*February 2006*

## CITY OF OAKLAND

# FOOTHILL/SEMINARY PUBLIC TRANSIT HUB STREETSCAPE PLAN


*Prepared by the City of Oakland*
*with assistance from*
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*OCCUR-Oakland Citizens Committee for Urban Renewal*

*February 2006*

# FOOTHILL/SEMINARY PUBLIC TRANSIT HUB STREETSCAPE PLAN
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# I. Project Overview

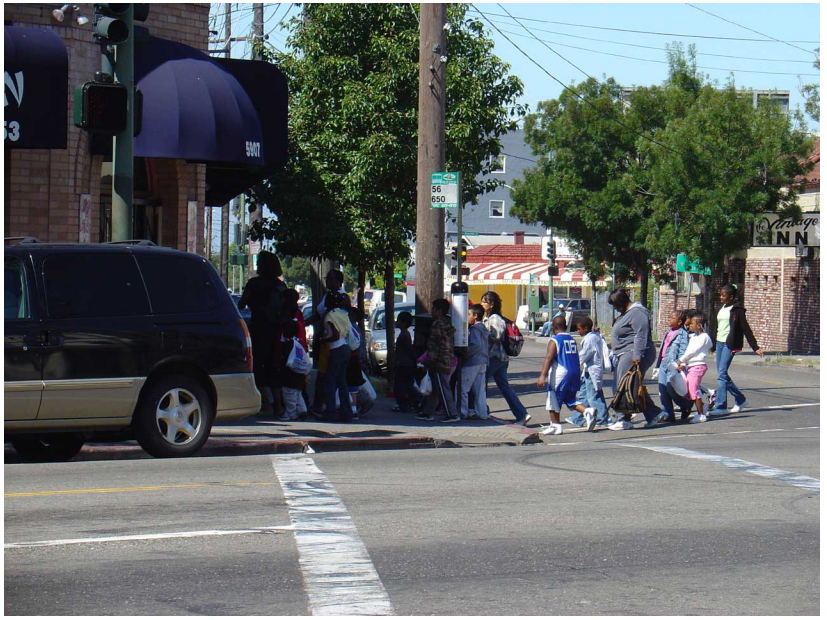
## Background

The streetscape design for the Foothill/Seminary project area focuses on enhancing the pedestrian experience, with special emphasis on encouraging transit use. Proposed streetscape improvements will calm traffic, improve pedestrian safety, enhance transit facilities, and improve links to local schools. The City's overall goal is to create an economic and social hub for adjacent neighborhood areas , and the *Streetscape Plan* is part of a revitalization strategy that also includes redevelopment-funded business assistance and building and facade improvement programs.

The Foothill/Seminary project area is located within the recently-established Central East Redevelopment Area. It extends approximately 2,100 feet along Foothill Boulevard, from 62nd Avenue on the east to Brookdale Avenue on the west, and 1,100 feet along Seminary Avenue, from Fleming Avenue on the north to Bancroft Avenue on the south. The project area includes storefront commercial buildings, storefront churches, a number of vacant buildings and lots, and a busy YMCA Teen Center.

A recent market analysis sponsored by the Oakland Citizens Committee for Urban Renewal (OCCUR) indicates that surrounding neighborhood areas provide an economic base that is strong enough to support revitalization of the Foothill/Seminary commercial district, as well as the greater Central East Oakland area generally. Mills College and the historic 1920's Picardy Avenue neighborhood are located to the north of Foothill Boulevard; residents in this area generally have higher incomes than residents south of Foothill Boulevard, with nearly half owning their homes. South of Foothill Boulevard, the proportion of residents who use public transit as their primary means of transportation is relatively high. The *Streetscape Plan* is a key part of the City's effort to build on

***Foothill Boulevard is the principal bus route to and from the Eastmont Transit Center.***



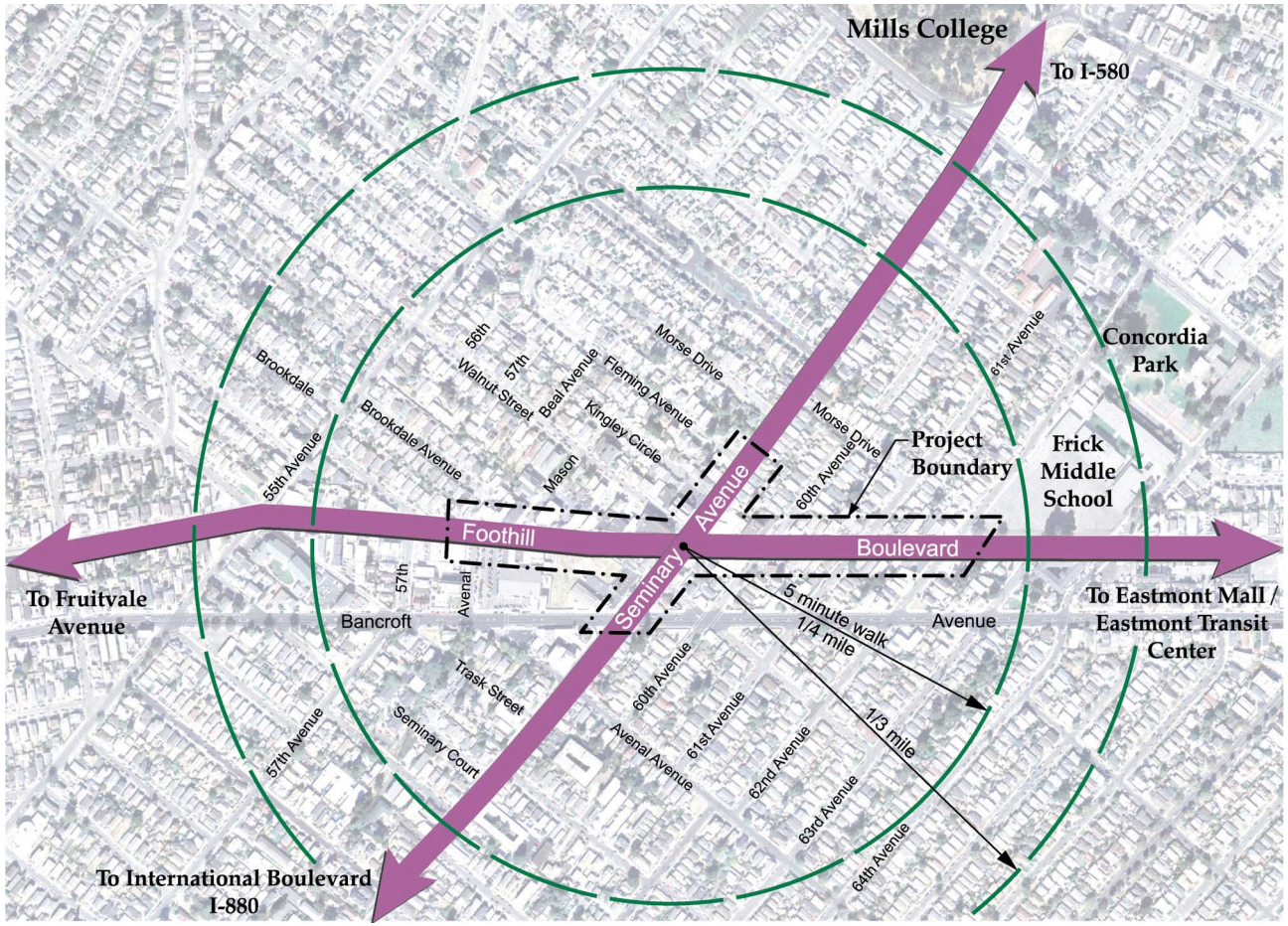
***School-age children make regular use of local bus routes.***

the economic and transit use characteristics of adjacent neighborhood areas.

## Project Context

As the "Context Map" to the right illustrates, the surrounding neighborhood consists primarily of single-family homes, with some multi-family buildings located on Foothill, Seminary, and Bancroft Avenues. Density averages approximately 7 to 10 residences per gross acre (i.e., including streets).

Walking distances from surrounding areas to the Foothill/Seminary intersection are indicated on the Context Map; 1/4 mile (or a 5-minute walk) is a typical maximum for frequent walking trips to commercial businesses; 1/3 mile is a typical maximum for daily walking trips to transit and occasional trips to local businesses.




**Context Map**

The oblique street grids in adjacent neighborhood areas tends to focus streets on the project area. This makes walking to the area relatively easy and direct, and is a potential asset for local business and transit services, provided walking is perceived as safe and pleasant

Mills College is located approximately ½ mile north of the project area. Frick Middle School is located at 62nd Avenue, adjacent to the east project boundary. An important east-west arterial street and Class II bicycle route, Bancroft also is somewhat of a barrier to pedestrian access from the south.Residential neighborhood areas extend south approximately 3/4 mile to International Boulevard. Bancroft Avenue borders the project area on the south.

Eastmont Mall and the Eastmont Transit Center, a major AC Transit facility, are located along Foothill Boulevard approximately ½ mile east of the project area. Commercial uses extend west along the Foothill frontage approximately 3/4 mile to Fruitvale Avenue.

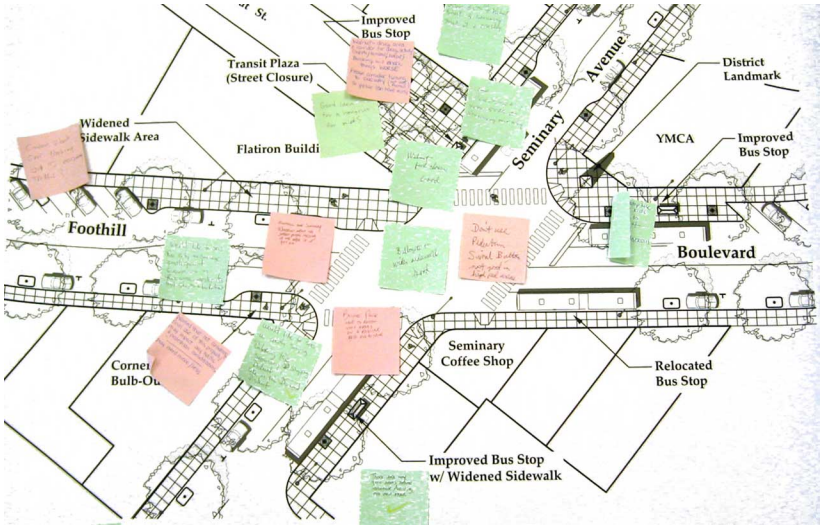
## The Community Design Process

Four Community Meetings were held between July and December, 2005. Based on community input, analyses of project area conditions and initial design recommendations were developed by a consultant design team and reviewed by a Technical Advisory Committee (TAC) consisting of City of Oakland, AC Transit, and OCCUR staff. Key issues included pedestrian circulation, sidewalk conditions, vehicle movements and travel lane widths, bus stop locations and dimensions, and construction implications and cost assumptions.

Outreach for the meetings was conducted by OCCUR in conjunction with the office of District 6 Councilmember Desley Brooks. Over 200 flyers were distributed for each meeting, and information related to the meetings was posted on email lists for community organizations and advertised in community newsletters. The content and input of Community Meetings is summarized below; specific comments recorded at these meetings are contained in Appendix B.

***Community Meeting #1 - July 20, 2005*** - Project objectives, work scope, boundaries and existing conditions were reviewed and discussed. Meeting participants noted their concerns related to traffic calming, crime, and the district's lack of viable commercial businesses. Participants strongly supported retaining existing angle parking areas, as well as introduction of basic pedestrian and aesthetic improvements typically promoted by the City for neighborhood commercial districts. These included street lights, street trees, and enhanced pedestrian street crossings and bus stop areas. A key concern was coordination of streetscape improvements with efforts to improve the appearance of buildings and attract new commercial tenants to the district.

*Community meetings were held at the Foothill Boulevard YMCA Teen Center.*




*Community members recorded their comments on post-it notes and placed them on the draft design plans.*

*Meeting participants review streetscape design recommendations during a walking tour of the project area.*

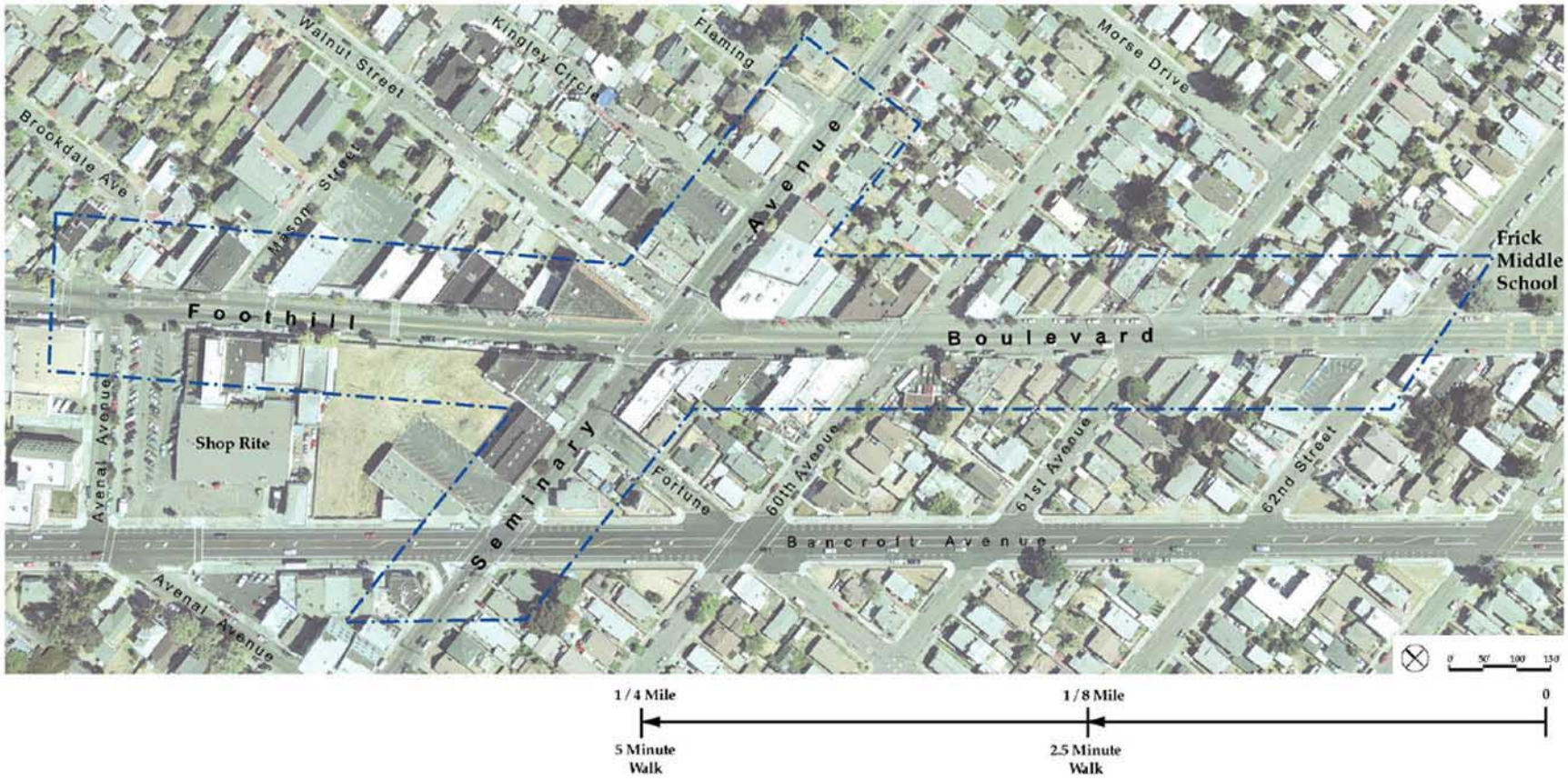
***Community Meeting #2 - August 24, 2005*** - The design team reviewed project objectives and input from Meeting #1, then presented initial design recommendations for Foothill Boulevard and Seminary Avenue. Community comments were largely positive, and were particularly supportive of recommendations to expand the sidewalk and bus stop area adjacent to the YMCA Teen Center, create a transit mini-plaza, and incorporate landscape median islands as traffic calming measures at the east end of the project area. Other community concerns included needs for emergency vehicle access, lighting, and additional police patrols.

***Community Meeting #3 - October 8, 2005*** - Revisions to Meeting #3 design recommendations were reviewed and presented. Community recommendations included closing Fortune Way to through traffic to reduce high-speed cut-throughs and drug-related activity; providing emergency access through the proposed transit mini-plaza, and; additional traffic controls adjacent to Frick Middle School at Foothill/62nd.

***Community Meeting #4 - November 12, 2005*** - Meeting participants and City staff toured the project area to review design recommendations. Key issues were closure of Fortune Way and improvement of pedestrian facilities and traffic controls at the Foothill/62nd intersection. Undergrounding overhead power lines and incorporation of rain/sun shelters at the transit plaza were also recommended.

In addition to these meetings, OCCUR staff presented project design recommendations to the Oakland Chamber of Commerce for review and discussion on November 18, 2005.

## Existing Conditions Aerial




# II. Existing Conditions

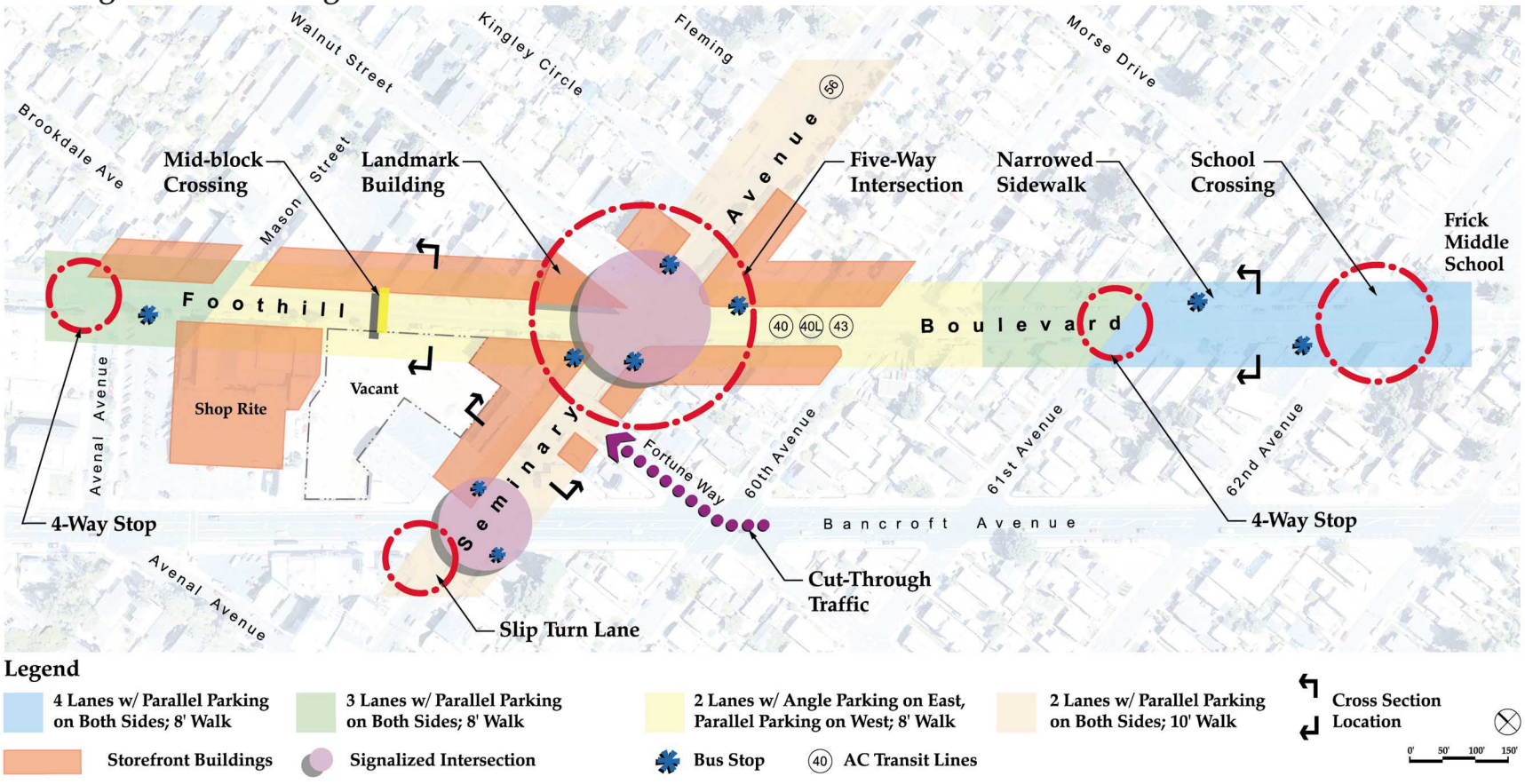
### General Project Area Conditions

The project is an active transit corridor because of its proximity to destinations such as Mills College, Frick Middle School, Eastmont Mall, and the Eastmont Transit Center. As illustrated by the Existing Conditions diagram on the following page, storefront buildings line a significant portion of project area frontages, and bus stops are conveniently located throughout. Notable features include a landmark 3-story "flatiron" building and a renovated YMCA Teen Center at the northeast and northwest corners, respectively, of the Foothill/Seminary intersection. The "Shop Rite" grocery anchors the commercial district on the west, adjacent to Avenal Avenue.

