GOLETA OVERPASS IMPROVEMENT PROJECT

FEASIBILITY STUDY

PREPARED FOR:

City of Goleta
Community Services Department
Capital Improvement Program

JULY 16, 2009

PREPARED BY:

10423 OLD PLACERVILLE ROAD, STE 200
SACRAMENTO, CALIFORNIA  95827
Registered Civil Engineer Stamp

This report has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

DRAKE HAGLAN & ASSOCIATES

Craig C. Drake, P.E.
Principal Engineer
Executive Summary

The City of Goleta has undertaken this project to build an overpass across Highway 101 / Union Pacific Railroad tracks in the western part of the City. This project will provide significant public safety and traffic circulation benefits for both the local and regional transportation systems. The objective of this study is to identify feasible roadway alignment alternatives for the Goleta Overpass Improvement Project that can be used to begin the Project Approval and Environmental Documentation process that must be completed prior to final project design.

A total of thirteen alignment alternatives were evaluated that provide a new north-south crossing of Highway 101 and the Union Pacific Railroad (UPRR) in the City of Goleta between the Storke Road Interchange and the soon to be built Cathedral Oaks Interchange (existing Hollister Avenue Interchange). These thirteen alternatives have been studied for traffic impacts, roadway geometry, property impacts, right-of-way required, environmental impacts, and construction costs. These alternatives were then assessed and ranked to identify those alignments with the best overall benefit to the community.

The selection process yielded three alignments that are recommended for further study in the Project Initiation Document. The recommended alignments, in alphabetical order, are:

- **Alternative A4** – This alignment connects Hollister Avenue/Entrance Road Intersection south of the freeway to Calle Real/Brandon Drive Intersection north of the freeway.
  Approximate Project Costs* = $31 Million

- **Alternative A6** – This alignment connects Hollister Avenue/Entrance Road Intersection south of the freeway to Calle Real/San Rossano Drive Intersection north of the freeway.
  Approximate Project Costs* = $22 Million

- **Alternative C5** – This alignment connects Hollister Avenue/Entrance Road Intersection south of the freeway to Calle Real about 200’ west of Baker Lane on the north side of the freeway.
  Approximate Project Costs* = $41 Million

*Project costs shown include construction, preliminary engineering, and construction engineering costs. The project costs do not include right-of-way acquisition, property relocation, utility relocation, environmental, or UPRR coordination and flagging costs.

These three alternatives best meet the purpose and need of the project. These alternatives all have vertical profiles that can be designed to meet ADA standards, which is important for the pedestrian safety aspect of the project. All three alignments provide an alternative route to the Glen Annie/Storke Road Interchange, which reduces traffic congestion on Storke Road and at the Glenn Annie/Storke Road Freeway Interchange.
Figure 1 – Recommended Alignment Alternatives
Table of Contents
1. Introduction ........................................................................................................ 1
2. Background ........................................................................................................ 3
3. Purpose and Need ............................................................................................. 5
4. Design Criteria .................................................................................................. 6
5. Alignment Alternatives .................................................................................... 7
6. Regional Planning ............................................................................................ 23
7. Environmental Considerations ........................................................................ 26
8. Geotechnical Considerations .......................................................................... 30
9. Right-of-Way .................................................................................................... 32
10. Comparison of Alternatives - Scoring Criteria ............................................. 33
11. Project Cost and Potential Funding Sources ................................................ 38
12. Recommendations .......................................................................................... 41
13. References ...................................................................................................... 42

List of Figures
Figure 1 - Recommended Alignment Alternatives ........................................ iii
Figure 2 - Project Location and Study Area Corridors ....................................... 4
Figure 3 - Crossing Corridors ............................................................................ 7
Figure 4 - Alternatives A1 & A2 ..................................................................... 8
Figure 5 - Alternatives A3 & A4 .................................................................... 10
Figure 6 - Alternatives A5 & A6 ..................................................................... 13
Figure 7 - Alternatives B1 & B2 .................................................................... 15
Figure 8 - Alternatives C1, C2, & C3 ............................................................. 18
Figure 9 - Alternatives C4 & C5 ..................................................................... 21
Figure 10 - Alternatives Selection Matrix and Scoring .................................... 37

List of Tables
Table 1 - Traffic Impacts .................................................................................. 25
Table 2 - Environmental Technical Reports/Studies/Permits .............................. 26
Table 3 - Estimated Right-of-Way Required .................................................... 32
Table 4 - Construction Costs ........................................................................... 38
Table 5 - Potential Funding Sources ................................................................. 40
Appendices
Appendix A – Alignment Alternatives Exhibits
Appendix B – Proposed Typical Bridge and Roadway Sections
Appendix C – Conceptual Cost Estimates
Appendix D – Draft Existing Traffic Conditions Report
Appendix E – Draft Traffic Forecast Report
Appendix F – Environmental Constraints Analysis Report
Appendix G – Preliminary Foundation Design Memorandum
Appendix H – Preliminary Roadway Design Memorandum
Appendix I – DIB 82-03 Pedestrian Accessibility Guidelines for Hwy Projects
1. Introduction

The City of Goleta plans to construct a crossing of Highway 101 and the Union Pacific Railroad tracks in the west region of the City. The area to the north of Highway 101 has been developed with mostly residential uses, and these residents utilize the commercial shopping and business developments along Hollister Avenue to the south of Highway 101. Access between the south and north side of the Highway is currently only available at two locations, Hollister Avenue Overcrossing to the west of the project study area, and Glen Annie/Storke Road Overcrossing to the east of the project study area. The Hollister Avenue Overcrossing, which is being replaced by the Cathedral Oaks Interchange, is located too far west of the major commercial centers to make it a viable travel route for the majority of the residents, so the Glen Annie/Storke Road Overcrossing carries the majority of cross town traffic.

The Glen Annie/Storke Road Interchange is also a popular access point to Highway 101, and when freeway traffic is combined with the local cross town traffic, significant delays are common around the freeway ramps and the local roads. The intersection of Hollister Avenue and Storke Road, just south of the freeway interchange, is also experiencing travel delays at peak times. The new Goleta Overpass will help alleviate the traffic demands through this corridor by providing an alternative route over the freeway. The proposed Goleta Overpass is shown in planning documents for the City of Goleta, and prior to incorporation, in County of Santa Barbara planning documents. The City of Goleta General Plan shows the proposed Goleta Overpass to be a connection of Ellwood Station Road, either going over or under the freeway and railroad tracks.

In November of 2008, Santa Barbara County voters approved Measure A, a transportation improvements program that identifies the Goleta Overpass as one of the transportation projects for the south coast area of the county. Specifically, Measure A defined the project as: “Improve traffic circulation in Goleta by constructing a new overpass of Highway 101. Funding will be used in combination with other revenue sources such as state and federal gas taxes or local fees to deliver the project and can be loaned to the State to deliver the project sooner than would normally be expected using state and federal gas taxes. The cost of this project can include such items as traffic signals, sidewalks, bike lanes, intersection channelization, curbs and gutters, shoulders, and landscaping as long as these costs are directly related to the project.” The ballot measure reserves up to $7 million in funding for the project. The Measure A funds will be administered by the Santa Barbara County Association of Governments (SBCAG).

The goal of this feasibility study is to find suitable alignment alternatives for the Goleta Overpass Improvement Project that can be used to begin the Project Initiation Document (PID) phase. Since there are a number of possible locations for an overpass in the study area, the City will utilize the recommendations from this report to further study those alignments that have no fatal design flaws and best serve the project purpose and need.

The City of Goleta retained the services of Drake Haglan & Associates, a transportation engineering services firm, to lead the investigation of alignment...
alternatives. Traffic studies were carried out to document the existing traffic conditions, and to prepare travel forecasts for each alternative. The investigation included studies and reports for environmentally sensitive areas within the project study area, such as biological, cultural, and paleontological resources. Local geology and geotechnical features of the project site were studied to anticipate the site characteristics for the proposed overcrossing.

Three crossing “corridors” between the Storke Road Interchange and the existing Hollister Avenue Interchange were studied. For each of these crossing corridors, different variations for the tie-in locations and alignment geometry were investigated. A total of thirteen conceptual alignments were evaluated based on geometric criteria, traffic impacts, property impacts, right of way required, construction cost and environmental impacts. The alignment alternatives were scored against a set selection criteria to rank the alternatives in terms of best meeting the purpose and need of the project. The results of this study will be used to make decisions regarding funding and schedule for the next phase of the project.
2. Background

Highway 101 is a major freeway serving the City of Goleta and runs east-west through the City. Union Pacific Railroad (UPRR) tracks also run east-west and are located just south of Highway 101. The freeway and railroad tracks act as a barrier for traffic circulation between land uses to the north and south of the freeway.

