# UNDERHILL AREA STREETSCAPE DESIGN MANUAL

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Review: Judy Chess, Manager for Policy and Programs, UC Berkeley
David Duncan, Principal Planner, UC Berkeley
Chris Harvey, Director of Capital Projects for RSSP
Jim Horner, Campus Landscape Architect, UC Berkeley
Tom Lollini, Assistant Vice-Chancellor, UC Berkeley
Julia Monteith, Senior Planning and Project Manager, UC Berkeley
Nadesan Permaul, Director of Transportation

Consultants: Bottomley Design and Planning
Merrill Morris Partners, Inc.

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Introduction

Background

The Underhill Area Streetscape Design Manual provides guidelines for design and safety improvements for projects in the Underhill area as they are implemented by UC Berkeley, the City of Berkeley, or private owners. The Underhill area is located within the Southside neighborhood adjacent to the UC Berkeley campus. The area is bounded by Bancroft Way on the north, College Avenue on the east, Dwight Way on the South, and Telegraph Avenue on the west, and includes a variety of land uses. This visually prominent area is a part of the larger Southside neighborhood and includes a diverse mix of residential, commercial, and institutional uses and serves a large population, 80% of whom are students. Moreover, it links several major destinations for Berkeley residents and visitors: the Telegraph Avenue and Bancroft Way commercial district, the College Avenue commercial district, the University of California, Berkeley Art Museum & Pacific Film Archive, Zellerbach Hall, and the UC Berkeley campus. The variety of land uses and dense population represent the area’s importance and visibility.

Because of its central location, the Underhill area neighborhood is prone to heavy vehicle, bicycle, and pedestrian traffic. Pedestrian movement in this area is unique: students and visitors tend to move in groups walking or clustering on the sidewalks. The proximity to UC and other services also means that the area is used heavily by persons who use wheelchairs.

Additionally, the UC Berkeley Underhill area projects, which are to be completed by 2007, will add approximately 1,200 additional student residents, a new 800-seat dining hall and student services building, student recreational facilities, and consolidated campus parking to the area. These projects will increase the population density and traffic within the area.

The Underhill area streetscape, however, does not currently align with its visibility and use. Throughout the area, sidewalks are damaged, and the street lighting, while recently improved, still requires additional lighting upgrades to create a more pedestrian-friendly streetscape. Moreover, street tree coverage is sporadic, or non-existent, open tree wells and planting strips are bare and generally neglected, detracting from the overall appearance of the neighborhood.

The Underhill Area Streetscape Design Manual is intended to inform and act as a set of guidelines to be used for streetscape projects in the area. This Manual incorporates the recommendations and issues previously described in the Underhill Area Master Plan, the Pedestrian Lighting Study, and the UCB/COB Southside Plan, while addressing the specific issues of the streetscape aesthetics and pedestrian circulation.
Issues and Purpose

Although this area has the potential to be a vital and vibrant student neighborhood, the Underhill area currently lacks a coherent, safe, and attractive streetscape. The purpose of The Streetscape Design Manual is to provide design guidelines that promote pedestrian safety and an attractive community character, consistent with good planning principles coordinated with UC Berkeley and City of Berkeley community design policies.

A priority of the Design Manual is to ensure that all streetscape features, including sidewalks and curb cuts, conform to the codes and standards for universal accessibility. Uneven sidewalks and lack of curb ramps in older areas such as the Underhill area can act as a hindrance to wheelchair users.

The Streetscape Design Manual contains guidelines and capital improvement recommendations to upgrade the condition, usefulness, and appearance of Underhill area’s sidewalks. These recommendations are part of an overall strategy to create a pedestrian-oriented student-housing neighborhood.

Many of the Underhill area’s streetscape design issues are common throughout Berkeley’s Southside neighborhoods. The joint UC Berkeley and City of Berkeley Southside Plan establishes the community’s vision for the area. With respect to the streetscape, it notes, “The Southside’s streetscape, including the sidewalks, street trees, lighting, and street furniture, provides a potentially unifying landscape character throughout the neighborhood, but currently suffers from heavy use and fragmentation.” With respect to lighting, “On the cross streets, the sidewalks are considerably darker, and the transition from one (lighting) zone to another can disorient pedestrians and . . . creates an opportunity for increased criminal activity.” With respect to sidewalk conditions, “. . . the sidewalks are too narrow to easily carry the high number of pedestrians, wheelchair users, and others who require wide sidewalks. Throughout the neighborhood, sidewalks are an obstacle course of news racks, poles, garbage cans, and other inappropriate street furniture.” And, with respect to street trees, “Overall . . . Southside public street tree plantings are in decline. Two of the most common species in the neighborhood, the American Elm and the Camphor, are subject to disease, causing older specimens in the neighborhood to die each year.” “Scattered efforts by property owners to plant new trees are not keeping up with the overall decline of the street trees.”

To address these and other issues, The Streetscape Design Manual will promote the following goals:

- Improve the quality and safety of the pedestrian zones through improved lighting, sidewalks, and street furnishings, and traffic management where appropriate.
Introduction

- Unify the diverse architecture and character of the Underhill area with a consistent streetscape.
- Provide an environment that is inviting and appropriately accommodates residents and visitors.
- Establish design guidelines that provide clear and consistent direction for future streetscape improvements.

Streetscape Design and Planning Assumptions

The UC Berkeley campus and the City of Berkeley overlap in the Underhill area, more than in any other area of the city. Because housing density is higher in the Underhill area than in any other neighborhood, it should support increased use of transit as well as other non-auto travel modes. It should also encourage pedestrian movement and provide an attractive environment for student residents and Berkeley visitors.

Three basic assumptions guide the Manual’s guidelines and recommendations.

1. The Underhill area is a special student-oriented neighborhood. Both UC Berkeley and the City of Berkeley acknowledge that the Underhill area is neither “town” nor “gown,” but a unique blend of the two. The Underhill area should become a special, pedestrian-oriented neighborhood. Streetscape-related capital improvements should reflect this distinction by expanding the range of capital improvements typically approved by the City, so that the Underhill area looks and feels different than other neighborhoods in the city. There is an opportunity for the University and the City to coordinate their efforts on the maintenance of special streetscape-related design elements as needed.

2. Traffic calming and streetscape design should be integrated. Heavily-traveled circulation corridors, specifically the Bancroft/Durant and Haste/Dwight traffic couplets span the Underhill area. A basic goal of the Manual is to facilitate the high levels of pedestrian activity. However, students, residents, and campus visitors must cross streets safely as well as walk along them. Motorists and cyclists should be warned that they are entering and passing through a pedestrian-preferred slow-traffic area. A coordinated program of traffic calming and motorist/cyclist awareness improvements is required.