### Travel Lanes, Curbside Parking, & Intersections

The Existing Conditions Diagram, enlarged plans and cross section diagrams on the following pages indicate the varying travel lane and parking configurations that exist within Foothill Boulevard's

## Existing Conditions Diagram

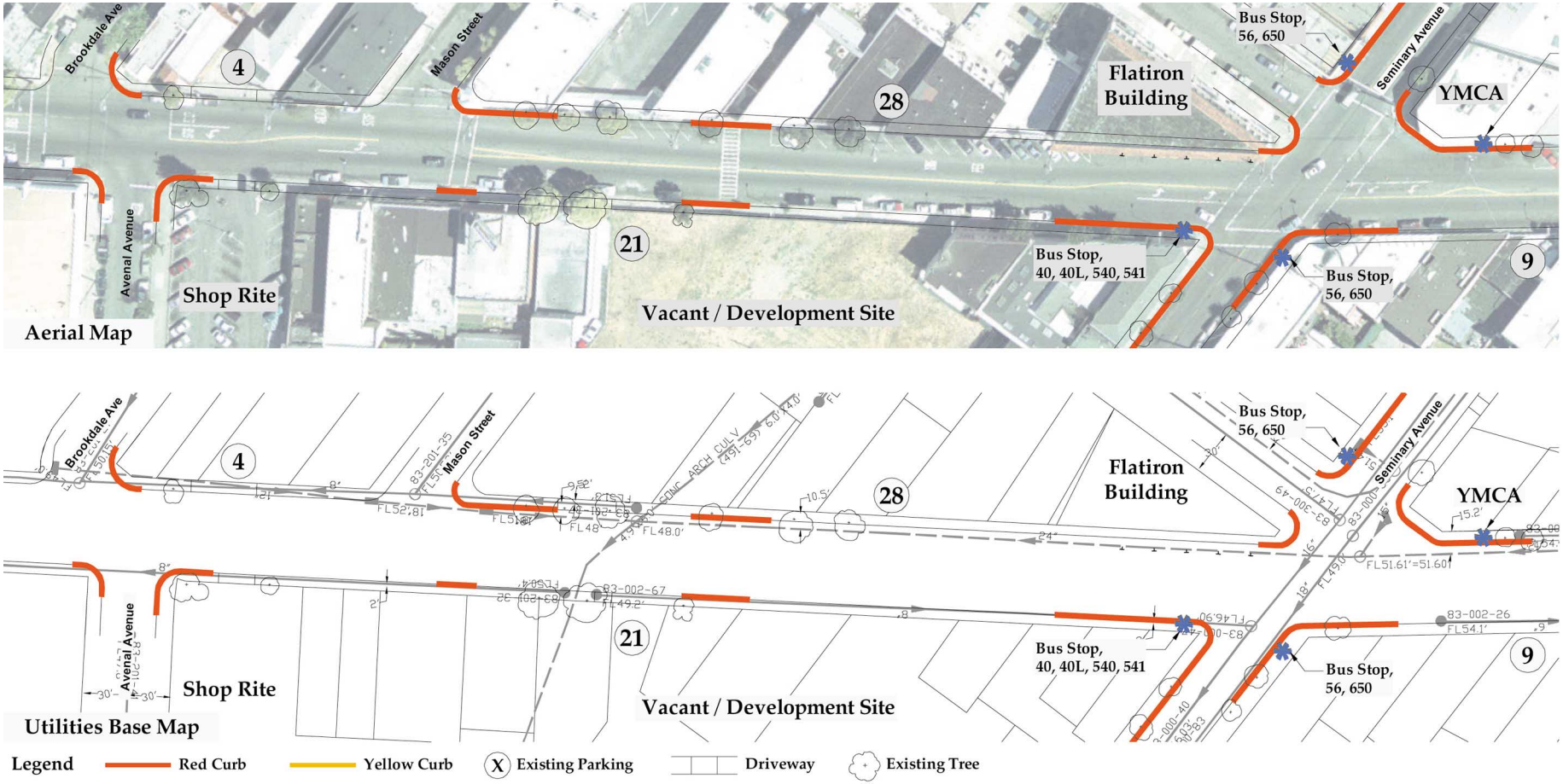



70' right-of-way; curb-to-curb width is consistent, approximately 54'. A three lane condition – two through lanes with a center left turn lane – extends from west of the project area to Mason Street, with parallel parking along both frontages. From Mason Street east to just beyond 60th Avenue, the street is two lanes with angle parking along the north frontage and parallel parking along the south frontage. Dedicated left turn lanes both east and west bound exist at the Seminary intersection. A transitional three-lane section extends between 60th and 61st. From east of 61st Foothill Boulevard is four lanes in width, with parallel parking along both frontages.

Seminary Avenue is two lanes through the project area, with parallel parking along both frontages. There are no dedicated left turn lanes on Seminary Avenue at the Foothill Boulevard intersection.

The intersections of Foothill/Seminary and Foothill/Bancroft are the only signalized intersections within the project area. The intersections at Foothill/Brookdale/Avenal and at Foothill/61st are controlled by 4-way stop signs. There are approximately 124 curbside parking stalls within the project area; 103 on Foothill Boulevard and 21 on Seminary Avenue.

## Foothill Boulevard - Street Conditions Diagram

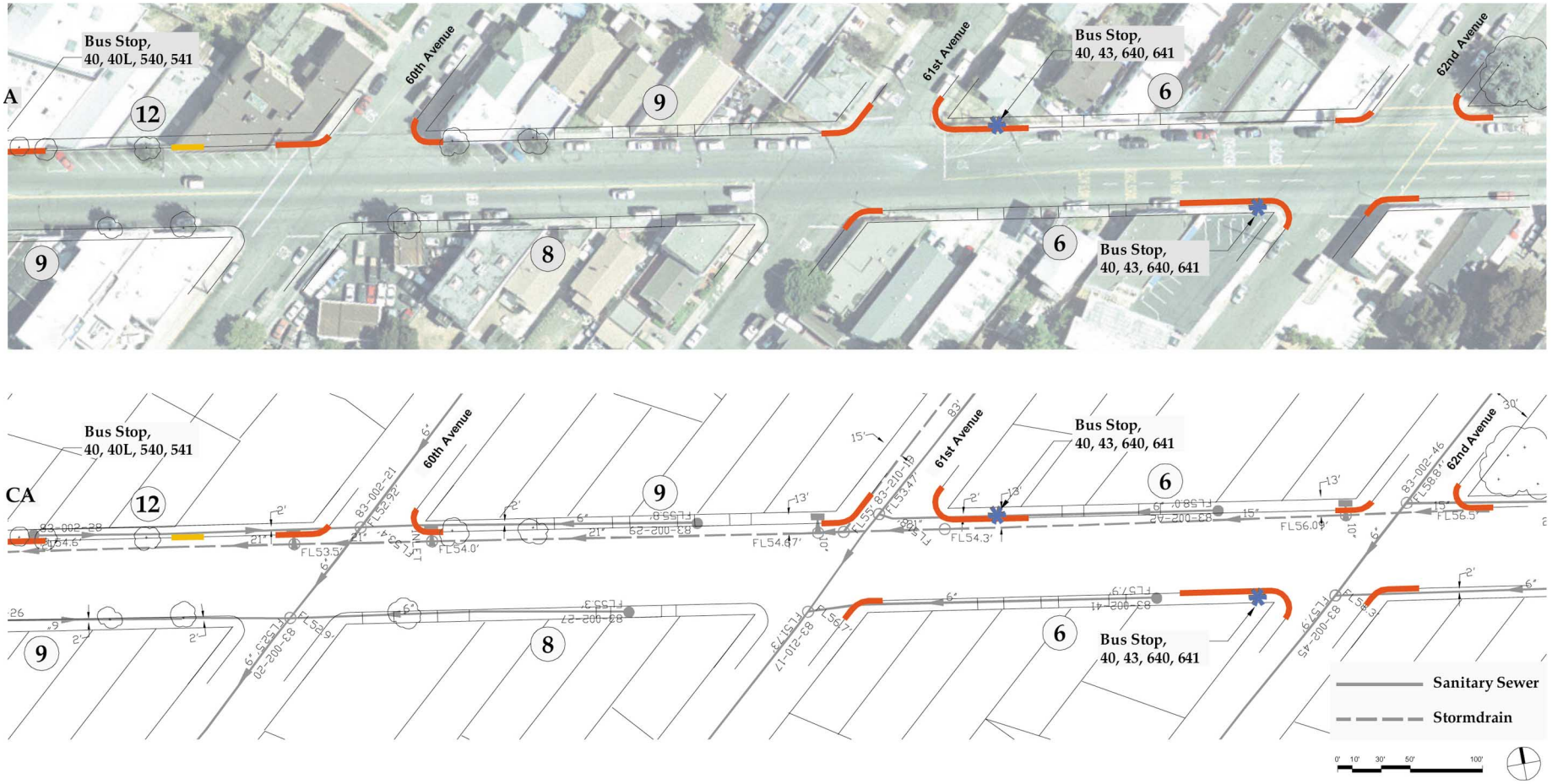



### Street Diagram

The aerial photo and diagram above indicate existing street lanes, crosswalk, bus stop, parking, loading areas, and curbside utility conditions. Existing angle parking areas between Mason Street and 60th Avenue, and the transition from 4 to 2 lanes between 60th and 61st is clearly visible. Existing curb markings, driveways, and curbside parking spaces are indicated.

### Streetscape and Sidewalk Conditions

Storefront buildings line most of the Foothill frontage from the westerly project area boundary east to 60th Avenue, and most of the Seminary frontage as well. As illustrated by the cross section diagrams on subsequent pages, sidewalks along Foothill Boulevard are a relatively narrow 8'; in some locations they are as narrow as 6'. However, angle parking creates leftover "shadow" street areas that are opportunities for widening sidewalks and creating large corner

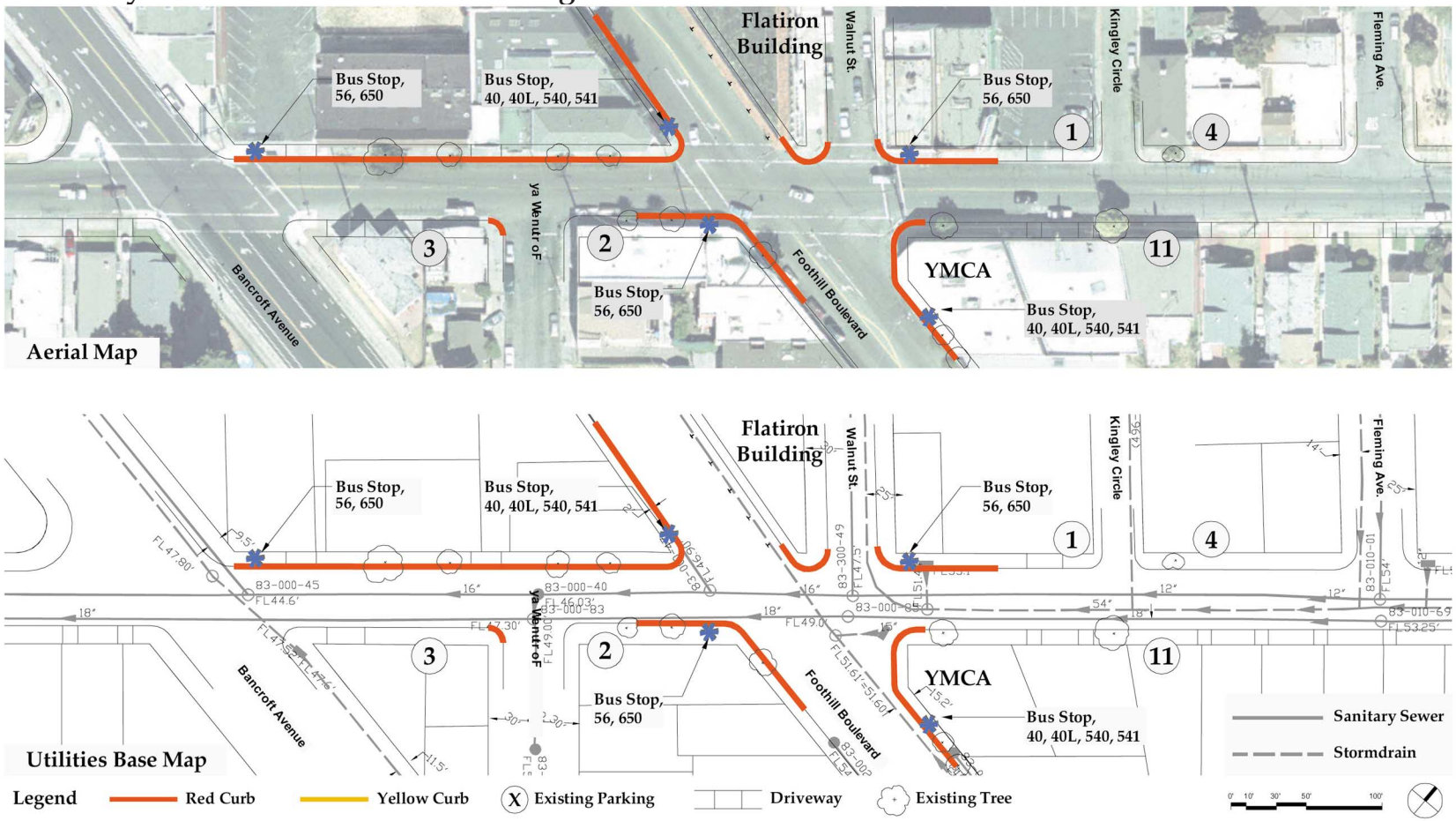



bulb-outs. A mid-block crosswalk is located approximately 150' east of Mason Street. Sidewalks along Seminary Avenue are a more typical 10' in width.

Sidewalk features such as power poles, trash receptacles, and street trees consistently reduce walkable surface area along Foothill Boulevard to between 4' and 5'. As indicated by the cross sections and the "Existing Sidewalk Conditions" sketch on the following page, related concerns include non-standard corner curb ramps, cracked, uneven sidewalks in a number of locations, unsightly wooden power poles and "cobra-head" highway-type street lights. Overhead utility lines extend along the northerly frontage of Foothill and the westerly frontage of Seminary.

Recessed tree wells and damaged adjacent sidewalks create uneven walking surfaces in some locations. The west frontage of Seminary Avenue just south of Foothill is especially damaged, apparently by subgrade settling as well as tree roots.

## Seminary Avenue - Street Conditions Diagram

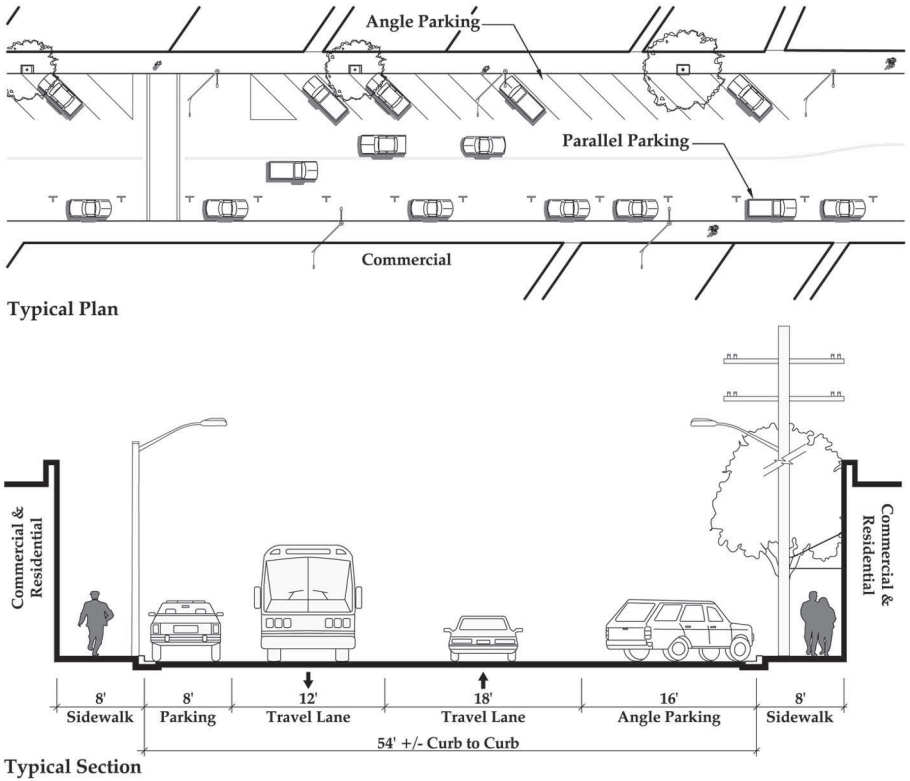



Existing street trees are a mix of Callistemon and more recently planted Ornamental Pear. Both tree species have relatively dense, compact canopies, which can be desirable for constrained sidewalk spaces. However dense canopies tend to block the visibility of buildings and storefronts and is not advisable in a neighborhood commercial district.

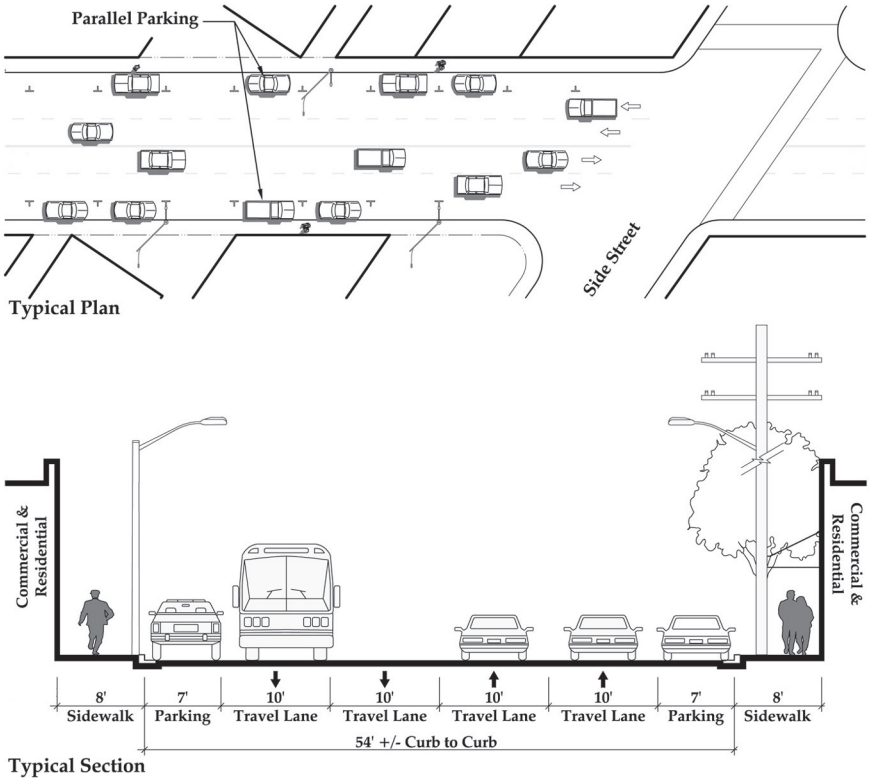
## Traffic and Transit Conditions

The existing Level of Service (LOS) of the Foothill/Seminary intersection is "C," corresponding to minor delays of 15 to 25 seconds per vehicle. Six AC Transit lines run through the project area. The 56 and 65 lines run north-south on Seminary Avenue, with bus stops adjacent to intersections at Foothill Boulevard and at Bancroft Avenue. The 40, 40L, and 43 lines run east-west on Foothill

**Foothill Boulevard West of Seminary - Existing**

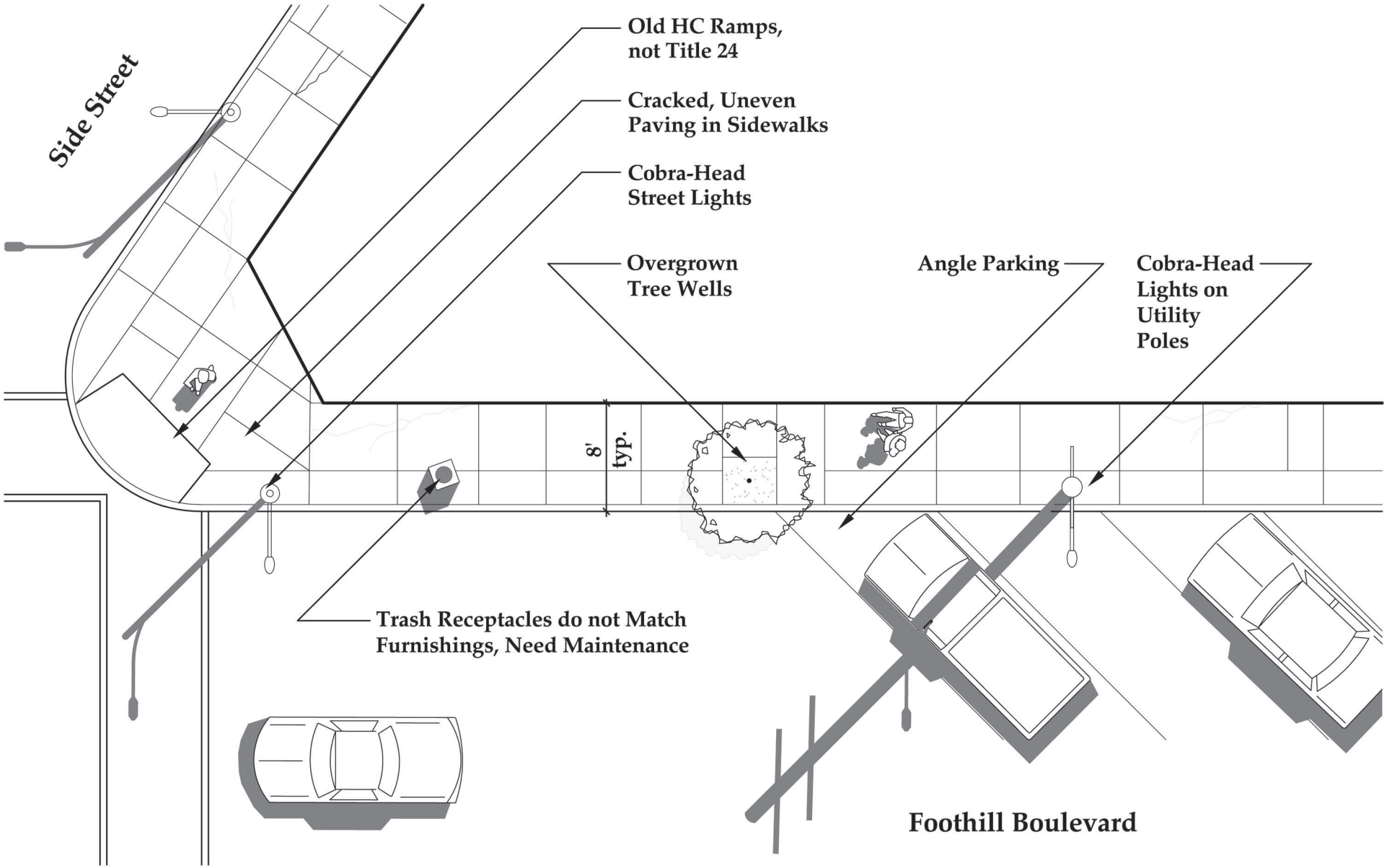



**Foothill Boulevard East of Seminary - Existing**



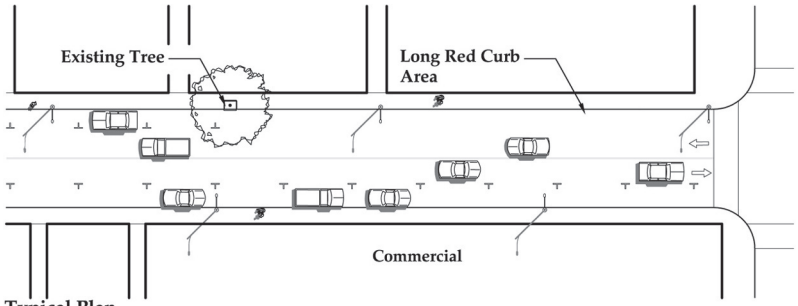

Boulevard, with bus stops at Avenal Avenue, Seminary Avenue, and at 61st/62nd Avenue. Additional lines serve local schools on a less frequent basis.