In the mid 1990’s, the City initiated a project to study constructing a pedestrian overcrossing that would be located approximately one-half mile west of Storke Road in western Goleta. The intent of the project was to increase bicycle and pedestrian access across the freeway. The project evolved into more of an overall traffic circulation project for vehicles, bicycles, and pedestrians due to the congestion at the existing Storke Road Interchange and nearby cross routes such as Hollister Avenue and Calle Real.

In 2006, the City of Goleta released the Goleta General Plan/Coastal Land Use Plan. This document included a discussion on the following transportation issues:

- Concerns about improving safety for vehicles, bicyclists, and pedestrians
- Need to improve connectivity between the various travel modes, including auto, bus, rail, bicycle and pedestrian facilities
- Need for more north-south crossings of Highway 101 to relieve congestion on cross-routes with interchanges
- Concerns regarding deterioration of the level of service (LOS) at several key intersections
- Need for a new grade-separated freeway crossing in western Goleta to link the northern and southern portion of Goleta in order increase access, reduce congestion and improve LOS at freeway intersections and cross routes

In 2008, the City of Goleta initiated a project to formally study the feasibility of providing a new north-south crossing of Highway 101 and UPRR between the Storke Road Interchange and the Hollister Avenue Interchange. It should be noted that Caltrans currently has a project underway to replace and realign the Hollister Avenue Overcrossing to intersect with Cathedral Oaks Road. Since that project is imminent, the traffic models used in this study assumed that the Cathedral Oaks Overcrossing is in place. The study area for the project is shown in Figure 2.
Figure 2 - Project Location and Study Area Corridors
3. Purpose and Need

The purpose of the Goleta Overpass Project is to provide an additional freeway and railroad crossing that will:

- Reduce traffic congestion at the existing Storke Road/Glen Annie Road Interchange and along Storke Road between the ramps to Highway 101 and the Hollister Avenue/Storke Road intersection;
- Improve vehicular, bicycle and pedestrian access for residents on both sides of the freeway;
- Improve bicycle/pedestrian safety and reduce emergency response times across Highway 101 and UPRR.

The City of Goleta initiated this project in response to the need for additional access across Highway 101 and UPRR due existing and forecasted traffic congestion on Storke Road at Hollister Avenue and the Glen Annie/Storke Road Interchange. Because Glen Annie/Storke Road is the main north-south route on the west side of the City of Goleta, and because it also serves as an access point to Highway 101, the peak congestion periods have become a safety concern, especially for bicyclists and pedestrians.

The predominantly residential areas located north of the freeway have only two viable freeway crossings to use in order to access jobs, shopping, and educational opportunities south of the freeway. The two existing freeway crossings in western Goleta are located at the Storke Road Interchange and the Hollister Avenue Interchange, which is currently being reconfigured and replaced with the Cathedral Oaks Interchange. The travel demand on Storke Road between the ramps to Highway 101 and the Hollister Avenue/Storke Road intersection currently exceeds the City ADT Threshold Standards. Furthermore, the Hollister Avenue/Storke Road intersection is the City’s busiest intersection and is adjacent to the largest shopping complex in the City. Storke Road serves as the primary access route to Isla Vista and University of California, Santa Barbara (UCSB).

Traffic demand is projected to increase in this area due to continued development and the growth of UCSB and buildout of the industrial/commercial Hollister Avenue corridor and additional residential development between Highway 101 and the coast as permitted in the Goleta General Plan/Coastal Land Use Plan. According to the General Plan, the future ADT along Storke Road between the ramps to Highway 101 and the Hollister Avenue/Storke Road intersection is projected to increase to 50,200 at full build out without any transportation improvements. This would greatly exceed the Level of Service C ADT Threshold of 34,000 for that roadway segment to operate at acceptable conditions. A new freeway crossing in western Goleta has been identified in the General Plan as a future improvement needed to accommodate the forecasted future traffic volumes at acceptable levels of service.
4. Design Criteria

Design Standards
The City of Goleta has adopted or is in the process of adopting many of the Santa Barbara County design standards, which are used for the basis of the design of the Goleta Overpass, supplemented with the current edition of the AASHTO Geometric Design of Highways and Streets (Green Book) as needed for the conceptual layouts shown in Appendix A. The vertical profiles were set to provide a minimum vertical clearance of 16’-6” over Highway 101 (Caltrans requirement) and 23-4” over the railroad tracks (UPRR requirement).

Roadway Classification
The City’s General Plan/Coastal Land Use Plan identifies this proposed overcrossing as a minor arterial street. Hollister Avenue is classified as a major arterial and Calle Real is classified as a minor arterial. This feasibility study has used the design criteria for a minor arterial for all alternatives to be consistent with the City of Goleta General Plan. The roadway geometries as shown in Appendix A meets the requirements for the minor arterial street classification.

Typical Bridge and Roadway Sections
The typical bridge and roadway sections are shown in Appendix B. The typical roadway section has two 12’ wide traffic lanes with an 8’ wide parking/bicycle lane on each side of the street. The total proposed bridge width of 52 feet is based on using two 12’ wide traffic lanes with an 8’ wide shoulder for bicycles and a 6’ wide type 26 concrete barrier (5’ sidewalk and 1’ barrier) on each side of the bridge. This meets the AASHTO recommended widths for traffic lanes, shoulders, and sidewalks on minor arterial roads.

Design Exceptions
All 13 alternatives studied meet Caltrans mandatory and advisory design criteria and no exceptions to highway design criteria are anticipated that will affect the operations of Highway 101.

Alternative B2, the undercrossing at Ellwood Station Road, would require a local agency design exception for substandard vertical curve lengths.
5. Alignment Alternatives

Possible crossing corridors were investigated between the Storke Avenue Interchange and the Hollister Avenue Interchange and were narrowed down to three viable corridors. Figure 3 depicts the three corridors that are labeled as “A”, “B”, and “C” (from west to east). For each of these crossing corridors, different variations for the tie-in locations and alignment geometry were developed. The initial “A” alternatives (A1-A4) connect Hollister Avenue at Entrance Road on the south side of the freeway to Brandon Drive at Calle Real on the north side of the freeway. Subsequent “A” Alternatives (A5 and A6) have different tie-in locations on the north side of the freeway. The “B” alternatives connect Ellwood Station Road on both sides of the freeway. The initial “C” alternatives (C1-C3) connect Hollister Avenue at Cannon Green Drive south of the freeway to Calle Real on the north side using a loop ramp. Subsequent “C” alternatives (C4-C5) have different tie-in locations on the south side of the freeway.

Figure 3 - Crossing Corridors
Alternative Summaries

Alternative A1
The conceptual alignment for Alternative A1 is shown in Figure 4 below. The main features of this alternative are:

- Connects to Hollister Avenue/Entrance Road Intersection south of the freeway, which is currently a signal controlled intersection.
- Connects to Brandon Drive at the Hempstead Avenue/Brandon Drive Intersection north of the freeway
- Crosses over Calle Real aerially and has no direct connection to Calle Real
- Maximum Vertical Grade of 7.3%
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
- Design speed is 35 MPH
- Approximate construction cost is $21 Million
Advantages

- Results in a reduction of traffic along Storke Road at freeway ramps and at the Storke Road/Hollister Avenue Intersection
- Does not displace any home owners
- Utilizes existing signal at Hollister Avenue/Entrance Road Intersection

Disadvantages

- Maximum vertical grade is greater than 5%.
- Has no direct connection to Calle Real which results in a significant increase in traffic for residential areas north of the freeway.
- Much smaller reduction in traffic along Storke Road than other alternatives
- Requires acquisition and relocation of the concrete batch plant located on the south side of the UPRR tracks
- Requires removing a portion of the parking lot at the end of Entrance Road
- Alignment goes over wetland area and dense eucalyptus grove (potential monarch butterfly roost) located between freeway and UPRR tracks
- Alignment goes through corner of dense eucalyptus grove near the intersection of Calle Real/Brandon Drive (designated as “open space” parcel on the City’s Land Use Plan Map)

**Alternative A2**

This alternative is very similar to Alternative A1 except a tighter curve radius is used for the horizontal alignment to minimize the impacts to the parking lot at the north end of Entrance Road. The conceptual alignment for Alternative A2 is shown in Figure 4. The maximum vertical grade for Alternative A2 is 6.4%.