3. Streetscape improvements should create a distinct neighborhood identity - Street trees, street lights, paving surfaces, and furnishings should combine to create a distinct image for Underhill area residents and visi-
tors. This does not require that all streets in the area be designed in exactly the same way. However, it does require that streetscape design elements be selected and arranged so that visitors, and particularly motorists, are aware they are entering a special portion of the city; that, in a sense they are encroaching on a special area of the city. Because building types and architectural forms are too varied in the area to accomplish this effect, streetscape improvements must provide this unifying element.

**Format and Use of the Manual**

The *Streetscape Design Manual* combines design goals and standards from the University and the City of Berkeley to provide a consensus-based view of the Underhill area. This *Manual* provides direction for site specific design in order to achieve the desired streetscape character of the Underhill area as developed in the *Southside Plan*. It is intended to guide incremental streetscape improvements that will occur over time. The typical concepts for capital improvements in this *Manual* were generated from the City of Berkeley’s design standards and construction details provided by the University and ADA standards for universal accessibility. The *Manual* should be used as a reference for design professionals working in the Underhill area.

The next section, Existing Conditions, summarizes the physical conditions of the area addressing sidewalks, utilities, street trees, and other elements. Specific improvement recommendations are contained in the Design Guidelines section. They proceed from the general to the specific – from an overall district improvement concept, to prototypical street plans, to detailed guidelines addressing items such as tree wells and sidewalk scoring patterns. Illustrative plan diagrams and photographs are provided to indicate design intent and recommended layout, dimensions, and materials. The Implementation & Maintenance section reflects the collaborative work and decision-making process that will be undertaken by UC Berkeley and the City of Berkeley in the Implementation of projects.
Existing Conditions

Study Area Streets and Intersections

Each of the streets in the Underhill study area has different physical conditions and serves a somewhat different function. For example, the two north-south streets, College and Bowditch, are heavily-used pedestrian routes to and from campus. East-west streets, such as Channing, provide access from student housing to College and Bowditch, as well the Telegraph Avenue commercial district. Each of the four east-west streets contain new housing development sites. Intersections in the area have a high degree of vehicle, bicycle, and/or pedestrian interaction. The Manual’s streetscape design guidelines are tailored to specific street conditions where appropriate. Study area streets and intersections are described below. Refer to Appendix A for the UC Berkeley access deficiency inventory for the Underhill area streets and intersections.

Underhill Area Streets

College Avenue. College Avenue is one of the study area’s busiest and most visible streets. It is a gateway to the UC Berkeley campus for students and visitors arriving by foot, bicycle, bus or car. Curbside parallel parking is provided along both frontages. Sidewalk areas are relatively narrow -- approximately 6’ in some locations -- given the street’s high level of pedestrian activity. Walks are constrained by relatively shallow building setbacks, a varied assortment of sidewalk-edge planting strips, and are uneven in some locations. Scoring patterns vary with the age of the walk. There are few street trees and the species vary, including Plane Tree, Alder, and Sweetgum. Lighting consists of “cobra-head” mast arm lights mounted on timber utility poles. Lights are mounted relatively high on the poles, with illumination blocked by tree canopies in some locations. In general, streetscape conditions on College Avenue are not consistent with the level of use and activity the street receives, and do not reflect the importance of the street as a campus and neighborhood gateway.

Bowditch Street. Bowditch Street is a City of Berkeley “Bike Boulevard” that extends south to the Oakland border via Hillegass Avenue. Within the study area, the street is striped with bike lanes, and street signs are the City’s custom Bike Boulevard design. Bowditch serves the greater Southside resi-
 Existing Conditions

Bancroft Way. Bancroft Way, a westbound vehicular route that functions as a one-way couplet with Durant, is not a major focus of study in the Design Manual. Bancroft is the south edge of the University campus and is the terminus for both College and Bowditch. Pedestrians and bicyclists must cross it to reach the campus. Traffic is heavy on Bancroft and parked cars make it difficult for motorists to see pedestrians. Some existing crosswalks lead to “landings” on the north side of the street that are not sufficient to accommodate existing or anticipated future levels of pedestrian activity. At College, a drop-off “duck-in” adds to the crossing distance.

Durant Avenue. Durant Avenue is a major one-way eastbound through-street, providing access from Shattuck Avenue and points west to California Memorial Stadium in the Piedmont Avenue area. At three lanes it is the widest street in the study area. Curbside parking and bike lanes are provided along both sides of the street. Commercial businesses and eateries are concentrated toward the west end, near Telegraph Avenue, and sidewalks are approximately 12’, considerably wider than in other study area locations. The street lacks consistent street tree planting particularly along the frontages between Telegraph and Bowditch. The landmark Durant Hotel is located at the southeast corner of Bowditch. The UC Berkeley Art Museum is located north and east across the street. Curbside parking and bike lanes are provided along both sides of the street, and vehicular traffic is heavy. New student infill housing at Unit I is currently under construction along the southerly street frontage east of the hotel.
Channing Way. Channing Way is the only two-way east-west street in the study area, functioning as a seam between the Bancroft/Durant and Haste/Dwight couplets. Like Bowditch, Channing is a City of Berkeley Bike Boulevard, with striped bike lanes on both sides of the street and custom Bike Boulevard street signs. Curbside parking is provided on the north-erly street frontage only. Along the north side of the street, new student housing has recently been constructed west of Bowditch (Channing/Bowditch), and more housing is under construction just west of College also at Unit I. Along the south, Channing provides frontage for the new Central Dining Office building, part of the Crossroads Dining Facility, and the future Underhill sports complex and parking facility. Sidewalks are generally wide and in relatively good con-dition; approximately 9' on the north and south. There are few street trees, with the exception of a grouping of tall palms on the north frontage just west of College.

Haste Street. Haste Street and Dwight Way function as a one-way couplet, with Haste as the westbound route. Curbside parking is provided along both sides of the street. New student infill housing is under construction on the south side of the street at Unit II. Along the north, Haste provides front-age for the new Crossroads Dining Facility, the Central Dining Office building, and the future Underhill sports complex and parking facility. Except where construction is under way, sidewalks are generally wide and in relatively good con-dition; approximately 9' on the north and south. There are no street trees. Haste is bordered along the south frontage west of Bowditch by People's Park.