A more detailed discussion of transit routes and existing and projected traffic conditions is provided by the Traffic Analysis contained in Appendix A.

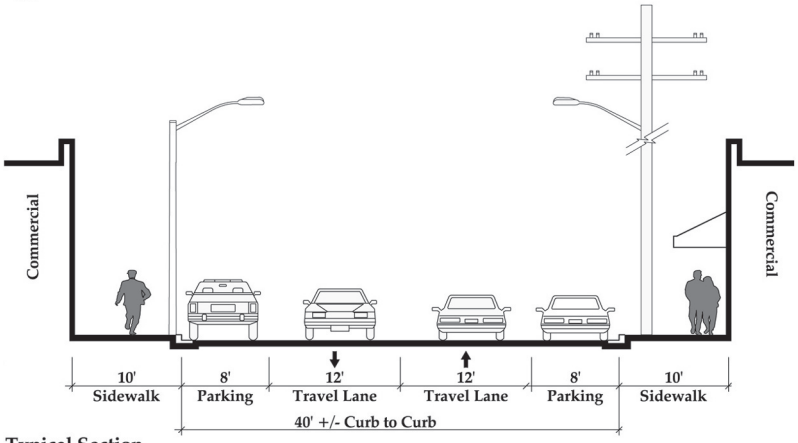



## Existing Sidewalk Conditions

**Seminary Avenue Existing Condition**



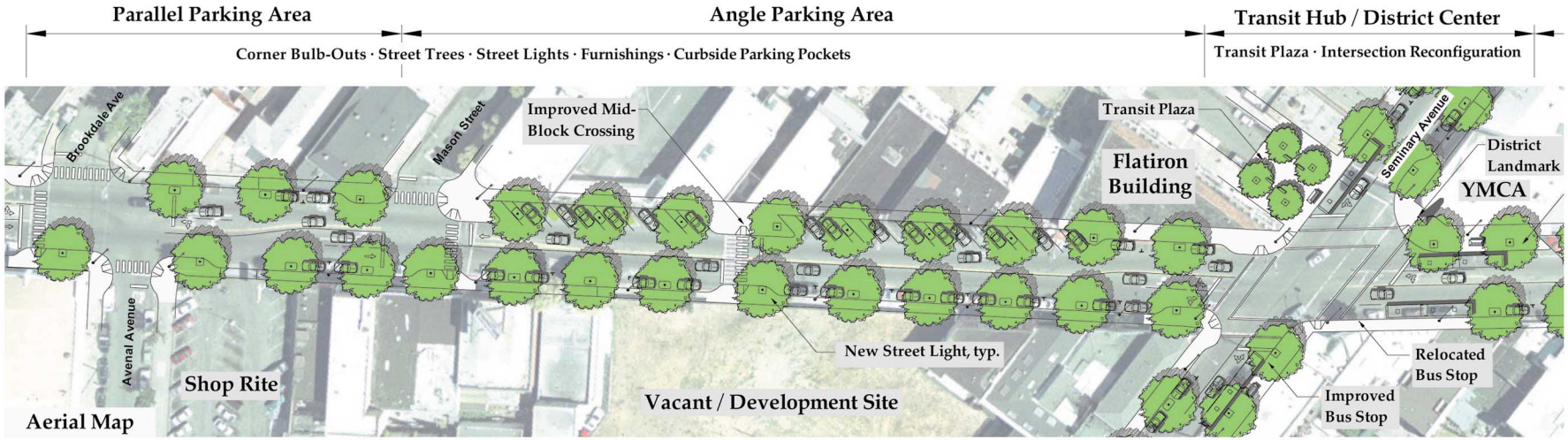

Typical Plan

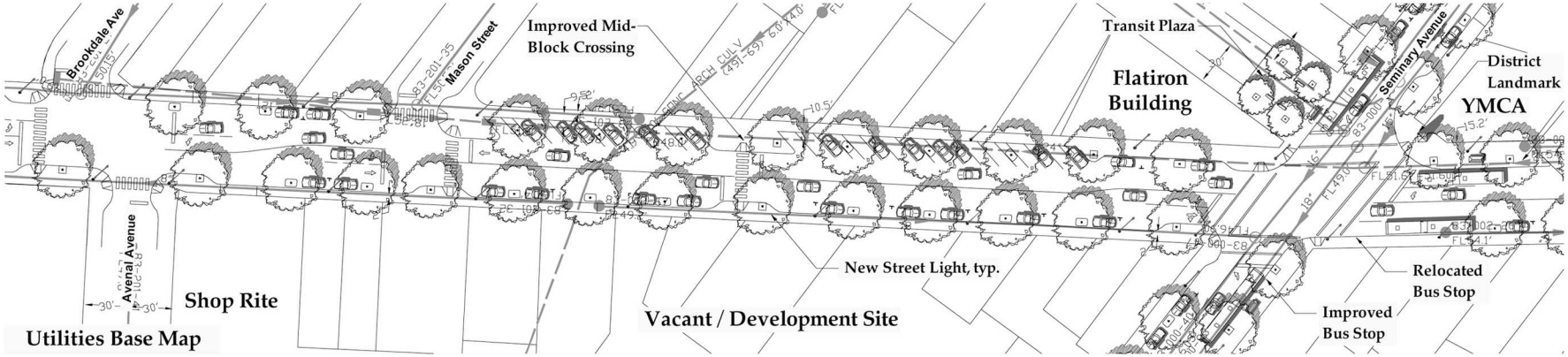



Typical Section

*Sidewalk widths along Seminary are 10′ (top), and paving conditions are fair to poor. Along Foothill Boulevard (bottom) the sidewalks are only 8′, and are further constrained by utility poles and overgrown tree wells.*

## Foothill Boulevard Layout Concept Plan




# III. Concept Design

"Layout Concept Plans" for proposed streetscape improvements to Foothill Boulevard and Seminary Avenue are provided in the following pages. Enlarged plans and cross sections depict the modifications to sidewalk and street conditions throughout the project area. Major design elements are:

- **Improved Bus Stop Areas** - including bus shelters wherever possible and a transit-oriented mini-plaza at Walnut Street.
- **Street Trees** - located within the curbside parking zone planters to maintain sidewalk space.

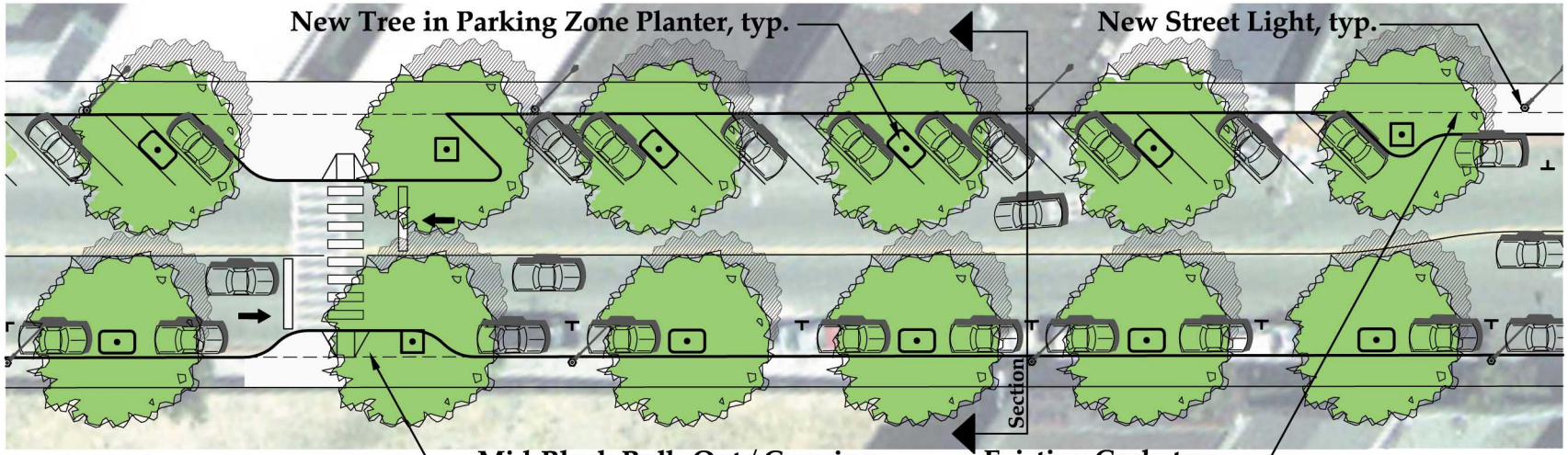

- **Pedestrian-Oriented Street Lights** - to replace existing cobra-head highway lights.

- **Curb Bulb-Outs** - at street corners, midblock crossings, and bus stops wherever feasible.

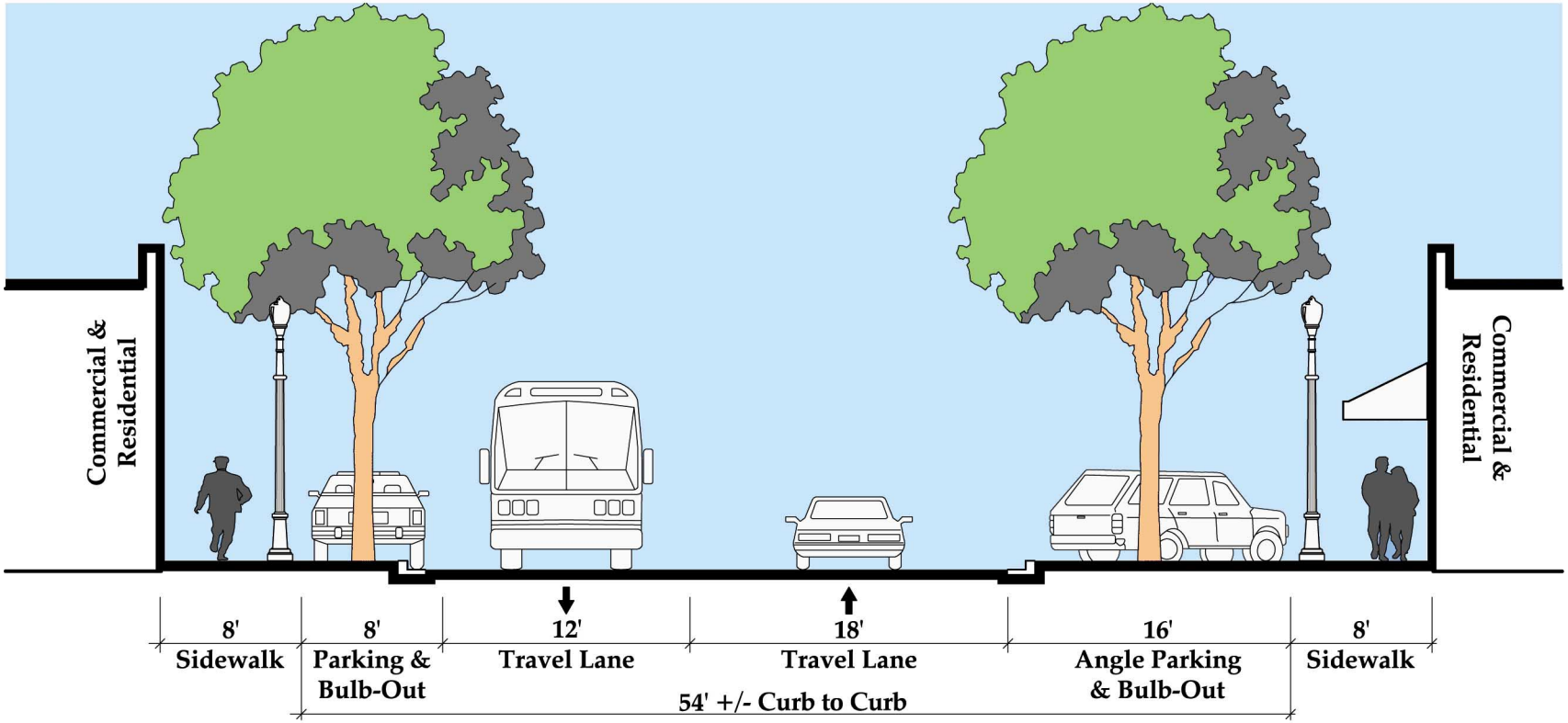
- **East Gateway Median** - to slow westbound traffic entering the district and beautify the streetscape.

These and other design elements are described in more detail in Chapter IV.

For the most part, traffic circulation would remain unchanged from current conditions. An exception relates to the East Gateway Traffic Islands. To accommodate the islands, the existing westbound transition from 4 lanes to 2 lanes that occurs between 60th and 61st Avenues would be shifted to the east of 62nd Street.