- Maximum Vertical Grade of 6.4%
- Design speed is 25 MPH
- Approximate construction cost is $22 Million
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements

Advantages Compared to Alt A1

- Smaller impact to parking lot at the north end of Entrance Road

Disadvantages Compared to Alt A1
Design speed limited to 25 mph due to tight radii used for the horizontal alignment (Alt A1 has a design speed of 35 mph)

**Alternative A3**
The conceptual alignment for Alternative A3 is shown in Figure 5 below. The main features of this alternative are:

- Connects to Hollister Avenue/Entrance Road Intersection south of the freeway
- Connects to Calle Real at the Calle Real/Brandon Drive Intersection north of the freeway
- Requires a major horizontal and vertical realignment of Calle Real/Brandon Drive Intersection including raising Calle Real up 8’ from existing profile near existing residences
- Maximum Vertical Grade of 4.4%
- Design speed is 35 MPH
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
- Approximate construction cost is $22 Million

![Figure 5 - Alternatives A3 & A4](image-url)
Advantages

• Results in a reduction of traffic along Storke Road at freeway ramps and at the Storke Road/Hollister Avenue Intersection
• Does not displace any home owners
• Meets the ADA maximum vertical grade of 5%
• Provides direct access to Calle Real
• Utilizes existing signal at Hollister Avenue/Entrance Road Intersection

Disadvantages

• Will raise Calle Real and Brandon Drive adjacent to existing homes, which will require retaining walls and visual screening around the homes.
• Requires acquisition and relocation of the concrete batch plant located on the south side of the UPRR tracks
• Requires removing a portion of the parking lot at the end of Entrance Road
• Alignment goes over wetland area and dense eucalyptus grove (potential monarch butterfly roost) located between freeway and UPRR tracks (see Figure 6 in Appendix F)
• Temporary construction impacts for church driveway access at Calle Real east of Brandon Drive
• Alignment goes through corner of dense eucalyptus grove near the intersection of Calle Real/Brandon Drive (designated as "open space" parcel on the City’s Land Use Plan Map)

**Alternative A4**

This alternative is very similar to Alternative A3 except it connects to Calle Real at approximately the same location as the existing Calle Real/Brandon Drive Intersection. The conceptual alignment for Alternative 4 is shown in Figure 5.

• Maximum Vertical Grade of 3.8%
• Design speed is 35 MPH
• Approximate construction cost is $22 Million
• Bridge over the UPRR tracks and Highway 101 meets all clearance requirements

Advantages Compared to Alt A3

• Smaller environmental impacts to biological resources since it avoids the wetland area between the freeway and UPRR tracks
• Avoids dense eucalyptus grove (potential monarch butterfly roost) located near the Calle Real/Brandon Drive Intersection
• Less of a horizontal realignment of the Calle Real/Brandon Drive Intersection
• Calle Real needs to be raised 3’ less than Alternative A3
• Reduced safety concerns at Calle Real/Brandon Drive Intersection since it has much less of a skew compared to proposed Alt 3 skewed intersection

Disadvantages Compared to Alt A3
• Temporary construction impacts to the residents on Calle Real located adjacent to the Calle Real/Brandon Drive Intersection
• Intersection is moved closer to the homes at the intersection of Calle Real/Brandon Drive

Alternative A5
The conceptual alignment for Alternative A5 is shown in Figure 6 below. The main features of this alternative are:

• Connects to Hollister Avenue/Entrance Road Intersection south of the freeway
• Connects to Calle Real midway between San Rossano Drive and Ellwood Station Road north of the freeway
• Calle Real needs to be raised approximately 1’ at the tie-in location
• Maximum Vertical Grade of 8.8%
• Design speed is 35 MPH
• Approximate construction cost is $14 Million
• Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
Figure 6 - Alternatives A5 & A6

Advantages

- Increases vehicular, pedestrian, and bicycle access across Highway 101 and UPRR tracks
- Least expensive option with the shortest bridge length
- Most direct route connecting Hollister Avenue to Calle Real
- Results in a reduction of traffic along Storke Road at freeway ramps and at the Storke Road/Hollister Avenue Intersection
- Does not displace any home owners
- Provides direct access to Calle Real
- Utilizes existing signal at Hollister Avenue/Entrance Road Intersection
- No significant impacts to biological resources since it avoids environmentally sensitive areas

Disadvantages

- Maximum vertical grade exceeds 8.33% which exceeds ADA standards
- Requires acquisition and relocation of the batch plant located on the south side of the UPRR tracks
• Requires removing a portion of the parking lot at the end of Entrance Road

**Alternative A6**

This alternative is similar to Alternative A5 except it connects to Calle Real at the existing Calle Real/San Rossano Drive Intersection. The conceptual alignment for Alternative A6 is shown in Figure 6. The Calle Real/San Rossano Drive Intersection will need to be raised about 4’ at the tie-in location. Compared to Alternative A5, it uses more of the concrete batch plant property in order to reduce the vertical grade of the south approach. The maximum vertical grade for Alternative A6 is 6.5% as shown, and it appears that this alignment can be modified and refined during design to meet ADA requirements.

- Requires a vertical (4-foot rise) realignment of Calle Real/San Rossano Drive Intersection
- Design speed is 35 MPH
- Approximate construction cost is $15 Million
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements

**Advantages Compared to Alt A5**

- While the maximum vertical grade exceeds 5% as shown, it can be modified to meet ADA requirements.
- Traffic forecasts indicate that it will do a better job at alleviating traffic congestion on Storke Road near the freeway ramps (9% reduction for alternative A6 compared to 5% reduction for alternative A5)

**Disadvantages Compared to Alt A5**

- Higher cost due to longer alignment
Alternative B1
The conceptual alignment for Alternative B1 is shown in Figure 7. The main features of this alternative are:

- Connects Ellwood Station on the south side of the freeway to Ellwood Station on the north side of the freeway
- Maximum Vertical Grade of 8.6%
- Bridge will cross above Calle Real, and a loop ramp will be constructed to directly connect the alignment to Calle Real
- Design speed is 35 MPH (except for 25 mph for loop ramp)
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
- Approximate construction cost is $19 Million

Figure 7 - Alternatives B1 & B2
Advantages

- Results in a reduction of traffic along Storke Road at freeway ramps and at the Storke Road/Hollister Avenue Intersection
- Does not displace any home owners
- No significant impacts to biological resources since it avoids environmentally sensitive areas

Disadvantages

- Maximum vertical grade exceeds 8.33% which exceeds ADA standards
- Would result in a significant increase in traffic for residential areas
- Loop ramp to provide direct connection to Calle Real requires the relocation of multiple businesses located northeast of the existing Calle Real/Ellwood Station Road Intersection
- Requires removing a portion of the parking lot at the end of Entrance Road in order to provide access for concrete batch plant, and Verizon (existing access is on Ellwood Station Road); Other option is relocation of these two businesses
- Removes the Ellwood Station Road access to the mobile home park (main entrance is on Hollister Avenue) and storage yard

**Alternative B2**

This alternative is similar to Alternative B1 except that it would extend Ellwood Station Road beneath the railroad, Highway 101, and Calle Real. Similar to Alternative B1, a loop ramp would be constructed to provide direct access to Calle Real. The conceptual alignment for Alternative B2 is shown in Figure 7.

- Maximum Vertical Grade of 8.4%
- Design speed is 35 MPH (except for 25 mph for loop ramp)
- Approximate construction cost is $31 Million

Advantages Compared to Alt B1

- May have more beneficial visual/aesthetic impacts than overhead alternatives

Disadvantages Compared to Alt B1

- Most expensive alternative
- Use of temporary shooflies will be required for construction of underpass beneath the UPRR tracks
- Requires temporary relocation of traffic on Highway 101 using the median and shoulders during construction
- Longer construction period than Alt B1
• Could have greater adverse impacts on biological resources since there is a greater chance that the hydrological conditions will be modified

• Increased potential for discovery of cultural resources which could increase costs associated with additional required cultural resources evaluation tasks

• Flood events may cause tunnel flooding and closures

• Previous experience at similar sites has shown that the original ballast beneath the UPRR tracks is likely to be a slag-based material and excavation beneath the tracks during tunnel construction could result in the release of hazardous materials and potentially create the need for remediation and disposal of contaminated soils and groundwater

• To ensure the well being of all users (vehicle, bicycle, and pedestrian) of the tunnel facility, safety measures will be required including video monitoring, police/fire emergency notification devices, and environmental sensors for carbon monoxide and volatile hydrocarbons

• Permanent area drainage plan and pumping facility required to maintain dry working environment during construction, to avoid positive buoyancy of the tunnel under normal daily operation, and to limit tunnel flooding during peak storm systems

• An uninterrupted power supply is necessary to ensure 24-hour a day function of pumping facility and lighting, safety, and surveillance systems

• Maximum vertical grade exceeds 8.33% which exceeds ADA standards

**Alternative C1**

The conceptual alignment for Alternative C1 is shown in Figure 8 below. The main features of this alternative are:

• Connects to Hollister Avenue at the Hollister Avenue/Cannon Green Drive Intersection south of the freeway

• Connects to Calle Real about 200’ west of Baker Lane on the north side of the freeway using a loop ramp

• Maximum Vertical Grade of 9.0%

• Design speed is 25 MPH

• Bridge over the UPRR tracks and Highway 101 meets all clearance requirements

• Approximate construction cost is $23 Million
Advantages

• Results in a reduction of traffic along Storke Road at freeway ramps and at the Storke Road/Hollister Avenue Intersection
• Does not displace any businesses or reduce any parking
• Provides direct access to Calle Real
• No significant impacts to biological resources since it avoids environmentally sensitive areas

Disadvantages

• Maximum vertical grade exceeds 8.33% which exceeds ADA standards
• Displaces residences between Hollister Avenue and the UPRR tracks
Loop ramp on north side of freeway would be constructed on an undeveloped parcel and would impact the “scenic viewpoint” that has been designated on the Goleta General Plan/Coastal Land Use Plan.

