeffrey Road is a six-lane divided arterial with on-street bicycle lanes on both sides of the street. The Groves Mobile Home Park is located on Jeffrey Road to the north of the Venta Spur Trail, and a Public Storage facility is located south of the Trail. The JOST is an off-street bicycle and pedestrian path that presently runs along the east side of Jeffrey Road between Irvine Boulevard and Trabuco Road. An existing fence within the Jeffrey Road median prevents pedestrians and bicyclists from crossing between the Venta Spur Trail and the JOST at the Venta Spur Trail terminus.

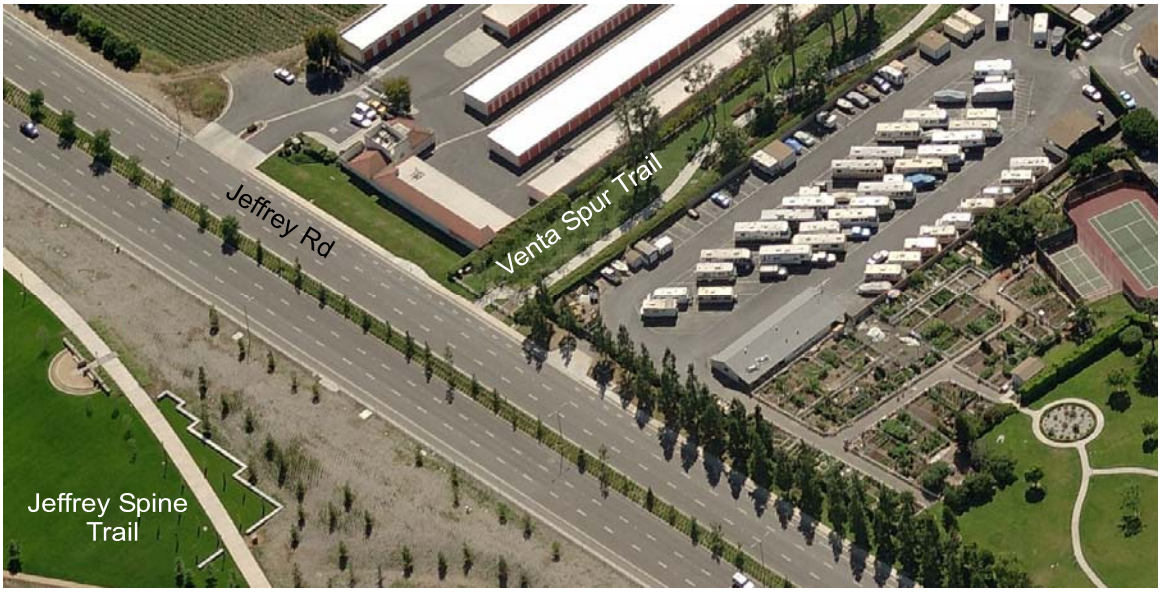


Figure F: Venta Spur Trail terminus at Jeffrey Road (bird's eye view facing west)

A bicyclist traveling east on the Venta Spur Trail may access the JOST by traveling south on Jeffrey Road and crossing to the east at Bryan Avenue. There is currently no sidewalk on the west side of Jeffrey Road south of the Public Storage facility, so pedestrians must walk north on Jeffrey Road and cross east at Irvine Boulevard. A grade separated bridge from the Venta Spur Trail to the JOST would allow pedestrians and bicyclists to cross over Jeffrey Road and provide a continuous path between the trails.

Traffic and Safety Issues with Increased Pedestrian/Bicycle Activity

In general, walking and biking are activities that are associated with good health. The Venta Spur Trail presents a well lighted path and attractive scenery for its visitors, and provides valuable community open space.

There are discontinuities in the Venta Spur Trail where it intersects with local and collector streets including Amargosa, Rosenblum, Westwood, Yale Avenue, and Eastwood. There are no crosswalks at these intersections, and the trail continues on either side of the street. The discontinuities are highlighted in ***Figure G***. At divided arterials such as Westwood, Yale Avenue, and Eastwood, signs located in the median direct pedestrians and bicyclists to cross at an

adjacent intersection or crosswalk. The Venta Trail intersections with Westwood and Yale are pictured in ***Figure E***.

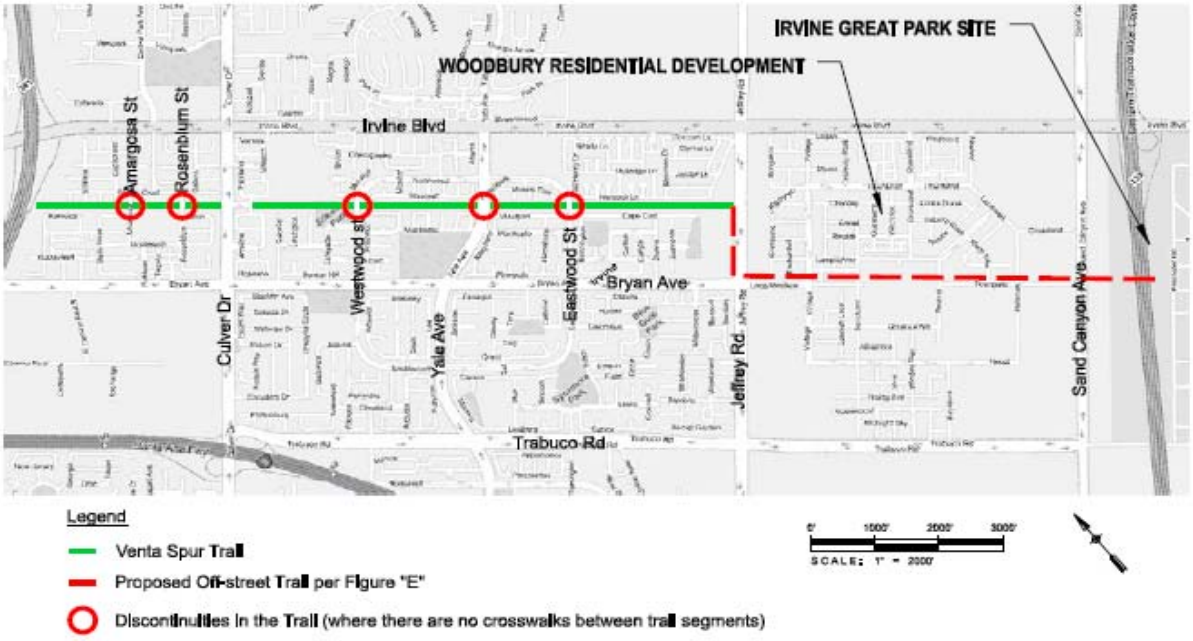


Figure G: Discontinuities in the Venta Spur Trail

(a) **(b)**

Figure H: Photos facing south of Venta Spur Trail at a) Westwood and b) Yale Ave

Despite the warning signs, people may be tempted to take the shortest path, even if it is not the safest one, and cross illegally between trail segments. At the Eastwood intersection with the Venta Spur Trail, the nearest striped crosswalk is about a quarter of a mile out of the way. An aerial photograph of the Venta Spur Trail at Eastwood is shown in ***Figure I***.

Figure I: Venta Spur Trail at Eastwood

Although traffic volumes on Eastwood and Westwood are relatively low, these roads are curved in the vicinity of the trail. If drivers are speeding, they may not have adequate sight distance to spot jaywalkers. Increased pedestrian and/or bicycle activity on the Venta Spur Trail may result in a higher incidence of jaywalking between trail segments, which could create a safety hazard for pedestrians, bicyclists, and motorists.

Another safety issue associated with the Venta Spur Trail is the mixed use by pedestrians and bicyclists on the same path. Multi-purpose trails are common, and they can be safe and effective uses for public open space. All users must take precaution to avoid collision, however, and watch for travelers of different speed crossing their path. The Venta Spur Trail includes long winding segments to encourage bicyclists to ride at a reduced pace. Many on-street bicycle paths with higher speed limits are available throughout the area.

In general, the Venta Spur Trail is a safe and beneficial pedestrian and bicycle trail, but it does not provide a continuous path from the Peters Canyon Wash Trail to Jeffrey Road. At each point of discontinuity, a traveler on one segment of the trail that wishes to continue to an adjacent segment must travel along the cross street to the nearest intersection with a striped crosswalk, and then travel on the cross street back to the trail. At the intersection of the Venta Spur Trail with Eastwood, the nearest striped crosswalks are located either 1,250 feet to the south at Bryan Avenue, or 1,500 feet to the north and west at Yale Avenue. It is the responsibility of the user to follow the trail responsibly. All bicyclists must watch out for pedestrians and use caution when riding on the trail. Any change in pedestrian, bicyclist, or vehicular volumes in the study area may result in an increased potential for accidents and injury. The issues discussed in this section should be taken into account when considering a project that may be a catalyst for increased pedestrian and bicyclist activity.

Existing Pedestrian and Bicycle Counts

Weekday peak period and Saturday pedestrian and bicycle counts were taken at four locations in the vicinity of the Venta Spur Trail end point at Jeffery Road. The weekday counts were taken on Thursday, October 12th, 2006 from 7:00 a.m. to 10:00 a.m. and from 3:00 p.m. to 7:00 p.m. The Saturday counts were taken on October 21st, 2006 from 7:00 a.m. to 6:00 p.m. All counts were taken in good weather conditions, and represent typical pedestrian and bicyclist activity for the area.

Land uses along Jeffrey Road within the study area primarily consist of residential developments and dedicated open space, with some agricultural use. A description of each count location including the presence of sidewalk facilities and bicycle paths leading to each corner is presented in this section. The count locations and the Saturday volumes are shown in ***Figure J***.

1. Jeffrey Road and Irvine Boulevard. There are Class II on-street bicycle paths along both Jeffrey Road and Irvine Boulevard, and a Class I off-street bicycle path along the east side of Jeffrey Road. The northwest and northeast corners of this intersection contain undeveloped

parcels that have been used for farming. There are no sidewalks along the north side of Irvine Boulevard approaching these corners. At the southeast corner there is an entrance to the JOST, but there are no sidewalks along the south side of Irvine Boulevard or on the east side of Jeffrey Road approaching this corner. There is a residential development located at the southwest corner of this intersection, and there are sidewalks along the south side of Irvine Boulevard and the west side of Jeffrey Road approaching this corner.

2. Jeffrey Road and Bryan Avenue. There are on-street bicycle paths along Jeffrey Road and on the portion of Bryan Avenue west of Jeffrey Road. The parcel on the northwest corner of this intersection contains agricultural uses, and there are no sidewalks leading to this corner. The JOST runs along the east side of Jeffrey Road, and there are entrances to the trail from the northeast and southeast corners. The Woodbury residential village is located on the east side of the JOST. There is another residential development on the southwest corner, with sidewalks along the south side of Bryan Avenue and the west side of Jeffrey Road leading to this corner.