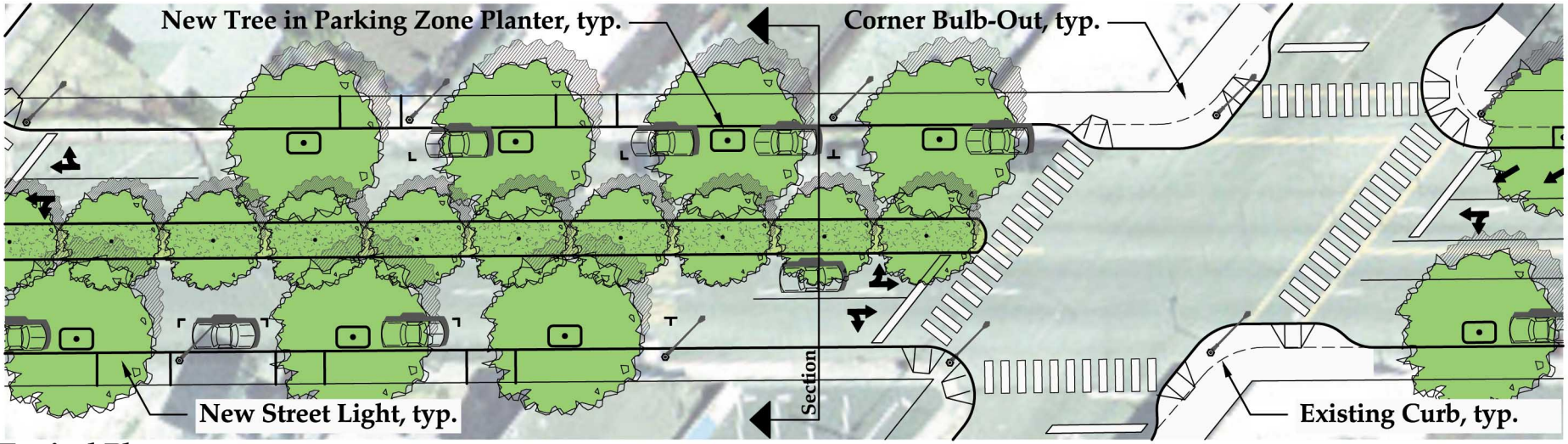



Typical Plan

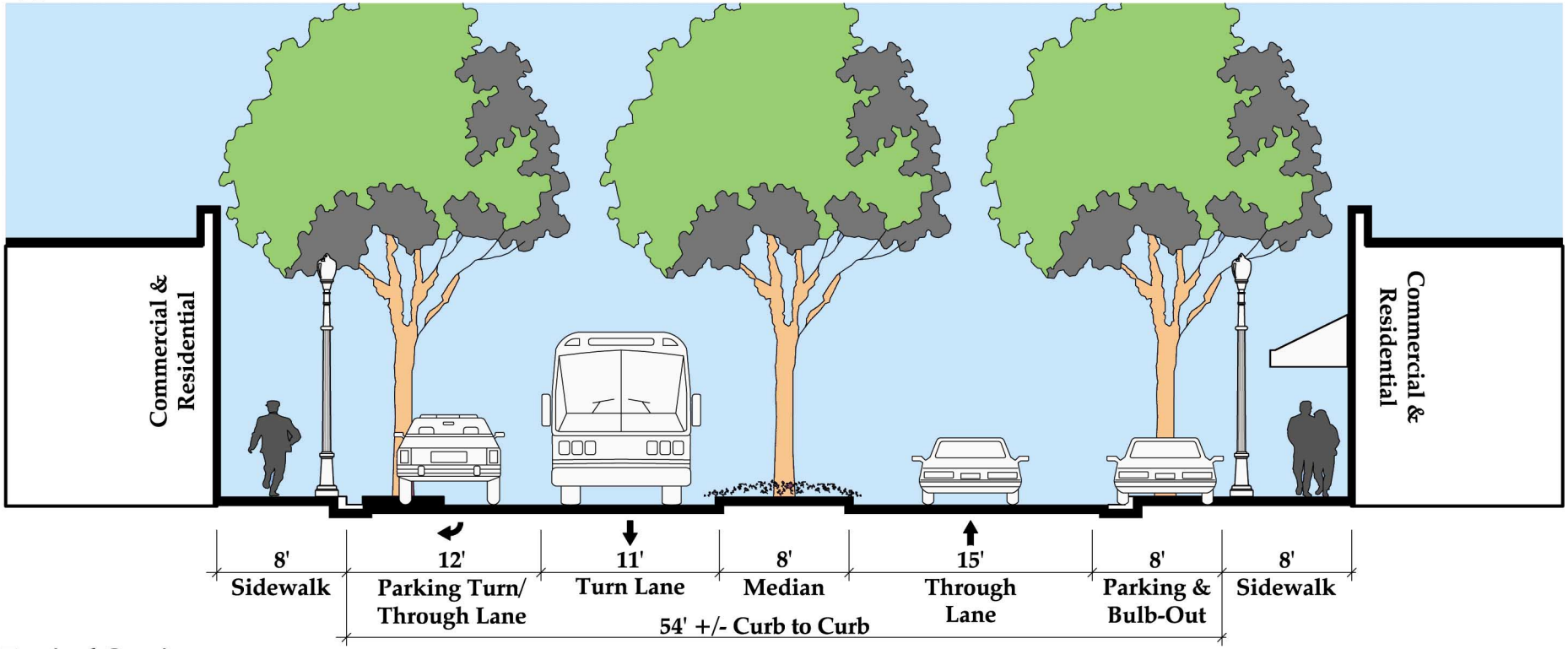



Typical Section

## Foothill West of Seminary



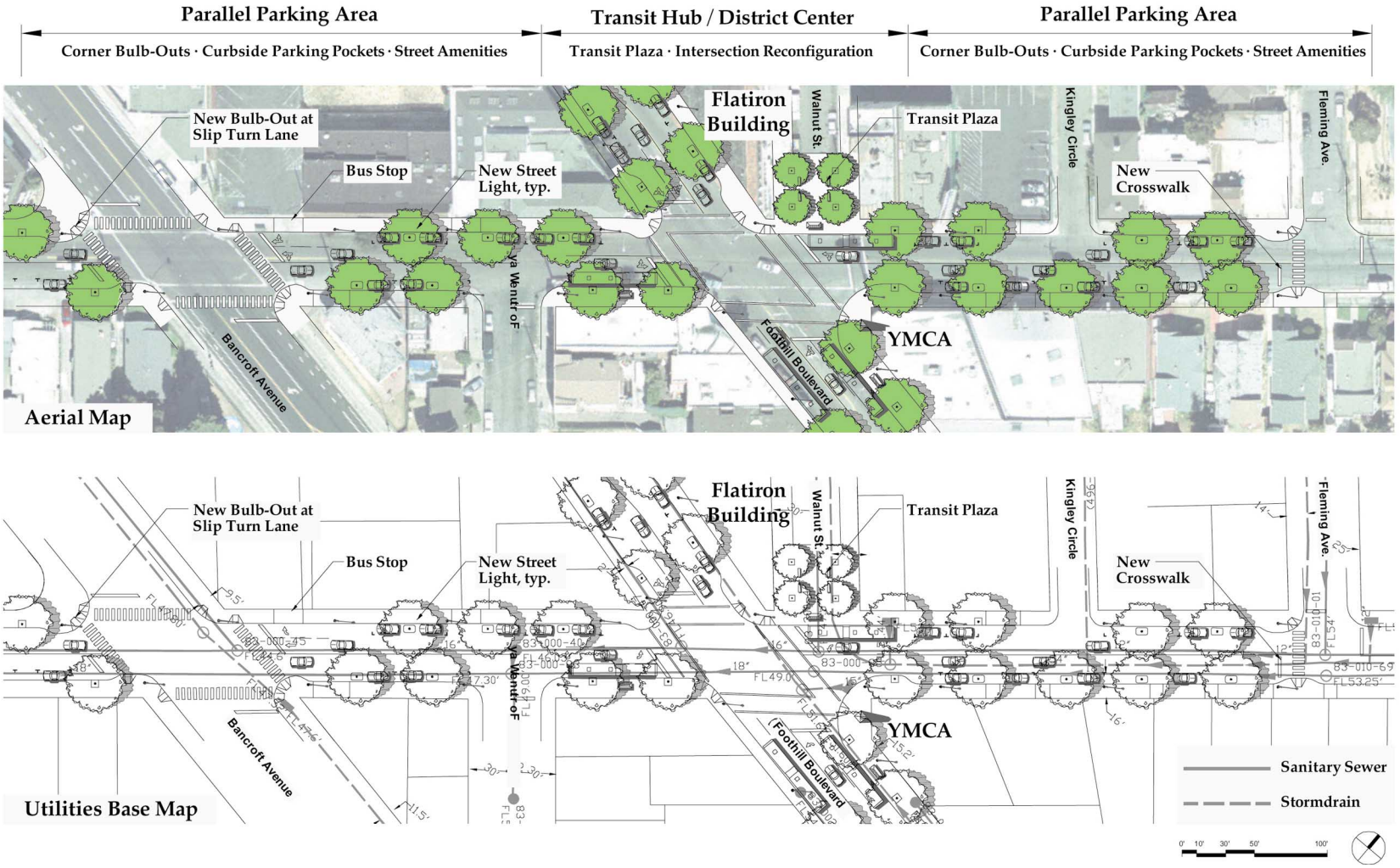

Typical Plan



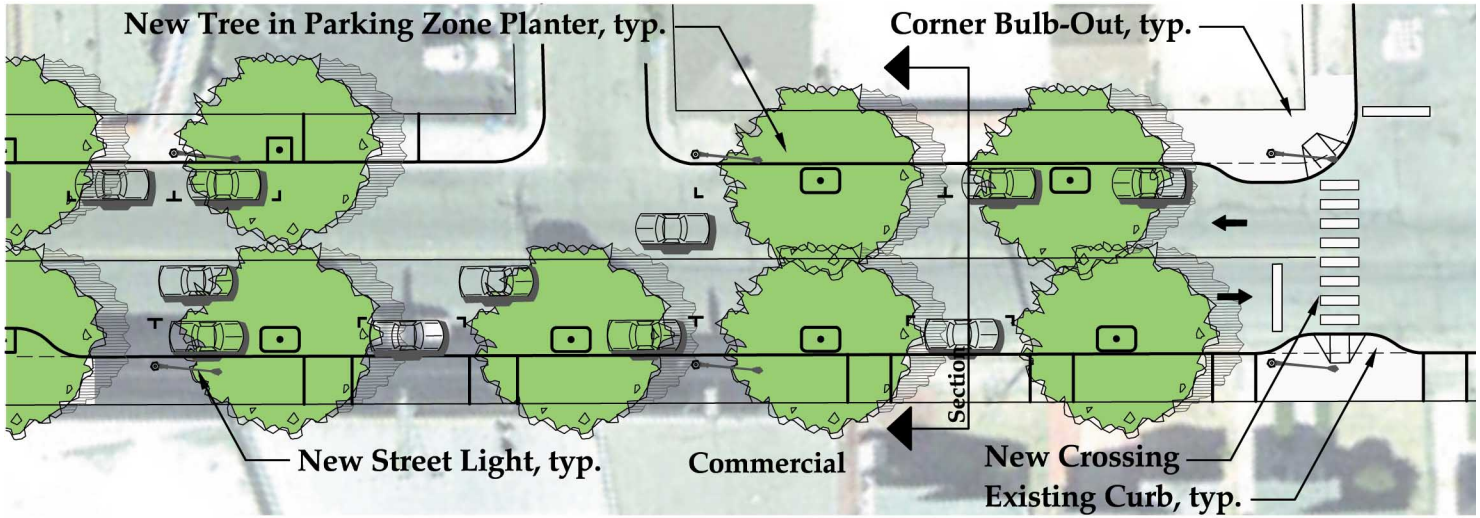

Typical Section

## Foothill East of Seminary

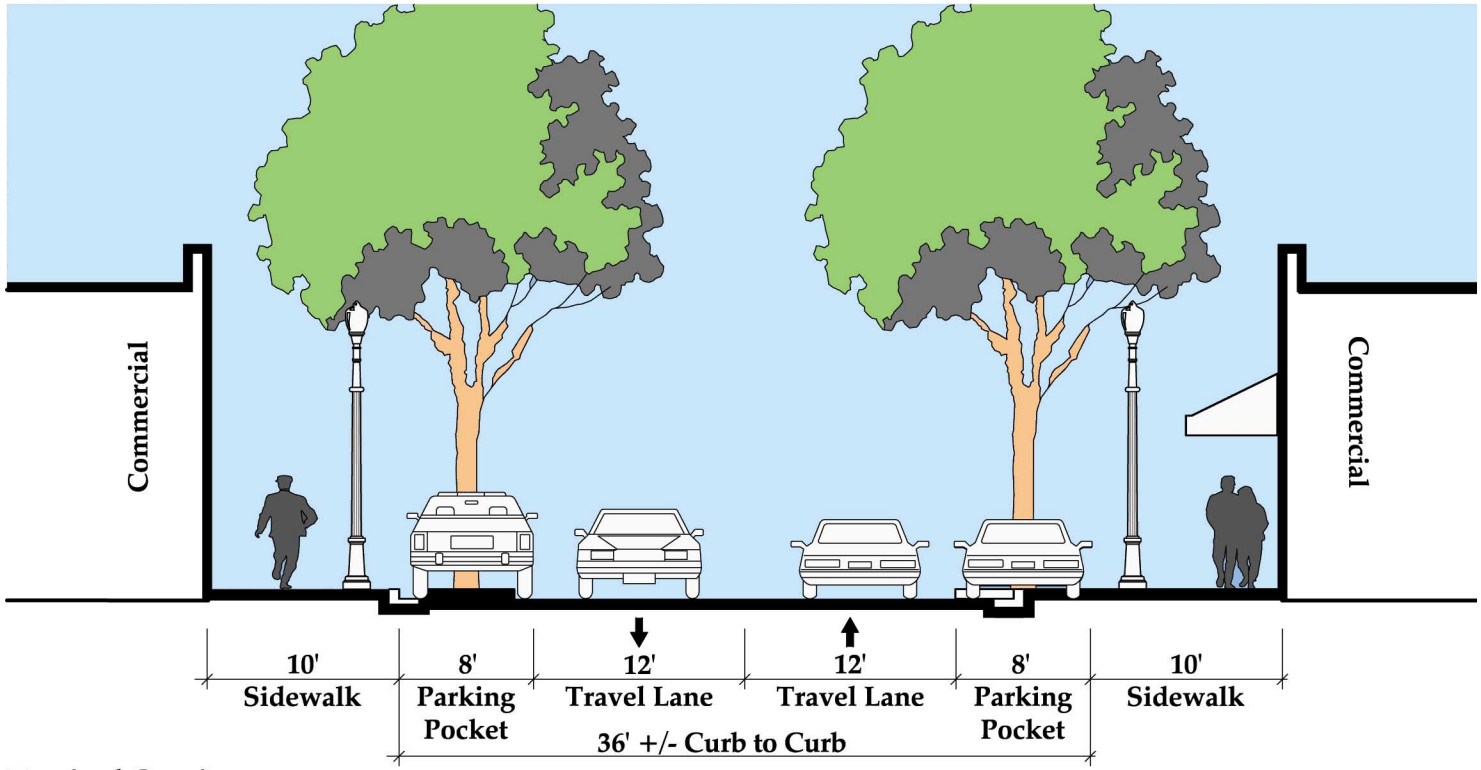
## Seminary Avenue Layout Concept Plan




Existing curb-to-curb and sidewalk widths are proposed to remain as they are, with expanded bulb-outs for the most part provided at existing red curb areas. However, accommodating bulb-outs, expanded bus stop areas, and street trees in the parking zone would reduce curbside parking from a total of approximately 124 spaces to approximately 103 spaces, a reduction of 17%. Given the existing shortage of commercial tenants and the related underutilization of curbside parking, this reduction is not anticipated to have a negative effect on the local business climate. In fact, a basic premise is that the proposed improvements essential to re-establish the district as a thriving neighborhood commercial district and transit hub.




Typical Plan




Typical Section

## Seminary Avenue

# IV. Recommended Improvements

The project includes twelve basic types of recommended streetscape improvements. These are listed below and described and illustrated in the following pages.

1) **Bus Stop Enhancements**
2) **Transit Mini-Plaza**
3) **Landscaped Median Islands**
4) **Corner Sidewalk Bulb-Outs**
5) **Foothill Mid-Block Crossing**
6) **Street Trees**
7) **Pedestrian-Oriented Street Lights**
8) **Underground Utilities**
9) **Relocation of Angle Parking**
10) **4-Way Stop at 62nd**
11) **Closure of Fortune Way**
12) **Street Furnishings**

Improvements 1 and 2 above are best illustrated by the "Foothill/ Seminary Intersection" sketch plan on page 21. Improvements 3 through 8 are best illustrated by the Foothill Boulevard and Seminary Avenue "Layout Concept Plans" and cross sections contained in Chapter III. Improvements 1 through 8 all have been reviewed and modified during the course of community, City, and AC Transit staff meetings.

Improvements 9 through 11 were recommended for consideration late in the design and planning process. They have not been the subject of the same level of evaluation as the other improvements, nor were they included in the project traffic analysis. However, they are considered worthy of evaluation when detailed construction plans for the area are prepared.

Improvement 11, Underground Power Lines, is recommended depending upon available funding at the time construction plans are prepared. Improvement 12, Furnishings, describes comparable furnishings recommended for the project. It is assumed that, with the exception of AC Transit/Adshel bus shelters, specific models and finishes will be determined at the time detailed construction plans are prepared.

## 1 ) Bus Stop Enhancements

The AC Transit bus stop for the eastbound 40, 40L, and 43 lines should be relocated from the southwest corner to the southeast corner of the Foothill/Seminary intersection. This would allow transfers to the northbound 56 line on Seminary to take place at the same corner, without patrons having to cross the busy intersection. As this stop is close to the end-of-the- line at the Eastmont Transit Center, bus schedules often overlap and the length of the bus stop frontage should be expanded to accommodate one articulated and one standard size bus arriving at the same time. The sidewalk adjacent to the northbound 56 bus stop on Seminary Avenue should be widened approximately 4' to accommodate a bus shelter.

***The bus stop at the southwest corner of Foothill and Seminary should be relocated to the southeast corner, so transfers do not require crossing the intersection***

*The lack of a continuous crosswalk on the north side of the Foothill/Seminary intersection results in pedestrians walking in the roadway.*

The bus stop for the westbound 40, 40L, and 43 lines at the northwest corner of the Foothill/Seminary intersection should remain at its present location. It is directly adjacent to a busy YMCA Teen Center, currently under renovation, and this bus stop location serves local teens particularly well. The sidewalk along Foothill Boulevard should be widened by approximately 10' to accommodate a bus shelter and to enhance pedestrian space adjacent to the YMCA generally.

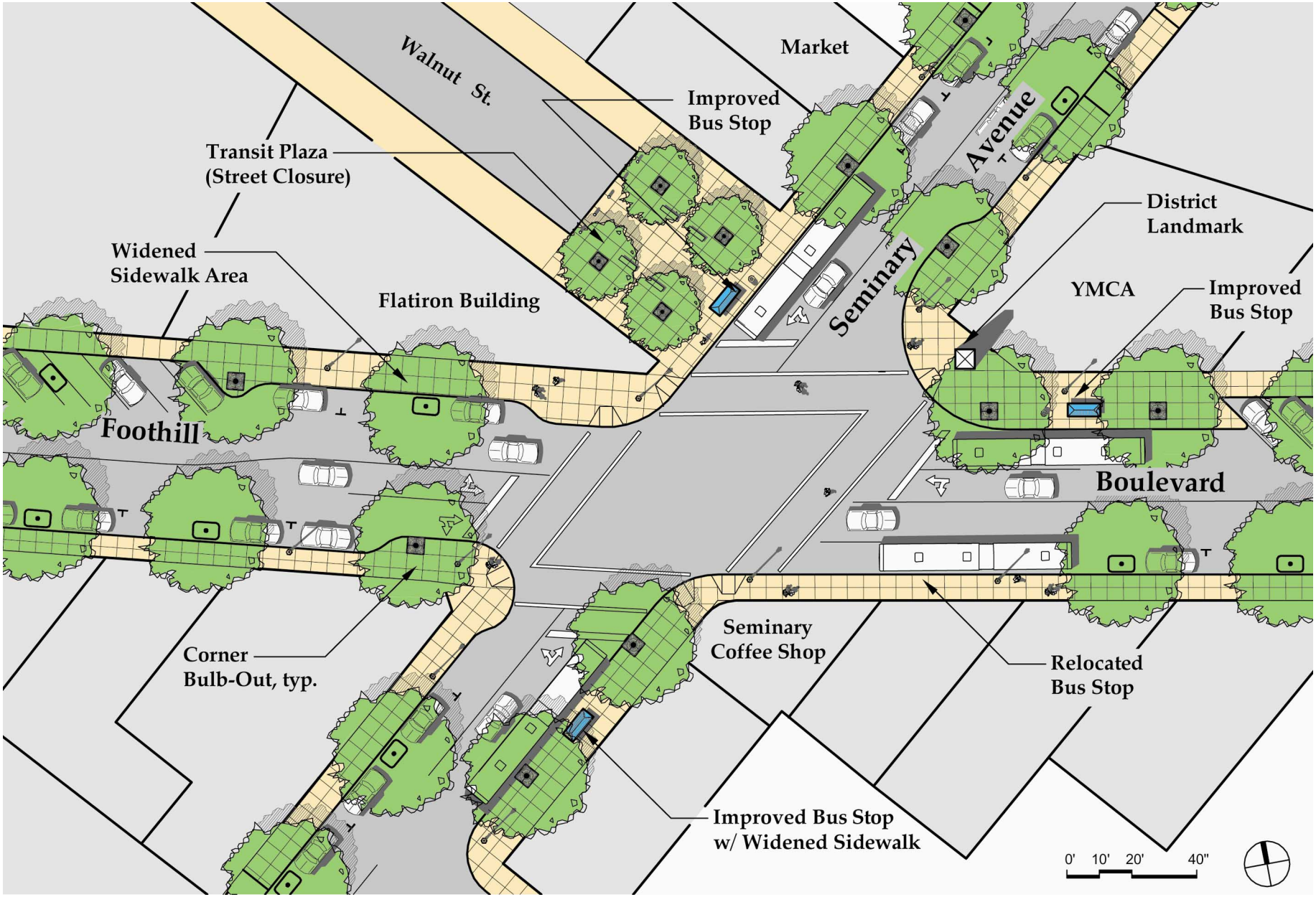
The northeast corner of the Foothill/Seminary intersection is one of the most visible locations in the district, and, as depicted on the "Foothill/Seminary Intersection" sketch plan on the following page, community recommendations include a prominent district landmark/sign. This landmark should be relatively tall - i.e., 12' or more - and vertical in form for visibility, with materials, lettering, and other elements that reflect the character of the surrounding district.

The bus stop for the southbound 56 line on Seminary Avenue is proposed to shift south slightly from its present location in conjunction with construction of a transit mini-plaza at Walnut Street; see 2), below. The bus stop at the northwest corner of Seminary and Bancroft would remain in its present location. The excess red curb area that currently exists along Seminary north of the bus stop would be converted to curbside parking.

## 2) Transit Mini-Plaza

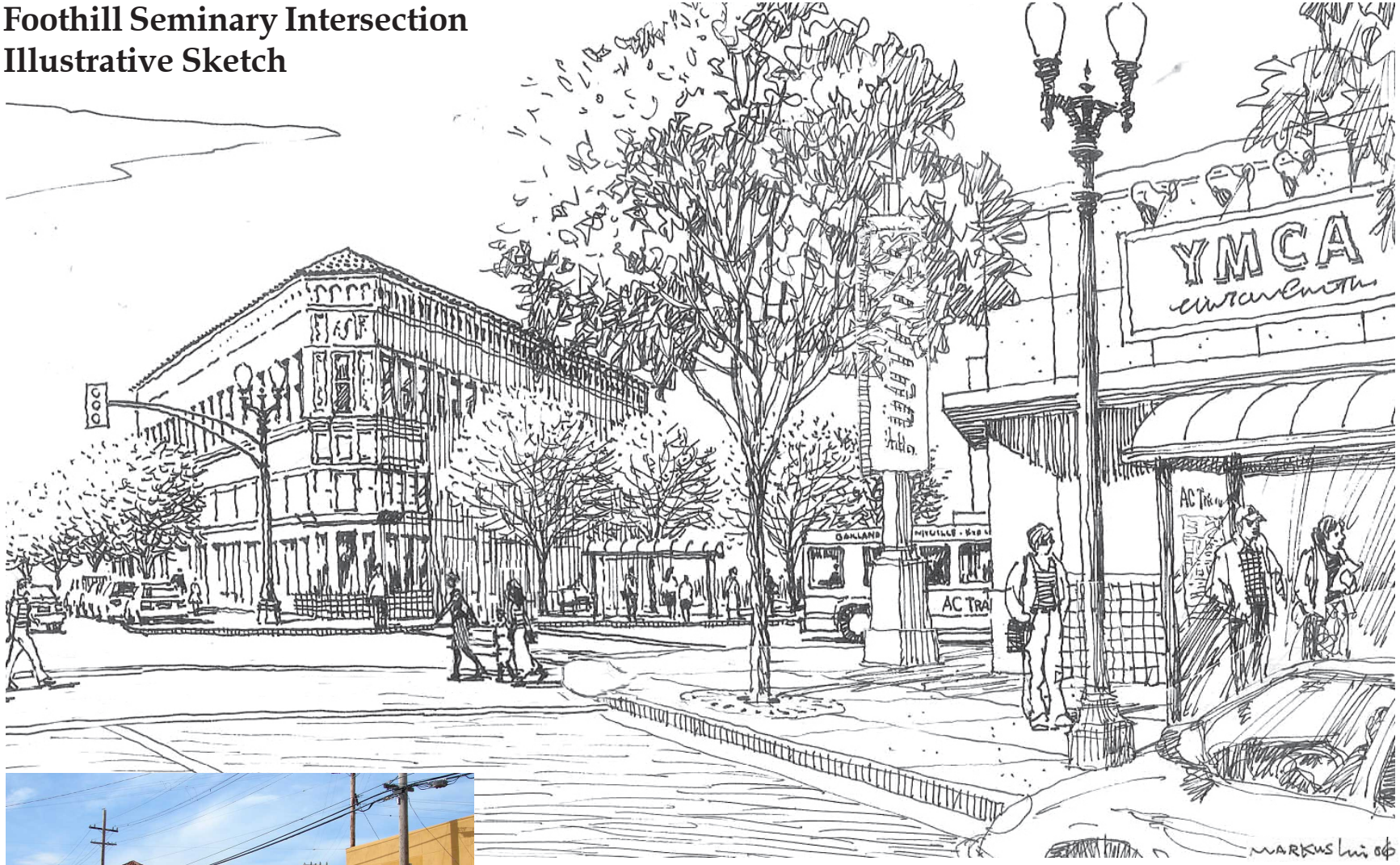
Walnut Street is proposed to be closed adjacent to Seminary Avenue to create a small mini-plaza, as illustrated by the "Foothill/Seminary Intersection Concept" on the following page. This pedestrian-oriented space would provide an amenity for the district and space for a bus shelter and expanded bus stop frontage for the southbound 56 line. It would also help to address a number of local circulation issues, including: delays and awkward vehicle movements associated with the existing 5-way intersection; lack of a pedestrian crosswalk along the north frontage of Foothill Boulevard and exposure of pedestrians crossing the street to multi-directional traffic, and; reported incidents of auto-based drug dealing on the adjacent portion of Walnut Street. As noted by the Traffic Analysis, the existing and projected volume of traffic on Walnut Street is relatively low.

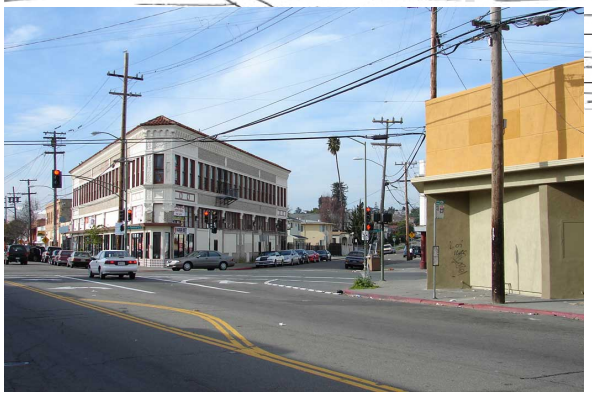
As depicted on the sketch plan, the plaza would be approximately 2,700 square feet in area, and would include benches, trees, lighting, and decorative paving as well as a new bus shelter. An electronic kiosk that displays "true time" schedule information for local buses should be considered as part of the plaza construction program, subject to AC Transit participation in design and funding. Consistent with City policies, a clear path of travel will need to be maintained through the plaza for emergency access vehicles.




## Foothill Seminary Intersection Concept

## Foothill Seminary Intersection Illustrative Sketch



*Foothill Boulevard looking west in front of the YMCA*

The mini-plaza would contribute to district revitalization efforts currently underway, offering local residents a pleasant place to "see and be seen" and supporting renovation and tenanting of the adjacent flatiron and former bank buildings. Ideally, as revitalization efforts take hold in coming years, the mini-plaza would be programmed for district-based community events similar to those in Oakland's other neighborhood commercial districts, including music, food, and/or small arts and crafts exhibits.

### 3) Landscaped Median Islands

Landscaped median islands are proposed at the east gateway to the project area, between 60th and 62nd Avenues. These islands would help to slow traffic as it approaches the area from the east and provide a streetscape amenity for adjacent residential frontages. As illustrated by the "Foothill East of Seminary" plan and cross section, accommodating the islands requires reconfiguring the street from 4 lanes to 3 lanes, with designated left turn/through and right turn/through lanes at intersections. The westbound transition striping would be shifted from 60th to 61st Avenues, where it occurs today, to east of 62nd Avenue, along the frontage of Frick Middle School. Traffic calming associated with this transition will slow traffic as it approaches the 62nd Avenue intersection, a key crossing location for Frick Middle School students.

*Landscaped medians (top two photos) are proposed for the project area's east gateway. Bulb-outs similar to those at other Oakland locations (center and above) are recommended to expand sidewalk areas and shorten crossing distances.*

Islands are proposed to be approximately 9′ wide, leaving a clear island-to-curb width of 22' to 23', and a clear island-to-parking stall width of 15′ for buses and emergency vehicles. For visibility and maintenance, island landscape materials are proposed to consist of high-branching shade trees and low-growing shrubs or groundcover.

### 4) Corner Sidewalk Bulb-Outs

Corner bulb-outs are recommended to expand sidewalk areas, reduce crossing distances, and improve pedestrian visibility at project area street corners, wherever feasible given lane configurations, bus stops, and subsurface utility conditions. The top priority is the Foothill/Seminary intersection, where most of the district's pedestrian activity occurs. As indicated by the "Foothill/Seminary Intersection Concept" sketch plan, however, vehicle turning movements and bus stop access and clearance requirements do not permit a bulb-out on the Seminary side of the northwest corner, or the Foothill side of the southeast corner.

Corner curb bulb-outs have a minimum radius of 20' to accommodate truck and emergency vehicle turning movements, with larger radii provided at the Foothill/Seminary intersection. Bulb-outs would generally be constructed at existing, no-parking areas. All bulb-outs would accommodate expanded, ADA-compatible ramps. To maintain space for bicycle maneuvering, bulb-outs would extend no more than 6 feet from the curbline along parallel parking frontages and no more than 14' from the curbline along angle parking frontages.