**Alternative C2**

This alternative is very similar to Alternative C1 except the horizontal alignment has been modified to reduce the number of horizontal curves. The conceptual alignment for Alternative C2 is shown in Figure 8. The southern approach to the overcrossing will be slightly shorter for Alternative C2 compared to Alternative C1. The more direct route will decrease the bridge length and the elimination of the horizontal curve on the overcrossing will make the bridge easier to construct.

- Maximum Vertical Grade of 9.0%
- Design speed is 25 MPH
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
- Approximate construction cost is $23 Million

**Advantages Compared to Alt C1**

- Shorter Bridge Length
- Better Geometrics which will reduce bridge complexities

**Disadvantages Compared to Alt C1**

- Maximum vertical grade still exceeds 8.33% which exceeds ADA standards

**Alternative C3**

This alternative is very similar to Alternatives C1 and C2, except the alignment has been modified to maximize the open space within the loop ramp adjacent to Calle Real. The conceptual alignment for Alternative C3 is shown in Figure 8. The construction cost for this option is more expensive than Alternatives C1 and C2 since more retaining walls will be used instead of less expensive fill. This additional cost could be somewhat offset since the alignment will result in more useable space within the loop ramp. The maximum vertical grade for Alternative C3 is 9.4%.

- Maximum Vertical Grade of 9.4%
- Design speed is 25 MPH Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
- Approximate construction cost is $25 Million

**Advantages Compared to Alt C1 and Alt C2**
• Maximizes open space within the loop ramp

Disadvantages Compared to Alt C1 and Alt C2
• More expensive
• Maximum vertical grade still exceeds 8.33% which exceeds ADA standards

Alternative C4
The conceptual alignment for Alternative C4 is shown in Figure 9 below. The main features of this alternative are:

• Connects to Ellwood Station Road south of the freeway
• Connects to Calle Real about 200’ west of Baker Lane on the north side of the freeway using a loop ramp
• Maximum Vertical Grade of 7.0%
• Design speed is 25 MPH (except for a reduced design speed of 20 mph for sharp curve at northwest corner of mobile home park)
• Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
• Approximate construction cost is $25 Million

Advantages
• Results in a reduction of traffic along Storke Road at freeway ramps and at the Storke Road/Hollister Avenue Intersection
• Does not displace any residents
• Provides direct access to Calle Real
• No significant impacts to biological resources since it avoids environmentally sensitive areas

Disadvantages
• Maximum vertical grade is greater than 5%.
• Will displace storage yard located north of the mobile home park
• Loop ramp on north side of freeway would be constructed on an undeveloped parcel and would impact the “scenic viewpoint” that has been designated on the Goleta General Plan/Coastal Land Use Plan
• Design speed reduced to 20 mph for tight curve used to minimize impacts to mobile home park
Alternative C5

This alternative is similar to Alternative C4 except it connects to the Hollister Avenue/Entrance Road Intersection south of the freeway. The longer approach south of the freeway allows the vertical grade to be reduced to meet the ADA standards. The conceptual alignment for Alternative C5 is shown in Figure 9.

- Maximum Vertical Grade of 5.0%
- Design speed is 25 MPH
- Bridge over the UPRR tracks and Highway 101 meets all clearance requirements
- Approximate construction cost is $29 Million

Advantages Compared to Alt C4

- Maximum vertical grade meets ADA standards
- Design Speed of 25 mph for the entire horizontal alignment (Alt C4 has 20 mph limit for one of the curves)
- Does not have any significant temporary construction impacts to the residents

Disadvantages Compared to Alt C4
- More expensive than other “C” Alternatives
- Requires removing a portion of the parking lot at the end of Entrance Road
- May require acquisition and relocation of batch plant since alignment goes through eastern section of plant adjacent to Ellwood Station Road

Potential Tie-In for “C” Alternatives to Connect to Placer Drive
As shown in Figures 8 and 9, the “C” alternatives have the potential to tie-in to Placer Drive north of Highway 101 near the Placer Drive/Tuolumne Drive intersection. This connection would provide a more direct access from the new overcrossing to the three schools located north of Tuolumne Drive. It could also have the positive impact of decreasing the traffic demand on Calle Real. This option would impact the residents located on Tuolumne Drive adjacent to the Placer Drive/Tuolumne Drive intersection, and would increase the project cost. A possible tie-in to Placer Drive for the “C” alternatives has not been investigated for this feasibility study, but may be included as variations to the C alignments in future studies.
6. Regional Planning

Regional Transportation Plan

In September 2006, the City of Goleta released the Goleta General Plan/Coastal Land Use Plan that governs the land use and physical development within the geographic areas of the incorporated city limits. Chapter 7 of the General Plan, labeled as the “Transportation Element”, includes proposed improvement projects needed to accommodate future use and development in order to maintain adequate levels of service on city streets.

The Goleta General Plan discusses the need for a new grade-separated freeway crossing in West Goleta in order to link the northern and southern portions of the city. The General Plan notes that the goals of the project include creating an alternative route that would divert vehicle trips away from the heavily used cross routes and alleviate traffic congestion on Storke Road which provides access to and from UCSB.

The proposed overcrossing would also meet the following guiding principles and goals listed in the Goleta General Plan:

- Ensure that transportation improvements are provided on a timely basis to support new development without reducing the LOS to unacceptable levels
- Create and maintain a cost-effective and efficient transportation network that meets the mobility of all users
- Provide a transportation system that increases choice for intra-city and regional travelers and limits or reduces congestion on city roads
- Create a convenient, safe, and well-maintained street network
- Create and maintain a balanced and diversified transportation system with choice of modes, including expanded bus transit, rail, bicycle, and pedestrian facilities, to manage congestion and improve mobility
- Improve connectivity between the various travel modes, including auto, bus, rail, bicycle, and pedestrian facilities

Bicycle and Pedestrian Movement

Within the project area, pedestrians and bicyclists currently use the heavily used Storke Road Overcrossing to the east and the Hollister Avenue Overcrossing to the west, with no other provisions for pedestrian or bicycle access in between. The proposed overcrossing will enhance bicycle and pedestrian movement between the north and south sides of the freeway by providing a much more efficient route for many residents. The proposed overcrossing will provide a safer route of travel for pedestrians and bicyclists since it will not be in a freeway interchange. The proposed overcrossing will have a lower design speed for vehicles than the adjacent freeway overcrossings, making it better suited for bicycle and pedestrian access. The overcrossing is shown as a proposed Class II bikeway in the City’s General Plan.
The project will need to be designed to conform to Caltrans guidelines on ADA, titled “Pedestrian Accessibility Guidelines for Highway Projects”, which is attached as Appendix I. The guidelines are written to conform to the Americans with Disabilities Act as implemented by the State Architect, and are only applicable to those projects that are within Caltrans right of way. Since all alternatives for this project cross over the Caltrans right of way, the project must conform to the requirements in the guidelines.

The guidelines require that walkway paths have a continuous grade of no more than 5%, although sidewalks adjacent to roadways are only required to have a slope no greater than the adjacent roadway. Since the alternatives under consideration all have sidewalks contiguous with the roadway, there will no need to provide otherwise ADA compliant walkways within the Caltrans right-of-way.

In those areas of the project outside the Caltrans right-of-way, the City of Goleta will need to submit the project to the Office of the State Architect for review.