3. Venta Spur Trail terminus at Jeffrey Road. The Venta Spur Trail ends on the west side of Jeffrey Road mid-block between Irvine Boulevard and Bryan Avenue. The Groves Mobile Home Park is on the west side of Jeffrey Road to the north of the trail and a Public Storage facility is to the south. The JOST is located along the east side of Jeffrey Road, but there is no direct connection between the Venta Spur Trail and the JOST across Jeffrey Road. There is a concrete sidewalk along the west side of Jeffrey Road between the Venta Spur Trail and Irvine Boulevard, but the sidewalk does not extend south to Bryan Avenue.

4. Jeffrey Open Space Trail (JOST). The JOST is a 325-foot wide landscaped corridor along the east side of Jeffrey Road. It has a dual system of trails including an 11-foot wide Class 1 bicycle trail and a 5-foot wide pedestrian path. Counts were taken at a point where the bicycle trail and pedestrian path intersect. If the Venta Spur Trail were extended to the east, it would intersect with the JOST just south of this point. A pedestrian bridge over Jeffrey Road would provide access from the Venta Spur Trail to the JOST in the vicinity of this count location.

Pedestrian volumes were generally light during all observed periods. Most of the pedestrians traveled alone or in pairs during the weekday morning period, with some people in groups of two or three during the weekday afternoon period. The highest pedestrian volume was on the JOST, with a high percentage of the pedestrians at the intersection of Jeffrey Road and Irvine Boulevard traveling to or from the JOST. The number of pedestrians traveling between the JOST and the Venta Spur Trail was low, with most of the pedestrians that traveled east on the Venta Spur Trail turning back around when they reached Jeffrey Road. It is not unreasonable to assume that a higher volume of pedestrians would continue from the Venta Spur Trail to the JOST if grade separated paths were in place, but the observed existing demand is slight.

Bicycle activity was minimal during the weekday peak periods. A large portion of the bicycle volume was from large groups of riders traveling together, and more bicyclists traveled on the on-street bike paths than on the Venta Spur or Jeffrey Open Space trails. A group of 62 riders was observed traveling eastbound on Irvine Boulevard during the Saturday morning count.

Existing Traffic Conditions on Jeffrey Road

Jeffrey Road is classified as a major highway in the City of Irvine General Plan Circulation Element. It provides access to the I-405 and I-5 freeways, residential communities, Irvine Valley College, and the Oak Creek Golf Club. Existing traffic volumes on Jeffrey Road in the vicinity of the Venta Spur Trail are used as a base to forecast future conditions and measure project impacts. The results of a level of service (LOS) analysis at the intersections of 1) Jeffrey Road and Irvine Boulevard and 2) Jeffrey Road and Bryan Avenue are included in this section, along with a weekday mid-block vehicular volume count taken on Jeffrey Road between these intersections.

IBI GROUP

Venta Spur Trail Bicycle/Pedestrian Bridge at Jeffrey Road Project

Pedestrian and Bicycle Counts - Saturday, October 21, 2006 (7:00 am - 6:00 pm)

Intersection Volumes and Level of Service (LOS)

Turning movement count data at the project study intersections was obtained from the Irvine Transportation Analysis Model (ITAM) database. The AM peak hour volumes and corresponding level of service at each intersection are summarized in Tables 1 and 2. According to the City of Irvine General Plan, the target LOS for these intersections is LOS D or better.

Table 1: Existing Conditions at Jeffrey Road and Irvine Boulevard

Movement	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Lane Geometry	2	3	1*	2	3	1	2	2	1	2	2	1
PM Peak Volume	44	483	156	285	1650	342	151	1811	88	190	1226	225
Volume / Capacity	0.66	0.46	0.11	0.76	1.09	0.49	0.64	1.12	0.09	1.12	0.79	0.21
Approach Delay (s)	42.2			89.6			95.8			50.2		
Approach LOS	D			F			F			D		
Intersection Totals	HCM Average Control Delay (s) 76.9						**Intersection LOS (HCM)**			**E**		

1* - free right turn (single lane)

Table 2: Existing Conditions at Jeffrey Road and Bryan Avenue

Movement	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Lane Geometry	2	3	0	2	3	1	2	2	0	2	2	0
PM Peak Volume	219	859	92	89	2295	235	132	132	355	358	313	129
Volume / Capacity	1.00	0.39		0.59	0.97	0.18	0.70	1.14		1.03	0.62	
Approach Delay (s)	31.2			34.8			59.1			66.0		
Approach LOS	C			C			E			E		
Intersection Totals	HCM Average Control Delay (s) 41.7						**Intersection LOS (HCM)**			**D**		

Mid-Block Daily Volume on Jeffrey Road

A 24-hour vehicular volume tube count was taken on Jeffrey Road between Irvine Boulevard and Bryan Avenue on Thursday, October 12th, 2006. The volumes labeled as northbound (NB) in Table 3 are headed toward Irvine Boulevard, and the volumes labeled as southbound (SB) are headed toward Bryan Avenue.

This segment of Jeffrey Road carried a daily total of 15,054 vehicles. The average daily traffic (ADT) based on counts made in the year 2000 was 14,000. The morning peak hour volume was 1,458 vehicles between 8:15 a.m. and 9:15 a.m., and the evening peak hour volume was 1,284 vehicles between 5:30 p.m. and 6:30 p.m.

Table 3: Vehicular Volumes on Jeffrey Road between Irvine Boulevard and Bryan Avenue

Volumes for: Thursday, October 12, 2006 City: Irvine Project #: 06-1297-001

Location: Jeffrey Rd btwn Bryan Ave & Irvine Blvd

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	12		13					12:00	83		100				
00:15	20		5					12:15	95		108				
00:30	10		15					12:30	113		95				
00:45	7	49	8	41			90	12:45	130	421	108	411			832
01:00	8		11					13:00	100		95				
01:15	17		4					13:15	130		98				
01:30	11		13					13:30	122		80				
01:45	14	50	12	40			90	13:45	104	456	105	378			834
02:00	14		9					14:00	143		129				
02:15	6		11					14:15	132		130				
02:30	12		9					14:30	114		146				
02:45	8	40	8	37			77	14:45	81	470	108	513			983
03:00	14		4					15:00	89		116				
03:15	7		8					15:15	96		118				
03:30	22		14					15:30	119		98				
03:45	9	52	17	43			95	15:45	152	456	131	463			919
04:00	1		14					16:00	152		147				
04:15	3		11					16:15	184		103				
04:30	9		10					16:30	188		92				
04:45	1	14	4	39			53	16:45	129	653	96	438			1091
05:00	20		9					17:00	157		130				
05:15	22		8					17:15	131		117				
05:30	32		25					17:30	234		135				
05:45	41	115	13	55			170	17:45	190	712	153	535			1247
06:00	79		26					18:00	173		128				
06:15	94		31					18:15	165		106				
06:30	79		48					18:30	132		112				
06:45	84	336	74	179			515	18:45	117	587	116	462			1049
07:00	87		130					19:00	106		99				
07:15	91		125					19:15	75		64				
07:30	111		117					19:30	78		83				
07:45	111	400	156	528			928	19:45	89	348	65	311			659
08:00	105		179					20:00	77		40				
08:15	112		177					20:15	56		71				
08:30	139		164					20:30	60		57				
08:45	266	622	156	676			1298	20:45	64	257	44	212			469
09:00	221		223					21:00	58		53				
09:15	88		174					21:15	80		48				
09:30	82		111					21:30	53		47				
09:45	106	497	114	622			1119	21:45	61	252	54	202			454
10:00	107		100					22:00	66		34				
10:15	83		108					22:15	47		27				
10:30	81		96					22:30	56		50				
10:45	74	345	102	406			751	22:45	51	220	37	148			368
11:00	91		110					23:00	45		38				
11:15	70		97					23:15	23		26				
11:30	87		88					23:30	27		29				
11:45	99	347	100	395			742	23:45	13	108	20	113			221
Total Vol.		2867		3061			5928			4940		4186			9126

Daily Totals

NB	SB	EB	WB	Combined
7807	7247			15054

	AM			PM		
Split %	48.4%	51.6%	**39.4%**	**54.1%**	**45.9%**	**60.6%**
Peak Hour	08:15	08:15	**08:15**	17:30	17:00	**17:30**
Volume	738	720	**1458**	762	535	**1284**
P.H.F.	0.69	0.81	**0.82**	0.82	0.87	**0.87**

The highest observed two-way peak hour volume on the six-lane facility was 1,458 vehicles between 8:15 a.m. and 9:15 a.m. With a capacity of 9,600 vehicles per hour (1,600 vehicles per

hour per lane), this link segment has a peak hour volume-to-capacity (V/C) ratio of 0.15, which is representative of a roadway with good flow that is free of bottlenecks.

At-Grade Pedestrian Crossing Analysis

The purpose of a grade-separated pedestrian/bicycle crossing between the Venta Spur Trail and the JOST would be to allow non-vehicular traffic to travel directly between the two trails. An alternative to building a grade-separated crossing would be to install a traffic signal with pedestrian crosswalks and push-button timing at the driveway to the Public Storage facility. The driveway is located about 100 feet south of the Venta Spur Trail. An intersection at this location would provide a more convenient path for pedestrians and bicycles than the existing configuration, but would also result in an increased delay for drivers on Jeffrey Road.

The vehicular volumes on Jeffrey Road were taken from the weekday count made on Thursday, October 12th, 2006 which are shown in ***Table 3***. The weekday peak hour for vehicular volumes on Jeffrey Road occurred between 8:15 a.m. and 9:15 a.m. There were almost no east-west pedestrian crossings in the study area during the weekday afternoon peak hour, so this analysis was performed for the morning peak hour scenario only. The average arrival rate of AM peak hour northbound and southbound vehicles was about 12.3 vehicles per minute during this time period. The results of a delay analysis for the proposed traffic signal for the weekday peak hour are presented in ***Table 4***. It is assumed that this intersection would operate with no recall for the driveway traffic, and that the movement on Jeffrey Road would only receive a red phase if a pedestrian push button or a driveway loop detector is activated.

Existing pedestrian activity within the study area is low, with only three people walking to the end of the Venta Spur Trail on the west side of Jeffrey Road. During the observed hours for the non-vehicular crossing volumes, it is assumed that the east-west pedestrian volumes that currently travel across Irvine Boulevard or Bryan Avenue (or a comparable number of people) would use the proposed at-grade crossing between the Venta Spur Trail and the JOST instead. Jeffrey Road is about 102 feet wide from curb to curb, and it would take a pedestrian traveling at 4 feet per second about 26 seconds to travel across this arterial. Each crossing phase is estimated to last about 30 seconds, including yellow time and start up delays. Assuming an even distribution of vehicle arrivals, each peak hour crossing would result in a total of about 180 vehicle-seconds (or 3 vehicle-minutes) of delay. As a worst case scenario, it is assumed that the six pedestrians would each produce a separate push button call, which would result in a total of 18 vehicle-minutes of additional delay to vehicles on Jeffrey Road.