*The slip lane at Bancroft Avenue should be removed to minimize pedestrian-vehicle conflicts.*

*The Foothill crossing between Mason and Seminary, the only crossing within a 500′ long block, is recommended for a mid-block bulb-out.*

"Sideshows" are a serious public safety and livability issue in the project area, with vehicles creating "doughnuts" in the middle of local intersections. Bulb-outs will combine with the oblique cross streets that characterize the area and the proposed landscaped islands to constrict intersections, significantly constraining the vehicle movements needed for sideshows.

A bulb-out related improvement is elimination of the "slip lane" at the southwest corner of Seminary and Bancroft. Slip lanes require pedestrians to cross an additional lane of traffic, and this location does not appear to have traffic volumes that require this facility. Pedestrian-vehicle conflicts would be eliminated and the adjacent corner restaurant could benefit from the additional sidewalk space created by removal of this turn lane and reconfiguration of the corner.

## 5) Foothill Mid-Block Crossing

A sidewalk bulb-out, enhanced crosswalk, and pedestrian signal control is recommended for the existing mid-block crossing between Mason and Seminary. At over 500' in length, this block is twice as long as others in the district and the crossing provides needed pedestrian access in the area. Mixed-use development planned for the large vacant site directly to the south is likely to increase pedestrian activity in the area significantly. As depicted by the "Foothill West Streetscape Concept," sidewalk areas could be expanded dramatically adjacent to the crossing, and could include additional landscaping, benches, news racks, and/or other amenities. A number of options exist for a pedestrian signal control, and these will be reviewed and determined by the City's Traffic Division at the time construction plans go forward.

## 6) Street Trees

Street trees are recommended to provide shade, create an inviting streetscape, and buffer pedestrians from passing traffic. As noted previously, sidewalks in the project area are narrow, particularly along Foothill Boulevard, and room for street trees is limited. In most locations space between existing tree wells and adjacent buildings is only 4'. Overhead utility lines and poles along the north side of Foothill and along the east side of Seminary further constrain the sidewalk space and possible locations for street trees.

*Street trees are proposed in the parking zone along both Foothill and Seminary, subject to verification of utility locations.*

As illustrated by the Layout Concept Plans and cross sections, the preferred location for street trees would be in curbed planters located between curbside parking stalls, spaced at approximately 50' on center. Locating street trees in the parking zone allows more sidewalk space for pedestrians and narrows the perceived width of the street, helping to support traffic calming efforts. It also allows trees to be moved away from overhead utility lines and to have more canopy clearance from adjacent buildings. Planters would be approximately 5' in width and 7' in length to allow for vehicle overhang.

Conflict between subsurface utilities and parking zone tree wells is a significant factor in the feasibility of this design approach. Utility mains are the most serious concern, as relocation can be prohibitively expensive. Utility main locations are indicated diagrammatically on the Layout Concept Plans, and parking zone street trees appear able to clear these lines. Before plans proceed to the construction drawing level, however, a detailed survey of the project area indicating all subsurface and overhead utilities, including laterals, will need to be prepared so that street trees can be located to minimize utility conflicts.

If tree location in the parking zone proves to be infeasible, new street trees are recommended in sidewalks. Existing Callistemon and other broad-leaf evergreen trees would be removed and replaced with deciduous trees. Existing Pear trees could be retained, depending on their location relative to bus stops and other improvements. Sidewalk tree wells for new and/or preserved street trees should have ADA-compliant tree grates to maximize walkable surface area, and species should be selected to have an open branching canopy, and where appropriate should be short enough to minimize conflicts with overhead power lines.

## 7) Pedestrian-Oriented Street Lights

Existing "cobra-head" highway lights should be replaced with lower, more closely-spaced pedestrian-oriented street lights. Where existing lights are mounted on wooden utility poles – i.e., along the north frontage of Foothill and the east frontage of Seminary – new lights should be located between the utility poles. (If utilities are undergrounded along Foothill as recommended under Improvement 8, below, these poles would be removed.)

As depicted by the layout Concept Plans and cross sections, street lights should be located at approximately 100' on center, 18" from the face of curb, with a luminaire height of approximately 12'. Street lights and street trees would have a complementary spacing, with street lights located mid-way between trees so illumination is not obstructed. Consistent with City of Oakland design standards, street trees should be located a minimum of 20' from street lights.


*The style of street lights for the project area will be determined when construction drawings are prepared.*

## 8) Underground Power Lines

Sidewalks along Foothill Boulevard are narrow, and frontage buildings and businesses will be the focus of the City's district revitalization efforts in coming years, with an emphasis on pedestrian-oriented storefront commercial tenants. PG&E power poles and overhead lines and street trees constrain sidewalks, as noted previously. Existing lines along the north side of Foothill Boulevard should be undergrounded, future funding permitting. (As noted under Project Cost Estimate, below, undergrounding for 2,100 linear feet is estimated to cost approximately $1.8M.)

## 9) Relocation of Angle Parking

Existing angle parking stalls along the north side of Foothill Boulevard west of Seminary Avenue should be considered for relocation to the south side of the street. This would support the mixed-use project planned for the vacant site on the southerly frontage. As illustrated by the "Foothill Boulevard/West End Option" plan, the number of stalls could increase from the initial design, from 26 to 30 stalls; changes to traffic movements at the Foothill/Seminary intersection are not anticipated.

## 10) 4-Way Stop at 62nd Street

A number of Community Meeting participants recommended that the 4-way stop at Foothill/61st be moved to 62nd Street, an important crossing point for Frick Middle School students. City policies require detailed analyses to justify removal of stop signs, in general requiring that if intersection controls are modified they be upgraded, not reduced or eliminated. Regardless of the merits of the existing 4-way stop at 61st, a stop at 62nd should be studied for inclusion in the project when construction plans are prepared.

## 11) Closure of Fortune Way

Community members note that Fortune Way is used as a cut-through route between westbound Bancroft Avenue and north-bound Seminary Avenue, and is often used for auto-based drug dealing. Partial or full closure of the street should be studied for inclusion in the project when construction plans are prepared.

## 12) Street Furnishings

Specific furnishings will be selected during the construction drawings phase of the project. These include street lights, trash receptacles, and bike hoops. It is assumed that AC Transit bus shelters will be provided per current City and AC Transit advertising agreements with Adshel/Clear Channel.

Street lights should be ornamental in character, as manufactured by Spring City, Sentry, or others; a total of approximately 62 street lights are anticipated. Trash receptacles are to be located adjacent to

curb ramps at alternate corners of each intersection; a total of 14 trash receptacles are anticipated. Trash receptacles will be ornamental cast aluminum or steel with recycled materials chambers, as manufactured by Landscapeforms, Canterbury, or others. Bicycle hoops would be U-shaped and installed per the City's current bike rack installation program; i.e., as acceptable to adjacent property owners and/or businesses. A minimum of 10 bike hoops are recommended within the project area.

***Street furnishings are recommended along both street corridors, especially at corner bulb-outs where additional sidewalk area will be provided.***

## Traffic Analysis

Appendix A of the *Streetscape Plan* is a Traffic Analysis prepared by DKS Associates. The analysis addresses the issues outlined below, with a focus on existing and proposed conditions at the Foothill/ Seminary intersection:

**1 - Intersection Lane Geometry and Configuration**
**2 - Coordination of Traffic Signals**
**3 - Public Transportation**
**4 - Vehicle Turning Movements**
**6 - Level of Service (LOS) Analysis**
**7 - Miscellaneous Improvements Assessment**

The Layout Concept Plans contained in Chapter III have been prepared and modified in accordance with the analyses of intersection geometries, lane configurations, and existing and proposed turning movements. A key finding is that the Foothill/ Seminary intersection will continue to operate at LOS C to the year 2025 with the improvements proposed by the *Streetscape Plan*.

# V. Implementation

## Estimated Project Costs

The Layout Concept Plans show proposed new curb lines, median islands, lane striping, and locations for street lights and street trees. Sidewalk areas shown in white depict locations where existing curbs, gutters, and sidewalks would be reconstructed in conjunction with construction of adjacent bulbouts and/or to repair existing damaged sidewalk areas. It is assumed that all roadway surfaces within the project area would be re-sealed and re-striped.

Project costs range from approximately $4M for the basic street and sidewalk improvements, to approximately $6M for these improvements plus a complete signalization upgrade at the Foothill/ Seminary intersection and utility undergrounding along Foothill Boulevard. These costs include a 35% construction contingency, plus approximately 30% in soft costs for engineering design and City of Oakland-required permits and fees. Line item cost estimate tables are provided in Appendix C.

## Capital Projects Funding

Funding for design and construction of the capital improvements described in the Master Plan is planned to come from the Redevelopment Agency and a variety of grant sources.

**Grant Funding.** The Redevelopment Agency alone may not be able to fund all of the proposed improvements. However, there are a range of grant programs available for urban transportation and livability projects, and in the coming years the Redevelopment Agency will work with the Community Development and Engineering departments to apply for grant funds needed.

Potential grant program/funding sources include the following:

- *Metropolitan Transportation District (MTC) Transportation for Livable Communities Program (TLC):* This program provides funds for capital improvements, planning assistance, and community outreach. The Streetscape Plan was funded by a planning assistance and community outreach grant from MTC.

- *Federal Transportation Enhancements Authorization (TEA-21):* This program typically funds bicycle- and pedestrian-related transportation projects.

- *FTA Livable Communities/TEA-21 Earmark:* This program funds transit station area improvements that promote pedestrian access, public safety, and station area activity.

- *Transportation Development Act, Article 3:* This program funds alternative transportation projects, with an emphasis on bicycle and pedestrian circulation.

- *Transportation Fund for Clean Air (CMA):* This program is administered by the Alameda County Congestion Management Agency (CMA). Unlike the similar BAAQMD program, however, the CMA funds streetscape improvements that facilitate pedestrian access to transit.

**Local Funding.** Given match requirements and the uncertainties generally associated with grants, City-based funding approaches will need to be maximized. For example, traffic impact fees could be used to assist with funding of traffic calming and pedestrian safety improvements. Capital improvements could also be piggy-backed on basic road maintenance projects funded by the State Gas Tax. Exactions could be required from new development for directly-related capital improvements such as replacement of frontage curbs, walks, and installation of streetscape amenities.

## Next Steps

**City Agencies Review** - The design of all streetscape improvements will need further review by the Public Works Agency when the project progresses to the construction drawings stage. Maintenance of trees in the parking zone and/or sidewalk areas should be reviewed by the Public Works Agency, Infrastructure Maintenance Division. Utility undergrounding, streetlighting, and pedestrian lighting should be reviewed by the Public Works Agency, Electrical Services Division. The City Finance Agency must be notified of any proposed parking meter removal.

**Additional Studies** - CEQA-process requirements will need to be addressed for potential environmental impacts associated with construction of the capital improvements envisioned by the Streetscape Plan. These would include the street closures proposed for Walnut and Fortune, and lane reductions, such as that proposed between 60th and 62nd Avenues.

An engineering study should be performed of marked crosswalks at locations that are not controlled by signals or stop signs, such as the 60th and 62nd Avenue crossings of Foothill and the Seminary crossing at Fleming. If appropriate, relocation of existing marked crosswalks should be considered to take advantage of proposed pedestrian refuge island or bus stop locations. Crosswalk studies should be reviewed by the Public Works Agency, Transportation Services Division. Crosswalk relocations require public notice, and relocation of school crosswalks would require notification and coordination with Frick Middle School.

**Public Notification** - In addition to notifications regarding crosswalk relocations, CEQA process, and other project elements noted above, property owners, businesses, and residents affected by parking, loading zone, and bus stop changes should be notified by letter of such changes. All one-on-one communication with property owners, businesses, and residents should be documented.

# Appendices

**A - Traffic Analysis**
**B - Community Meeting Comments**
**C - Cost Estimate Table**

## Appendix A - Traffic Analysis

# Traffic Analysis

**Prepared for**

City of Oakland

**Prepared by**

DKS Associates
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1000 Broadway, Suite 450
Oakland, CA 94607

**February 9, 2006**

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## EXECUTIVE SUMMARY

This report is a summary of traffic analysis that was prepared to evaluate the effect of modifying the streetscape to address traffic calming, and pedestrian access. The report discusses the recommendations of the traffic calming measures in terms of impact to the vehicle level of service, the vehicle circulation paths and effect on transit.

Foothill Boulevard and Seminary Avenue are core streets serving East Oakland. The streets serve regional traffic, transit and local traffic. Land use is mixed along the streets within the study area, consisting of residences, businesses and houses of worship. Public facilities in the study area consist of Frick Junior High School and the YMCA building at the corner of Foothill and Seminary.

The purpose of the modification to the streetscape is to revitalize the study area and further restore a pedestrian friendly atmosphere to the community while maintaining the serviceability of the street network for all users. The pedestrian friendly concept is being evaluated by the City of Oakland.

Improvements envisioned for the street system include narrowing of intersections by adding bulbouts, addition of medians to provide pedestrian crossing refuge areas at intersections, lane reduction, and modification of transit stops.

The analysis indicates that reduction in pavement by widening curbs, introducing islands and eliminating the intersection of Walnut and Seminary can be accomplished to the benefit of the community without adversely impacting the users of the roadway.

## INTRODUCTION

The study area includes Foothill Boulevard between 57th Avenue and 62nd Avenue. It also includes Seminary Avenue between Fleming Avenue and Bancroft Avenue. The traffic analysis conducted assessed the existing conditions for both the geometric conditions of the roadway as well as the volume of traffic during AM and PM peak hour. The assessment was for current conditions, and looking at 2025 traffic volumes.



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AM and PM Peak hour traffic counts were made at the intersection of Foothill Boulevard and Seminary Avenue. Observations were made along Foothill Boulevard in the eastern section of the study to determine if a median were added to the street could cause significant impact on the traffic flow.

We also conducted observations of the transit operations and pedestrian boarding and alighting at the intersection of Foothill and Seminary, where there is potential for bus transfers as well as where there are bus driver changes occurring.

An analysis was performed to assess the impact of the closing the intersection of Walnut and Seminary.

Lastly, we conducted turning clearance analysis of the intersection of Foothill and Seminary with proposed bulbouts being added.

## EXISTING CONDITIONS

The project study area is an urban area fully developed with a mix of commercial and residential properties. Foothill Boulevard is an arterial roadway which connects downtown Oakland with East Oakland and San Leandro. Foothill Boulevard varies in travel lanes from four to two near 60th Avenue. It remains two travel lanes in the vicinity of the project study area. Cross streets are frequent through the study area. Parking is permitted on both sides of the street. Near the intersection of Seminary Avenue angled parking serves the westbound side and parallel parking serves the eastbound side. The width between curbs varies between 53 and 55 feet approximately.

Sidewalks are approximately 6 to 8-feet wide. Speed limit is posted at 30 miles per hour. Along Foothill, the parking varies between diagonal and parallel. Parking is permitted on both sides of Foothill. Where the lane configuration reduces from two lanes in each direction to one lane in each direction, there is diagonal parking on the north side of the road and parallel parking on the opposite side. Transition between parallel parking and diagonal parking does occur within the interior section of the block.

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Seminary Avenue is a two lane collector street with parallel parking on both sides of the street. Cross streets are frequent. Pavement width is approximately 40-feet with varying sidewalk widths. Residential and commercial building setbacks vary from 0 to 15-feet. Speed limit is not posted. Sidewalks vary from 8 to 10-feet wide. Overhead utilities exist along this segment of the street. Speed limit is posted at 30 miles per hour. Along Seminary Avenue all parking is parallel where permitted.

Walnut Avenue is a minor residential street with two lanes parallel parking on both sides of the street. Walnut Avenue is a local street that serves residences. It has nearby connections to Mason Street and an un-named alley to provide access to the dwellings on Walnut. This is a narrow street with approximately 36 to 40-feet width between curbs. Sidewalks are approximately 8-feet wide.

Bancroft Avenue is parallel to Foothill Boulevard and provides bike lanes along its length.

## Intersection Lane Geometry and Configuration

Foothill and Seminary is a five leg skewed intersection with the angle of the two main streets being 55-degrees. At the intersection, each approach on Foothill has a left turn pocket. There are no left turn pockets along either Seminary approach. Walnut Avenue forms a fifth leg to the intersection with one lane in each direction. The intersection is signalized; left turns are permissive. All turning movements are permitted. Based upon a turning analysis a WB 30 truck cannot make the EB Foothill to SB Seminary turn without crossing opposing traffic.

At the intersection of Foothill and Seminary, the zero setbacks to the right of way line for the existing buildings limits sight distance at the corners. The corners where the acute angle is formed (eastbound Foothill with northbound Seminary and westbound Foothill with southbound Seminary) do not meet safe stopping distance for 25 miles per hour.

Curb ramps are provided at most corners, however, many of the ramps are non-conforming to current ADA policies and would need reconstruction with curb and sidewalk modifications.

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**Figure 1 – Turning Movement Diagram for Traffic Study Site. Foothill Boulevard and Seminary Avenue in Oakland, California.**

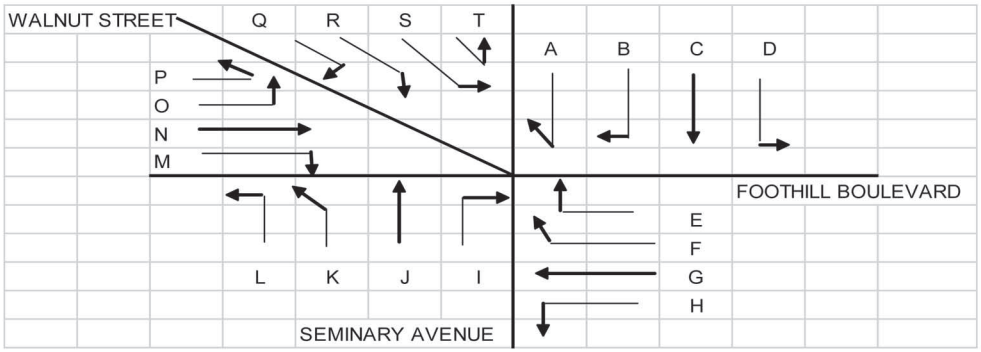


**Figure 1** depicts the possible turning movements at the Foothill and Seminary study intersection and **Table 1** below shows the data for turning movement counts

**Table 1 Turning Movement Diagram for Traffic Study Site**

| PEAK PERIOD | SB SEMINARY AVE | | | | WB FOOTHILL BLVD | | | | NB SEMINARY AVE | | | | EB FOOTHILL BLVD | | | | SEB WALNUT ST | | | | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | |
| **7:45-8:45 A.M.** | 5 | 25 | 337 | 31 | 24 | 5 | 207 | 17 | 17 | 318 | 5 | 19 | 24 | 262 | 27 | 1 | 1 | 7 | 3 | 15 | 1350 |
| **5:00-6:00 P.M.** | 4 | 43 | 326 | 24 | 35 | 10 | 227 | 8 | 32 | 301 | 7 | 35 | 40 | 276 | 44 | 1 | 1 | 11 | 11 | 11 | 1447 |

Foothill Boulevard and Seminary Avenue in Oakland California. September 15, 2005

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## Traffic Signal Assessment

There are two traffic signals in the study area; one exists at Foothill and Seminary and one exists at Seminary and Bancroft. The signals have been in place for an extended period of time and have not been updated. Both signals operate on a fixed time basis. Pedestrian heads exist. The Foothill and Seminary Intersection was analyzed in more detail since significant improvements were identified at this intersection that could affect performance.

Cycle lengths and effective green times for both vehicles and pedestrians for the existing traffic signal at Foothill and Seminary are shown in Tables 2 and 3 below. The signal cycle length that is used by the City of Oakland is 65 seconds.

**Table 2. Signal Timing for Project Site Intersection**

| Signal Timing (seconds) | | | |
|---|---|---|---|
| **Mode** | **Phase 1 (Foothill Blvd)** | **Phase 2 (Walnut St)** | **Phase 3 (Seminary Ave)** |
| **Green** | 17 | 7 | 29 |
| **Yellow** | 3 | 3 | 3 |
| **Red** | 1 | 1 | 1 |
| Note: All phases represented | | | |

**Table 3. Pedestrian Signal Timing for Project Site Intersection**

| Pedestrian Timing (seconds) | | | |
|---|---|---|---|
| **Mode** | **Phase 1 (Foothill Blvd)** | **Phase 2 (Walnut St)** | **Phase 3 (Seminary Ave)** |
| **Walk** | 11 | N/A | 16 |
| **FDW** | 5 | N/A | 12 |
| Note: Phase 2 is not applicable as there is no pedestrian crosswalk. | | | |



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## Level of Service (LOS) analysis results

### *Existing Conditions - 2005*

The intersection currently operates on a two phase cycle with no protected left turn movements. The intersection currently operates at a LOS C. Table 4 also includes the average delay per vehicle in seconds.

**Table 4. Level of Service Analysis.** Base condition (2005) intersection analysis.

| TABLE 4<br>**Intersection Capacity Analysis**<br>2005 Existing Conditions (with Walnut Avenue) | | | | | |
|---|---|---|---|---|---|
| **#** | **Intersection** | **A.M. Peak Hour** | | **P.M. Peak Hour** | |
| | | **Delay** | **LOS** | **Delay** | **LOS** |
| 1. | Foothill Boulevard & Seminary Avenue | 24.7 | C | 28.9 | C |

[1] Delay: Average delay in seconds per vehicle
[2] LOS: Level of service based on worst approach delay.

In the current condition, the queuing analysis shows that no problems are present in the 50$^{th}$ percentile, with an average of less than one vehicle per hour for the left turn queues in the AM and PM peak, and on average a queue length of 5 vehicles in the AM peak and 6 vehicles in the PM peak. In the thru movements of the 95$^{th}$ percentile, the volume exceeds capacity, so the queues may be longer, with an average of 8-10 vehicles in the AM and PM peak.

### *Future Conditions - 2025*

The intersection is projected to continue operating at LOS C in the future, with the proposed roadway modifications and forecasted traffic volumes. Forecasted values were obtained by estimating an incremental yearly growth of 1% from 2005 to 2025. By year 2025, the growth factor amounts to 122% the volumes obtained in 2005. As such no changes to signal timing or phasing are anticipated to be necessary. **Table 5** also includes the average delay per vehicle in seconds.

**Table 5. Level of Service Analysis.** Project condition (2025) intersection analysis.

| TABLE 5<br>Intersection Capacity Analysis<br>2025 Project Conditions (without Walnut Avenue) | | | | | |
|---|---|---|---|---|---|
| # | Intersection | A.M. Peak Hour | | P.M. Peak Hour | |
| | | Delay[1] | LOS[2] | Delay[1] | LOS[2] |
| 1. | Foothill Boulevard & Seminary Avenue | 27.4 | C | 24.2 | C |

[1] Delay: Average delay in seconds per vehicle
[2] LOS: Level of service based on worst approach delay.