**Existing Condition Traffic Analysis**

Dowling Associates conducted an existing condition traffic analysis using the operational software TRAFFIX to analyze the local street network and the City’s adopted General Plan ADT thresholds for local roadway segments in the study area. Dowling collected new intersection counts wherever existing counts were antiquated or not available. The available accident data was also analyzed to determine the average rate for key study area roadway segments and intersections. The Draft Existing Traffic Conditions Report is located in Appendix D. The results of the analysis showed that Storke Road between the Highway 101 ramps and Hollister Avenue does not meet the City’s LOS and ADT threshold criteria. In addition, three study intersections along Hollister Avenue did not satisfy the City’s LOS threshold criteria.

**Traffic Forecast Analysis**

For each of the proposed alignment alternatives, Dowling performed a traffic forecast analysis to determine the impacts that each option would have on alleviating congestion and increasing traffic in residential areas. The Draft Traffic Forecast Report is located in Appendix E. The analysis was based on the build-out shown in the City of Goleta’s General Plan by 2030. It reflected the planned cumulative project lists from the County of Santa Barbara General Plan, the University of California at Santa Barbara Long Range Plan, and the City of Santa Barbara’s Santa Barbara Airport Master Plan.

The traffic forecast results were used to determine the traffic impacts criteria for the scoring matrix (Figure 10) in order to evaluate each of the alignment alternatives. Shown below in Table 1 is a comparison of how each alternative performed at meeting the project’s objectives regarding reducing traffic congestion and minimizing the increase in traffic for residential areas.
The traffic forecast results indicate that:

- Alternatives A1 and A2 would result in the greatest increase in cut-through traffic through residential areas.
- Alternatives A1-A4 would achieve the lowest utilization levels and would primarily serve the neighborhoods along and west of Brandon Drive.
- Alternatives A5 and A6 would provide the greatest diversion benefit and have the greatest utilization level out of all of the “A” Alternatives.
- Travel demand for the “B” Alternatives is fairly balanced in terms of utilization levels east and west of the proposed freeway crossing, but would result in a significant increase to traffic to the neighborhoods adjacent to Ellwood Station Road.
- The “C” Alternatives are projected achieve the greatest utilization levels and result in the least amount of increased traffic to residential areas.
- All alignment alternatives provide some degree of congestion relief at the Hollister/Storke Intersection and along Storke Road/Glenn Annie Road at the freeway ramps, but Alternatives C1-C5, B1-B2, and A5-A6 provide the largest percentage reduction.
7. Environmental Considerations

LSA Associates performed an environmental constraints review of the project area to determine the presence of various environmental issues that may be affected by the alignments. The purpose of the environmental constraints analysis is to provide input the selection criteria used to narrow down the number of alternatives.

The anticipated environmental document that will need to be prepared for the proposed project is an Initial Study/Mitigated Negative Declaration (IS/MND) to comply with the California Environmental Quality Act (CEQA), and a Categorical Exclusion (CE) with technical reports to comply with the National Environmental Policy Act (NEPA). The City of Goleta is likely to be the CEQA lead agency, and the Federal Highway Administration (FHWA) with Caltrans oversight will be the lead agency if federal funding is involved for the project and NEPA is required. If federal funding is secured for the project, the following technical reports would be required to provide the analysis used in the CEQA and NEPA documents.

<table>
<thead>
<tr>
<th>Table 2 - Environmental Technical Reports/Studies/Permits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESOURCE</td>
</tr>
<tr>
<td>Land Use/Community Impact Study</td>
</tr>
<tr>
<td>Farmland</td>
</tr>
<tr>
<td>Section 4(f) Evaluation</td>
</tr>
<tr>
<td>Visual Resources</td>
</tr>
<tr>
<td>Water Quality</td>
</tr>
<tr>
<td>LHS/Floodplain Evaluation</td>
</tr>
<tr>
<td>Noise Study</td>
</tr>
<tr>
<td>Air Quality Study</td>
</tr>
<tr>
<td>Paleontology</td>
</tr>
<tr>
<td>Wild and Scenic River Consistency</td>
</tr>
<tr>
<td>CULTURAL RESOURCE REPORTS</td>
</tr>
<tr>
<td>ASR</td>
</tr>
<tr>
<td>HRER</td>
</tr>
<tr>
<td>HPSR</td>
</tr>
<tr>
<td>Section 106/SHPO</td>
</tr>
<tr>
<td>Native American Coordination</td>
</tr>
<tr>
<td>Hazardous Waste (ISA)</td>
</tr>
<tr>
<td>BIOLOGICAL RESOURCE REPORTS</td>
</tr>
</tbody>
</table>

Drake Haglan & Associates
<table>
<thead>
<tr>
<th>Study/Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Environment Study (NES)</td>
</tr>
<tr>
<td>Endangered Species (Federal)</td>
</tr>
<tr>
<td>Endangered Species (State)</td>
</tr>
<tr>
<td>Species of Concern (CNPS, USFS, BLM, State, Federal)</td>
</tr>
<tr>
<td>Biological Assessment (BA) (USFWS, NMFS, State)</td>
</tr>
<tr>
<td>Wetlands</td>
</tr>
<tr>
<td>Invasive (Weed) Species</td>
</tr>
<tr>
<td>NEPA 404 Coordination</td>
</tr>
<tr>
<td><strong>PERMITS</strong></td>
</tr>
<tr>
<td>401 Permit Coordination</td>
</tr>
<tr>
<td>404 Permit Coordination</td>
</tr>
<tr>
<td>1601 Permit Coordination</td>
</tr>
<tr>
<td>City/County Coastal Permit Coordination</td>
</tr>
<tr>
<td>State Coastal Permit Coordination</td>
</tr>
<tr>
<td>NPDES Coordination</td>
</tr>
<tr>
<td>US Coast Guard (Section 10)</td>
</tr>
</tbody>
</table>

**Land Use/Socioeconomics**

If private properties need to be acquired, a Community Impact Study may be required.

**Section 4(f) Evaluation**

A Section 4(f) Evaluation is not anticipated at this time because there are no known parks, historic sites, or other Section 4(f) properties in the project area.

**Aesthetics**

The Scenic Resources Map of the Goleta General Plan/Coastal Land Use Plan identifies both Highway 101 and Hollister Avenue as designated scenic corridors through the project study area. A scenic view is located along Highway 101 just south of the large vacant lot within the confines of the “C” Alternatives. At a minimum, a Scenic Resources Evaluation may be required for future phases of the project. This evaluation may result in a requirement for a Visual Impact Assessment to be conducted for the preferred alternative.
Air Quality/Noise

Air quality and noise reports will be required to evaluate impacts to sensitive receptors in the project area during construction and operation of the proposed new bridge project.

Paleontology

Paleontological resources are not identified to be present within the project study area based on record search information received from the University of California Museum of Paleontology (UCMP) at Berkeley. A geotechnical investigation may be necessary to determine if the Miocene Monterey Formation would be encountered during project construction.

Wild and Scenic Rivers

A Wild and Scenic River Consistency evaluation is not anticipated at this time because the project area is not within a Wild and Scenic River Corridor.

Hazardous Materials

An Initial Site Assessment (ISA) may be required for the project area to identify any hazardous material sites in the area. Active Union Pacific Railroad (UPRR) tracks cross the project area, and the soil within the railroad right-of-way may be impacted with heavy metals, total petroleum hydrocarbons as diesel, and polynuclear aromatic hydrocarbons (PNA’s). If hazardous materials are identified in the ISA, a Phase II Hazardous Materials Investigation would be recommended.

Biological Resources

LSA Associates, Inc. investigated the environmental constraints within the project study area associated with biological resources. LSA performed a records search for special-status species list, and conducted a field reconnaissance of the study area. Biological constraints associated with the proposed alternatives are discussed in the Environmental Constraints Analysis Report located in Appendix F.

Current database records reviewed by LSA include the following:

- California Natural Diversity Database
  - Administered by the California Department of Fish and Game (CDFG)
  - Contains records of special-status animal and plant species, as well as sensitive natural communities that have been observed and reported within California
- Inventory of Rare and Endangered Plants
  - Administered by the California Native Plant Society
- Federally Listed Threatened and Endangered Species Which May Occur in Santa Barbara County
  - Administered by the United States Fish and Wildlife Service
LSA conducted a field reconnaissance of the study area on November 6, 2008. The information gathered in the field was used to identify and map botanical and wildlife resources occurring in the study area. The conclusion of the preliminary biological resources assessment is that the project has the potential to impact the California red-legged frog, Southwestern pond turtle, nesting birds, roosting monarch butterflies, roosting bats, and potential jurisdictional waters.