Table 4: Mid-Block Signal Operations on Jeffrey Road at the Venta Spur Trail Terminus – AM Peak

Movement	Northbound Through	Southbound Through	East-West Crosswalk
Lane Geometry	3 lanes	3 lanes	1 path
AM Peak Volume	738 vehicles	740 vehicles	6 peds
Average Approach Volume	12.3 veh/min	12.3 veh/min	1 ped/crossing
Average Queue Length per Crossing	6 vehicles	6 vehicles	N/A
Average Delay per Crossing	90 veh-sec	90 veh/sec	
Total Delay per Crossing	180 veh-sec (3 veh-min)		
Total Delay per Hour (6 crossings)	18 veh-min		

In summary, the low pedestrian volumes observed in the study area do not warrant a mid-block at-grade crossing between the Venta Spur Trail and the JOST. The implementation of an at-grade crossing would introduce additional delay to vehicles on Jeffrey Road without notable benefit. Costs associated with a mid-block at-grade crossing include the installation of a traffic

signal, coordination of the signal timing with adjacent intersections, removal of median and fencing segments, and an extension of the JOST path to the crossing on the east side of Jeffrey Road. There is no apparent benefit to providing an at-grade crossing that would warrant these costs and the inconvenience to drivers on Jeffrey Road. Opportunities to cross Jeffrey Road exist at Irvine Boulevard and Bryan Avenue.

B. Future Conditions

Future Pedestrian and Bicyclist Destinations and Travel Patterns

The City of Irvine 2006 Bicycle Transportation Plan includes a network of off-street and on-street bicycle paths that span throughout the City along major transportation corridors, utility and railroad easements, creek channels and greenbelts. Existing gaps in the bikeway network are generally located in undeveloped areas that will be filled in as these areas develop and as funding becomes available. The Bicycle Transportation Plan includes a proposed off-street bikeway that would provide an extension of the Venta Spur Trail to Sand Canyon Avenue.

In 2002, Orange County voters approved Measure W, the Orange County Central Park and Nature Preserve Initiative, which amended the County General Plan to create a park at the former Marine Corps Air Station at El Toro. The Irvine Great Park will cover over 1,300 acres of the former El Toro MCAS, located east of Sand Canyon Avenue (SR-133) and between I-5 and SR-241. The public open space will include a sports park, veteran's memorial, botanical garden, and an underground water channel that will create a habitat for native plants and animals.

A Class I off-street bicycle path is proposed to run through the Great Park, which would be accessible from Trabuco Canyon Road and Irvine Boulevard. The proposed extension of the Venta Spur Trail to Sand Canyon Avenue and the future on-street bikeway along Sand Canyon Avenue would provide a connection from the existing Venta Spur Trail to the Great Park. The Great Park amenities are expected to attract a significant number of pedestrian, bicycle, and automobile trips, and may result in an increase in the number of trips on the Venta Spur Trail. However, the Woodbury residential development has been constructed on the parcel of land to the east of the JOST, and precludes the construction of Class I bikeway that would extend the Venta Spur Trail to Sand Canyon Avenue and the future Irvine Great Park. Instead, this Venta Spur Trail extension has been provided along Bryan Avenue where a pedestrian/bicycle bridge is proposed across the SR-133.

Future Traffic Conditions

Traffic volumes on Jeffrey Road and at the intersections with Irvine Boulevard and Bryan Avenue are expected to increase in the future due to ambient growth and continuing development. The Great Park is also expected to generate vehicular, pedestrian, and bicycle traffic within the study area, particularly during the weekday evening peak period and on the weekend. The magnitude of that growth, however, is not so simple to predict. In general, pedestrian activity on a recreational trail is dependent on a variety of factors and is difficult to forecast. The National Travel Household Survey (NHTS) has compiled extensive non-motorized travel survey data, but empirical relationships between land uses and pedestrian and bicycle activity are not available.

Pedestrian and bicycle trips are usually home-based, and may or may not have a pre-determined destination. Planners frequently use a quarter-mile (1,320-foot) trip distance as the critical threshold of walking distance for American context, but this distance varies by trip purpose, gender, age, and urban context (urban city center versus suburban). The end of the Venta Spur Trail at Jeffrey Road is 1.5 miles (straight line distance) from the border of the Irvine Great Park site and about 2.5 miles from the Great Park activity centers along the future bikeway network. It is difficult to forecast pedestrian and bicycle activity over such great distance.

The intersection of Jeffrey Road at Irvine Boulevard currently operates at LOS E during the morning peak hour, and Jeffrey Road at Bryan Avenue operates at LOS D during morning peak

hours. Large volumes of at-grade pedestrian crossings can prevent a traffic signal from operating with the optimal timing splits, resulting in further delays to drivers and reduced level of service. However, the low pedestrian volumes through these intersections would have to increase to about 50 pedestrians per hour across one leg in the future condition before notable impacts to vehicular traffic are expected to occur. In the existing condition, there were less than 50 pedestrian crossings across all four legs of the intersection of Jeffrey Road and Bryan Avenue observed over the whole day (between 7:00 AM and 6:00 PM) on Saturday.

VII GRADE SEPARATION ALTERNATIVES

Design Criteria:

- The Americans with Disabilities Act (ADA) and various public agencies have established minimum criteria for dimensions of public facilities. Pertinent criteria are summarized in ***Table 9***, all standards listed in the table would apply to the final bridge and bridge landing areas ultimately selected. Since the pedestrian bridge would be designed to maximize and encourage pedestrian use, it would meet the applicable requirements and minimum standards.
- The pedestrian bridge must be accessible to persons with physical disabilities, so the landings must contain an ADA approved ramp with appropriately spaced landing areas. The final landing design will be influenced by the area required, aesthetic properties, maintenance needs, and a variety of other factors.

Table 5: Design Criteria

Parameter	Requirement	Source
Ramp slope (in any direction)	Slope shall not exceed 1 unit vertical in 12 horizontal units. Slope < 1:12	ADA Compliance Manual, Chapter 58 2001 CBC, Chapter 11B
Ramp cross slope	Cross slopes shall not exceed ¼ inch per foot. Cross slope < 1:50	ADA Compliance Manual, Chapter 58 2001 CBC, Chapter 11B
Ramp width	Pedestrian ramps shall have a minimum width of 48 inches (4 feet).	ADA Compliance Manual, Chapter 67
Exits	The width of ramps shall be as required for stairways and exits.	ADA Compliance Manual, Chapter 67
Landings	Level ramp landings shall be provided at the top and bottom of each ramp. Intermediate landings shall have a dimension in the direction of the ramp run of not less than 60 inches, and shall be provided at intervals not exceeding 30 inches of vertical rise. Landings shall be provided at each change of direction in excess of 30 degrees, and shall have a dimension in the direction of ramp run of not less than 72 inches. Top landings shall be not less than 60 inches wide and shall have a length of not less than 60 inches in the direction of ramp run. Top, bottom, and intermediate landings shall be at least the same width as the ramp.	ADA Compliance Manual, Chapter 67 2001 CBC, Chapter 11B, Div III, 1133B
Guardrails	The top of guardrails shall not be less than 42 inches in height.	ADA Compliance Manual, Chapter 67
Vertical Roadway Clearance	The AASHTO minimum allowable clearance for pedestrian overpass structures is 17 feet. Clearance >= 17'-0", The City of Irvine prefers 18'-0", based on similar nearby projects.	

ADA – Americans with Disabilities
CBC – California Building Code

The City of Irvine planning and design standards for construction of new bikeway projects defer to standards included in Chapter 1000, "Bikeways Planning and Design" of the Caltrans Highway Design Manual, except where City standards take precedence.

Table 6: City of Irvine Bikeway Classifications

Bikeway Type	Description
Class I	Provides for bicycle travel on a paved right-of-way completely separated from streets or highways. Often referred to as an off-street bikeway, bicycle path, or bicycle trail.
Class II	A striped on-street bicycle lane for one-way bicycle travel within the roadway.
Class III	Routes identified by signs and allow for bicyclists to use streets jointly with motor vehicle traffic. Not used within the City of Irvine, as most major arterials and collectors within the City incorporate designated Class II bikeways.

The City applies the following widths for Class I and Class II bikeways, which are an expansion of the Caltrans standards:

Table 7: The City of Irvine Class I Bikeways Design Widths

Bikeway Type	Description
Class I, Type A	Two-way primary bikeways require a minimum right-of-way of fifteen (15) feet, and a minimum paved width of eleven (11) feet.
Class I, Type B	Two-way secondary bikeways require a minimum right-of-way of twelve (12) feet, and a minimum paved width of eight (8) feet.
Class II	One-way on-street bicycle lane requires a minimum width of eight (8) feet, with reductions to no less than five (5) feet when approved by the Director of Public Works.

*For more information about the design standards for bikeway facilities within the City of Irvine, see Chapter 8, *Planning and Design Guidelines for Bicycle Facilities.*

A. Bridge Site Alternatives

The potential bridge site was identified within the City of Irvine 2006 Bicycle Transportation Plan. The report identified the need for a grade separation along the Venta Spur Trail over Jeffrey Road as part of the future extension of the trail eastbound to State Route 133.

Several physical factors were taken into consideration with respect to determining the ideal location and type of grade separated crossing connecting the Venta Spur Trail and the JOST. These included:

- The constraint set forth by the Eucalyptus Windrow easement forced the bridge approach to be placed on the north side of the Venta Spur Trail right of way.

- The need to provide an ADA approved and bike-friendly ramp.
- IVG Packing House mitigation site
- Underground Storm Drain easement, east of Jeffrey Road.

These factors resulted in the development of a combined approach ramp. See ***Figure K and L.***

B. Bridge Type Alternative

Several bridge alternatives were studied for each trail alignment alternative. A number of factors governing the alignment and the bridge were considered during the evaluation process including number of spans, construction materials, utility constraints, constructability and costs.

Materials
The most common materials used for bridge construction are steel and concrete, including:

- Conventional cast-in-place post-tensioned concrete box girder bridges are commonly used in this region due to their cost effectiveness in construction and low maintenance cost.
- Precast prestressed concrete girders are also used where cast-in-place construction is impractical or too costly. Caltrans has developed standard girder shapes and sizes to meet a wide range of different span lengths; however, their feasibility is limited by the maximum length and weight that can be transported on the state's roads and bridges to the project site.
- Steel can be used in the construction of variety of bridge types ranging from simple I-girder to truss or cable stayed structures. Due to the high strength characteristic of steel, the structures can span longer with lighter weight than concrete. The longer spans can be fabricated in segments and spliced at the project site, which allows for easier transport to the location. However, due the higher cost of steel material and fabrication and its required frequent maintenance as compared to reinforced concrete, steel structures are not generally economical in this region.