Dwight Way. Dwight is a major crosstown street, one-way eastbound. It forms a one-way couplet with Haste Street, which is one-way westbound. Traffic levels are relatively high. The intersection of Dwight with the Bowditch/Hillegass Bike Boulevard is a significant point of conflict between motorists, pedestrians, and bicyclists (see Problem Intersections). Dwight Way borders People’s Park on the south. The southerly front-age is lined by apartments west of Hillegass and seminary buildings east of Hillegass. The landmark First Church of Christ Scientist faces Dwight at the northeast corner of Bowditch. New student infill housing (Unit II) is under con-struction on the north frontage. Large mature trees are lo-cated in building setback areas on the south side of the street. There are few sidewalk street trees.
Problem Intersections

**College/Bancroft.** This intersection is a University gateway and links pedestrians directly to Boalt Hall, Wurster Hall, and Kroeber Hall, with heavily used crosswalks. Some of this use is by students walking to and from the residential areas to the south, and some of it is related to the popular café on the southwest corner. It is an all-way stop, however crossing facilities do not reflect the high levels of pedestrian activity. On the north side of the intersection, a drop-off “duck-in” adds to the crossing distance. On the south, the crosswalk is located significantly west of the corner, making it difficult for motorists to see pedestrians as they cross the street. This problem is exacerbated by students, often in the middle of conversation, wandering into the street from the café.

**Bowditch/Bancroft.** This intersection connects the Bowditch/Hillegass Bike Boulevard to the campus. Though not as heavily used as the crossings at College, this intersection is likely to experience more use in the future as new University housing becomes available and as students adjust their on- and off-campus walking routes to incorporate the new Crossroads Dining Facility. On the north side of Bancroft there is little more than a large gap between parked cars and a standard city sidewalk to “receive” pedestrians. On the south, high pedestrian volumes tend to overload sidewalks, and pedestrians drift into the street to see around parked cars. This intersection is an all-way stop.

**College/Durant.** Durant is offset at this intersection, making visibility difficult for motorists, pedestrians, and bicyclists. Higher traffic and volumes add to the conflict with pedestrians and bicyclists at the crossings, particularly on the south side.

**Bowditch/Channing.** The Crossroads Dining Facility center makes this a busy intersection in terms of pedestrian activity; this will be exacerbated when the new student residence halls are occupied. Similar to other high-use areas, pedestrians tend to drift into crosswalks from adjacent sidewalks without looking. Similar to conditions on College Avenue, levels of pedestrian activity tend to overwhelm existing sidewalk areas, particularly at street corners. The curb ramps at some of these intersections are not very useable (based on slopes). Refer to the UC Berkeley survey information in Appendix A for more detail.
Existing Conditions

Bowditch/Dwight/Hillegass. This is the most problematic intersection in the Study Area. The offset of the north-south Bike Boulevard streets, consistent bicycle and pedestrian activity, awkward crosswalk locations, heavy levels of through traffic, and a lack of stop signs are contributing factors. Bicyclists traveling south must navigate against one-way traffic eastbound on Dwight.

Streetscape Conditions/Issues Summary

Streetscape design considerations for each of the study area streets are summarized below. The Existing Conditions graphic illustrates the major considerations.

College Avenue

- Two-way, heavy traffic/congested
- Heavy pedestrian use to and from campus and residence halls, group living and other residences
- Sidewalk paving width inadequate for pedestrian volumes
- Sidewalk paving surfaces variable; some replacement needed, cracks and upheaves render them inaccessible
- Street-oriented lighting only, north side only
- Minimal street trees; no consistency
- Curbside parking both sides; no bike lanes
- Intersections/crossings at Bancroft, Durant need improvement
- Storm drains west side could constrain tree planting
- Mixed-use/residential land use
- Variable building setbacks: 0'-10'
- Bus Route

Bowditch Street

- Two-way traffic
- Heavy pedestrian use
- Sidewalk width generally adequate; full-width at the Crossroads Dining Facility best; could be widened at some locations
- Sidewalk paving surfaces variable; some replacement needed west side Channing to Bancroft
- Neglected planting strips
- Street-oriented lighting only, south side only
Existing Conditions
Existing Conditions

- Minimal street trees, except; new Pistache, Haste to Channing, old Camphor, Channing to Bancroft
- Curbside parking east side; bike lanes both sides (Bike Boulevard)
- Intersections/crossings at Bancroft, Durant, Channing, Dwight need improvement
- Commercial/mixed-use/residential land use
- Variable building setbacks: 0'-15'

Durant Avenue

- One-way east bound, heavy/through traffic
- Sidewalk width generally generous
- Sidewalk paving surfaces variable; some replacement needed north side east of Bowditch
- Street-oriented lighting only, north side only
- Minimal street trees
- Curbside parking both sides; bike lanes both sides
- Intersections/crossings at College need improvement
- Commercial/mixed-use land use
- Bus Route

Channing Way

- Two-way traffic
- Sidewalk width generally adequate; full-width at Dining Services best; could be widened at some locations
- Sidewalk paving surfaces generally adequate
- Street-oriented lighting only, south side only
- Minimal street trees; notable palms west of College
- Curbside parking north side; bike lanes both sides (Bike Boulevard)
- Intersections/crossings at Bowditch need improvement
- Mixed-use/residential land use
- Variable building setbacks: 0'-10'

Haste Street

- One-way westbound
- Sidewalk width generally adequate; could be widened at some locations
- Sidewalk paving surfaces generally adequate
- Street-oriented lighting only, south side and portion of north side
Existing Conditions

- Minimal street trees
- Curbside parking both sides; no bike lanes
- Intersections/crossings at Bowditch need improvement
- Mixed-use/residential land use
- Variable building setbacks: 0'-15'

Dwight Way

- One-way eastbound, heavy/through traffic
- Sidewalk width generally adequate; could be widened at some locations
- Sidewalk paving surfaces generally adequate
- Street-oriented lighting only, south side only
- Minimal street trees
- Curbside parking both sides; no bike lanes
- Intersections/crossings at Bowditch, Hillegass need improvement
- Residential land use
- Variable building setbacks: 10'-15'

Utility Conditions

There are seven basic types of utilities located within the study area. A summary of these utilities and streetscape-related considerations is provided below. A Utility Assessment and associated utility maps are provided in Appendix B. None of the known utilities are located beneath sidewalks or pose a major constraint to anticipated streetscape improvements in the area.

1. **Storm Drainage.** Storm drain lines are adjacent to the curb along College Avenue, Bowditch Street, and Dwight Way. Lines are deep along Dwight and Bowditch and are not anticipated to constrain street tree planting. However, lines along College are shallow and may require some form of root protection, depending upon the specifics of the location. These lines could inhibit tree placement in parking zone planters or corner bulb-outs.

2. **Sanitary Sewer.** Sewer lines are located near the center line of all streets and do not pose a constraint for streetscape improvements in the area.
3. **Water Distribution.** Water lines are located in all streets, and water line positions relative to curb lines vary. Water lines may require some form of root protection, depending upon the specifics of the location.