In the future condition, the queuing analysis shows that no problems are present in the 50th percentile, with an average of less than two vehicles per hour for the left turn queues in the AM and PM peak, and on average a queue length of 9 vehicles in the AM peak and 6 vehicles in the PM peak. In the thru movements of the 95th percentile, the volume exceeds capacity, so the queues may be longer, with average of 17 vehicles in the AM and PM peak.

From the LOS analysis, with the closure of Walnut Avenue at the project site, the amount of traffic diverted from Walnut Avenue and Seminary Avenue to Foothill Boulevard via Mason Street located north of the project site will have no impact on the LOS for Foothill Boulevard and Seminary Avenue. The observations made during the morning and afternoon peak hours showed less than 1 pedestrian conflict / hour; as such 60 conflicting movements for the right and left turns were introduced into the LOS Analysis in the existing (2005) and future (2025) conditions. For bus blockages, AC Transit service at the intersection has minimal impact on the level of service. Only 8 buses stop at any given hour along Foothill Boulevard, while only 3 buses stop along Seminary Ave. These values were introduced only in the thru movements of the LOS analysis. Lastly, the number of parking maneuvers that occur during the peak occurs was observed to be under 3% of the total volume of traffic. On average this amounted to about 10 parking maneuvers per hour along Foothill Boulevard or Seminary Avenue.



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## Collision/Accident Analysis

The project site has minimal collision occurrences. Collisions both occurred north of, south of, or in the actual intersection, and were categorized also by day and night. The table represent this information can be found in the appendix.

The types of collisions registered at the intersection included one of the following:

- Sideswipe
- Broadside
- Rear-end
- Head-on
- Vehicle-Pedestrian
- Other

From here the factors behind these collisions were categorized to eight different types:

- Improper Turning
- Speeding
- Auto R/W Violation
- Ped Violation
- Traffic Signal and Signs
- DUI
- Unsafe Backing or Starting
- Unknown

Between 1999 and 2003 no more than 14 collisions occurred in the intersection which is the project site, most of them occurring within the intersection. Detailed data is available in the appendices.

## Turning Movement Assessment at Foothill Boulevard and Seminary Avenue

The angle of approach at Foothill and Seminary is approximately 55 –degrees. Therefore the proximity of stopping bars at the intersection are of importance such that the relocation of the bars does not push the vehicles further back from the intersection and thereby compromise sight visibility. Since the intersection is stop controlled, it is appropriate to evaluate whether the addition of bulb outs and revision of stop bars for clearance results in substandard conditions. According to American Associates of State Highway and Transportation Officials Policy on Geometric Design of Highways and Streets, intersections with traffic signal controls should be designed such that the first vehicle stopped on one approach shall be visible to the driver of the first vehicle stopped on each of the other approaches. And Left turning vehicles should have sufficient sight distance to select gaps in oncoming traffic and complete left turns. The following Table 5 depicts whether there is visibility for the opposite approach and for the left turning movement whether the sight distance exceeds 355-feet.

**Table 5 Visibility of Stopped Vehicle at Foothill and Seminary**

| Approach | NB Seminary | SB Seminary | WB Foothill | EB Foothill | Left Turns |
|---|---|---|---|---|---|
| WB Foothill | Yes | Yes | NA | Yes | Exceeds |
| EB Foothill | Yes | Yes | Yes | NA | Exceeds |
| NB Seminary | NA | Yes | Yes | Yes | Exceeds |
| SB Seminary | Yes | NA | Yes | Yes | Exceeds |

The turning template was tested for automobiles and for single unit trucks. For all movements, automobiles can easily negotiate the intersection. For single unit trucks with a wheelbase of 3—feet such as delivery trucks, the proposed geometry can work as long as there are allowances provided for in the bulb out design to accommodate the wider turning radii. The northwest quadrant (both Seminary and Foothill proposed curbs) will likely require adjustment during design to accommodate the 30-foot wheelbase turning movement. For purposes of the analysis, it was assumed that a bus was at the stop which limits the turning clearance. (See attached turning movement diagrams).



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## Existing Transit

AC Transit runs several routes through the study area. Along Foothill the 40, 43 and 43L run. Along Seminary the 56 runs. All bus routes extend through the Foothill and Seminary intersection. There was no bus turning maneuver observed during our observation of the intersection. There are bus stops along both streets in the study area. There are nearside stops along Foothill at Seminary. Both stops on Seminary are south of the Foothill intersection. The intersection acts as a transfer point for the bus lines as well as an occasional waiting spot for driver change overs.

The Alameda-Contra Costa County Transit District (AC Transit) has jurisdiction over public transit in Alameda and Contra Costa County. AC Transit currently operates four (4) lines within the vicinity of the proposed project. The AC bus routes that would mostly be used as single or connecting routes are Line 40 – Telegraph, Line 43 – Shattuck, Line 640 – Simmons - Foothill and Line 641 – Fremont - Bancroft.

Along Foothill Boulevard, bus stop locations exist in both directions at most corners in the study area, and typically have near side locations. Along Seminary, the bus stops at Foothill and at Bancroft. There is a bus layover location on Seminary southbound on the far side of Foothill.

Line 40 provides service from the Bayfair BART station to the Berkeley BART station. Line 40 provides service in the northbound direction between 1:10 a.m. - 5:08 a.m. and 6:46 p.m. - 7:54 p.m. from the Eastmont Transit Center to the Berkeley BART station, in the northbound direction. In the southbound direction, Line 40 operates between 1:09 a.m. – 6:24 a.m. and 6:39 p.m. – 12:19 a.m. from the Berkeley BART station. Weekend service is provided. AC Transit provides service at 15-minute headways for this route, or a frequency of 4 buses an hour.

Line 43 provides service from the Eastmont Transit Center to the El Cerrito Plaza BART Station. Weekday service provided between 4:55 a.m. and 7:05 p.m. in the northbound direction, at 10-to 15-minute headways during the peak periods (7:00 a.m. – 9:00 a.m. and 4:00 p.m. - 6:00 p.m.) In the southbound direction, service is provided between 4:56 a.m. and 11:21 p.m., at 15-to 20-minute headways during the peak periods (7:00 a.m. – 9:00 a.m. and 4:00 p.m. - 6:00 p.m.). Weekend service is provided between 5:15 a.m. – 10:18 p.m. in the northbound direction and between 5:11 a.m. to 11:25 p.m. in the southbound direction. Line 43

travels along Foothill Boulevard in the vicinity of the project. AC Transit provides service at 15-minute headways for this route, or a frequency of 4 buses an hour.

Line 640 provides service only during school days from Calvin Simmons Junior High School to the Bay Fair BART station. This route provides service to students, as it stops at local schools along its route, including Frick Middle School. This route only has one run starting at 3:25pm and ending at 4:13pm, in the southbound direction only.

Line 641 provides service only during the school days from 106th Avenue and Bancroft Avenue to Fremont High School. This route provides service to students also, as it stops at local schools along its route, including Frick Middle School. One run is provided in the northbound direction with starting at 7:36am and ends at 8:00am. 2 runs are provided in the southbound direction starting at 3:15pm at Frick Junior High School ending at 3:29pm and one starting at 3:22pm from Freemont High School ending at 3:45pm.

## Pedestrians

Painted crosswalks are marked east-west along Foothill Boulevard from Seminary Avenue to Havenscourt Boulevard on Foothill Boulevard. 4-way stop signs are also in place on the 62nd Avenue and 64th Avenue approaches but not 63rd Avenue. School employees mentioned that there have been incidents of accidents at the 63rd Avenue intersection involving school children.

Pedestrian behavior around the school mostly involves minors jaywalking across Foothill Boulevard to meet parents waiting in idling vehicles. There are no cross guards provided by the school, only 2 security personnel who mostly monitor dangerous activity; they are not assigned to assist in pedestrian crossing.

## Lane Reduction Assessment at 62nd Avenue and Foothill Boulevard

Foothill Boulevard consists of four lanes in front of Frick Junior High School. Foothill Boulevard tapers to two lanes near 61st Avenue. The reduction of the number of travel lanes to cross and the addition of a median refuge is desirable at a school crossing. However, the



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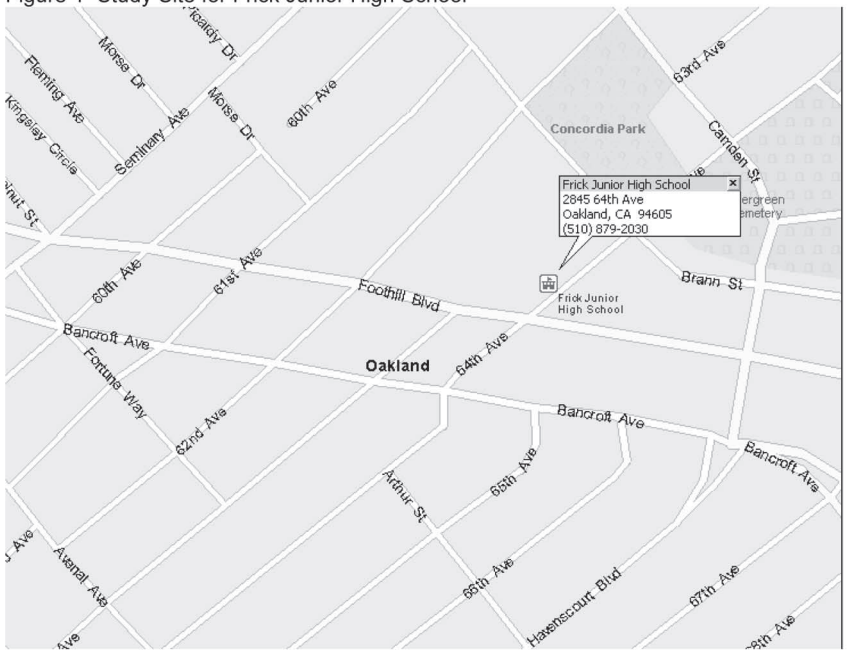
actually decrease as a result of lane reductions and presence of the median, a condition which favors pedestrians. The limited amount of commercial activity in the vicinity of the school is an excellent indicator against the potential of double parking activity on Foothill Boulevard, between 62nd and 64th Avenue. With residential land use double parking activity is minimal. In addition, there are few residences on Foothill due to the short distance between intersections and the orientation of the streets on the longer intersecting streets. Transit operations would still be accommodated within the existing right-of-way with minimal disruption to bus headways or regular traffic flow.

Figure 1 Study Site for Frick Junior High School



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## PROPOSED CONDITIONS - RECOMMENDATIONS

Proposed street cross sections are identified on the plans prepared by Bottomley Associates. Concept plans for the modification of Foothill and Seminary are shown in the main body of the report. The modifications to the street system are outlined below.

Along Seminary, north of Foothill, retain the on street parking and retain the existing curb locations. Improve the sidewalk pavement. Add tree planters to separate parking stalls within the study area.

At Foothill and Seminary intersection, provide bulbouts to expand the pedestrian waiting areas at the corners and shorten the pedestrian crosswalks. Close off Walnut Street at the intersection and provide a hammerhead turn around facing the remaining Walnut Avenue to the west of a new courtyard, which will front on Seminary Avenue. Set the Curb radii for the curb returns such that single unit trucks can make right turns without over-riding the sidewalks. Place directional ADA compliant curb ramps at the intersection. The placement of the curb widths should be set such that there is ample clearance at the intersections for bus stops and travel lanes. Maintain the existing lane configuration. Along Foothill, the near side eastbound bus stop should be shifted to the far side. The nearside bus stop westbound should be retained to stop in front of the YMCA building. The curb alignment in front of the flat iron building should be retained or shifted slightly to the south. Parallel parking should be retained per existing conditions. (See discussion below regarding the potential shift of diagonal parking from the north side of Foothill to the south side.) There will be some parking lost due to the placement of tree planters in the diagonal parking.

Lane widths at the intersection should be maintained or no less than 11-feet. The parking depths should be maintained at City standard widths. Sidewalk widths (pavement) should be maintained at no less than 5-feet.

Due to the sight distance restrictions of the intersection of Foothill and Seminary the study are should be speed zone checked. If warrants permit, the speed limit should be posted at 25 miles per hour and enforced.

Traffic signals should be updated with new controllers, video detection, countdown pedestrian heads and LED signal heads. At the time of the design, the intersection should be analyzed for addition of protected left turn phase for Foothill.

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At the intersection of Foothill and Seminary should there be redevelopment in the northeast quadrant or the southwest quadrant; consideration should be given to providing sufficient building setback to improve sight distance for the posted speed limit at the time of the application.

The elimination of Walnut Street at the Foothill Seminary intersection with a corresponding addition of a hammerhead turnaround is desirable. The turning movements to and from this intersection are less than ten in each direction during the peak hour period. The trip diversion through the intersection was analyzed and the results indicate that the overall performance of the intersection does not deteriorate with the elimination. Plus the elimination reduces several vehicle conflicts at an intersection that is currently compromised due to the sight distance restrictions. A simple hammerhead turn-around at the new terminus of Walnut Street will allow the several vehicles on the street to reverse direction and head to Mason to leave the area.

## Transit Stop Modifications

Recommendations for relocation and modification of transit stops are being suggested as part of the concept plan. Since there are three lines (40, 43 and 43L) along Foothill and one of the lines is a articulated line, the minimum length of a transit stop should be 65-feet with the distance from the crosswalk to the bus stop being 15-feet. The bus lines will be running between Berkeley and the East Mall Shopping Center. Therefore, there is a strong likelihood for bunching at the westbound station and not much likelihood for eastbound bunching. Bunching is a term that refers to two or more buses running together. When this occurs, it is typically overcome by extending the length of the bus stop. In light of the above, it is recommended that the east bound bus stop at Foothill Seminary be extended to 110 feet (under the concept this is a relocated stop to the far side of the intersection). The westbound bus stop should be set at 65-feet (with 15-foot separation to the crosswalk if the stop is nearside). On Seminary there is only one route the 57 which is a 40-foot bus. Nearside stops are proposed for both directions and are acceptable with the current geometry shown on the concept plans.



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# MISCELLANOUS ELEMENTS

## Closure of Right Lane at Bancroft and Seminary

The closure f the dedicated right turn lane with pork chop island has been recommended for removal and conversion of the turn to a conventional intersection right turn with no separator island. This can be accomplished as a pedestrian improvement. Observations indicate that there is not a substantive amount of traffic that would be affected by the change. It is important to note that the radii of the curb return shall be set such that there is ample clearance for large wheelbase vehicles to make the right turn without encroachment onto the sidewalk. Signal modification would likely be needed as well as curb ramp modifications.

## Closure of Fortune Way

At a recent field walk, local residents requested the closure of Fortune Way at Bancroft Avenue. This closure would result in the elimination of one leg of a six leg intersection. Bancroft Avenue and 60$^{th}$ Avenue form the intersection and Fortune Way cuts diagonally across the intersection. The elimination of the access would be an improvement in terms of traffic control. The design would require evaluation of the turning movements and geometric analysis to assure that all traffic, pedestrian and bike circulation issues are resolved.

## Diagonal Parking Opposite Side of Foothill West of Seminary

During the course of the assessment, one option was identified, namely the shifting of the Foothill Boulevard diagonal parking that lies to the west of Seminary Avenue to the opposite side of the street. This would result in a condition whereby the diagonal parking would be on opposite sides of the street along Foothill Boulevard, namely on the south side of the street west of Seminary and on the north side of the street east of Seminary. Due to the fairly confined and skewed intersection, there would have to be some modification in the intersection geometry to accommodate the change. Impact on the alignment at the intersection might be the need for relocation of the nearside west bound transit stop to the far side, loss of some existing diagonal parking near the YMCA building, the shifting of the lanes

further north for the west side approach on Foothill. The lane alignment across the intersection appears to be acceptable due to the skew nature of the intersection.

## Closure of Walnut Street at Seminary – Benefits and Liabilities

The closure of Walnut Street at the Foothill Seminary intersection will result in changes in circulation. According to the peak hour turning movements, less than 10 movements leave Walnut and ten movements enter Walnut during each peak hour. The closure will require the shifting of these movements to nearby Mason Street. Mason Street and Foothill Boulevard is a stop controlled intersection (for Mason Street) with light traffic movements. Pedestrian activity was low during the observation period. This area of Foothill has several houses of worship. Therefore it is anticipated that the vehicular activity and pedestrian activity would be considerably different during Sunday mornings. Other than Church activity, travel activity from the residential neighborhood on Sundays are typically low and certainly much lower than peak hour volumes experienced when the traffic counts were taken. In view of the above, we feel that closure of Walnut Street at the intersection would not have a significant impact to the intersections of Walnut and Mason and Mason and Foothill. It is recommended that a hammer head turn around be provided at the end of Walnut so that vehicles will have an opportunity to turn around. The existing housing indicates that there are very few driveways on Walnut therefore the hammer head turnaround is a desirable improvement.

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# APPENDIX A

**LOS Data**

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | EBL2 | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | SEL2 | SEL | SER | SER2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | | | | 4.0 | | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 | | |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 1.00 | 0.97 | | | | 1.00 | | |
| Flpb, ped/bikes | | 0.86 | 1.00 | | 0.94 | 1.00 | | | | 1.00 | | |
| Frt | | 1.00 | 0.99 | | 1.00 | 0.98 | | | | 0.96 | | |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 0.97 | | |
| Satd. Flow (prot) | | 1527 | 1488 | | 1665 | 1487 | | | | 1723 | | |
| Flt Permitted | | 0.46 | 1.00 | | 0.37 | 1.00 | | | | 0.97 | | |
| Satd. Flow (perm) | | 741 | 1488 | | 646 | 1487 | | | | 1723 | | |
| Volume (vph) | 1 | 27 | 262 | 24 | 17 | 207 | 5 | 24 | 15 | 3 | 7 | 1 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1 | 29 | 285 | 26 | 18 | 225 | 5 | 26 | 16 | 3 | 8 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 5 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 30 | 306 | 0 | 18 | 250 | 0 | 0 | 0 | 27 | 0 | 0 |
| Confl. Peds. (#/hr) | 55 | 55 | | 55 | 55 | | 55 | 55 | | | | |
| Bus Blockages (#/hr) | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | 11 | 0 | | 7 | 0 | 0 | | | 1 | 0 |
| Turn Type | Perm | Perm | | | Perm | | | | Split | | | |
| Protected Phases | | | 1 | | | 1 | | | 2 | 2 | | |
| Permitted Phases | 1 | 1 | | | 1 | | | | | | | |
| Actuated Green, G (s) | | 18.0 | 18.0 | | 18.0 | 18.0 | | | | 7.5 | | |
| Effective Green, g (s) | | 17.0 | 17.0 | | 17.0 | 17.0 | | | | 7.0 | | |
| Actuated g/C Ratio | | 0.26 | 0.26 | | 0.26 | 0.26 | | | | 0.11 | | |
| Clearance Time (s) | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | 3.5 | | |
| Lane Grp Cap (vph) | | 194 | 389 | | 169 | 389 | | | | 186 | | |
| v/s Ratio Prot | | | c0.21 | | | 0.17 | | | | c0.02 | | |
| v/s Ratio Perm | | 0.04 | | | 0.03 | | | | | | | |
| v/c Ratio | | 0.15 | 0.79 | | 0.11 | 0.64 | | | | 0.15 | | |
| Uniform Delay, d1 | | 18.5 | 22.3 | | 18.2 | 21.3 | | | | 26.3 | | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 | | |
| Incremental Delay, d2 | | 1.7 | 14.8 | | 1.3 | 7.9 | | | | 1.6 | | |
| Delay (s) | | 20.2 | 37.1 | | 19.5 | 29.2 | | | | 27.9 | | |
| Level of Service | | C | D | | B | C | | | | C | | |
| Approach Delay (s) | | | 35.6 | | | 28.6 | | | | 27.9 | | |
| Approach LOS | | | D | | | C | | | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 0.94 | 1.00 | | 0.96 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1671 | 1444 | | 1706 | 1492 | | | 1507 | | | 1502 | |
| Flt Permitted | 0.43 | 1.00 | | 0.28 | 1.00 | | | 0.92 | | | 0.96 | |
| Satd. Flow (perm) | 763 | 1444 | | 504 | 1492 | | | 1396 | | | 1439 | |
| Volume (vph) | 53 | 336 | 49 | 8 | 235 | 37 | 40 | 320 | 32 | 24 | 326 | 43 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor (vph) | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% |
| Adj. Flow (vph) | 70 | 446 | 65 | 11 | 312 | 49 | 53 | 424 | 42 | 32 | 432 | 57 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 9 | 0 | 0 | 5 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 70 | 503 | 0 | 11 | 352 | 0 | 0 | 514 | 0 | 0 | 514 | 0 |
| Confl. Peds. (#/hr) | 55 | | 55 | 55 | | 55 | 55 | | 55 | 55 | | 55 |
| Bus Blockages (#/hr) | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Parking (#/hr) | | 14 | | | 8 | | | 12 | | | 12 | |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 1 | | | 1 | | | 3 | | | 3 | |
| Permitted Phases | 1 | | | 1 | | | 3 | | | 3 | | |
| Actuated Green, G (s) | 27.0 | 27.0 | | 27.0 | 27.0 | | | 30.0 | | | 30.0 | |
| Effective Green, g (s) | 27.0 | 27.0 | | 27.0 | 27.0 | | | 30.0 | | | 30.0 | |
| Actuated g/C Ratio | 0.42 | 0.42 | | 0.42 | 0.42 | | | 0.46 | | | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | 317 | 600 | | 209 | 620 | | | 644 | | | 664 | |
| v/s Ratio Prot | | c0.35 | | | 0.24 | | | | | | | |
| v/s Ratio Perm | 0.09 | | | 0.02 | | | | c0.37 | | | 0.36 | |
| v/c Ratio | 0.22 | 0.84 | | 0.05 | 0.57 | | | 0.80 | | | 0.77 | |
| Uniform Delay, d1 | 12.2 | 17.0 | | 11.4 | 14.5 | | | 14.9 | | | 14.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 1.6 | 13.1 | | 0.5 | 3.7 | | | 10.0 | | | 8.6 | |
| Delay (s) | 13.8 | 30.2 | | 11.8 | 18.3 | | | 24.9 | | | 23.2 | |
| Level of Service | B | C | | B | B | | | C | | | C | |
| Approach Delay (s) | | 28.2 | | | 18.1 | | | 24.9 | | | 23.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