Optimized Alignment Option 1 (*Figure K*): This option proposes the crossing of Jeffrey Road perpendicular to the roadway center line. The current curb-to-curb width of Jeffrey Road is approximately 102 feet with a 16-ft wide center median. The total bridge length accommodates each direction of traffic along the roadway, the westerly sidewalk, the mitigation site bypass, the existing storm drain and the bike trail on the east side of the road. The resultant bridge length required to accommodate this span is approximately 300-ft. Two bridge types were considered, see figure for this alignment, which include:

- **Cast-In-Place (CIP) Concrete Box Girder-**A three-span (80'-140'-80') continuous bridge structure supported on pile foundations was considered for this option. The first intermediate support (bent) would be located in the Jeffrey Road center median. The second intermediate support would be placed east of the storm drain easement and west of the mitigation site, east of Jeffrey Road. The structure depth varies from 3 feet at the abutments to 5 feet at the intermediate supports (bents). The required vertical clearance over the Jeffrey Road is 18 feet. This requirement establishes the length of the landings to the bridge on both ends.
- **Truss Bridge** – A single-span steel truss pedestrian/bicycle bridge overpass is currently proposed over Irvine Boulevard just east of Jeffrey Road. In order to carry on the same theme, a three-span steel truss bridge, the length of the spans being 80', 140', and 80', similar to the Cast in Place (CIP) concrete spans, is constructible.

Optimized Alignment Option 2 (*Figure L*): This alignment turns southward as it crosses over Jeffrey Road in order to reduce the overall bridge length and reduce impacts to the existing trails east of Jeffrey. The resultant bridge length associated with this alignment is approximately 280

feet. Three bridge types were considered. Each option proposes a four-span bridge, the spans lengths being, 70', 70', 90', and 50'.

- **CIP Concrete box Girder -** A CIP concrete bridge with a horizontally curved alignment was considered for this option. The structure depth varies from 2.5 feet at the abutments to 4 feet at the intermediate supports (bents). The features of this bridge would be similar to the one in Alignment Option 1, except the bridge is supported on drilled caisson foundations at the bent locations due to insufficient space for construction of cast in drilled hole (CIDH) pile type foundations near the existing storm drain.
- **Precast Pre-stressed concrete Box Girder -** The box girders have a trapezoidal shape for aesthetic improvement over the typical I-girder. Due to the space constraint near the existing storm drain, the bridge should be founded on drilled caissons. The structure has a constant depth of 4.5 feet. The spans are simply supported; however, they can be made continuous to eliminate the need for expansion joints at bent locations.
- **Truss Bridge -** This bridge option considers a steel truss similar to Alignment Option 1, with the bridge supported on drilled caissons rather than CIDH piles. The horizontal alignment and the layout of this bridge are similar to the precast concrete box girder option.

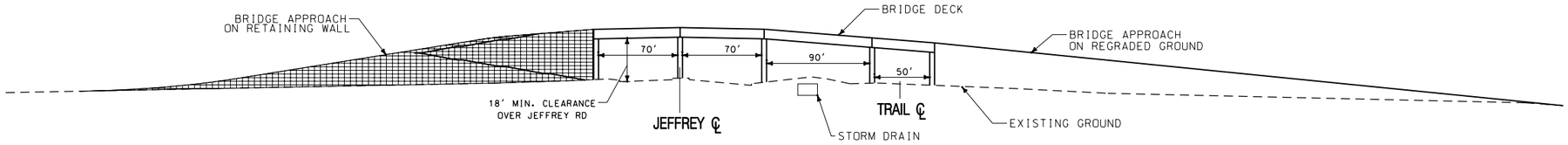
Alternatives/Landings not considered: All other constructible options, not considered as part of the optimized alternatives, are graphically shown and explained on ***Figure M***.

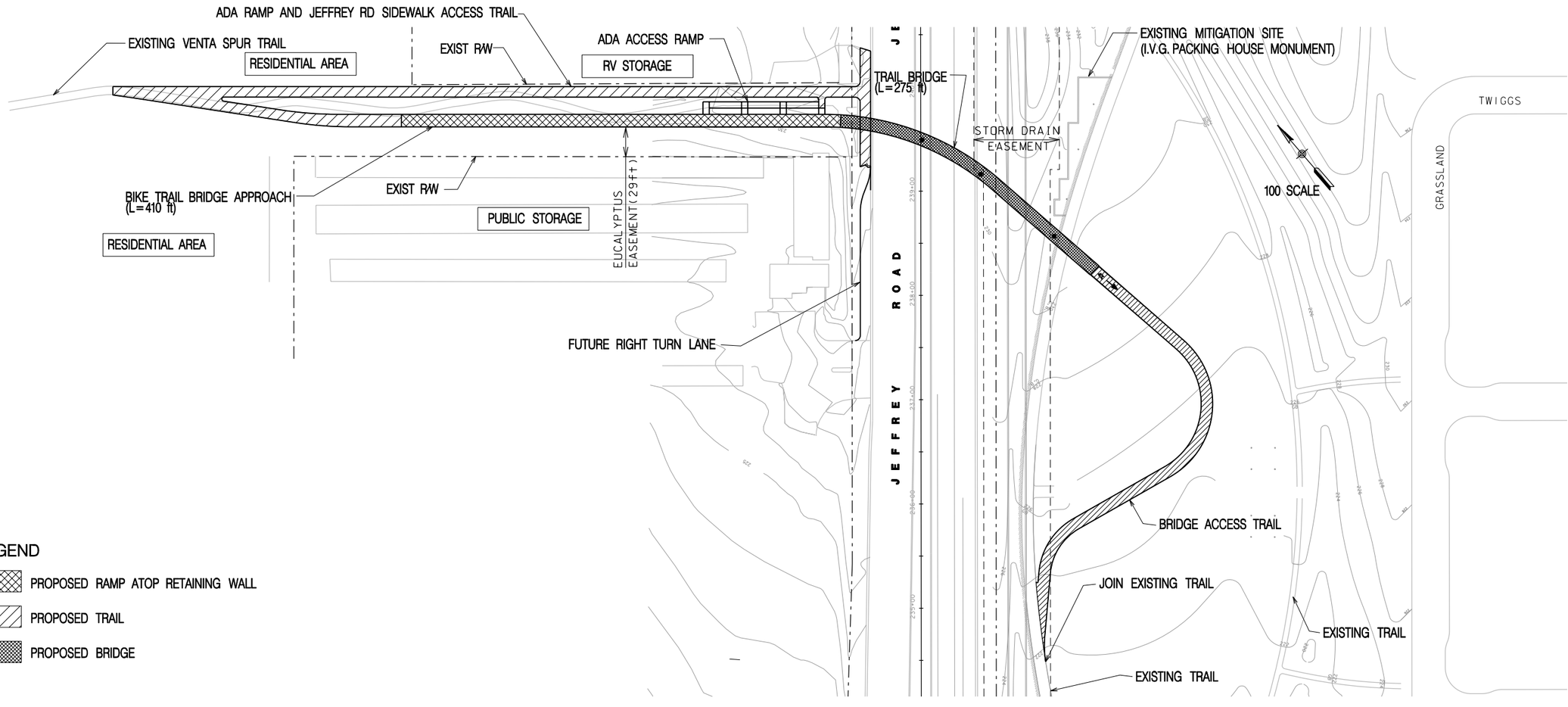
VENTA SPUR TRAIL BRIDGE
OPTION 2

OPTION DESCRIPTION:

-NO RIGHT OF WAY ACQUISITION REQUIRED.
-ADA APPROVED RAMP USING MINIMAL SWITCHBACKS ON ONE SIDE OF THE BRIDGE.
-BRIDGE AT A MAXIMUM OFFSET FROM THE RV STORAGE R/W
-MINIMUM DISTURBANCE ON WEST SIDE OF JEFFREY ROAD; BIKE TRAIL, UNPAVED TRAIL, MONUMENT AND CREEK REMAIN WILL REMIAN UNMODIFIED.

OPTION 2 BRIDGE PROFILE





LEGEND

- PROPOSED RAMP ATOP RETAINING WALL
- PROPOSED TRAIL
- PROPOSED BRIDGE

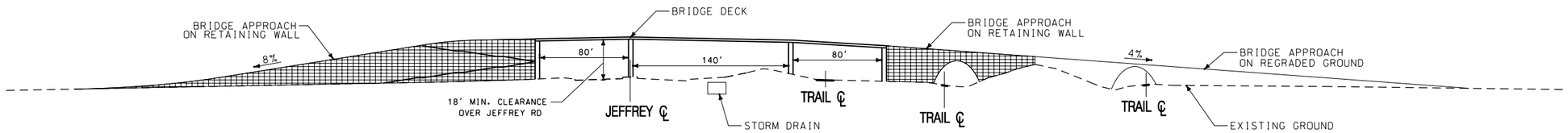
$FileName

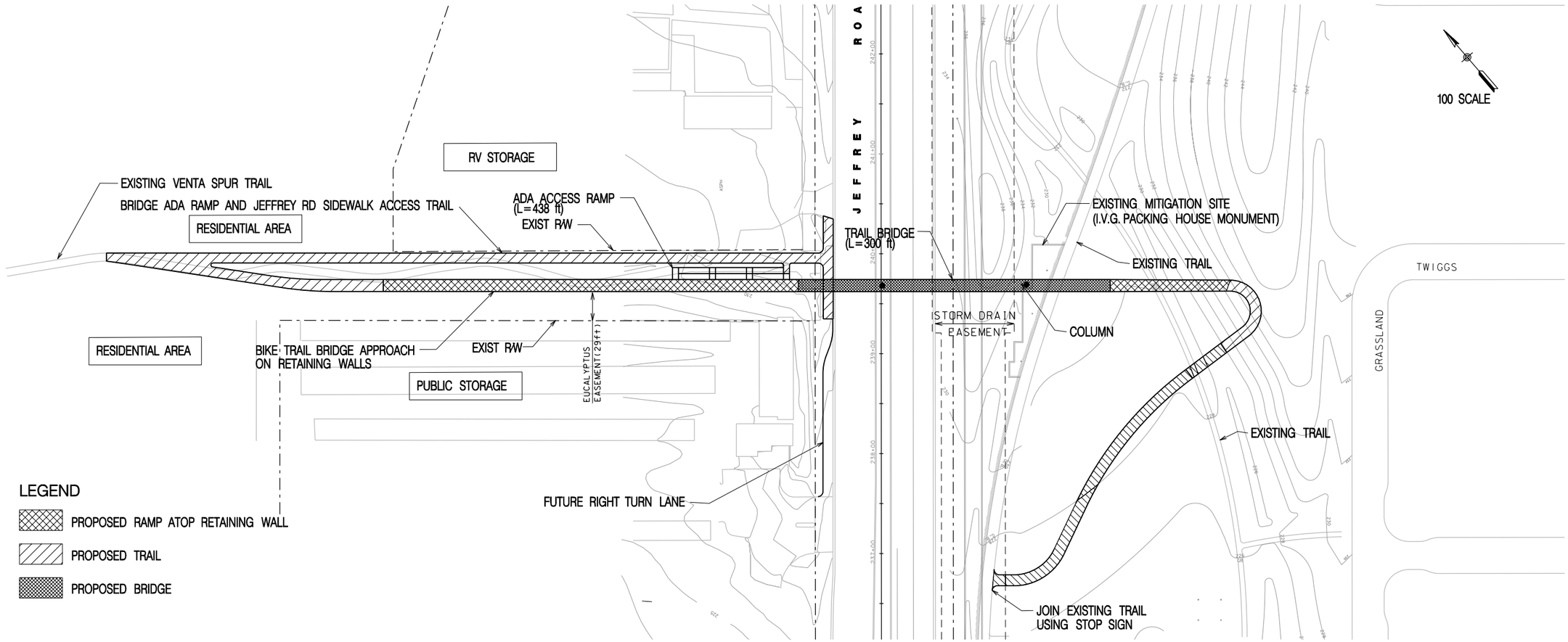
VENTA SPUR TRAIL BRIDGE
OPTION 1

OPTION DESCRIPTION:

-NO RIGHT OF WAY ACQUISITION REQUIRED.
-ADA APPROVED RAMP USING MINIMAL SWITCHBACKS ON NORTH SIDE OF THE BRIDGE.
-MAXIMUM OFFSET OF BRIDGE APPROACH TO RV STORAGE.
-MINIMAL DISTURBANCE ON EAST SIDE OF JEFFREY ROAD; PAVED BIKE TRAIL, UNPAVED TRAIL, MONUMENT AND CREEK REMAIN UNDISTURBED.

OPTION 1 BRIDGE PROFILE





LEGEND

- PROPOSED RAMP ATOP RETAINING WALL
- PROPOSED TRAIL
- PROPOSED BRIDGE

$FileName

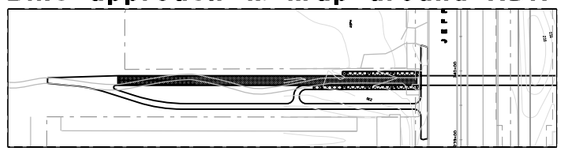
MATRIX VISUAL EXHIBIT

FIGURE M

ADA RAMP/ APPROACH OPTIONS

Bike approach w/ wrap around ADA ramp

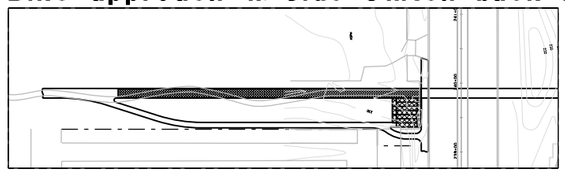
1A.



Convenient ADA ramp configuration, no right of way impact.
May have ramp height clearance issues, visual impact to RV storage area.

Bike approach w/ side switch back ADA ramp

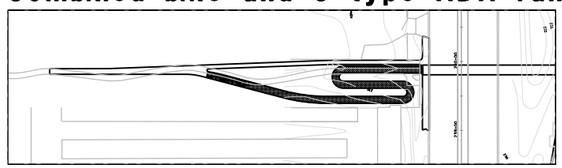
1B.



Visual impact to RV storage unit, some right of way impacts
Eucalyptus easement impacts.

Combined bike and S type ADA ramp

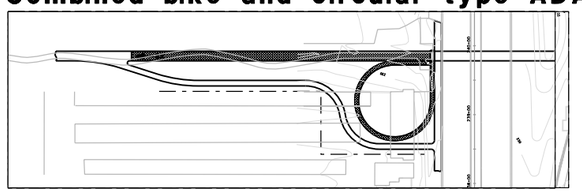
1C.



Visual impacts to RV storage, combined ramps will be less costly.
Large bike rider hazard, Eucalyptus easement impact.

Combined bike and circular type ADA ramp

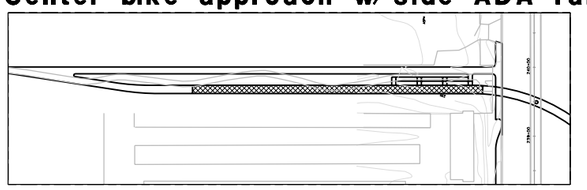
1D



Smooth ADA ramp approach,
Right of Way impacts, Visual impact to RV storage,
Eucalyptus easement impact

Center bike approach w/ side ADA ramp

1E

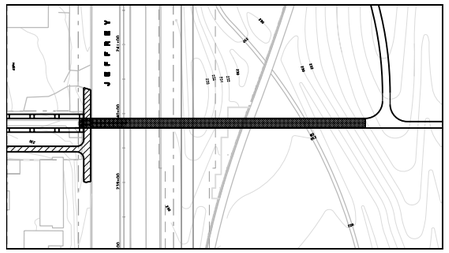


No Right of way impact. Visual impact to RV storage area
Minimal ADA ramp switchbacks.

BRIDGE OPTIONS

Straight Bridge, long span

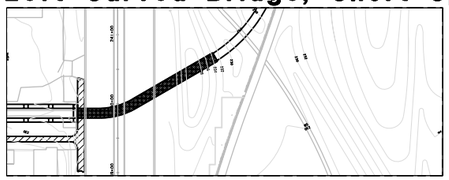
2A.



Minimal impacts to existing monument and trails.
Very deep bridge deck and most expensive bridge to build.

Left Curved Bridge, short span

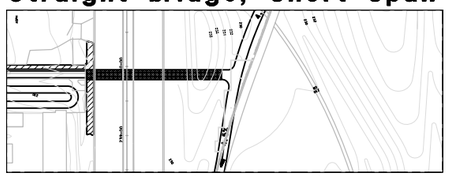
2B.



Minimal impacts to existing monument and trails, least expensive.
Requires a median column, and cannot be precast concrete.

Straight bridge, short span

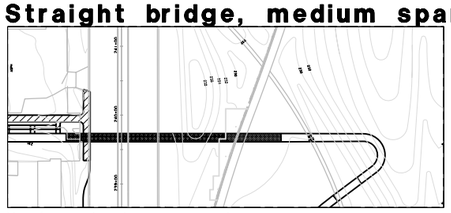
2C.



Least expensive bridge, no median column needed.
Major impacts to monument and existing JOSS trails.

Straight bridge, medium span

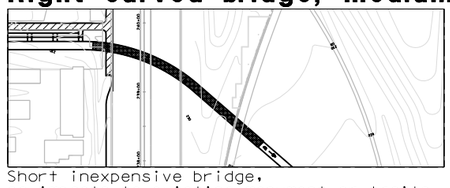
2D.



No impacts to monument.
Median column needed, impacts to existing trails and
lanscaped areas.

Right curved bridge, medium span

2E.

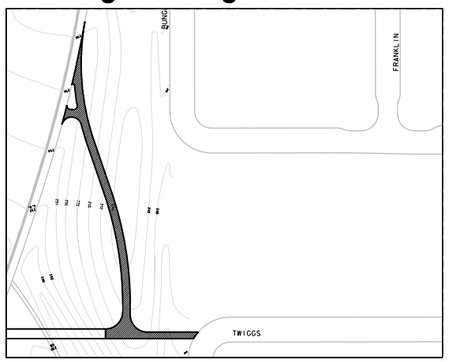


Short inexpensive bridge,
no impacts to existing monument or trails.
Median column needed.

TRAIL CONNECTIVITY/ LANDING

North bound side trail connection
Landing on regraded soil

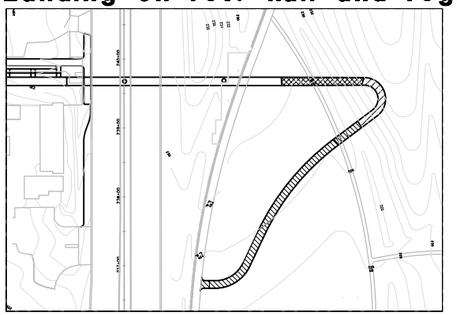
3A.



Minimal impacts to existing trails, minimal regrading needed.
Visual impacts to Woodbury residents.

South side trail connectivity
Landing on ret. wall and regraded soil

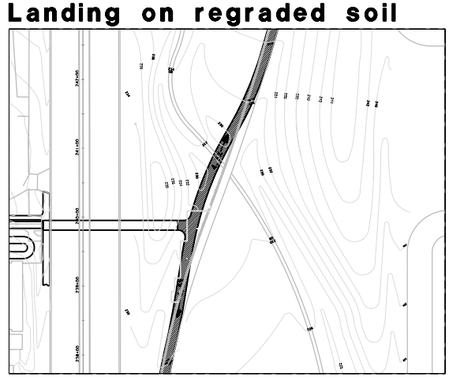
3B.



Minimal impacts to existing trails, priority to southbound flow
Some regrading needed,
Visual impacts to Woodbury residents.

North and south side connectivity
Landing on regraded soil

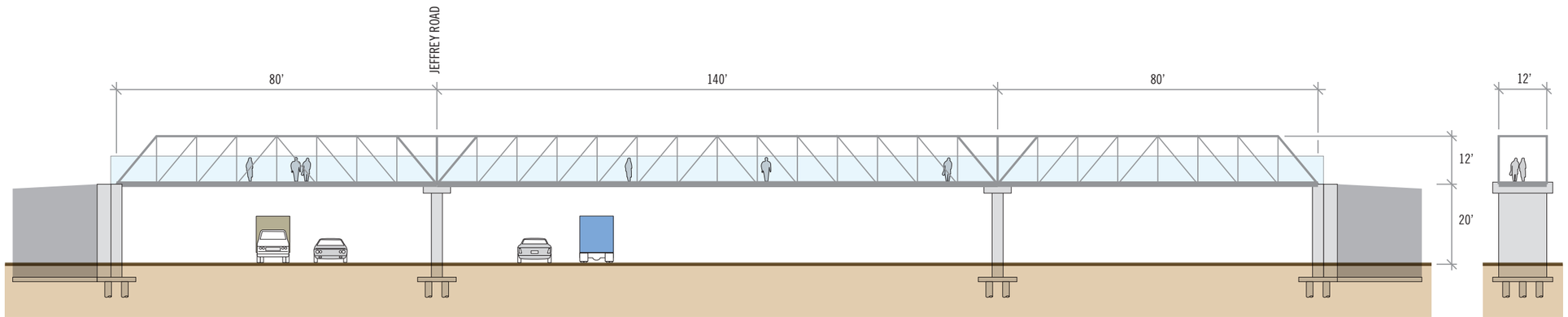
3C.