4. **Gas.** Gas lines are located near the centerline of Bowditch Street, College Avenue, and Durant Avenue. These lines do not pose a constraint for streetscape improvements in the area.

5. **Electrical Power and Street Lighting.** Timber poles carrying street lights and power and telecommunications lines are located on the east side of College, the west side of Bowditch, the north side Durant, the south side of Channing, the south side of Haste and the north side adjacent to the Underhill parking and sports complex, and the south side of Durant. Power poles constrain potential locations for street trees, streetlights, and furnishings, and impair views and access on narrow sidewalks.

6. **Telecommunications.** Telephone lines, cable TV lines, and Internet access lines are attached to timber power poles, along with power and street lighting lines. See 5, above.

7. **Steam Distribution.** Steam lines supplying heat to campus buildings are located near the center line of Bowditch Street, Durant Avenue, and Haste Street. These lines do not pose a constraint for streetscape improvements in the area.

The streetscape environment in study area would benefit from undergrounding the existing overhead utilities. Sidewalk areas would be improved, shade trees could be planted without concerns for “topping” beneath utility lines, and the utilities themselves would be protected from potential storm and earthquake damage. Utility undergrounding issues and costs are reviewed in Appendix A.

As noted above, sidewalk lighting is provided by “cobra-head” mast-arm luminaires attached to timber utility poles. As noted in the *Pedestrian Lighting Study: South Side Area* (1996): “The existing lighting system in the South Side area is variable. Basically, it consists of an auto-oriented (sic) street lighting system that is affixed to utility poles on one side of the street,
though a few streets have two-sided lighting. There is no separate lighting for pedestrians and the light from the street lamp illuminates (or does not illuminate) the sidewalks as well.”

The University in conjunction with the City of Berkeley made a number of improvements to lighting in the area based on the lighting study recommendations. Pedestrian-oriented “acorn” lamps were installed along the westerly frontage of Piedmont Avenue with underground power. However, due to limited funding, improvement efforts elsewhere involved street tree pruning and adjusting the wattage and/or positioning existing cobra-head lights to better illuminate sidewalk areas, rather than installation of true, pedestrian-oriented illumination. Installation of new acorn lighting throughout the area could accompany utility undergrounding as discussed above, or be implemented independently.

**Zoning**

Zoning districts are indicated on the Zoning map on the following page. Minimum front yard setbacks for each district are listed below:

- **C-T**: Telegraph Commercial - 0’
- **R-SMU**: Residential Mixed Use - 0’-10’ depending upon adjacent context for buildings with 1st floor dwelling units and/or buildings located north of Durant Avenue; 15’ for all other building types and locations.
- **R-S**: Residential High Density - 0’-10’
- **R-3**: Residential Medium Density - 15’
- Variable building setbacks: 0’-10’

**Zoning Setbacks**

The Underhill study area incorporates portions of three City of Berkeley zoning districts, each with different building setback requirements. Building setbacks can have a significant effect on the quality of the streetscape environment, and can be incorporated in streetscape design planning for the area.
Study Area Zoning
Zoning Setbacks

Legend

- **C-T: No Front Setback**
- **R-SMU: 0 - 10' Setback**
  (Main Buildings with 1st Dwelling Units or Group Living Accommodations or Located North of Durant)
  15' Seback (All Other Main 1st Buildings)
- **R S: 0 - 10' Setback**
- **R-3: 15' Setback**
For example, private property landscaping in front yard areas can be coordinated with street improvements to create a double row of street trees. Or, they can allow back-of-walk locations for street trees or furnishings that would not be possible if walks are directly abutted by storefront buildings.

**Current and Planned Projects**

The Study Area contains approximately 11,800 linear feet of sidewalk/frontage. The “Current and Planned Projects” diagram on the following page illustrates streetscape improvements anticipated in the area by the University. As the diagram indicates, approximately 9.5% of this frontage has been recently improved; 15.5% is related to housing projects currently underway; 12% is planned for upcoming projects, including the Underhill sports complex/parking, and; approximately 63% remains unimproved, recommended for future UC Berkeley and City of Berkeley projects.
The “Streetscape Improvements” diagram on the following page illustrates concept-level recommendations for specific improvements in the Underhill area. As indicated in the “Current and Planned Projects” section, certain frontages have recently been improved or may be improved in the near future. However, the specifics of these improvements have yet to be coordinated from one project to the next, and this coordination is the prime objective of the Streetscape Design Manual. As noted previously, the Streetscape Design Manual also contains recommendations that go beyond typical streetscape design enhancements to address traffic calming, pedestrian safety, and other elements needed to create a truly pedestrian-oriented student neighborhood.

As illustrated by the “Streetscape Improvements Diagram,” east-west streets are recommended for streetscape improvements and corner bulb-outs where determined appropriate. Streetscape improvements include pedestrian-scale street lights, street trees, and selective sidewalk repair and/or complete repaving.

The recommended streetscape improvements for College and Bowditch are based on the following street relationships:

- College Avenue and Bowditch Street are north-south “campus gateway” streets.
- College Avenue is a high visibility street that provides access for pedestrians, motorists, and bus riders.
- Bowditch is a Bike Boulevard that provides bicycle and pedestrian access to and from neighborhoods to the south and the Crossroads Dining Facility.

Improvement recommendations for College and Bowditch streets are limited to streetscape design elements. Both streets have relatively slow-moving traffic, College due to congestion and Bowditch because it is not a through street. Streetscape design elements should include special campus gateway lights with banner brackets – high/low luminaires are recommended – street trees, and selective sidewalk repair and/or widening. Sidewalk repair and widening is recommended for the entire College Avenue frontage to accommodate its heavy pedestrian traffic.
Streetscape Improvements

Legend

- Streetscape Improvements / Frontage Renovation plus Traffic Calming
  - Post Top Street Lights at 75° OC
  - Mid-Block Crossings, Speed Humps, Trees in Parking, etc.
  - Alder Trees (or EQ) at 25° OC

- Streetscape Improvements / Frontage Renovation Only
  - High/Low Street Lights at 75° OC
  - London Plane Trees on College at 35° OC
  - Pistache Trees on Bowditch at 25° OC

- Mid-Block Traffic Calming and/or Crossing

- One-Way Traffic

Bus Plaza; Relocate Bus Stop

Existing Bus Stop

Bicycle Boulevard

Possible Corner Bulbouts
Design recommendations for corner sidewalk bulb-outs at intersections have been articulated. They have the potential to expand pedestrian surface area, improve pedestrian safety, and function as traffic calming elements. The configuration of bulb-outs depends on the function of adjacent streets. For example, full bulb-outs can be constructed if adjacent streets have curbside parking and do not accommodate “free right” turn movements; bulb-outs can not be constructed where no curbside parking exists and vehicle or bike lanes abut the curb directly. There are several intersections where curb ramps are insufficient and improving accessibility at these corners should be made a priority. Installation of corner bulb-outs in these locations will vastly improve these conditions. The “Streetscape Improvements” diagram shows potential bulb-out locations, specific recommendations for bulb-out configurations are contained in Appendix C.