Baseline
DKS Associates

Synchro 6 Report
Page 1

Foothill Blvd & Seminary Ave PM Peak 2025

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | NEL2 | NEL | NET | NER | SWL | SWT | SWR | SWR2 |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | ↕ | | | ↕ | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.0 | | | 4.0 | | |
| Lane Util. Factor | | | 1.00 | | | 1.00 | | |
| Frpb, ped/bikes | | | 1.00 | | | 0.99 | | |
| Flpb, ped/bikes | | | 1.00 | | | 1.00 | | |
| Frt | | | 0.99 | | | 0.99 | | |
| Flt Protected | | | 1.00 | | | 1.00 | | |
| Satd. Flow (prot) | | | 1510 | | | 1495 | | |
| Flt Permitted | | | 0.96 | | | 0.95 | | |
| Satd. Flow (perm) | | | 1457 | | | 1432 | | |
| Volume (vph) | 19 | 5 | 318 | 17 | 31 | 337 | 25 | 5 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 21 | 5 | 346 | 18 | 34 | 366 | 27 | 5 |
| RTOR Reduction (vph) | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 387 | 0 | 0 | 431 | 0 | 0 |
| Confl. Peds. (#/hr) | 55 | 55 | | 55 | 55 | | 55 | 55 |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 |
| Parking (#/hr) | | | 13 | 0 | | 13 | 0 | 0 |
| Turn Type | Perm | Perm | | | Perm | | | |
| Protected Phases | | | 3 | | | 3 | | |
| Permitted Phases | 3 | 3 | | | 3 | | | |
| Actuated Green, G (s) | | | 29.5 | | | 29.5 | | |
| Effective Green, g (s) | | | 29.0 | | | 29.0 | | |
| Actuated g/C Ratio | | | 0.45 | | | 0.45 | | |
| Clearance Time (s) | | | 3.5 | | | 3.5 | | |
| Lane Grp Cap (vph) | | | 650 | | | 639 | | |
| v/s Ratio Prot | | | | | | | | |
| v/s Ratio Perm | | | 0.27 | | | c0.30 | | |
| v/c Ratio | | | 0.60 | | | 0.68 | | |
| Uniform Delay, d1 | | | 13.6 | | | 14.3 | | |
| Progression Factor | | | 1.00 | | | 1.00 | | |
| Incremental Delay, d2 | | | 4.0 | | | 5.6 | | |
| Delay (s) | | | 17.6 | | | 19.9 | | |
| Level of Service | | | B | | | B | | |
| Approach Delay (s) | | | 17.6 | | | 19.9 | | |
| Approach LOS | | | B | | | B | | |
| Intersection Summary | | | | | | | | |

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | EBL2 | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | SEL2 | SEL | SER | SER2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | | | | 4.0 | | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 | | |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 1.00 | 0.97 | | | | 1.00 | | |
| Flpb, ped/bikes | | 0.86 | 1.00 | | 0.94 | 1.00 | | | | 1.00 | | |
| Frt | | 1.00 | 0.99 | | 1.00 | 0.98 | | | | 0.96 | | |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 0.97 | | |
| Satd. Flow (prot) | | 1527 | 1488 | | 1665 | 1487 | | | | 1723 | | |
| Flt Permitted | | 0.46 | 1.00 | | 0.37 | 1.00 | | | | 0.97 | | |
| Satd. Flow (perm) | | 741 | 1488 | | 646 | 1487 | | | | 1723 | | |
| Volume (vph) | 1 | 27 | 262 | 24 | 17 | 207 | 5 | 24 | 15 | 3 | 7 | 1 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1 | 29 | 285 | 26 | 18 | 225 | 5 | 26 | 16 | 3 | 8 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 5 | 0 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 30 | 306 | 0 | 18 | 250 | 0 | 0 | 0 | 27 | 0 | 0 |
| Confl. Peds. (#/hr) | 55 | 55 | | 55 | 55 | | 55 | 55 | | | | |
| Bus Blockages (#/hr) | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | 11 | 0 | | 7 | 0 | 0 | | | 1 | 0 |
| Turn Type | Perm | Perm | | | Perm | | | | Split | | | |
| Protected Phases | | | 1 | | | 1 | | | 2 | 2 | | |
| Permitted Phases | 1 | 1 | | | 1 | | | | | | | |
| Actuated Green, G (s) | | 18.0 | 18.0 | | 18.0 | 18.0 | | | | 7.5 | | |
| Effective Green, g (s) | | 17.0 | 17.0 | | 17.0 | 17.0 | | | | 7.0 | | |
| Actuated g/C Ratio | | 0.26 | 0.26 | | 0.26 | 0.26 | | | | 0.11 | | |
| Clearance Time (s) | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | 3.5 | | |
| Lane Grp Cap (vph) | | 194 | 389 | | 169 | 389 | | | | 186 | | |
| v/s Ratio Prot | | | c0.21 | | | 0.17 | | | | c0.02 | | |
| v/s Ratio Perm | | 0.04 | | | 0.03 | | | | | | | |
| v/c Ratio | | 0.15 | 0.79 | | 0.11 | 0.64 | | | | 0.15 | | |
| Uniform Delay, d1 | | 18.5 | 22.3 | | 18.2 | 21.3 | | | | 26.3 | | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 | | |
| Incremental Delay, d2 | | 1.7 | 14.8 | | 1.3 | 7.9 | | | | 1.6 | | |
| Delay (s) | | 20.2 | 37.1 | | 19.5 | 29.2 | | | | 27.9 | | |
| Level of Service | | C | D | | B | C | | | | C | | |
| Approach Delay (s) | | | 35.6 | | | 28.6 | | | | 27.9 | | |
| Approach LOS | | | D | | | C | | | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | NEL2 | NEL | NET | NER | SWL | SWT | SWR | SWR2 |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | ↕ | | | ↕ | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.0 | | | 4.0 | | |
| Lane Util. Factor | | | 1.00 | | | 1.00 | | |
| Frpb, ped/bikes | | | 0.99 | | | 0.98 | | |
| Flpb, ped/bikes | | | 0.99 | | | 1.00 | | |
| Frt | | | 0.99 | | | 0.98 | | |
| Flt Protected | | | 0.99 | | | 1.00 | | |
| Satd. Flow (prot) | | | 1490 | | | 1470 | | |
| Flt Permitted | | | 0.92 | | | 0.97 | | |
| Satd. Flow (perm) | | | 1383 | | | 1424 | | |
| Volume (vph) | 35 | 7 | 301 | 32 | 24 | 326 | 43 | 4 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 38 | 8 | 327 | 35 | 26 | 354 | 47 | 4 |
| RTOR Reduction (vph) | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 403 | 0 | 0 | 430 | 0 | 0 |
| Confl. Peds. (#/hr) | 55 | 55 | | 55 | 55 | | 55 | 55 |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 |
| Parking (#/hr) | | | 13 | | | 14 | | |
| Turn Type | Perm | Perm | | | Perm | | | |
| Protected Phases | | | 3 | | | 3 | | |
| Permitted Phases | 3 | 3 | | | 3 | | | |
| Actuated Green, G (s) | | | 29.0 | | | 29.0 | | |
| Effective Green, g (s) | | | 29.0 | | | 29.0 | | |
| Actuated g/C Ratio | | | 0.45 | | | 0.45 | | |
| Clearance Time (s) | | | 4.0 | | | 4.0 | | |
| Lane Grp Cap (vph) | | | 617 | | | 635 | | |
| v/s Ratio Prot | | | | | | | | |
| v/s Ratio Perm | | | 0.29 | | | c0.30 | | |
| v/c Ratio | | | 0.65 | | | 0.68 | | |
| Uniform Delay, d1 | | | 14.1 | | | 14.3 | | |
| Progression Factor | | | 1.00 | | | 1.00 | | |
| Incremental Delay, d2 | | | 5.3 | | | 5.7 | | |
| Delay (s) | | | 19.4 | | | 20.0 | | |
| Level of Service | | | B | | | C | | |
| Approach Delay (s) | | | 19.4 | | | 20.0 | | |
| Approach LOS | | | B | | | C | | |
| Intersection Summary | | | | | | | | |

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | EBL2 | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | SEL2 | SEL | SER | SER2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | | | | 4.0 | | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 | | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | 0.96 | | | | 1.00 | | |
| Flpb, ped/bikes | | 0.88 | 1.00 | | 0.95 | 1.00 | | | | 1.00 | | |
| Frt | | 1.00 | 0.98 | | 1.00 | 0.98 | | | | 0.95 | | |
| Flt Protected | | 0.95 | 1.00 | | 0.95 | 1.00 | | | | 0.97 | | |
| Satd. Flow (prot) | | 1552 | 1462 | | 1675 | 1444 | | | | 1547 | | |
| Flt Permitted | | 0.39 | 1.00 | | 0.32 | 1.00 | | | | 0.97 | | |
| Satd. Flow (perm) | | 643 | 1462 | | 558 | 1444 | | | | 1547 | | |
| Volume (vph) | 1 | 44 | 276 | 40 | 8 | 227 | 10 | 35 | 11 | 11 | 11 | 1 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1 | 48 | 300 | 43 | 9 | 247 | 11 | 38 | 12 | 12 | 12 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 49 | 335 | 0 | 9 | 288 | 0 | 0 | 0 | 36 | 0 | 0 |
| Confl. Peds. (#/hr) | 55 | 55 | | 55 | 55 | | 55 | 55 | | | | |
| Bus Blockages (#/hr) | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | 12 | | | 9 | | | | 0 | | |
| Turn Type | Perm | Perm | | | Perm | | | | Split | | | |
| Protected Phases | | | 1 | | | 1 | | | 2 | 2 | | |
| Permitted Phases | 1 | 1 | | | 1 | | | | | | | |
| Actuated Green, G (s) | | 17.0 | 17.0 | | 17.0 | 17.0 | | | | 7.0 | | |
| Effective Green, g (s) | | 17.0 | 17.0 | | 17.0 | 17.0 | | | | 7.0 | | |
| Actuated g/C Ratio | | 0.26 | 0.26 | | 0.26 | 0.26 | | | | 0.11 | | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | 4.0 | | | | 4.0 | | |
| Lane Grp Cap (vph) | | 168 | 382 | | 146 | 378 | | | | 167 | | |
| v/s Ratio Prot | | | c0.23 | | | 0.20 | | | | c0.02 | | |
| v/s Ratio Perm | | 0.08 | | | 0.02 | | | | | | | |
| v/c Ratio | | 0.29 | 0.88 | | 0.06 | 0.76 | | | | 0.22 | | |
| Uniform Delay, d1 | | 19.2 | 23.0 | | 18.0 | 22.1 | | | | 26.5 | | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | | 1.00 | | |
| Incremental Delay, d2 | | 4.4 | 23.5 | | 0.8 | 13.5 | | | | 2.9 | | |
| Delay (s) | | 23.5 | 46.5 | | 18.8 | 35.6 | | | | 29.4 | | |
| Level of Service | | C | D | | B | D | | | | C | | |
| Approach Delay (s) | | | 43.6 | | | 35.1 | | | | 29.4 | | |
| Approach LOS | | | D | | | D | | | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 69.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | NEL2 | NEL | NET | NER | SWL | SWT | SWR | SWR2 |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | ↕ | | | ↕ | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.0 | | | 4.0 | | |
| Lane Util. Factor | | | 1.00 | | | 1.00 | | |
| Frpb, ped/bikes | | | 1.00 | | | 0.99 | | |
| Flpb, ped/bikes | | | 1.00 | | | 1.00 | | |
| Frt | | | 0.99 | | | 0.99 | | |
| Flt Protected | | | 1.00 | | | 1.00 | | |
| Satd. Flow (prot) | | | 1510 | | | 1495 | | |
| Flt Permitted | | | 0.96 | | | 0.95 | | |
| Satd. Flow (perm) | | | 1457 | | | 1432 | | |
| Volume (vph) | 19 | 5 | 318 | 17 | 31 | 337 | 25 | 5 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 21 | 5 | 346 | 18 | 34 | 366 | 27 | 5 |
| RTOR Reduction (vph) | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 387 | 0 | 0 | 431 | 0 | 0 |
| Confl. Peds. (#/hr) | 55 | 55 | | 55 | 55 | | 55 | 55 |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 |
| Parking (#/hr) | | | 13 | 0 | | 13 | 0 | 0 |
| Turn Type | Perm | Perm | | | Perm | | | |
| Protected Phases | | | 3 | | | 3 | | |
| Permitted Phases | 3 | 3 | | | 3 | | | |
| Actuated Green, G (s) | | | 29.5 | | | 29.5 | | |
| Effective Green, g (s) | | | 29.0 | | | 29.0 | | |
| Actuated g/C Ratio | | | 0.45 | | | 0.45 | | |
| Clearance Time (s) | | | 3.5 | | | 3.5 | | |
| Lane Grp Cap (vph) | | | 650 | | | 639 | | |
| v/s Ratio Prot | | | | | | | | |
| v/s Ratio Perm | | | 0.27 | | | c0.30 | | |
| v/c Ratio | | | 0.60 | | | 0.68 | | |
| Uniform Delay, d1 | | | 13.6 | | | 14.3 | | |
| Progression Factor | | | 1.00 | | | 1.00 | | |
| Incremental Delay, d2 | | | 4.0 | | | 5.6 | | |
| Delay (s) | | | 17.6 | | | 19.9 | | |
| Level of Service | | | B | | | B | | |
| Approach Delay (s) | | | 17.6 | | | 19.9 | | |
| Approach LOS | | | B | | | B | | |
| Intersection Summary | | | | | | | | |

HCM Signalized Intersection Capacity Analysis
1: Foothill Blvd & Seminary Ave 2/7/2006

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | 0.94 | 1.00 | | 0.96 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1671 | 1444 | | 1706 | 1492 | | | 1507 | | | 1502 | |
| Flt Permitted | 0.43 | 1.00 | | 0.28 | 1.00 | | | 0.92 | | | 0.96 | |
| Satd. Flow (perm) | 763 | 1444 | | 504 | 1492 | | | 1396 | | | 1439 | |
| Volume (vph) | 53 | 336 | 49 | 8 | 235 | 37 | 40 | 320 | 32 | 24 | 326 | 43 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor (vph) | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% | 122% |
| Adj. Flow (vph) | 70 | 446 | 65 | 11 | 312 | 49 | 53 | 424 | 42 | 32 | 432 | 57 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 | 9 | 0 | 0 | 5 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 70 | 503 | 0 | 11 | 352 | 0 | 0 | 514 | 0 | 0 | 514 | 0 |
| Confl. Peds. (#/hr) | 55 | | 55 | 55 | | 55 | 55 | | 55 | 55 | | 55 |
| Bus Blockages (#/hr) | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Parking (#/hr) | | 14 | | | 8 | | | 12 | | | 12 | |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 1 | | | 1 | | | 3 | | | 3 | |
| Permitted Phases | 1 | | | 1 | | | 3 | | | 3 | | |
| Actuated Green, G (s) | 27.0 | 27.0 | | 27.0 | 27.0 | | | 30.0 | | | 30.0 | |
| Effective Green, g (s) | 27.0 | 27.0 | | 27.0 | 27.0 | | | 30.0 | | | 30.0 | |
| Actuated g/C Ratio | 0.42 | 0.42 | | 0.42 | 0.42 | | | 0.46 | | | 0.46 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | 317 | 600 | | 209 | 620 | | | 644 | | | 664 | |
| v/s Ratio Prot | | c0.35 | | | 0.24 | | | | | | | |
| v/s Ratio Perm | 0.09 | | | 0.02 | | | | c0.37 | | | 0.36 | |
| v/c Ratio | 0.22 | 0.84 | | 0.05 | 0.57 | | | 0.80 | | | 0.77 | |
| Uniform Delay, d1 | 12.2 | 17.0 | | 11.4 | 14.5 | | | 14.9 | | | 14.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 1.6 | 13.1 | | 0.5 | 3.7 | | | 10.0 | | | 8.6 | |
| Delay (s) | 13.8 | 30.2 | | 11.8 | 18.3 | | | 24.9 | | | 23.2 | |
| Level of Service | B | C | | B | B | | | C | | | C | |
| Approach Delay (s) | | 28.2 | | | 18.1 | | | 24.9 | | | 23.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 65.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 77.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

Baseline
DKS Associates

Synchro 6 Report
Page 1

Foothill Blvd & Seminary Ave PM Peak 2025

| Accident Summary Year wise - 62nd Ave. & Foothill Blvd | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Collision Type | | | | | | | Collision Factor | | | | | | | | |
| Year | | | Total | Sideswipe | Broadside | Rear-End | Head-On | Veh-Ped | Hit Object | Other | Improper Turning | Speeding | Auto R/W Violation | Ped Violation | Traffic Sig & Signs | DUI | Unsafe Backing or Starting | Unknown | |
| 2000 | | 2000 | 2 | X | 2 | X | X | X | X | X | X | X | 1 | X | 1 | X | X | X | |
| | Direction | North | X | X | | | | | | | | | | | | | | | |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | In Int | 2 | X | 2 | X | X | X | X | X | X | X | 1 | X | 1 | X | X | X | |
| | TOD | Day time | 2 | X | 2 | X | X | X | X | X | X | X | 1 | X | 1 | X | X | X | |
| | | Night | X | X | | | | | | | | | | | | | | | |
| 2001 | | 2001 | NO ACCIDENTS | | | | | | | | | | | | | | | | |
| | Direction | North | | | | | | | | | | | | | | | | | |
| | | South | | | | | | | | | | | | | | | | | |
| | | In Int | | | | | | | | | | | | | | | | | |
| | TOD | Day time | | | | | | | | | | | | | | | | | |
| | | Night | | | | | | | | | | | | | | | | | |
| 2002 | | 2002 | 4 | X | 4 | X | X | X | X | X | X | X | 3 | X | X | X | X | 1 | |
| | Direction | North | X | X | | | | | | | | | | | | | | | |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | In Int | 4 | X | 4 | X | X | X | X | X | X | X | 3 | X | X | X | X | 1 | |
| | TOD | Day time | 4 | X | 4 | X | X | X | X | X | X | X | 3 | X | X | X | X | 1 | |
| | | Night | X | X | | | | | | | | | | | | | | | |
| 2003 | | 2003 | 2 | X | 1 | X | X | X | 1 | X | X | 1 | X | X | X | 1 | X | X | |
| | Direction | North | X | X | | | | | | | | | | | | | | | |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | In Int | 1 | X | 1 | X | X | X | X | X | X | X | X | X | X | 1 | X | X | |
| | | West | 1 | X | X | X | X | X | 1 | X | X | 1 | X | X | X | X | X | X | |
| | TOD | Day time | X | X | | | | | | | | | | | | | | | |
| | | Night | 2 | X | 1 | X | X | X | 1 | X | X | 1 | X | X | X | 1 | X | X | |

| Accident Summary Year wise -Seminary Ave. & Bancroft Ave. | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Collision Type | | | | | | | Collision Factor | | | | | | | | | |
| Year | | | Total | Sideswipe | Broadside | Rear-End | Head-On | Veh-Ped | Hit Object | Other | Improper Turning | Speeding | Auto R/W Violation | Ped Violation | Traffic Sig & Signs | DUI | Follow too Closely | Unsafe Backing or Starting | Unknown |
| 1999 | | 1999 | 5 | 1 | 2 | 1 | X | X | X | 1 | 1 | 1 | 1 | X | 1 | 1 | X | X | X |
| | Direction | North | 1 | 1 | X | X | X | X | X | X | 1 | X | X | X | X | X | X | X | X |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | In Int | 4 | X | 2 | 1 | X | X | X | 1 | X | 1 | 1 | X | 1 | 1 | X | X | X |
| | TOD | Day time | 4 | 1 | 2 | 1 | X | X | X | X | 1 | 1 | 1 | X | 1 | X | X | X | X |
| | | Night | 1 | X | X | X | X | X | X | 1 | X | X | X | X | X | 1 | X | X | X |
| 2000 | | 2000 | 8 | 1 | 4 | 1 | X | X | 1 | 1 | 2 | X | 2 | X | 2 | X | X | 1 | 1 |
| | Direction | North | 1 | X | X | X | X | X | X | 1 | X | X | X | X | X | X | X | 1 | X |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | West | 1 | X | 1 | X | X | X | X | X | X | X | X | X | X | X | X | X | 1 |
| | | In Int | 6 | 1 | 3 | 1 | X | X | 1 | X | 2 | X | 2 | X | 2 | X | X | X | X |
| | TOD | Day time | 7 | X | 4 | 1 | X | X | 1 | 1 | 2 | X | 2 | X | 1 | X | X | 1 | 1 |
| | | Night | 1 | 1 | X | X | X | X | X | X | X | X | X | X | 1 | X | X | X | X |
| 2001 | | 2001 | 8 | X | 3 | 2 | 1 | 1 | 1 | X | 1 | 1 | 1 | X | 4 | X | 1 | X | X |
| | Direction | North | X | X | | | | | | | | | | | | | | | |
| | | South | 1 | X | X | X | X | 1 | X | X | X | X | X | X | 1 | X | X | X | X |
| | | West | 1 | X | X | X | X | X | 1 | X | 1 | X | X | X | X | X | X | X | X |
| | | In Int | 6 | X | 3 | 2 | 1 | X | X | X | X | 1 | 1 | X | 3 | X | 1 | X | X |
| | TOD | Day time | 3 | X | 1 | X | 1 | X | 1 | X | 1 | X | 1 | X | 1 | X | X | X | X |
| | | Night | 5 | X | 2 | 2 | X | 1 | X | X | X | 1 | X | X | 3 | X | 1 | X | X |
| 2002 | | 2002 | 9 | 2 | 5 | 1 | 1 | X | X | X | 1 | 1 | 4 | X | 1 | X | X | X | 2 |
| | Direction | North | X | X | | | | | | | | | | | | | | | |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | In Int | 9 | 2 | 5 | 1 | 1 | X | X | X | 1 | 1 | 4 | X | 1 | X | X | X | 2 |
| | TOD | Day time | 6 | 1 | 4 | X | 1 | X | X | X | 1 | X | 4 | X | 1 | X | X | X | X |
| | | Night | 3 | 1 | 1 | 1 | X | X | X | X | X | 1 | X | X | X | X | X | X | 2 |
| 2003 | | 2003 | 2 | 2 | X | X | X | X | X | X | X | X | X | X | 1 | X | X | X | 1 |
| | Direction | North | X | X | | | | | | | | | | | | | | | |
| | | South | X | X | | | | | | | | | | | | | | | |
| | | In Int | 2 | 2 | X | X | X | X | X | X | X | X | X | X | 1 | X | X | X | 1 |
| | TOD | Day time | 1 | 1 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 1 |
| | | Night | 1 | 1 | X | X | X | X | X | X | X | X | X | X | 1 | X | X | X | X |

| Accident Summary Year wise - Foothill Blvd & Seminary Ave. | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Collision Type | | | | | | Collision Factor | | | | | | | | |
| Year | | | Total | Sideswipe | Broadside | Rear-End | Head-On | Veh-Ped | Other | Improper Turning | Speeding | Auto R/W Violation | Ped Violation | Traffic Sig & Signs | DUI | Unsafe Backing or Starting | Unknown |
| 1999 | | 1999 | 4 | 2 | 1 | X | X | X | 1 | 1 | X | X | X | 2 | X | 1 | X |
| | Direction | North | 2 | 2 | X | X | X | X | X | 1 | X | X | X | X | X | 1 | X |
| | | South | X | X | | | | | | | X | | | | | | |
| | | In Int | 2 | X | 1 | X | X | X | 1 | X | X | X | X | 2 | X | X | X |
| | TOD | Day time | 1 | X | 1 | X | X | X | X | X | X | X | X | 1 | X | X | X |
| | | Night | 3 | 2 | X | X | X | X | 1 | 1 | X | X | X | 1 | X | 1 | X |
| 2000 | | 2000 | 7 | X | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | X | 1 | X | 1 |
| | Direction | North | X | X | | | | | | | X | | | | | | |
| | | South | 2 | X | X | 1 | X | 1 | X | X | 1 | X | 1 | X | X | X | X |
| | | In Int | 5 | X | 3 | X | 1 | X | 1 | 1 | X | 2 | X | X | 1 | X | 1 |
| | TOD | Day time | 4 | X | 1 | X | 1 | 1 | 1 | 1 | X | 1 | 1 | X | | X | 1 |
| | | Night | 3 | X | 2 | 1 | X | X | X | X | 1 | 1 | X | X | 1 | X | X |
| 2001 | | 2001 | 3 | X | X | X | X | 2 | 1 | X | X | 1 | 1 | 1 | X | X | X |
| | Direction | North | X | X | | | | | | | X | | | | | | |
| | | South | X | X | | | | | | | X | | | | | | |
| | | In Int | 3 | X | X | X | X | 2 | 1 | X | X | 1 | 1 | 1 | X | X | X |
| | TOD | Day time | 1 | X | X | X | X | 1 | X | X | X | X | 1 | X | X | X | X |
| | | Night | 2 | X | X | X | X | X | 1 | X | X | 1 | X | 1 | X | X | X |
| 2002 | | 2002 | 5 | 4 | 1 | X | X | X | X | 1 | 1 | 1 | X | X | 1 | X | 1 |
| | Direction | North | X | X | | | | | | | X | | | | | | |
| | | South | X | X | | | | | | | X | | | | | | |
| | | In Int | 4 | 3 | 1 | X | X | X | X | 1 | 1 | 1 | X | X | 1 | X | X |
| | | Not Stated | 1 | 1 | X | X | X | X | X | X | X | X | X | X | X | X | 1 |
| | TOD | Day time | 2 | 2 | X | X | X | X | X | 1 | X | X | X | X | X | X | 1 |
| | | Night | 3 | 2 | 1 | X | X | X | X | X | 1 | 1 | X | X | 1 | X | X |