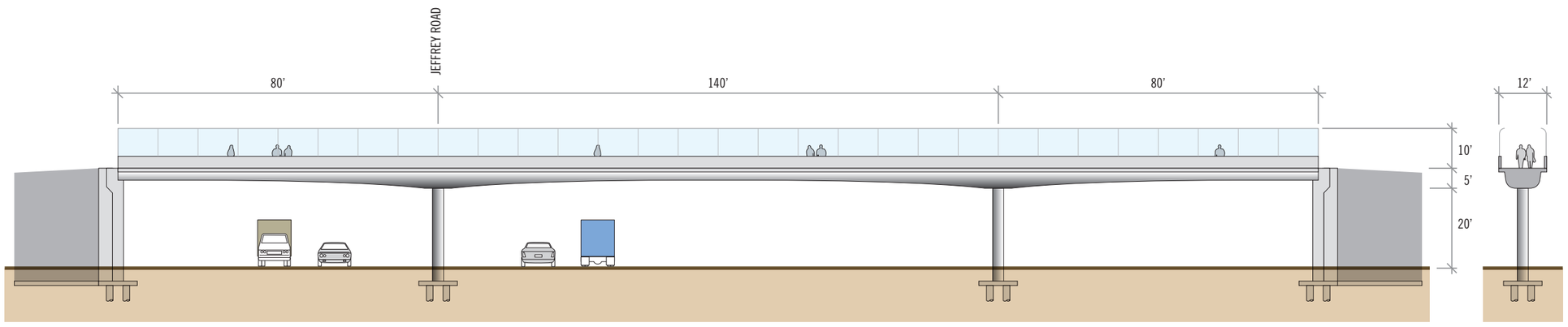


Acces to south and north bound flow,
Visual impacts to Woodbury residents.
Major regrading needed,
major impacts to existing monument and trails.

OPTION 1

VENTA SPUR TRAIL FEASIBILITY STUDY



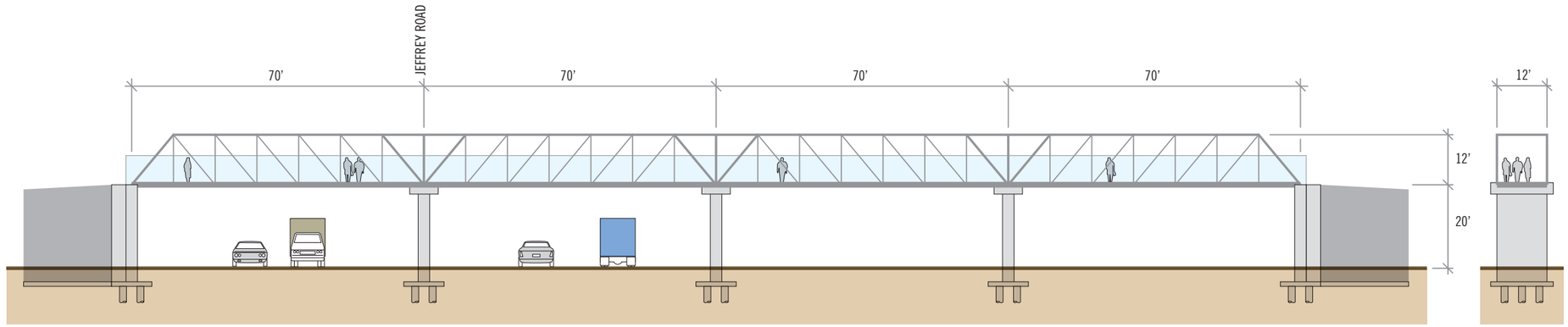


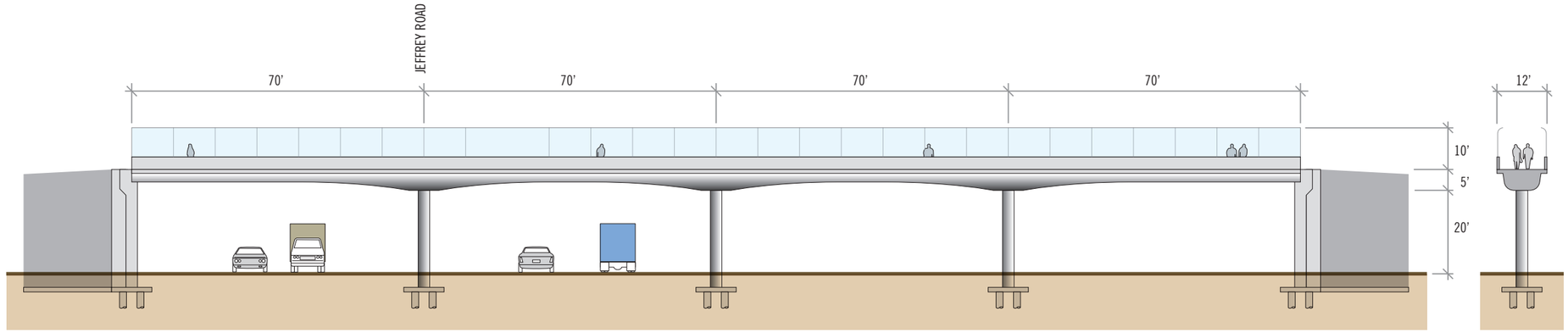
1 Civic Center Plaza
Irvine, CA 92606-5208

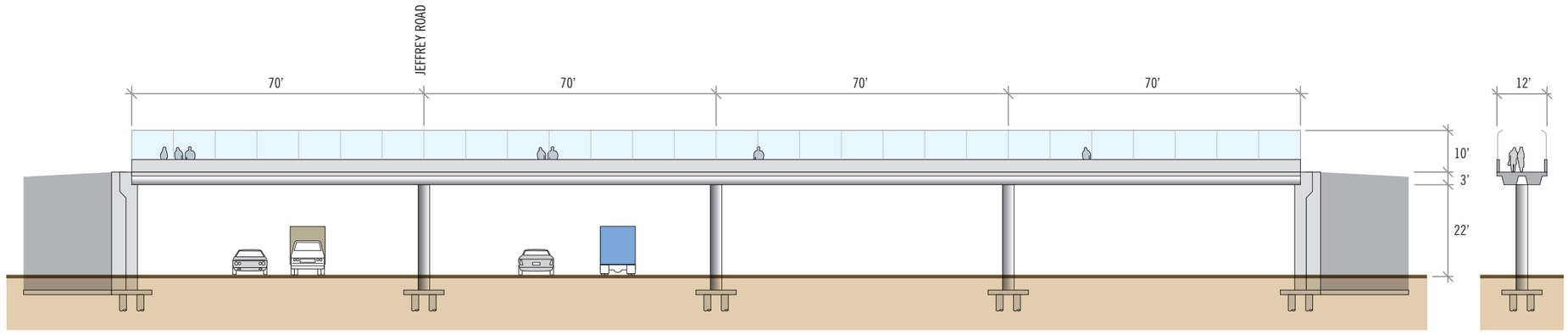
FIGURE O

OPTION 2

VENTA SPUR TRAIL FEASIBILITY STUDY







1 Civic Center Plaza
Irvine, CA 92606-5208

December, 2006

IBI GROUP

C. Other Considerations

Impacts During Construction

- **Constructability and traffic impacts:** All of the constructible structure types studied will require temporary falsework within the roadway during the construction. Cast-in-place concrete box girder bridge construction is the most economical method due to the familiarity of local contractors in the type of construction and the cheaper materials costs as compared to manufacturing steel girder or steel truss bridges. However, this type of construction would require a more extensive falsework than in prefabricated type construction where the falsework is primarily required only for the abutments and the bents. It may also require a lane closure in each traffic direction. Therefore, the impact on the existing traffic is more pronounced than the case for the precast construction. The impact can be mitigated by proper construction staging and an appropriate traffic control planning including temporary re-striping the traffic lanes. In the case of the precast type construction, it may be possible to schedule the girders/truss installation outside of the peak traffic periods so that the overall impact on traffic is not too great. Furthermore, maintaining access to properties for commuters, residents and businesses should not present a problem with respect to constructing the proposed bridge.

VIII NEXT STEPS

If the pedestrian/bicycle bridge to connect the Venta Spur Trail directly across Jeffrey Road to the JOST is determined to be feasible, then subsequent environmental analysis will be prepared. If the pedestrian/bicycle bridge is not determined to be warranted and feasible at this time based on trail connectivity issues, existing and forecasted vehicular, pedestrian and bicycle volumes and impacts to adjacent residential neighborhoods, then no further environmental analysis will be required.

IX APPENDICES

A. Traffic Analysis (Tables 8-11)

B. Table 14: Cost Estimates

C. July 12, 2006 Community Meeting Handouts

D. CEQA Initial Study Checklist

A. Traffic Analysis (Tables 8-11)

Between 7:00 AM and 10:00 AM on a typical weekday, a total of 17 pedestrians and two bicyclists were observed crossing any leg of the intersection of Jeffrey Road and Irvine Boulevard, and a total of six pedestrians and no bicycles were observed at Jeffrey Road and Bryan Avenue. During the four hour period between 3:00 PM and 7:00 PM, a total of 23 pedestrians and 15 bicyclists traveled through Jeffrey Road and Irvine Boulevard, and a total of 10 pedestrians and 11 bicycles passed through Jeffrey Road and Bryan Avenue.

The weekday and weekend pedestrian and bicycle counts at each location are summarized in ***Tables 8,9,10, and 11***. The data is presented in a format that highlights the direction of each ped and bike movement to establish origins and destinations. For example, a pedestrian walking northbound on Jeffrey Road that ultimately heads east on Irvine Boulevard would be considered to be a northbound right movement in Table 4. Full count data taken in 15-minute increments is available in the Appendix to this report.

Table 8: Pedestrian and Bicycle Counts: Jeffrey Road (N/S) and Irvine Boulevard (E/W)

Time Period	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Weekday AM Peak (7 – 10 AM)												
Pedestrians	2	2	4		1	2		3		1	2	
Bicycles								1			2	
Weekday PM Peak (3 – 7 PM)												
Pedestrians	5	5	4	1	1		1			4	2	
Bicycles	1				3	3				2	5	
Weekend AM (7 AM – Noon)												
Pedestrians	7	3	15		2	2	1	5	3	17	10	
Bicycles	3	25	4		3	10		79	4	14	36	5
Weekend PM (Noon – 6 PM)												
Pedestrians	2				2					1	2	
Bicycles	2	7			8			5		6	8	2
Weekend TOTALS (7 AM – 6 PM)												
Pedestrians	9	3	15		4	2	1	5	3	18	12	
Bicycles	5	32	4		11	10		84	4	20	44	7

L – left; T – through; R – right
For this table, pedestrians and bicycles on Jeffrey Road are considered northbound and southbound. Travelers on Irvine Boulevard are eastbound and westbound.