Special Conditions

Due to the high level of present and future pedestrian traffic, special intersection and pedestrian improvements should be considered at College/Bancroft and Bowditch/Bancroft. Concept designs for each of these intersections are included on the following page. Each design includes the creation of an extended bulb-out on the University side of Bancroft in order to decrease the crossing distance for pedestrians, provide a larger space for gathering at the intersections, and increase the visibility of pedestrians for motorists. The concept for the Bowditch/Bancroft intersection incorporates improvements to the existing AC Transit bus stop to increase rider comfort and encourage the use of public transit.
Bancroft Intersections

Bancroft at Bowditch

Campus Gateway Area

Bancroft at College
Design Guidelines

The design guidelines presented in this section provide general descriptions of streetscape character as well as specific methods in which to achieve the desired improvements. A summary of these guidelines is located on page 45. A selection of City of Berkeley standard details can be found in Appendix D.

Prototypical Street Layout

Many factors effect the overall streetscape layout. Physical constraints such as driveways, building entrances, and utility poles all significantly influence the final arrangement of streetscape elements. A prototypical streetscape layout shown illustrates the basic design standards. Optimally, the final layout of elements should be determined on a block-by-block basis. When making adjustments, it is important to retain design consistency by adhering to the basic concepts presented in the prototypical layout; i.e. tree/light relationship, and street furnishings arrangement. The end result would be a cohesive and consistent visual identity for the entire district.

Setback Conditions

The typical streetscape improvements recommended occur within the public right-of-way. The overall character of the
Setback Improvements

C-T or R-SMU Zoning District
- 0' Setback
- Back of Walk Furnishings at Blank Walls Only

R-S Zoning District
- 0'-10' Setback
- Small/Medium Shrubs Recommended in Setback Area

R-3 Zoning District
- 15' Setback
- Can Accommodate Street Trees at Back of Walk; i.e. Bus Stops
- Small/Medium Ornamental Trees Recommended in Setback Area
- Consider Benches at Back of Walk

* Refer to Special Conditions - 1:
  Bus Stop at Curb
area can be greatly enhanced by integrating the streetscape improvements with landscaping within the private property building setbacks. Current private property plantings give the area a “green” appearance even with the distinct lack of street trees. The University and City should encourage landscaping outside the public right-of-way within the building setback area. Recommended setback improvements range from the planting of shrubs and ornamental trees to the addition of street furnishings such as benches at the back of walk where space allows. New development should consider coordinating setback improvements with the streetscape elements to create a cohesive and aesthetically pleasing pedestrian environment.

1. Sidewalks

Sidewalks are the backbone of a safe pedestrian environment along streets. However, the current sidewalk conditions within the Underhill area do not adequately serve the high volume of pedestrian traffic. Many of the sidewalks are broken or uneven, creating tripping hazards and causing difficulty for persons with mobility impairments. Remnant planting strips and open tree wells tend to be poorly maintained, detracting from the streetscape appearance and decreasing the amount of walking surface. Improving the sidewalk surface is essential to supporting current and future pedestrian traffic volumes.

The recommended minimum width for all sidewalks within the Underhill study area is 10.5’. Wider sidewalks should be considered where space allows. For infill projects in areas with existing sidewalks, the new sidewalk should meet the recommended width of 10.5’ or match the existing width if greater than 10.5’. In some cases, building and curbline constraints may only allow for a 8’ or 6’ sidewalk. Diagrams on page 27 illustrate the recommended layout for trees and lighting where these situations occur.

The preferred sidewalk would be composed of two functional areas: a 4’ furnishings zone, and a 6’ through pedestrian zone. The furnishings zone is measured 4’ from the back of curb. It buffers pedestrians from the adjacent roadway, and provides an area where elements such as street trees, signal poles, utility poles, street lights, hydrants, signs, parking meters, driveway aprons, and grates should be located. This is also where people alight from parked cars. The through pedestrian zone

Sidewalks should be improved throughout the Underhill area to support the high pedestrian volumes that will continue to increase in the future.
Existing Sidewalk Renovation

Existing Conditions:
- Uneven and/or Cracked Sidewalk Surface
- Existing Building or Wall
- Back of Walk Planting Area; Fill and Repave
- Existing Utility Pole w/Cobra Head Light
- Existing Large Tree; Renovate Tree Well
- Empty Tree Wells and Planter Strips; Fill/Repave

Proposed Condition:
- Regrade/Repave Sidewalk Area
- Existing Building or Wall
- 1' Vine/Edge Planting if Space Permits
- Custom Grate for Existing Large Trees
- New Street Light (typ.)
- Tree Grate for all New Trees
is the portion of the sidewalk that provides a space for walking that is removed from vehicle traffic and obstructions. Separating pedestrians from travel lanes greatly increases their comfort and sense of safety. In some instances it may be appropriate to locate benches along the back of sidewalk rather than within the furnishing zone, provided a 6’ clear pedestrian corridor can be maintained.

a. **Paving**

Paving surfaces should be firm, stable, and allow for ease of passage by people using canes, wheelchairs, or other devices to assist mobility. The through pedestrian corridor should generally be concrete to provide an even walking surface. Unit pavers should be considered within the corner bulb-outs to unify the area as a unique district. Sidewalk scoring for all streets within the district on should be as shown in the “Sidewalk Conditions” illustration.

b. **Cross Slope**

Walking surfaces should be relatively level, yet allow for surface drainage. The preferred cross slope for the entire paved sidewalk is 1.5%, with a maximum cross slope of 2%. If a greater slope is anticipated, because of atypical topographic or existing conditions, the 1.5% preferred slope should be maintained within the 6’ minimum circulation corridor. This can be accomplished by placing the more steeply angled slope within the furnishings zone, except at bus stops where gradient should follow street grade.

c. **Driveways**

Driveway aprons should not intrude into the through-pedestrian zone. In the preferred condition, the through pedestrian zone is maintained across the entire driveway and is scored with the sidewalk pattern. The sloped portion of the driveway apron should be located entirely within the furnishings zone. Driveway construction should comply with the City of Berkeley “Standard Driveway Approach Detail.”

d. **Planting Strips**

Existing curbside planting strips should be paved to increase the usable pedestrian surface and eliminate the need for continual maintenance.
2. Street Corners

Pedestrian activity is generally concentrated at street corners. Sidewalks converge, walkers wait for crossing opportunities, and people stop and converse. Street corners are also important in the larger scheme of street systems: they are the logical location for markers such as street name signs and traffic control signals. Generally, existing street corners offer little refuge and often overflow with pedestrians spilling into the street during peak automobile traffic periods. Visibility at corners is an issue for all users of the street system.