A Natural Environment Study (NES) will need to be prepared for the project. The results of the NES will indicate whether or not a Biological Assessment (BA) will be required.

**Cultural Resources**

LSA’s cultural resources staff performed a records search at the Central Coast Information Center, located at the University of California, Santa Barbara. The search included a review of all recorded archaeological sites within a 0.5-mile radius of the project area. Within the 0.5-mile radius, eight cultural resource sites have been recorded and 62 cultural resource studies have been conducted. None of the sites identified are within the project study area, and none of the studies included any portion of the study area. However, based on the number of sites recorded within the 0.5-mile radius, the project area is classified as sensitive for cultural resources.

It is likely that all areas of exposed ground surface would need to be surveyed prior to any ground disturbing activities. To document the findings of the cultural resources database search and field survey, an Area of Potential Effects (APE) map and an Archaeological Survey Report (ASR) and Historic Properties Survey Report (HPSR) would be required. If right-of-way acquisition from private properties is needed, a Historic Resources Evaluation Report (HRER) would be required.

**Permits**

Permits will likely be required from the Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG) for the proposed project. Other anticipated permits and agreements include a Caltrans Encroachment Permit for Highway 101, and a railroad agreement with UPRR.
8. Geotechnical Considerations

Kleinfelder performed a preliminary geotechnical evaluation of the project study area. They reviewed geotechnical information for nearby Caltrans projects and local geological maps. Kleinfelder prepared a Preliminary Foundation Design Memorandum, shown in Appendix G, and a Preliminary Roadway Design Memorandum, shown in Appendix H.

Anticipated Subsurface Conditions

It is anticipated that the soil will predominately consist of relatively clean to silty sand with interbeds of sandy to clayey silt and silty to sandy clay. Based on data from Storke Road Overcrossing at Highway 101 (east of project site) and Cathedral Oaks Road Overcrossing at Highway 101 (west of project site), it is anticipated that ground water will be at a depth of 20 to 25 feet. Based on local geological maps, it is anticipated that bedrock will not be encountered within the foundation zone.

Site Seismicity

The project is located in an area of potential high seismicity. The More Ranch-Mission fault is located about 3500 feet south of Highway 101 and is capable of a maximum seismic event with a magnitude of about 7.5. The maximum event would result in a peak horizontal ground acceleration (PHGA) of about 0.55g and a peak bedrock acceleration (PBA) of about 0.72g. For applying Caltrans seismic design criteria, the recommended ARS Curve is a PBA = 0.7g, Magnitude = 7.25 ±0.25, and Soil Profile Type D with an increase in spectral acceleration for near field effects.

Liquefaction Potential

Based on the data from borings for the Storke Road Overcrossing, relatively thin saturated sandy zones in the upper 40 feet may be prone to liquefaction. The consequences of the liquefaction would be random zones of seismically induced settlement on the order of 0.5 to 2.5 inches under a maximum seismic event. While the potential settlement would be sufficient to produce downdrag on the bridge piles, the magnitude of deformation for the roadway sections is not likely sufficient to justify consideration of very costly mitigation.

Roadway Design

Recommended pavement sections for different Traffic Indexes (TI) are shown in the Preliminary Roadway Design Memorandum. It is anticipated that the older alluvial soils will provide adequate support for roadway embankments. The granular nature of the foundation soil should result in settlement occurring as the embankment is constructed, and no delay is expected to be needed between completion of the embankments and construction of the structures.

Retaining Walls

Retaining walls could consist of either MSE walls or Type 1 cast-in-place walls. MSE walls would be more tolerable of differential movement that could be
associated with seismically induced settlement. It is expected that the natural foundation soil and recommended embankment material criteria are compatible with both types of retaining walls.

**Bridge Foundations**

The high seismicity and potential for seismically induced settlement will necessitate the use of pile foundations for the proposed bridge. Suitable pile types include driven precast concrete or steel shell piles, or slurry assisted or cased drilled piles. The Preliminary Foundation Design Memorandum contains design pile lengths for the abutments and piers for both driven and drilled piles. With the potential for liquefaction, the driving stresses will be a major design issue for precast concrete piles and Cast-In-Steel-Shell (CISS) piles. Structural evaluation of the slurry assisted or cased Cast-In-Drilled Hole (CIDH) piles will need to consider the downdrag loads.
9. Right-of-Way

Additional city right-of-way will be required for all of the proposed alternatives. The table below summarizes the number of parcels affected, the approximate area of right-of-way acquisition needed, and the types of structures that would likely be displaced by each alternative. The number of parcels affected include the parcels where permanent right-of-way will need to be acquired and those where the access location will need to be changed.

**Table 3 - Estimated Right-of-Way Required**

<table>
<thead>
<tr>
<th>Alternative</th>
<th># of Parcels Affected</th>
<th>Non-Railroad ROW* (acres)</th>
<th>Railroad ROW (acres)</th>
<th># of Businesses Displaced</th>
<th># of Residences Displaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>6</td>
<td>6.1</td>
<td>0.2</td>
<td>1 (Batch Plant)</td>
<td>0</td>
</tr>
<tr>
<td>A2</td>
<td>7</td>
<td>5.8</td>
<td>0.2</td>
<td>1 (Batch Plant)</td>
<td>0</td>
</tr>
<tr>
<td>A3</td>
<td>6</td>
<td>6.1</td>
<td>0.2</td>
<td>1 (Batch Plant)</td>
<td>0</td>
</tr>
<tr>
<td>A4</td>
<td>7</td>
<td>6.1</td>
<td>0.2</td>
<td>1 (Batch Plant)</td>
<td>0</td>
</tr>
<tr>
<td>A5</td>
<td>5</td>
<td>5.9</td>
<td>0.3</td>
<td>1 (Batch Plant)</td>
<td>0</td>
</tr>
<tr>
<td>A6</td>
<td>5</td>
<td>5.9</td>
<td>0.3</td>
<td>1 (Batch Plant)</td>
<td>0</td>
</tr>
<tr>
<td>B1</td>
<td>8</td>
<td>1.3</td>
<td>0.5</td>
<td>4-5 (Small businesses located north of 7-11)</td>
<td>0</td>
</tr>
<tr>
<td>B2</td>
<td>8</td>
<td>1.3</td>
<td>0.5</td>
<td>4-5 (Small businesses located north of 7-11)</td>
<td>0</td>
</tr>
<tr>
<td>C1</td>
<td>5</td>
<td>5.5</td>
<td>0.3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>C2</td>
<td>5</td>
<td>5.5</td>
<td>0.3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>C3</td>
<td>5</td>
<td>3.6</td>
<td>0.3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>C4</td>
<td>3</td>
<td>4.0</td>
<td>0.9</td>
<td>1 (Storage yard north of mobile home park)</td>
<td>0</td>
</tr>
<tr>
<td>C5</td>
<td>7</td>
<td>5.3</td>
<td>0.9</td>
<td>2 (Batch plant &amp; storage yard north of mobile home park)</td>
<td>0</td>
</tr>
</tbody>
</table>

*Non-Railroad ROW includes unusable property (such as the portions of the batch plant property on either side of the 60’ wide ROW for the new overcrossing)*
10. Comparison of Alternatives - Scoring Criteria

A two step process is used to score and rank the 13 various alignments proposed for the Goleta Overpass project. As a decision making tool, this process is designed to be an objective evaluation of the alternatives with respect to the relative importance of critical project features.

A “Performance Criteria” matrix and “Scoring” matrix (Figure 10) were created to assist in determining the preferred alternatives for the project. A list of project impacts and alignment characteristics were used as the criteria to rank each alternative. For the performance criteria matrix, each criterion is weighed one against the other to determine the relative importance with respect to the project. Then the results were used to determine the relative weight that each criterion should have for the alignment alternative scoring matrix. This approach helps to ensure that the preferred alternatives are those alternatives that best reflect the priorities of the City, the stakeholders, and ultimately the public.

For the scoring matrix, each alternative was evaluated for each of the categories and was scored from 1 to 5, with 1 being very negative to 5 being very positive. Shown below is a description of the scoring criteria:

A. Meets Americans with Disabilities Recommendations
   - This criterion compares the relative steepness of the approaches to the highway/railroad bridge. The 13 alignment alternatives studied have significant variations in maximum roadway grades.
   - The facility should be designed to be as accessible as practical, since one of the needs of the project is to provide alternative pedestrian movements. Alignment alternatives that exceed ADA walkway steepness recommendations are considered less desirable than those alternatives that meet the recommended steepness criteria.
   - Recommended vertical grades less than 5% are considered ideal. Between 5% and 8.33%, the facility becomes difficult for wheelchair users, while grades in excess of 8.33% are very undesirable.