Table 9: Pedestrian and Bicycle Counts: Jeffrey Road (N/S) and Bryan Avenue (E/W)

Time Period	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Weekday AM Peak (7 – 10 AM)												
Pedestrians		2	1					1	1		1	
Bicycles												
Weekday PM Peak (3 – 7 PM)												
Pedestrians			2		4					1	3	

Time Period	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Bicycles		5			5			1				
Weekend AM (7 AM – Noon)												
Pedestrians		4	6	4	5			3		4	3	
Bicycles		31	4	2	60	1	1	3			1	
Weekend PM (Noon – 6 PM)												
Pedestrians		4		2	5			5			4	
Bicycles		3			10	1					1	1
Weekend TOTALS (7 AM – 6 PM)												
Pedestrians		8	6	6	10			8		4	7	
Bicycles		34	4	2	70	2	1	3			2	1

L – left; T – through; R – right
For this table, pedestrians and bicycles on Jeffrey Road are considered northbound and southbound. Travelers on Bryan Avenue are eastbound and westbound.

Table 10: Pedestrian and Bicycle Counts: Venta Spur Trail Terminus at Jeffrey Road (N/S)

Time Period	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Weekday AM Peak (7 – 10 AM)												
Pedestrians		3	1			7			2		3	
Bicycles			3									
Weekday PM Peak (3 – 7 PM)												
Pedestrians		2			1	1	2				1	
Bicycles		4			1	4	2				1	
Weekend AM (7 AM – Noon)												
Pedestrians		4			5	3			3		13	
Bicycles		28			30				2			
Weekend PM (Noon – 6 PM)												
Pedestrians	2					1	1		1		8	
Bicycles	2	8			14	1					1	
Weekend TOTALS (7 AM – 6 PM)												
Pedestrians	2	4			5	4	1		4		21	
Bicycles	2	36			44	1			2		1	

L – left; T – through; R – right
For this table, pedestrians and bicycles on Jeffrey Road are considered northbound and southbound. Travelers on the Venta Spur Trail are eastbound and westbound. The westbound through volumes represent pedestrians and bikes that were traveling east on the Venta Spur Trail and turned around at Jeffrey Road to head west on the trail.

Table 11: Pedestrian and Bicycle Counts: Jeffrey Open Space Trail (JOST)

Time Period	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Weekday AM Peak (7 – 10 AM)												
Pedestrians		7	7	1	9	3		11	2	4	9	

Time Period	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Bicycles												
Weekday PM Peak (3 – 7 PM)												
Pedestrians	2	5			7	2		19		1	13	1
Bicycles								3			1	
Weekend AM (7 AM – Noon)												
Pedestrians		27	6	1	22			23	3	4	27	2
Bicycles	1	1						5	2		7	
Weekend PM (Noon – 6 PM)												
Pedestrians	3	5	8		2	3		7	1	4	4	
Bicycles					3			6		2	3	1
Weekend TOTALS (7 AM – 6 PM)												
Pedestrians	3	32	14	1	24	3		30	4	8	31	2
Bicycles	1	1			3			11	2	2	10	1

L – left; T – through; R – right
For this table, travelers on the Jeffrey Open Space Trail pedestrian path are considered northbound and southbound. Travelers on the bicycle path are eastbound and westbound.

B. Cost Estimates

Table 12: Cost Estimates

PRELIMINARY PROJECT COST ESTIMATE

VENTA SPUR TRAIL OVERCROSSING - OPTION 1
PRELIMINARY COST ESTIMATE

Item Description	Bridge Type (1) Cast-in-Place	(2) Steel Truss
Bridge	$ 553,000	$ 774,000
Textures/Patterns/Special Finishes	$ 27,650	$ 38,700
Canopy		
Lighting		
Bridge Site Modifications		
Lighting	$ 58,065	$ 81,270
Urban Design Hardscape/Landscape	$ 87,098	$ 121,905
Street/Drainage Mods	$ -	$ -
Traffic Control	$ 87,098	$ 121,905
Signal Modifications	$ -	$ -
Utility Rearrangement	$ 50,000	$ 50,000
Subtotal Bridge	$ 862,910	$ 1,187,780
Design (12%)	$ 103,549	$ 142,534
Architecture (3-10%)	$ 25,887	$ 35,633
Design Oversight (8%)	$ 69,033	$ 95,022
Construction Mobilization, OH (10%)	$ 86,291	$ 118,778
Construction Management (5%)	$ 43,146	$ 59,389
25% Construction Contingency	$ 297,704	$ 409,784
Total Bridge	$ 1,190,816	$ 1,639,136
Use	**$ 1,200,000**	**$ 1,700,000**
Landings		
Ramps with Railing	$ 200,000	$ 200,000
Landing Site Modifications		
Lighting	$ 25,000	$ 25,000
Urban Design Hardscape/Landscape	$ 75,000	$ 75,000
Sidewalk/Drainage Mods	$ -	$ -
Traffic/Ped Control	$ 20,000	$ 20,000
Utility Rearrangement	$ -	$ -
Subtotal	$ 320,000	$ 320,000
Design (12%)	$ 38,400	$ 38,400
Architecture (5-10%)	$ 16,000	$ 16,000
Design Oversite (8%)	$ 25,600	$ 25,600
Construction Mobilization, OH (10%)	$ 32,000	$ 32,000
Construction Management (5%)	$ 16,000	$ 16,000
Subtotal	$ 448,000	$ 448,000
25% Contingency	$ 112,000	$ 112,000
Total	$ 560,000	$ 560,000
Use	**$ 560,000**	**$ 560,000**
OPTION 1		
Bridge and Landing Total	**$ 1,760,000**	**$ 2,260,000**

VENTA SPUR TRAIL OVERCROSSING - OPTION 2
PRELIMINARY COST ESTIMATE

Item Description	Bridge Type (1) Precast Concrete	(2) Cast-in-Place	(3) Steel Truss
Bridge	$ 750,000	$ 553,000	$ 700,000
Textures/Patterns/Special Finishes	$ 37,500	$ 27,650	$ 35,000
Canopy			
Lighting			
Bridge Site Modifications			
Lighting	$ 39,375	$ 29,033	$ 36,750
Urban Design Hardscape/Landscape	$ 118,125	$ 87,098	$ 110,250
Street/Drainage Mods	$ -	$ -	$ -
Traffic Control	$ 118,125	$ 87,098	$ 110,250
Signal Modifications	$ -	$ -	$ -
Utility Rearrangement	$ 50,000	$ 50,000	$ 50,000
Subtotal Bridge	$ 1,113,125	$ 833,878	$ 1,042,250
Design (12%)	$ 133,575	$ 100,065	$ 125,070
Architecture (3-10%)	$ 33,394	$ 25,016	$ 31,268
Design Oversight (8%)	$ 89,050	$ 66,710	$ 83,380
Construction Mobilization, OH (10%)	$ 111,313	$ 83,388	$ 104,225
Construction Management (5%)	$ 55,656	$ 41,694	$ 52,113
25% Construction Contingency	$ 384,028	$ 287,688	$ 359,576
Total Bridge	$ 1,536,113	$ 1,150,751	$ 1,438,305
Use	**$ 1,600,000**	**$ 1,200,000**	**$ 1,500,000**
Landings			
Ramps with Railing	$ 150,000	$ 150,000	$ 150,000
Landing Site Modifications			
Lighting	$ 25,000	$ 25,000	$ 25,000
Urban Design Hardscape/Landscape	$ 50,000	$ 50,000	$ 50,000
Sidewalk/Drainage Mods	$ -	$ -	$ -
Traffic/Ped Control	$ 20,000	$ 20,000	$ 20,000
Utility Rearrangement	$ -	$ -	$ -
Subtotal	$ 245,000	$ 245,000	$ 245,000
Design (12%)	$ 29,400	$ 29,400	$ 29,400
Architecture (5-10%)	$ 12,250	$ 12,250	$ 12,250
Design Oversite (8%)	$ 19,600	$ 19,600	$ 19,600
Construction Mobilization, OH (10%)	$ 24,500	$ 24,500	$ 24,500
Construction Management (5%)	$ 12,250	$ 12,250	$ 12,250
Subtotal	$ 343,000	$ 343,000	$ 343,000
25% Contingency	$ 85,750	$ 85,750	$ 85,750
Total	$ 428,750	$ 428,750	$ 428,750
Use	**$ 430,000**	**$ 430,000**	**$ 430,000**
OPTION 2			
Bridge and Landing Total	**$ 2,030,000**	**$ 1,630,000**	**$ 1,930,000**

C. July 12, 2006 Community Meeting Handouts

City of Irvine Website

News Details

Venta Spur Trail/Jeffrey Road Pedestrian Bridge
Come share your thoughts!

The City is inviting all interested parties to a **Public Open House on Wednesday, July 12, 2006 from 6:00 p.m. – 8:00 p.m. at the Irvine Civic Center, 1 Civic Center Plaza, Room L102** to further assess the feasibility of a pedestrian bridge over Jeffrey Road that would directly link the existing Venta Spur Trail to the Jeffrey Open Space Trail.

This crossing would be located between Bryan Avenue and Irvine Boulevard within the City of Irvine.

City of Irvine staff and City representatives will be present at the Open House to:

- Provide details of the feasibility study
- Show a recent aerial photograph of the project area
- Listen to your issues and suggestions

For questions or additional information please contact Ms. Sun-Sun T. Murillo, Senior Transportation Analyst with the City of Irvine at (949) 724-6262. Written comments and suggestions will be accepted through July 21, 2006 and may be mailed directly to Ms. Murillo: 1 Civic Center Plaza, P.O. Box 19575, Irvine, California, 92623.

WELCOME

VENTA SPUR TRAIL/JEFFEREY ROAD PEDESTRIAN BRIDGE

FEASIBILITY STUDY OPEN HOUSE

JULY 12, 2006

4PM-6PM

Presented by:

VENTA SPUR TRAIL/JEFFREY ROAD PEDESTRIAN BRIDGE FEASIBILITY STUDY OPEN HOUSE

CONTACT INFORMATION

Name: _____

Address: _____

_____

Email: _____

Telephone Number: _____

COMMENTS/SUGGESTIONS:
Please provide your comments or suggestions regarding the Venta Spur Trail/Jeffrey Road Pedestrian Bridge Feasibility Study. Thank You.

