Telegraph Avenue Public Realm Plan

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Prepared for the City of Berkeley, Telegraph Business Improvement District, and UC Berkeley

STUDIOBERGTRAUN AIA · ARCHITECTS

TAECKER PLANNING & DESIGN

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Executive Summary

Berkeley's iconic Telegraph Avenue hosts a high volume of daily visitors, is surrounded by high density neighborhoods, and abuts UC Berkeley, yet the district has suffered from disinvestment, which has been exacerbated by relatively few public realm improvements and the lack of an overall vision for the area. In this context, the Telegraph Business Improvement District, the City's Office of Economic Development, UC Berkeley's Physical & Environmental Planning Office, and Berkeley Design Advocates partnered on a grant application for UC Berkeley's Chancellor's Community Partnership Fund, and secured funding for the Telegraph Public Realm Plan (TPRP).

TPRP provides design and implementation guidance for public realm improvements that will enhance Telegraph Avenue as a pedestrian-friendly place and distinctive destination. It focuses on four and one-half blocks of Telegraph – from below Dwight Way to Bancroft Avenue and UC Berkeley's Sproul Plaza. From Dwight to Bancroft, Telegraph's right of way narrows and creates a "main street" setting that has high levels of activity, and proximity to UC Berkeley.

Phasing Strategy. TPRP addresses near-term improvements but in the context of an ultimate vision. Near-term improvements must be affordable and may be made incrementally, as funding allows. To initiate and learn from near-term improvements, two prominent "demonstration projects" are proposed at "Durant Plaza" and "Dwight Triangle."

TPRP also establishes a long-term vision for a more dramatic transformation of Telegraph, as funding becomes available. A "shared street," with a plaza-like surface that extends seamlessly across Telegraph, forms the centerpiece for ultimate conditions. Design elements must, therefore, be affordable in the near-term, while also composing design elements within an ultimate vision.

Design Elements. The Telegraph Public Realm Plan proposes the following design elements, each of which is described and illustrated on the following pages:

1. **Sidewalk Etching.** Sidewalk surfaces will be made even and chemically stained for a clean and enhanced walking surface.
2. **Public Art.** Public art will add visual and cultural interest, with temporary installations considered for more immediate change.
3. **Modular Stations.** Colorful corrugated metal " modulars" will enclose trash and recycling receptacles, story-telling panels, and sidewalk lighting.
4. **Scramble Intersections.** "Scrambles" allow pedestrians to cross diagonally at intersections and calm traffic.
5. **Parklets.** Parklets extend sidewalks to create small amenity areas with features like public art, landscaping, and seating.
6. **Street Trees.** New trees will be planted where trees are missing or in poor condition using a consistent palette of species.
7. **Street Lighting.** Lighting will be retrofitted for a vibrant environment, and may be replaced with pedestrian-scaled lighting in the long term.
8. **Shared Street.** Plaza-like paving will extend across the street to reinforce Telegraph as a pedestrian-oriented place.
9. **Green Infrastructure.** Improvements may necessitate new stormwater drains, which present opportunities for features that filter urban runoff.

Demonstration Projects. Demonstration projects focus on affordable but high-impact transformations, and offer an opportunity to test and refine design features. Two target areas have been identified for making low-cost, high-impact improvements. "Durant Plaza" and "Dwight Triangle" offer wider sidewalks extra right-of-way in highly visible locations, which allow these demonstration areas to incorporate place-making features that can leverage limited near-term resources.

Implementation. TPRP also provides guidance on how features will be implemented, such as by assigning responsibilities, refining design concepts, estimating costs, identifying funding sources, and anticipating critical decisions by interested stakeholders.

ONE-STORY

VACANT LOT

Planning Area. *TPRP focuses on four and one-half blocks of Telegraph, from below Dwight Way to Bancroft Avenue and UC Berkeley's Sproul Plaza. Adjacent to the street, there are vacant and one-story buildings that may be considered as development opportunity sites.*

Background

Purpose

Telegraph Avenue hosts the highest density of daily visitors of any district in Berkeley. Yet the district and its public realm suffer from years of disinvestment, which has been exacerbated by relatively few public realm improvements and the lack of an overall vision for the area.