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Vertical Grade</td>
<td>≥8.33%</td>
<td>5% to 8.33%</td>
<td>≤5%</td>
</tr>
</tbody>
</table>

B. Design Speed
   - This criterion assesses the design speed of the alternative, which is a function of the roadway curvature and sight distance.
   - Important since speed is one of the most important factors considered by travelers in selecting alternative transportation routes
   - AASHTO generally recommends a design speed of at least 30 mph for urban arterial streets where feasible
C. Potential to Add Future Highway Ramps

- Although there are no current plans to add highway access, it is considered prudent to downgrade alternatives that cannot be modified into an interchange configuration.
- Generally, any of the overcrossing alternatives can be reconfigured into an interchange, while the undercrossing alternative would not be feasible.
- A score of 5 was given for the overcrossing alternatives, while a score of 0 was given for the tunnel alternative since adding a connection to the freeway would not be feasible due to constraints and high costs.

D. Direct Access to Calle Real

- Calle Real is classified as a minor arterial, so there should be connectivity maintained between Calle Real and this proposed minor arterial road.
- Providing a direct connection to Calle Real will increase the utilization of the new overcrossing.
- A score of 0 was given for providing no direct access (such as Alt A1 and A2), a score of 5 for a direct connection (such as Alt A6), and a score of 2.5 for a connection with a ramp (such as Alt B1).

E. Traffic Increase in Residential Areas

- This criterion recognizes that this project has the potential to change travel patterns in the existing neighborhoods north and south of Highway 101.
- Reflects the ability of the alternative to limit cut-through traffic along neighborhood streets.

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Increase</td>
<td>&gt;10%</td>
<td>5% to 10%</td>
<td>&lt;5%</td>
</tr>
</tbody>
</table>

F. Traffic Reduction to Storke Interchange

- This criterion reflects the ability of the alternative to achieve a notable reduction in traffic demand at the Highway 101 interchange with Storke Road/Glen Annie Road.
G. Traffic Reduction to Hollister/Storke Intersection

- Reflects the ability of the alternative to alleviate traffic congestion at the Hollister Avenue/Storke Road Intersection

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Reduction</td>
<td>&lt;4%</td>
<td>4% to 6%</td>
<td>&gt;6%</td>
</tr>
</tbody>
</table>

H. Business Property Impacts

- This criterion recognizes that some alternatives will have a greater impact on existing business, in some cases requiring complete displacement of the business.
- Alternatives that do not displace businesses were given the highest score

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td># of businesses displaced</td>
<td>&gt;1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

I. Residential Property Impacts

- This criterion recognizes that some alternatives will have a greater impact on existing residents, in some cases requiring complete displacement of the residence.
- Alternatives that do not displace residents were given the highest score

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Impact</td>
<td>Total acquisition of at least 1 property</td>
<td>Partial residential property required</td>
<td>No property required</td>
</tr>
</tbody>
</table>

J. Biological Resources Impacts

- This criterion evaluates the relative impact each alignment has on the natural environment.
- A high score was assigned for those alternatives which avoid wetland areas and dense eucalyptus groves (potential monarch butterfly roost sites)

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
</table>
K. “Open Space” or “Scenic Viewpoint” Impacts

- The City General Plan has identified the open field on the north side of Highway 101 as a scenic viewpoint.
- A high score was assigned for those alternatives which avoid open space or scenic viewpoints

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Impact</td>
<td>Significant</td>
<td>Neutral</td>
<td>None</td>
</tr>
</tbody>
</table>

L. Right-of-Way (R/W)

- Score based on the amount of R/W that will be need to be acquired for each alternative

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>R/W Area (acres)</td>
<td>&gt;5</td>
<td>2 to 5</td>
<td>&lt;2</td>
</tr>
</tbody>
</table>

M. Construction Costs

- The breakdown of the conceptual construction cost estimates for each alternative is shown in Appendix C.

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>2.5</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Costs (Millions)</td>
<td>&gt;$30</td>
<td>$15 to 30</td>
<td>&lt;$15</td>
</tr>
</tbody>
</table>
### Performance Criteria Matrix

<table>
<thead>
<tr>
<th>Criteria</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA Meets Requirements</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Speed</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>7.5</td>
<td>100</td>
</tr>
<tr>
<td>Potential Add Future Highway Ramps</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Direct Access to Calle Real</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public Use Residential Areas</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>18.5</td>
<td>100</td>
</tr>
<tr>
<td>Public Reduction to Sea Area/Express Corridor</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public Reduction to Industrial/retail Corridor</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Business Property Impacts</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Biological Resource Impacts</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Right of Way</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Total:** 78 | **100%**

### Scoring Matrix for Alignment Alternatives

<table>
<thead>
<tr>
<th>Criteria</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA Meets ADA Requirements</td>
<td>2.5</td>
<td>8%</td>
<td>0.19</td>
<td>2.5</td>
<td>8%</td>
<td>0.19</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Speed</td>
<td>5</td>
<td>5%</td>
<td>0.26</td>
<td>5</td>
<td>5%</td>
<td>0.26</td>
<td>5</td>
<td>5%</td>
<td>0.26</td>
<td>5</td>
<td>5%</td>
<td>0.26</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Potential Add Future Highway Ramps</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Direct Access to Calle Real</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
<td>0.00</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Public Use Residential Areas</td>
<td>2.5</td>
<td>6%</td>
<td>0.16</td>
<td>2.5</td>
<td>6%</td>
<td>0.16</td>
<td>5</td>
<td>6%</td>
<td>0.32</td>
<td>5</td>
<td>6%</td>
<td>0.32</td>
<td>5</td>
<td>6%</td>
</tr>
<tr>
<td>Public Reduction to Sea Area/Express Corridor</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>Public Reduction to Industrial/retail Corridor</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>Business Property Impacts</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>Biological Resource Impacts</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>Right of Way</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>2.5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
<td>0.77</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>2.5</td>
<td>9%</td>
<td>0.22</td>
<td>2.5</td>
<td>9%</td>
<td>0.22</td>
<td>2.5</td>
<td>9%</td>
<td>0.22</td>
<td>2.5</td>
<td>9%</td>
<td>0.22</td>
<td>2.5</td>
<td>9%</td>
</tr>
</tbody>
</table>

**TOTALS:** 1.60 | **1.47** | **3.24** | **3.65** | **3.46** | **3.69**

### Figure 10 - Alternatives Selection Matrix and Scoring

Scale:
- Positive: 5
- Neutral: 3.5
- Negative: 0

Figure 10 - Alternatives Selection Matrix and Scoring
11. Project Cost and Potential Funding Sources

Construction costs for each of the alignment alternatives are shown in the table below. More detailed cost estimates are shown in Appendix C.

Table 4 – Construction Costs

<table>
<thead>
<tr>
<th>Alignment Alternative</th>
<th>Approx Construction Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt A1</td>
<td>$ 21 Million</td>
</tr>
<tr>
<td>Alt A2</td>
<td>$ 22 Million</td>
</tr>
<tr>
<td>Alt A3</td>
<td>$ 22 Million</td>
</tr>
<tr>
<td>Alt A4</td>
<td>$ 22 Million</td>
</tr>
<tr>
<td>Alt A5</td>
<td>$ 14 Million</td>
</tr>
<tr>
<td>Alt A6</td>
<td>$ 15 Million</td>
</tr>
<tr>
<td>Alt B1</td>
<td>$ 19 Million</td>
</tr>
<tr>
<td>Alt B2</td>
<td>$ 31 Million</td>
</tr>
<tr>
<td>Alt C1</td>
<td>$ 23 Million</td>
</tr>
<tr>
<td>Alt C2</td>
<td>$ 23 Million</td>
</tr>
<tr>
<td>Alt C3</td>
<td>$ 25 Million</td>
</tr>
<tr>
<td>Alt C4</td>
<td>$ 25 Million</td>
</tr>
<tr>
<td>Alt C5</td>
<td>$ 29 Million</td>
</tr>
</tbody>
</table>

The approximate construction costs shown have been rounded to the nearest million. Note that these preliminary construction costs do not include right-of-way acquisition, property relocation, utility relocation, environmental, or UPRR coordination and flagging costs.

Major funding for this project is likely to come from Santa Barbara County Measure A. Additional funding has been identified from City of Goleta development impact fees. Santa Barbara Council of Governments (SBCAG) is the regional transportation planning agency and will be responsible for programming the project into the Regional, State, and Federal Transportation...
Improvement Plans. SBCAG will also be the lead agency for administration of any Measure A funds, and is the lead for many other revenue sources as discussed below.