# Appendix B - Community Meeting Comments

**City of Oakland, Foothill/Seminary Streetscape Project**
**Community Meeting #1 - July 20, 2005**
**Community Comments**

The comments below were recorded during the course of the meeting discussion. (R) indicates response by City staff or consultants.

- Commercial businesses are too far apart. Storefront churches occupy a lot of the frontage; additional space for new businesses development is needed. Live/work development should be allowed to encourage reinvestment and attract new residents to the neighborhood.

- There are over 50 storefront churches in the area. These buildings are used only on Sundays; no sales tax, no tenants.

- Better nicer night lighting is needed. It will discourage loitering and highlight the (streetscape) improvements.

- The area has too much drug dealing and shootings. There are too many liquor stores adding to the problems.

- Through traffic is too fast. What about some speed humps? (R) They can make access difficult for emergency vehicles; also generally good for residential areas but not typically commercial districts. However, other ways to slow traffic, such as corner bulbouts, will be considered as part of the design plans.

- What about pavement "flashers" for the crosswalks? (R) This may be viable on some of the intermediate intersections away from Foothill/Seminary.

- There are vacant "out of service" buses traveling on Seminary. Can the route be switched to 55th Avenue? The street is too narrow for its current level of bus and truck traffic.

- Bus stops in the area need to be better organized, more accessible.

- What consideration will be given to bicyclists? Can bike lanes be striped along Foothill? (R) Bike lanes usually stop at commercial districts; angle parking can be dangerous combined with a bike route. Bike racks will be included in sidewalk improvements.

- Angle parking is good, we need to keep it wherever we can.

- Can we remove some of the red curb areas and replace them with curbside parking?

- The red curb along the Vintage Inn frontage may have been established to minimize "questionable" activities there. The VI is a neighborhood problem.

- Albertson's are closing up all around the neighborhood/East Oakland. We need a food market.

- The Shop Rite grocery store is a neighborhood anchor. It should be linked to other shops, restaurants, cafes in the district to anchor a continuous frontage.

- Could new development at the "Foothill Gateway" site link to Shop Rite and to adjacent commercial frontages?

- Existing buildings need facade improvements and major renovations. Boarded up window really need to be removed throughout the area.

- We have had a lot of plans for revitalizing this area. The ideas (in the presentation) seem wonderful but how do we need anything will come of this, any more than the previous plans? (R) This area has been recently included in a redevelopment district and will have its own sources of financing. Previous plans didn't.

- We can't just fix up the streetscape, though that would be nice. What about the buildings, boarded up windows, and all the community churches. (R) The redevelopment approach the City has used to revitalize similar districts includes facade improvements, working with local businesses and property owners, etc. Sometimes participation in new development projects.

- Closing Walnut to create a transit plaza sounds like a good idea.

- This was a vital neighborhood commercial district only 10-15 years ago. We need to bring the nearby residents back to the area. Most property owners are "absentee."

- Will this project include benches and street lights? (R) Yes, it will include those amenities as well as street trees, bus shelters.

- What about some special gateway or landmark at the Foothill/Seminary intersection, something like the archway sign in the Laurel District? It's the heart of the area. Maybe a fountain and roundabout in the middle of the intersection? (R) The design will incorporate some type of special landmark at the intersection; however, a fountain and roundabout may be problem for buses and left turns.

- The area's character needs to be preserved; color, culture, unique facades, etc.

- How can we get the community to come out and become more involved in the project?

**City of Oakland, Foothill / Seminary Streetscape Plan**
**Community Meeting #2 - August 24, 2005**
**Community Post-it Comments**

The notes below were transcribed from post-it note comments placed on drawings by workshop participants. Two colors of post-it notes were used, green to represent "like" comments and pink to signify "dislike" or "needs improvement" comments

**Foothill Boulevard Streetscape Concept**

The following are "like" comments (green post-it notes):

- OK go! (area of Foothill north of Seminary)
- Make present parking lot at Fairfax Avenue between Foothill Blvd. and Bancroft Ave. a public parking area for shoppers.
- Like the bulb-outs, particularly @ Avenal, Brookdale, Mason, because of sideshows
- Make a safer pedestrian crossing (@ Mason & Foothill)
- Put a traffic light at Mason + Foothill
- Put a crossing light at Mason and Foothill, make it easy for people to cross
- OK to improved street crossing (@Mason& Foothill); go!
- Consider tables w/ built-in chess boards for the Walnut St. promenade/transit plaza
- Love trees, but worried about taking up too much parking
- Pleasant pedestrian community area (i.e., the Transit Plaza)
- More convenient for bus catchers (@ Foothill / Seminary intersection)
- Keep the sideshows going, but to make it a little bit safer O.K.!!!
- OK on median (by 62nd)
- Consider type of trees that don't "leak" sap onto cars, who wants to keep washing their cars all the time?
- Yes to planters & trees (in parking zone)
- Encourage local artist participation in public areas (decorating garage, windows, plant pottery, artsy , iron things...)
- Good signage w/ possible lights (needed) to aid transfer for school kids (attending Frick Middle School)
- Consider street lights that look good at night, and not that sickly yellow like some lights.
- Consider eco friendly plants, materials, power friendly lights.
- Yes to planters & trees (in parking zone)
- Underground utilities is great.

The following are "needs improvement" comments (pink post-it notes):

- How do the police / ambulances/ fire. feel about proposed slowdown of Foothill corridor? Would they be forced to use Bancroft?
- Need 2 stop lights (@ intersection of Mason as well as Seminary)
- Need bike lanes on Foothill and Seminary
- More stop signs + visibility at all stop signs (needed)
- No (parking) meters. They suck. Free parking (maybe a time limit)
- (Should install) lighted crosswalks @ mid-block crossing
- Consider impact of overflow parking on adjacent side streets
- Police (needed at Foothill / Seminary intersection)
- More police (needed Foothill / Seminary intersection)
- Open more programs (in the area) for teenagers
- Concern about backing out into traffic (in the angle parking area)
- (Need to ) stop all sideshows
- Open discussion to more NCPL's and encourage more voices to facilitate resident input
- (Need) more stop signs and more (street lights
- Dimness of street lights; lack of bus shelters and benches; lack of video surveillance in high accident and crime areas,

w.c. accessible ramps not too steep (existing problem)
- Need a drop off @ Frick, inside campus (Frick Middle School)
- Traffic - cameras @ high accident areas
- Sidewalks and driveway inclines need to be wheelchair accessible; (today they are) too steep to go up / going down, or forward
- Seniors crossings (need to be improved/considered)
- Phones accessibility (i.e., need more pay phones)
- Traffic lights w/ count down signals (recommended)
- Brightness of lights (recommended)
- Use trees to cut spaces for sideshows
- Need bike lines.
- Want lights to be two armed illuminating both pedestrians and auto through area.

**Seminary Avenue Streetscape Concept**

The following are "like" comments (green post-it notes):
- OK (like landmark at southeast corner)
- Keep the bus stop at the YMCA (as shown)
- Yes to new walk**s**
- If this is to go, what about this area at Walnut? (Transit Plaza)
- Crosswalks needed @ all intersections along Seminary

The following are "needs improvement" comments (pink post-it notes):
- Concern w/ Walnut at at rear of the Transit Plaza (re: access to homes on Walnut)
- Need bike lanes.

**Foothill / Seminary Intersection Concept**

The following are "like" comments (green post-it notes):
- I like the whole overall idea
- There are many good areas around MacArthur. Avoiding the good areas.
- Would like to see a arch saying "Entering the Seminary Shopping District" like in the Diamond District.
- Would like to see the City encourage small quaint businesses in this area - restaurant, shops, and bookstores.
- Good Idea for a hangout for kids (Transit Plaza)
- Walnut full closure - Good.
- Bulb-outs + wider sidewalk - Good.
- From 55th Ave. + Walnut Street to Seminary make it a one-way.
- Yes, make it one-way from 55th to Seminary.
- Keep bus stop here (at southeast corner by YMCA); it's useful for kids crossing to other side of Seminary. More dangerous to move it.

The following are "needs improvement" comments (pink post-it notes):
- Concern about cars backing out to oncoming traffic? (the angle parking area)
- Worried that not considering final use of this property may impact any traffic & pedestrian considerations. May need more or less space (@ northwest corner).
- Foothill and Seminary - Worried about the street people messing up the area if it gets fixed up.
- Believe police need to review good areas on a regular basis due to crime.
- Don't use pedestrian signal button, not good in high pedestrian areas.
- Walnut = drug area of corridor for drug activity (supply / demand). Blocking will make things worse. Please consider turning to one way (out to Foothill), so police can have access.

**City of Oakland, Foothill / Seminary Streetscape Plan**
**Community Workshop #3 - October 8, 2005**
**Community Post-it Comments**

The notes below were transcribed from post-it note comments placed on drawings by workshop participants. Two colors of post-it notes were used, green to represent "like" comments and pink to signify "dislike" or "needs improvement" comments

**Foothill Boulevard Streetscape Concept**

The following are "like" comments (green post-it notes):

- Consider chess boards / tables at Walnut pedestrian plaza, encourage positive loitering
- I like the trees, bulb-outs, street lights, and bigger sidewalks

The following are "needs improvement" comments (pink post-it notes):

- On Foothill Boulevard from 61st to 62nd near Frick Middle School need timed blinking lights or sign to alert motorists that school is in session
- Re: Walnut/Seminary closure, how about an "emergency authorized vehicle access only"- for police, ambulance, fire and public works?
- Liquor store at Walnut & Seminary - change to a small grocery store?

- What about Rotary / Planters in middle of intersections?
- Please do something about Fortune Way (that short side street), can it be closed off?
- Police substation, walking beat officer? (southwest corner of Foothill & Seminary)
- Please continue streetscape improvements to 55th Avenue

**Seminary Avenue Streetscape Concept**

The following are "like" comments (green post-it notes):

- Walnut Street closure okay, could be a median or tree planter for access to residents on foot
- Bike lane (south side of Seminary Avenue)
- More outreach to residents for community involvement via direct mail, TV commercials, newspaper columns and ads
- Budget for outreach to local artists whenever/wherever possible to stimulate Oakland artist involvement (a la Fruitvale District)
- Consider local foundries for iron furnishings.....

The following are "needs improvement" comments (pink post-it notes):

- No comments

**City of Oakland, Foothill / Seminary Streetscape Plan**
**Community Workshop #4 - November 12, 2005**
**Community Comments**

The notes below were written on handouts during the course of a walking tour of the project area.

**Foothill Boulevard Streetscape Concept**

- Bancroft/Fortune/Foothill cut-through traffic needs attention
- Make street lights two-headed
- Bulb-outs at Avenal and Brookdale very good
- Cut back median island at 60th Street or have landing for pedestrians to stop
- Stop light needed (at 62nd)
- Can stop sign at 61st be replaced with low lights? Do not need race track
- Recommend ramps for easy access to cars from bulbs
- Ramps (needed) on median near Frick to accommodate children and bicycles

**Seminary Avenue Streetscape Concept**

- (No Comments)

**Foothill / Seminary Intersection Concept**

- Must have emergency access at plaza (police in and out); perhaps phase in the closure to make sure crime element works safety
- Tree wells need to protect trees, particularly between Seminary and Brookdale, especially since sideshows gone
- Fortune Way needs to be calmed down
- Should provide shade/rain shelter at Transit Plaza
- Need to accommodate emergency vehicle access at plaza
- Need good lighting (at plaza)
- Utility poles and guy wires are ugly
- Bank building needs a good tenant
- Garbage cans (dumpsters) are ugly (on Seminary adjacent to YMCA)
- Need more attractive litter containers (quantity and looks)
- Block off Fortune at Bancroft
- No billboards!
- Remodel liquor store (market) adjacent to plaza

# Appendix C - Cost Estimate Tables

**Foothill/Seminary Public Transit Hub**

**Streetscape Improvement Plan Concept Cost Estimate - Basic**

Bottomley Design & Planning 14-Dec-05

| Item No. | Item Description | Units | Estimated Quantity | Unit Price | Amount |
|---|---|---|---|---|---|
| 1 | Traffic Control | allow | 1 | $ 50,000.00 | $50,000 |
| 2 | Mobilization | allow | 1 | 50,000.00 | $50,000 |
| 3 | Demo Existing Sidewalk/Lighting | sf | 15,388 | 6.00 | $92,328 |
| 4 | Remove AC Paving | sf | 21,852 | 3.00 | $65,556 |
| 5 | Concrete Curb and Gutter | lf | 2,619 | 35.00 | $91,665 |
| 6 | Concrete Sidewalk, incl Bulb-Outs | sf | 31,846 | 12.00 | $382,152 |
| 7 | Median/Island Concrete Curb and Gutter | lf | 808 | 35.00 | $28,280 |
| 8 | Median / Planter Fill | sf | 5,969 | 2.50 | $14,923 |
| 9 | Parking Zone Curb Planters | ea | 53 | 2,000.00 | $106,000 |
| 10 | Concrete Curb Ramps | ea | 45 | 2,000.00 | $90,000 |
| 11 | Street Trees (36" box) | ea | 73 | 1,500.00 | $109,500 |
| 12 | Streetlights | ea | 62 | 10,000.00 | $620,000 |
| 13 | Transit Plaza (2,700 sf) | allow | 1 | 50,000.00 | $50,000 |
| 14 | Landmark | allow | 1 | 25,000.00 | $25,000 |
| 15 | Bus Shelters | ea | 3 | 0.00 | $0 |
| 16 | Trash Receptacles | ea | 14 | 1,500.00 | $21,000 |
| 17 | Bicycle Racks (eg. Inverted U-Shaped) | ea | 10 | 500.00 | $5,000 |
| 18 | Storm Drain Relocation | ea | 10 | 10,000.00 | $100,000 |
| 19 | Street Oil Seal | allow | 1 | 155,000.00 | $155,000 |
| 20 | AC Pavement (1' per lf of curb) | ton | 255 | 100.00 | $25,500 |
| 21 | Transit Signage and Markings | allow | 1 | 3,000.00 | $3,000 |
| 22 | Traffic Striping and Markings | allow | 1 | 75,000.00 | $75,000 |
| 23 | Traffic Signals Relocation | ea | 4 | 20,000.00 | $80,000 |
| 24 | "Continental" (type 3) Crosswalk | sf | 4,695 | 7.00 | $32,865 |
| 25 | Flashing Crosswalk | allow | 1 | 60,000.00 | $60,000 |
| 26 | Irrigation System, Median / Planter Areas | sf | 5,394 | 2.00 | $10,788 |
| 27 | Irrigation System, Street Trees | allow | 1 | 36,500.00 | $36,500 |
| 28 | Backflow Preventers | ea | 2 | 3,000.00 | $6,000 |
| | | **Construction Subtotal** | | | **$2,386,057** |
| | | Construction Subtotal | | | $2,386,057 |
| | | Construction Contingency @ 35% | | | $835,120 |
| | | **Construction Total** | | | **$3,221,176** |
| | | Construction Engineering @ 10% | | | $238,606 |
| | | Preliminary Engineering/Design @ 15% | | | $357,908 |
| | | Right of Way Approvals/Permit Fees @ 1% | | | $23,861 |
| | | City Contract Compliance Fees @ 3% | | | $73,968 |
| | | City Public Art Surcharge @ 1.5% | | | $35,791 |
| | | **Total Project Cost** | | | **$3,951,310** |

**Foothill Boulevard = 2,100 LF**
**Seminary Avenue = 1,000 LF**

**Foothill/Seminary Public Transit Hub**

**Streetscape Improvement Plan Concept Cost Estimate - w/Signals Upgrade and Undergrounding**

Bottomley Design & Planning 14-Dec-05

| Item No. | Item Description | Units | Estimated Quantity | Unit Price | Amount |
|---|---|---|---|---|---|
| 1 | Traffic Control | allow | 1 | $ 50,000.00 | $50,000 |
| 2 | Mobilization | allow | 1 | 50,000.00 | $50,000 |
| 3 | Demo Existing Sidewalk/Lighting | sf | 15,388 | 6.00 | $92,328 |
| 4 | Remove AC Paving | sf | 21,852 | 3.00 | $65,556 |
| 5 | Concrete Curb and Gutter | lf | 2,619 | 35.00 | $91,665 |
| 6 | Concrete Sidewalk, incl Bulb-Outs | sf | 31,846 | 12.00 | $382,152 |
| 7 | Median/Island Concrete Curb and Gutter | lf | 808 | 35.00 | $28,280 |
| 8 | Median / Planter Fill | sf | 5,969 | 2.50 | $14,923 |
| 9 | Parking Zone Curb Planters | ea | 53 | 2,000.00 | $106,000 |
| 10 | Concrete Curb Ramps | ea | 45 | 2,000.00 | $90,000 |
| 11 | Street Trees (36" box) | ea | 73 | 1,500.00 | $109,500 |
| 12 | Streetlights | ea | 62 | 10,000.00 | $620,000 |
| 13 | Transit Plaza (2,700 sf) | allow | 1 | 50,000.00 | $50,000 |
| 14 | Landmark | allow | 1 | 25,000.00 | $25,000 |
| 15 | Bus Shelters | ea | 3 | 0.00 | $0 |
| 16 | Trash Receptacles | ea | 14 | 1,500.00 | $21,000 |
| 17 | Bicycle Racks (eg. Inverted U-Shaped) | ea | 10 | 500.00 | $5,000 |
| 18 | Storm Drain Relocation | ea | 10 | 10,000.00 | $100,000 |
| 19 | Street Oil Seal | allow | 1 | 155,000.00 | $155,000 |
| 20 | AC Pavement (1' per lf of curb) | ton | 255 | 100.00 | $25,500 |
| 21 | Transit Signage and Markings | allow | 1 | 3,000.00 | $3,000 |
| 22 | Traffic Striping and Markings | allow | 1 | 75,000.00 | $75,000 |
| 23 | Intersection Signals Upgrade | ea | 1 | 225,000.00 | $225,000 |
| 24 | "Continental" (type 3) Crosswalk | sf | 4,695 | 7.00 | $32,865 |
| 25 | Flashing Crosswalk | allow | 1 | 60,000.00 | $60,000 |
| 26 | Irrigation System, Median / Planter Areas | sf | 5,394 | 2.00 | $10,788 |
| 27 | Irrigation System, Street Trees | allow | 1 | 36,500.00 | $36,500 |
| 28 | Underground Overhead Utilities | lf | 2,100 | 500.00 | $1,050,000 |
| 29 | Backflow Preventers | ea | 2 | 3,000.00 | $6,000 |
| | | **Construction Subtotal** | | | **$3,581,057** |
| | | Construction Subtotal | | | $3,581,057 |
| | | Construction Contingency @ 35% | | | $1,253,370 |
| | | **Construction Total** | | | **$4,834,426** |
| | | Construction Engineering @ 10% | | | $358,106 |
| | | Preliminary Engineering/Design @ 15% | | | $537,158 |
| | | Right of Way Approvals/Permit Fees @ 1% | | | $35,811 |
| | | City Contract Compliance Fees @ 3% | | | $111,013 |
| | | City Public Art Surcharge @ 1.5% | | | $53,716 |
| | | **Total Project Cost** | | | **$5,930,230** |

**Foothill Boulevard = 2,100 LF**
**Seminary Avenue = 1,000 LF**

# Acknowledgments


**Mayor and City Council**

Jerry Brown, Mayor
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Ignacio De La Fuente, Councilmember District 5
Larry Reid, Councilmember District 7
Henry Chang, At Large

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