To alleviate the congestion and provide a more gracious pedestrian environment, corner bulb-outs should be considered. Bulb-outs expand the street corner, increase pedestrian visibility, and reduce pedestrian crossing distances (see diagrams on page 23 and 32). Bulb-outs should not be installed where there is no curbside parking.

Corner bulb-outs should extend approximately 6’ from the face of the existing curb, with a 10’ outside radius for street sweeping. Bulb-outs should have a minimum length of 20’, with 36’ length preferred to allow more room for pedestrian clustering.

a. Extended Bulb-Outs

Extended bulb-outs should be used in locations where there is a need pedestrian amenities such as benches, trash receptacles, information kiosks, and bike racks. The extended bulb-out would expand the furnishing zone from 4’ to 10’ and allow for a greater range of furnishings.
Corner Bulb-Outs
b. **Curb Ramps**

Curb ramps allow users to make the transition in grade from the street to the sidewalk. Ideally, there should be a separate curb ramp for each crosswalk at a corner. The maximum ramp slope is 1:12 with a cross slope of no more than 1.5%. The minimum width of a ramp is 3’. The landing at the top of the ramp should be at least 4’ long and at least the same width as the ramp itself. All curb ramps should comply with the City of Berkeley’s standard wheelchair ramp details.

c. **Corner Sight Triangle**

The corner triangle area of a street corner is the space between the curb and the lines created by extending the property line to the curb face as shown below. Permanent obstructions such as street trees, power poles, and other vertical elements should be minimized in this area to ensure proper visibility for motorists. The recommended corner triangle should extend 30’ from the face of the curb.
3. Street Trees

Street trees serve a variety of functions in the streetscape - they supply shade, buffer wind, screen unsightly views, provide neighborhood character, and buffer people from cars. Street trees provide pedestrians with a sense of comfort by limiting their exposure to the sun and cars. In general, the residential areas surrounding the study area have regularly spaced, mature street trees which give the neighborhoods a distinct and attractive character. Within the Underhill area, however, street trees can be sporadic in some areas, removed or non-existent in others. Consistent street tree planting in this area will greatly improve neighborhood aesthetics and pedestrian comfort.

a. Tree Location

New infill street trees should be planted in 4’x4’ tree wells within the furnishing zone. Trees should be located at a regular spacing with adjustments made to avoid driveways, utility poles, and other fixed elements where necessary and aligned where possible with striping and curbside parking. Any adjustment to the recommended tree spacing should be done in full block increments. The location for street trees should be determined during the early stages of the planning process to ensure that space is reserved for trees installed in future development phases. Existing trees that are dead, diseased, or inappropriate should be removed and replaced with the species recommended for the particular street. Specific tree planting guidelines are as follows:

- Trees should be a minimum 24” box size at planting.
- Trees should be regularly spaced at 25’ on center (or more as noted for species) within the 4’ furnishing zone. Spacing may need to be adjusted slightly to avoid driveways and utility poles.
- Trees should be located at least 15’ from utility poles.
- Trees should be located at least 10’ from driveway lines.
- Trees should not be planted closer than 3” from the curb face at intersections and street corners within the corner triangle.
- Branching height of mature trees must not interfere with visibility of traffic control devices.
- Trees should be located a minimum of 30” from the face of curb.
• The branching height of mature trees on the street side should be maintained at no less than 14’ above the street.
• The branching height of mature trees on the pedestrian side should be maintained at no less than 8’ above the street.

b. Tree Selection
The goal of the plan is to match appropriate tree species to each street within the Underhill area and to create a distinct character and image for each. Tree selections for the Underhill area streets are based on the City of Berkeley’s South Campus Street Tree Planting Plan (see Appendix E) to maintain continuity with the greater neighborhood. Existing mature trees should be incorporated into the overall plan whenever possible.

Recommended tree species by street are as follows:
• College Avenue – London Plane ‘Columbia’ (*Platanus acerifolia ‘Columbia’*)
• Bowditch Street – Chinese Pistache (*Pistacia chinensis*)
• Durant Avenue - Scarlet Oak (*Quercus coccinea*)
• Channing Way – Red Sunset Red Maple (*Acer rubrum ‘Red Sunset’*)
• Haste Street - Ginko ‘Autumn Gold’ (*Ginko biloba ‘Autumn Gold’*)
• Dwight Way - Frontier Elm (*Ulmus hybrid ‘Frontier’*)
c. **Tree Wells and Grates**

Tree wells should be measure 4’x4’ and be covered with uncoated cast iron grates. Where sidewalks are less than seven feet wide the tree grate well should be 3’x6’ and covered with a custom cast iron grate with a style equivalent to that of the standard grate specified below. Existing mature trees that are to be retained should be fitted with grates or surrounded by an ADA acceptable surface such as decomposed granite to ensure an even pedestrian surface. All grates within the sidewalk should be flush with the level of the surrounding sidewalk surface, and be located within the furnishings zone. The recommended tree grate is style #R-8706-1A, by Neenah Foundry Company or EQ as per the City of Berkeley’s *Street Tree Planting Policies/Guidelines*.

d. **Tree Guards**

Tree guards should be installed where appropriate to protect trees and ensure their longevity. The recommended tree guard is style C with a black powder coat, by Neenah Foundry Company or EQ as per the Berkeley’s *Street Tree Planting Policies/Guidelines*.

e. **Structural Soil**

Structural soil is an air-entrained mixture of quality aggregate and “soil” formulated to support various pavement types, while allowing voids for air exchange, water movement, organic matter, and root growth. Structural soil installed under paving allows tree roots to grow out of the tree well and under the adjacent sidewalk without causing the pavement to heave or buckle. This greatly increases the long-term health of the tree while ensuring that sidewalk surface remains even. It is strongly recommended that structural soil be used for all new street tree plantings. See the planting detail for recommended structural soil locations.

f. **Trees in Parking Zone**

Some sidewalk widths or subsurface utilities may constrain the planting of street trees along the entire frontage. In these instances it is recommended that street trees be located in tree wells within the parking zone. This will help maintain both a consistent streetscape design and the recommended pedestrian corridor. Tree wells in the parking zone should measure 6’x12’ to allow room for cars to back out of parking spaces without damaging
Street Tree Details
the tree. Smaller tree wells may be used if concrete bumpers are installed in the parking strip to act as wheel stops. Recommended spacing and placement of tree wells in shown in the illustration on the previous page.