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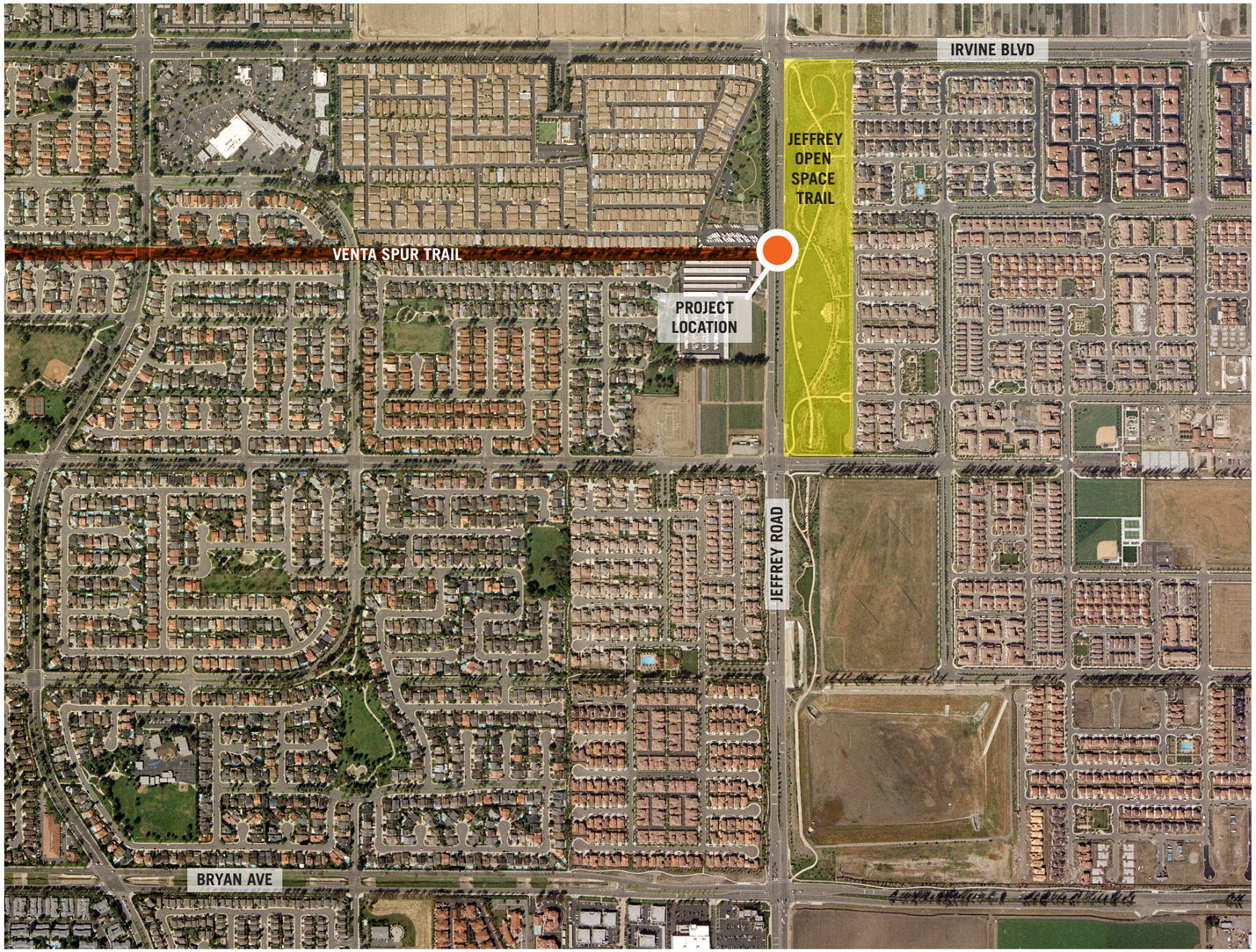
AERIAL PLAN


IRVINE BLVD
JEFFREY OPEN SPACE TRAIL
VENTA SPUR TRAIL
PROJECT LOCATION
JEFFREY ROAD
BRYAN AVE

June 20, 2006

Irvine Resident
Address
City, State, Zip

Dear Resident:

VENTA TRAIL OPEN HOUSE

Due to community interest, the Irvine city council ahs initiated a feasibility study and environmental assessment in order to review and further analyze a grade separation and Pedestrian Bridge that would connect the Venta Spur Trail to the Jeffrey Open Space Trail. The City of Irvine is inviting Irvine residents to attend an Open House to have an opportunity to comment and express their suggestions on what should be included in this study. The Open House will include community members, City staff, and Project Team Staff.

This Public Open House for community participation in the Venta Trail Project associated with Feasibility Study for a Pedestrian Bridge and the Jeffrey Open Space Spine Community Consensus Plan will be held Wednesday, July 12, 2006, 4:00 p.m. – 8:00 p.m. at the Irvine City Hall Room L102.

For further information please contact Sun-Sun Murillo at the City of Irvine: 1 Civic Center Plaza, Irvine, California, 92623; (949) xxx-xxxx.

Sincerely,

Sun-Sun Murillo
City of Irvine

Attachments: Open House Public Notice
Open House Flyer

Venta Trail Open House
Public Notice

Who:

City Staff, Project Team Staff, Community Members

What:

Public Open House for community participation in the Venta Trail Project associated with Feasibility Study for a Pedestrian Bridge and the Jeffrey Open Space Spine Community Consensus Plan.

When:

Date: Wednesday, July 12, 2006
Time: 4:00 p.m. – 8:00 p.m.

Where:

Location: Irvine City Hall Room L102

Why:

Due to community interest and support the City Council has initiated a feasibility study and environmental assessment in order to review and further analyze a grade separation and Pedestrian Bridge that would connect the Venta Spur Trail to the Jeffrey Open Space Trail. The City of Irvine is inviting Irvine residents to attend an Open House to have an opportunity to comment and express their suggestions on what should be included in the study.

Background:

In September 2001 the Irvine City Council approved the Community Consensus Plan that would serve as the guiding conceptual plan for design implementations that would improve the Jeffrey Open Space Spine that is within the Northern Sphere Area. In June 2002 the zoning for this area was adopted by the City Council. It was expressed that the Overall Park Design for the Open Space Spine would address grade separation crossings, under grounding of utilities, and an Implementation Agreement between the City and The Irvine Company. In January 2003 the Draft Overall Park Design that was made available to the public.

During the initial community workshops in association with the Community Consensus Plan grade-separated crossings were discussed at a variety of locations, at that time it was designed that the Venta Spur Trail would not be a grade-separated crossing due to physical constraints and high impacts. The Venta Spur Trail was identified as providing pedestrian connections but presented significant issues due to the already established underground utilities that would constrain the underpass option, the available land is narrow and would require extensive retaining walls which would pose significant costs and would impact adjacent home owners. It was decided that no grade separation would be proposed.

Contact:

For further information please contact Sun-Sun Murillo at the City of Irvine: 1 Civic Center Plaza, Irvine, California, 92623; (949) xxx-xxxx.

Irvine City Hall
Room L102

Venta Trail Open House

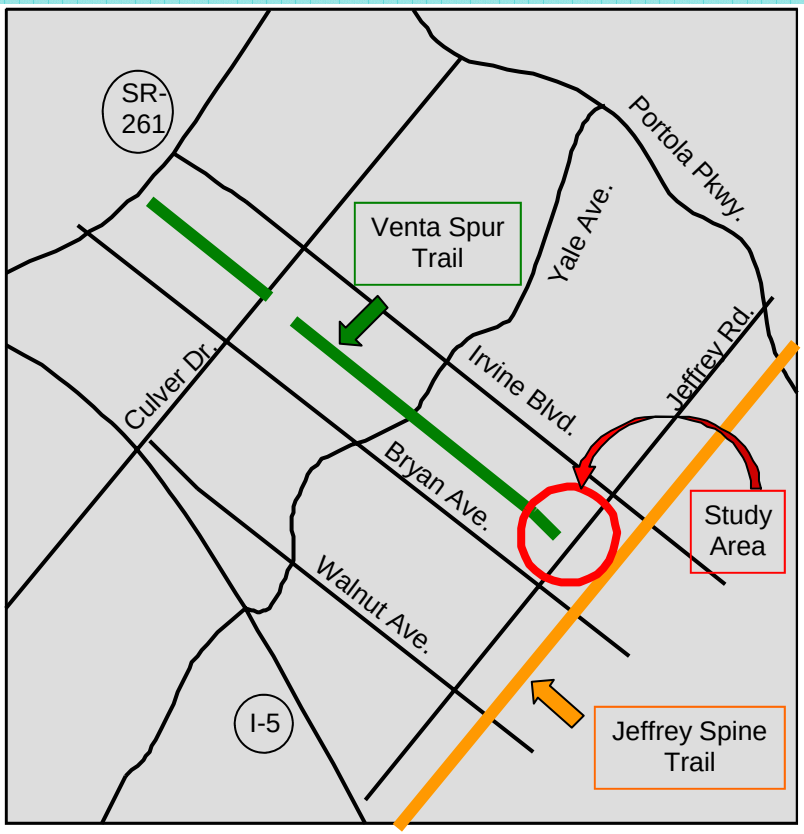
July 12, 2006

4:00 PM - 8:00 PM

The City of Irvine is assessing the feasibility of a pedestrian bridge over Jeffrey Road that would directly link the existing Venta Spur Trail to the Jeffrey Open Space Trail.

City of Irvine staff and City representatives will be present at the Open House to:

- Provide details of the feasibility study
- Provide information from previous studies of this overcrossing
- Provide an update on the Jeffrey Open Space Trail
- Show a recent aerial photograph of the project area
- Listen to your issues and suggestions



Contact Sun-Sun Murillo at the City of Irvine for further information:
1 Civic Center Plaza, Irvine, California, 92623; (949) xxx-xxxx

Refreshments will be provided

D. CEQA Initial Study Checklist

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal,	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
filling, hydrological interruption, or other means?				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	❒	❒	❒	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	❒	❒	❒	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	❒	❒	❒	☒
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	❒	❒	❒	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	❒	❒	❒	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❒	❒	❒	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	❒	❒	❒	☒
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	❒	❒	❒	☒
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	❒	❒	❒	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
river, in a manner which would result in substantial erosion or siltation on- or off-site?				
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XI. NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIII. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XIV. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒
XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❒	❒	❒	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❒	❒	❒	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	❒	❒	❒	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❒	❒	❒	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❒	❒	❒	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	❒	❒	❒	☒
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	❒	❒	❒	☒
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental	❒	❒	❒	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	❒	❒	❒	☒

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151, Public Resources Code; Sundstrom v. County of Mendocino, 202 Cal.App.3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal.App.3d 1337 (1990).

SUMMARY

Based on the initial CEQA environmental checklist, potential impacts of a pedestrian/bicycle bridge include aesthetic and recreational impacts considered to be "less than significant." However, due to significant community involvement on this project, a mitigated negative declaration is the appropriate CEQA-level document if the City Council determines that the bridge is feasible.