Critical to the revitalization of Berkeley's Telegraph Avenue is its success as a vibrant people-friendly place. The "public realm" – the shared space between buildings – represents a significant community asset that can promote further revitalization and respond to community needs. At the same time, private vehicles, transit, pedestrians, bicycles, street vendors, businesses and infrastructure compete for space within the public right of way.

The Telegraph Public Realm Plan (TPRP or "the Plan") provides design and implementation guidance for public realm improvements. Proposed improvements address both functional needs and perception-changing enhancements. It covers unifying features (such as sidewalk paving), recurring elements (such as regular pause points), and specific place-making opportunities.

TPRP offers a comprehensive vision for the Avenue that can help secure funding for near- and long-term improvements. In the near-term, TPRP provides a blueprint for "demonstration areas" for attainable and transformative projects. These demonstration areas will showcase new design features that can be refined and implemented elsewhere as funding becomes available. Two target areas have been identified for making affordable high-impact improvements:

- "Durant Plaza" takes advantage of Durant's unusually wide sidewalks and heavy foot traffic to create a special urban place through public art and other features; and
- "Dwight Triangle" is an underutilized open space that can be a southern gateway and pedestrian-friendly amenity.

TPRP also establishes a long-term vision for what Telegraph can become ultimately, as funding becomes available. A "shared street," with a plaza-like surface that extends seamlessly across Telegraph, forms the centerpiece for ultimate conditions. Incrementally, and over time, proposed design elements will create a more unified and distinctive sense of place.

A roadmap for implementation is provided in the final chapter. Near-term and long-term improvements are noted along with their relative importance, necessary actions, key partners, and potential funding sources. For near-term projects, ballpark cost estimates have been developed and are available as an appendix.

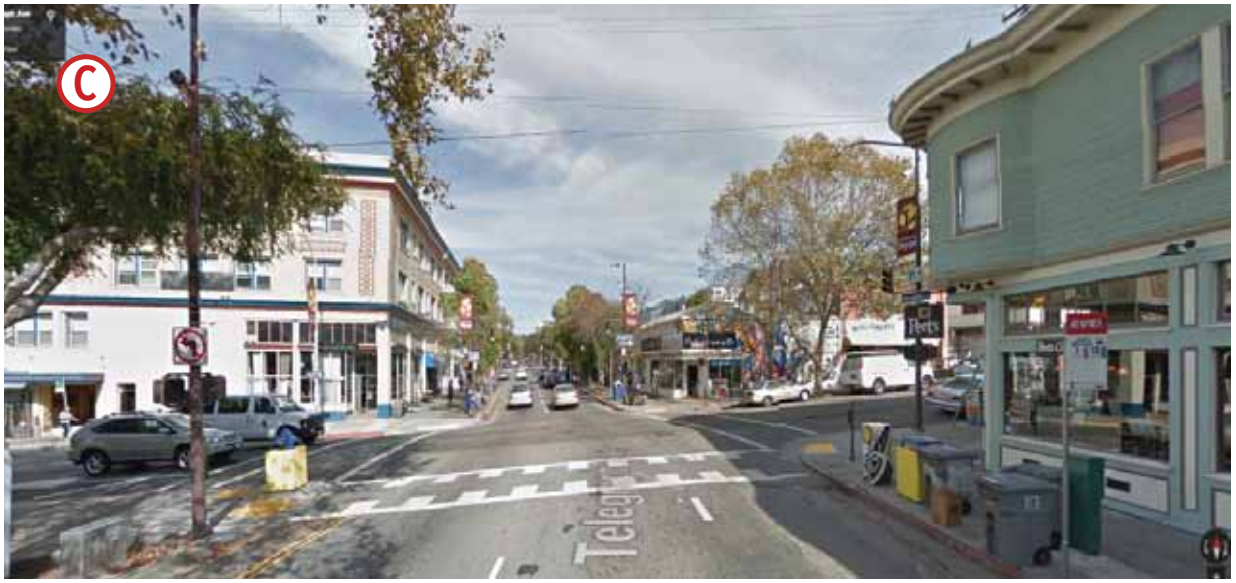
Telegraph Vitality. *The Telegraph district remains a recognized destination with high activity on some days and in certain locations. TPRP creates a blue print for improvements to accelerate Telegraph's revitalization.*

Conditions in 2016

Telegraph Avenue offers an urban "main street," where shops and buildings frame the street, and the street sets the stage for pedestrian activity. A range of activity can be observed, as Telegraph is enjoyed by Berkeley residents, vendors and merchants, visitors from around the world, and UC Berkeley faculty, staff and students.