4. **Lighting**

Pedestrian-oriented lighting improves visibility, increases the sense of personal safety, and adds to the overall streetscape character. Currently, lighting in the Underhill study area is limited to “cobra-head” fixtures mounted on utility poles which provide only sporadic coverage. As a result, lighting levels, while recently improved, are generally inadequate. The large number of housing units, dining hall and proposed sports complex along with the area’s proximity to campus will create a very active nighttime environment. Consistent lighting coverage is essential for improving the safety and visibility of pedestrians in this heavily-used area.

a. **Location**

New pedestrian-scale lighting should be installed on all streets within the Underhill area to replace the existing “cobra-head” fixtures. Fixtures should be located at approximately 75’ on center to provide consistent coverage on all streets. Light placement should be coordinated with existing and proposed street tree planting to ensure that fixture illumination is not blocked by trees. Pedestrian-oriented light fixtures should be mounted at approximately 12’ above sidewalk grade; beneath the tree canopy. Any adjustment to the recommended light spacing should be done in full block increments.

b. **Design Concept**

The recommended light fixtures are intended to increase the amount of coverage and establish the desired community character. College and Bowditch both lead directly to the UC Berkeley campus and should be highlighted as major gateway streets and safety corridors due to the heavy amount of pedestrian, bike and vehicular traffic. Both residents of and visitors to the campus travel via these corridors making them the most appropriate locations for signage that highlights special events and community character. The recommended fixture for these two streets is a high/low design that provide illumination for both roadway and sidewalk. In addition, these fixtures
provide space for banner signs that can be changed to reflect campus activities or community events. The recommended fixture for north/south streets is a simple acorn style, similar to the lights recently installed on Piedmont Avenue just north of the Study Area.

c. **Recommended Fixtures**

Lighting fixtures must meet the minimum footcandle standard specified by the IES guidelines. Recommended lights by street are as follows:

- College Avenue, Bowditch Street – to be determined by the City of Berkeley
- Durant Avenue, Channing Way, Haste Street, Dwight Way – SBP Battery Park by Sentry

5. **Furnishings**

All street furnishings within the Underhill area should be finished to the City of Berkeley’s standard color. The only exception to this standard applies to furnishings located along the northern frontage of the Bancroft. Furnishings installed in this location should be finished to match the University standard color, Elephants Breath.

a. **Benches**

Benches should be provided where there is space for a clear circulation corridor and separate seating zone.
Benches can be located along the back of sidewalk where appropriate or within a corner bulb-out. The preferred type of seating is a 6’ metal bench with a center armrest and no end armrests for disabled seating. The bench should be permanently secured to the paving surface. The recommended bench is the Scarborough by Landscape Forms or EQ.

b. Trash Receptacles
Trash/Recycling receptacles should be easily accessible to pedestrians and conveniently placed near activity nodes such as corners and bus stops. Every corner bulb-out should have a trash/recycling receptacle. Where appropriate, they should be arranged with other streetscape elements to create functional compositions. Receptacles should not be placed directly adjacent to benches. The recommended trash receptacle is the Urban Renaissance Receptacle, part #970270 by Forms+Surfaces or EQ.

c. Bicycle Racks
Bicycle racks should be provided at extended corner bulb-outs that are located near high-traffic destinations. Racks should be placed perpendicular to the curb so that parked bicycles will not intrude into the pedestrian corridor or car exit zone. The recommended bicycle rack is the hoop rack by Dero or EQ.

d. Newspaper Racks
Newspaper racks should be clustered together wherever possible and located near pedestrian activity nodes. Racks should be consolidated in a single stacked fixture whenever possible. The recommended location for newspaper racks is against a building wall or within an extended corner bulb-out. If they are placed against a building wall, the 6’ clear pedestrian corridor must be maintained. Placement in a bulb-out should not obstruct the view of drivers at the intersection.

e. Kiosks
Kiosks should be designed to provide a space for posting community notices and flyers and exclude commercial advertising. They should be easily accessible from all sides and easy to maintain. Kiosks may include semi-permanent features such as area maps or heritage signage that highlights the history and character of the neighborhood. The recommended location for kiosks is within an ex-
tended corner bulb-out where they can be grouped with other furnishings. The kiosk design should be complementary to other street furnishings.

f. Code Blue Units

Code Blue units are emergency call stations installed by the University both on campus and within the surrounding student resident neighborhoods including the Underhill area. These units should be wheelchair accessible and located within the site furnishings zone or grouped with other elements within the corner bulb-outs.

g. Signage

The Underhill area should have a coordinated system of directional and informational signage that is aesthetically pleasing, consistent and appropriately located. Signage should provide direction to key area destinations such as public parking, museums, stadiums, the UC campus, and the Telegraph Avenue shopping district. All directional and informational signage should be consolidated and grouped with other streetscape elements and located within the corner bulb-outs. Signage should not be placed in areas that obstruct the motorists view.

h. Parking Meters

Parking meters should be coordinated with the location of parking stalls per the City of Berkeley’s Standard Setting Parking Meter Post. Meters should be placed within the furnishings zone and aligned with lights and street trees. Standard meter base covers and poles should be painted to match street furnishings where feasible. Where possible, existing individual meters should be upgraded to one meter per four stalls similar to conditions in downtown Berkeley.

Special Conditions

a. Bus Stops

Public transportation is vital to the Underhill area and its use should be encouraged to avoid increased vehicular congestion. Guidelines for transit stop improvements have been included in this document. Several options are presented in the illustration on the following page. Improvement recommendations range from the addition of basic furnishings such as benches and trash receptacles,
Bus Stops

Bus Stop with Bench

Locate Trees at Back of Walk if Space Permits

Bench and Trash Receptacle (typ.)

Bus Stop w/Shelter

60' min. for AC Transit Bus Stop

Trees at Back of Walk
b. Mid-Block Crossings

Mid-block crossings should be considered in locations where there is a significant demand for crossing and no nearby existing crosswalk. Mid-block crossings should be aligned with logical pedestrian travel patterns. Design recommendations that should be considered for mid-block crossings include curb bulb-outs, flashing roadway lights, signage, and enhanced striping or special paving materials as shown in the illustration below.
Design Standards Summary

Below is a summary of design standards as described in the Design Guidelines. This information should be used as an initial reference for specific streetscape improvement projects. Construction details contained in this appendix were obtained from the City of Berkeley in September of 2003. These construction details should be verified with the City of Berkeley before the initial plan submittal to ensure compliance with current standards.