Measure A is a transportation measure which is projected to generate more than $1 billion in local sales tax revenues for transportation projects in Santa Barbara County. A total of $7 Million in Measure A funding has been allocated for the Goleta Overpass Improvement Project to improve traffic circulation in Goleta.

The American Recovery and Reinvestment Act (ARRA) was signed into law February 17, 2009. The Recovery Act appropriated $1.5 billion of TIGER (Transportation Investment Generating Economic Recovery) discretionary grant funds to be awarded by the Department of Transportation. To be eligible, transportation projects need to demonstrate why they have national, regional or metropolitan significance. Priority must be given to projects that can be completed by February 17, 2012. Since the proposed project would not be able to be completed by that date even with an accelerated schedule, TIGER grants are an unlikely source of funding at this time. However, TIGER grants and other federal stimulus funding will be closely tracked since there is still a possibility that they could be used as a funding source as the federal stimulus requirements and priorities are still evolving.

Possible sources of funding for this project are listed below in Table 5 for federal, state and local programs. This is not meant to be an exhaustive list, but does cover the most common and reliable sources of funds for this type of project.
Table 5 - Potential Funding Sources

<table>
<thead>
<tr>
<th>Govt. Level</th>
<th>Fund Name</th>
<th>Purpose</th>
<th>Source</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>Measure A - Local Share</td>
<td>May be utilized for any local transportation project</td>
<td>Local Sales Tax Revenues</td>
<td>Secured</td>
</tr>
<tr>
<td></td>
<td>Measure A - Regional Share</td>
<td>City may submit project to compete for Regional Measure A funds from the Safe Routes to School Program and from the Bike and Pedestrian Program</td>
<td>Local Sales Tax Revenues</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td>Prop 1B Bond Funds - Local Streets and Roads Component</td>
<td>Funds to be used for improvements to transportation facilities that will assist in reducing local traffic congestion and further deterioration, improving traffic flows, or increasing traffic safety</td>
<td>Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 (Proposition 1B)</td>
<td>High Potential</td>
</tr>
<tr>
<td>State/Local</td>
<td>Prop 1B Bond Funds - State/Local Partnership Program Account</td>
<td>Funds will be made available to the California Transportation Commission for allocation over a five-year period to eligible transportation projects nominated by an applicant transportation agency</td>
<td>Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 (Proposition 1B)</td>
<td>Potential</td>
</tr>
<tr>
<td>State</td>
<td>STIP/RTIP - State/Regional Transportation Program</td>
<td>To be used for increasing capacity and improving operations related to rail, mass transportation, local highway and the state highway system</td>
<td>State and federal gasoline taxes; State truck weight fees</td>
<td>High Potential</td>
</tr>
<tr>
<td></td>
<td>Traffic Congestion Relief Program (TCRP)</td>
<td>To be used for projects associated with traffic congestion relief and goods movement</td>
<td>Traffic Congestion Relief Act of 2000</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td>State-Legislated Safe Routes To School Program (SR2S)</td>
<td>Provides funding for projects that improve safety and promote walking and bicycling</td>
<td>AB 57 passed in 2007 extending the program until 2013</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td>Bicycle Transportation Account (BTA)</td>
<td>Provides state funds for city and county projects that improve safety and convenience for bicycle commuters</td>
<td>State funds</td>
<td>Potential</td>
</tr>
<tr>
<td>Federal</td>
<td>Regional Surface Transportation Program (RSTP)</td>
<td>Provides funding for construction reconstruction, resurfacing, restoration, and operational improvements on federal aid highway and bridges. These federal funds are exchanged for State funds due to the relatively small population of SB County. The funds have no federal or State strings and are distributed by the MPO as discretionary funds. No guarantee that these funds exist in the new Federal Authorization.</td>
<td>SAFETEA-LU</td>
<td>High Potential</td>
</tr>
<tr>
<td></td>
<td>Local Surface Transportation Program (LSTP)</td>
<td>Provides funding for construction reconstruction, resurfacing, restoration, and operational improvements on federal aid highway and bridges. These federal funds are exchanged for State funds due to the relatively small population of SB County. The funds have no federal or State strings and are distributed to local agencies by population through the MPO. No guarantee that these funds exist in the new Federal Authorization.</td>
<td>SAFETEA-LU</td>
<td>High Potential</td>
</tr>
<tr>
<td></td>
<td>Demonstration Program (High Priority Projects)</td>
<td>Funding that is designated by a special earmark in federal legislation for specific projects</td>
<td>Legislation, normally the transportation appropriations bill</td>
<td>High Potential</td>
</tr>
<tr>
<td></td>
<td>Federal Discretionary Programs - Innovative Bridge Research and Deployment</td>
<td>Provides funds to help states and local agencies to incorporate innovative materials and material technologies in their bridge projects</td>
<td>SAFETEA-LU</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td>Federal Safe Routes to School Program (SRTS)</td>
<td>Provides funding for projects that improve safety and promote walking and bicycling</td>
<td>Section 1404 of SAFETEA-LU</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td>Congestion Mitigation and Air Quality Program (CMAQ)</td>
<td>Provides funds for projects that will contribute to attainment or maintenance of the National Ambient Air Quality Standards (NAAQS) for ozone and carbon monoxide.</td>
<td>SAFETEA-LU</td>
<td>Potential</td>
</tr>
</tbody>
</table>
12. Recommendations

The Goleta Overpass Improvement Project is certainly feasible, and as a project of regional significance, it should be advanced into the Project Initiation Phase as soon as funding for that phase can be secured.

Preferred Alignment Alternatives

The feasible alignment alternatives that should be used to begin the Project Initiation Phase are:

- Alternative A4
- Alternative A6
- Alternative C5

These three alternatives have the three highest scores in the Alignment Scoring Matrix which factors in geometrics, traffic impacts, environmental impacts, business and residential property impacts, and construction costs. Alternatives A4 and C5 both meet the ADA maximum vertical grade preferences of 5%. The conceptual alignment shown for Alternative A6 has a maximum vertical grade of 6.5% since the alignment was set to minimize impacts to the parking lot at the end of Entrance Road. However, it is anticipated that this alternative can be modified such that the maximum approach grade south of the bridge does not exceed 5%.

Alignment Alternatives to Be Discarded

It is recommended that the following alignment alternatives should be discarded from further consideration since they have a maximum vertical grade that exceeds 8.33%, and therefore are difficult for pedestrians and bicyclists to use:

- Alternative A5
- Alternatives B1 & B2
- Alternatives C1, C2 & C3

The following alternatives should also be dismissed for the following reasons:

- Alternatives A1 & A2 – While these alternatives have similar construction costs to A4, they do not provide a direct connection to Calle Real and have more impact to environmentally sensitive areas. In addition, these alternatives are less desirable than A4 since they have a vertical grade which exceeds 5% making the facility not as accessible for pedestrian and bicycle movements.
- Alternative A3 – This alternative has similar costs and benefits to A4, except it has more impacts to environmentally sensitive areas.
- Alternative C4 – This alternative has significant drawbacks compared to C5 since it has a grade steeper than 5%, and is limited to a design speed of 20 mph for the horizontal curve located adjacent to the corner of the mobile home park.
13. References

- Goleta General Plan/Coastal Land Use Plan, City of Goleta, September 2006

- A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials (AASHTO), 2004


- Highway Design Manual, California Department of Transportation (Caltrans), July 2008

- Local Assistance Program Guidelines, California Department of Transportation (Caltrans), January 2009

- Guidelines For Railroad Grade Separation Projects, BNSF Railway – Union Pacific Railroad, January 2007


- Design Information Bulletin Number 82-03: Pedestrian Accessibility Guidelines for Highway Projects, California Department of Transportation (Caltrans), October 19, 2006.
APPENDIX A

ALIGNMENT ALTERNATIVES EXHIBITS
APPENDIX B

PROPOSED TYPICAL BRIDGE AND ROADWAY SECTIONS
APPENDIX C

CONCEPTUAL COST ESTIMATES
APPENDIX D

DRAFT EXISTING TRAFFIC CONDITIONS REPORT
APPENDIX E

DRAFT TRAFFIC FORECAST REPORT
APPENDIX F

ENVIRONMENTAL CONSTRAINTS ANALYSIS REPORT
APPENDIX G

PRELIMINARY FOUNDATION DESIGN MEMORANDUM
APPENDIX H

PRELIMINARY ROADWAY DESIGN MEMORANDUM
APPENDIX I

CALTRANS DESIGN INFORMATION BULLETIN 82-03
PEDESTRIAN ACCESSIBILITY GUIDELINES FOR HIGHWAY PROJECTS