City of Berkeley Contact Information
Public Works (510) 981-6300
Transportation (510) 981-7010
Parks, Recreation and Waterfront (510) 981-6700
Land Use Planning (510) 981-7410
Bicycle Planner (510) 981-7062

Sidewalk Standards

<table>
<thead>
<tr>
<th>Width</th>
<th>10’ preferred, 6’ minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross Slope</td>
<td>1.5%, 3/16” per foot</td>
</tr>
<tr>
<td>Curb</td>
<td>6” COB standard curb section</td>
</tr>
<tr>
<td>Corner Radius</td>
<td>10’ minimum</td>
</tr>
<tr>
<td>Ramp Design</td>
<td>COB standard detail Case 1 preferred</td>
</tr>
<tr>
<td>Scoring</td>
<td>Score joints align with tree grates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driveways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corner Bulb-Out</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Return</td>
</tr>
</tbody>
</table>

Street Trees

<table>
<thead>
<tr>
<th>Placement</th>
<th>30’ from corner curb face</th>
</tr>
</thead>
<tbody>
<tr>
<td>25’ O.C. preferred, specific spacing of trees to be completed on a block by block basis</td>
<td></td>
</tr>
<tr>
<td>Centerline 2.5’ from adjacent curb face</td>
<td></td>
</tr>
<tr>
<td>Structural Soil</td>
<td>Recommended under entire furnishings zone with partial sidewalk reconstruction or full sidewalk width where complete sidewalk construction occurs</td>
</tr>
<tr>
<td>Species</td>
<td>College Avenue - London Plane Tree ‘Columbia’</td>
</tr>
<tr>
<td></td>
<td>Bowditch Street - Chinese Pistache</td>
</tr>
<tr>
<td>Species (cont.)</td>
<td>Durant Avenue - Scarlet Oak</td>
</tr>
<tr>
<td></td>
<td>Channing Way - Red Sunset Red Maple</td>
</tr>
<tr>
<td></td>
<td>Haste Street - Ginko ‘Autumn Gold’</td>
</tr>
<tr>
<td></td>
<td>Dwight Way - Frontier Elm</td>
</tr>
<tr>
<td>Grate</td>
<td>Neenah Foundry R-8706-1A (4x4)</td>
</tr>
</tbody>
</table>
Guard
Neenah tree guard type C, 5’

Existing Trees
(permit to trim or remove) COB Parks, Recreation, and Waterfront

Lighting

Placement
75’ on center, equidistant between street trees

Fixtures

East/West Streets
Luminaire
Sentry Electric Company, Battery Park Series
model SBP-100HPS-120V-PC-BK-V
SCP inside sandblast globe

Pedestrian Light Pole
Union Metal Corporation, Nostalgia Series
model P874-39, 14ft., 16 flute steel shaft with custom 3” tenon, color per City of Berkeley
Cast aluminum base MM39, AA-356.OF with access door in base

College/Bowditch
High/Low Fixture (style and manufacturer to be determined by COB)

Furnishings

Bench
Landscape Forms
Scarborough 6’ w/center armrest, color per City of Berkeley

Trash Receptacle
Forms + Surfaces Urban Renaissance Receptacle
part number 970270, color per City of Berkeley

Bus Shelter
Lamar Transit Advertising
AC Transit (510)981-7062

Bicycle Rack
Dero Racks Hoop Rack, galvanized
Implementation & Maintenance

Improving streetscape conditions in the Underhill area should be a collaborative effort between UC Berkeley and the City of Berkeley. Each entity is likely to have a distinct role in implementing and maintaining streetscape improvements, as discussed below.

Implementation

The “Current & Planned Projects” map on page 18 illustrates that approximately 40% of street frontages in the study area will be improved by UC Berkeley as part of current or planned student housing construction. Frontages not currently programmed for streetscape improvements comprise approximately 60% of the study area. Completing improvements in the rest of the area – linking student housing sites to the main campus and Telegraph Avenue – will require additional implementation efforts. Possible approaches include incremental improvements in conjunction with private development, and/or larger-scale capital improvement projects.

- Private Development Requirements - It is recommended that the University and the City of Berkeley use the Streetscape Design Manual to guide review and requirements related to new development in the Underhill area. Improvements that could be provided as part of private development include sidewalk renovation or replacement and installation of street trees and selected furnishings, such as bike racks. This approach to implementing streetscape improvements could take many years to complete, however, and alone would not provide all of the streetscape elements recommended by the Manual.

- Capital Improvement Projects - A number of the streetscape improvements recommended are not typically provided with property-by-property development. For example, corner curb bulb-outs are not a likely condition of approval unless the development site in question is adjacent to a street corner. Improvements that require coordination between more than one property, such as new street lights and/or utility under grounding, are another example. These should be provided by City-coordinated capital improvement projects. Joint UC/City funding approaches should be explored, including possibilities for a landscaping and lighting assessment district. Development fees should be considered as well.

UC Berkeley and the City should work together to develop an implementation strategy that mixes these and other options to complete streetscape improvements in the Underhill area as soon as possible. External/joint funding opportunities (ISTEA, MTC, CMA grants) and curb ramp funding should also be explored.
**Maintenance**

Streetscape improvements require maintenance, from sidewalk repairs to tree trimming and replacement of bulbs in street lights. Maintenance of streetscape elements located within the public right-of-way are provided by the City of Berkeley. As noted in the guidelines, recommended street tree species, street furnishings, paint color for metal work, and other streetscape design elements are consistent with City of Berkeley standards. Bus shelters are an exception, and will be maintained by AC Transit. Installation of new bus shelters is anticipated in a number of locations consistent with AC’s ongoing transit facilities upgrade.

Special streetscape design elements, such as kiosks and UC directional signs, may have special maintenance requirements. UC and the City should review the design and maintenance considerations of special design elements to assess potential issues and maintenance responsibilities.
References

Environmental Impact Report for the Underhill Area Projects, Volumes I & II; April 2000
Draft Southside Plan; December 2001
Southside Plan - Planning Commission Subcommittee Draft - Zoning; July 2003
City of Berkeley Street Tree Planting Policies/Guidelines
City of Berkeley Bicycle Plan; December 31, 1998
Denver Streetscape Design Guidelines; 1993
City of Berkeley Map Room - Zoning Information
   www.ci.berkeley.ca.us/maproom/default.html
City of Berkeley Transportation Bike Plan
   www.ci.berkeley.ca.us/transportation/Bicycling/BikePlan/BikePlan.html
City of Berkeley Bicycle Boulevard Design Tools and Guidelines
   www.ci.berkeley.ca.us/transportation/Bicycling/BB/BicycleBoulevard.html
City of Berkeley Bicycle Boulevard Signage
   www.ci.berkeley.ca.us/transportation/Bicycling/B/BicycleBoulevardSignage.html