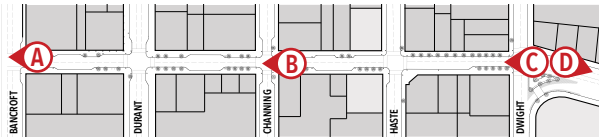
Telegraph continues to be a significant commercial destination, in spite of growth in internet sales of books and music. Retail activity is highest near UC Berkeley's campus, between Bancroft and Durant, with moderate activity extending to Channing. At the intersection of Haste and Telegraph, retail activity has been impeded, as three of the four corners have lacked active building fronts. At Dwight, at the southern end of the planning area, retail activity is moderate.

While Telegraph is lined by active shops, the condition of sidewalks and other public realm elements is poor. The streetscape has not been improved comprehensively since the 1970s. Piecemeal improvements have occurred with little aesthetic coordination. Sidewalks have multiple concrete segments poured at different times without a common pattern of concrete joints. Furthermore, many street trees have aphids that leave a sticky residue on sidewalks, and gives them an unclean appearance in spite of regular washing.



Telegraph also has light poles from when engineering concerns overshadowed aesthetics and pedestrian scale. Refuse containers share this spare functional appearance. In addition, Telegraph lacks art or other features to add interest. Together, current features make the street environment relatively unremarkable and less attractive than is possible.

Buildings abut and spatially frame the street environment. Buildings are in generally good condition and many offer architectural interest. Some buildings are relatively plain, however, and may present development opportunities (see page 2 diagram). Street improvements, in combination with private development, will re-generate the Telegraph Avenue district over time.



General Character. *The key map above corresponds with photos at left. TPRP's northern boundary is Sproul Plaza on UC Berkeley's campus (A). The typical condition is a "main street" environment where buildings frame Telegraph and ground-floor retail activates sidewalks (B, C). South of Dwight, Telegraph widens and becomes less active and intimate (D).*

Process

Motivated by deep concern about the Telegraph area, including a dramatic drop in retail sales, homelessness, and a decline in the quality and character of Telegraph, Berkeley Design Advocates (BDA) conducted two design charrettes (workshops) in 2012 and 2013. These charrettes resulted in creative design insights and guidance in the form of "Seven Principles for Bettering Telegraph":

1. Enhance Telegraph's sense of place.
2. Calm traffic and increase pedestrian space.
3. Strengthen Telegraph as a destination.
4. Make a center for music & the arts.
5. Increase activity by adding intensity.
6. Address social needs.
7. People Peoples Park (i.e. make it attractive to a broader range of users).

BDA's principles helped generate important zoning changes and spurred other initiatives, but a vision for public improvements remained missing. Consequently, the Telegraph Business Improvement District (TBID), the City's Office of Economic Development, UC Berkeley's Physical & Environmental Planning Office, and Berkeley Design Advocates partnered on a grant application to UC Berkeley's Chancellor's Community Partnership Fund, and secured funding for the Telegraph Public Realm Plan (TPRP).

Initiated in spring 2015, the TPRP was developed with significant guidance from the TBID, City departments, University planners, and other community partners. A technical advisory committee comprised of planners and professional staff from the City of Berkeley, UC Berkeley, and AC Transit vetted initial ideas and reviewed recommendations.

Early ideas were presented for feedback at a community workshop in June 2015. Another community workshop was held in September 2015, as draft design concepts emerged. Both workshops were widely advertised and hosted by TBID. They were attended by vendors, merchants, property owners, and community decision-makers. As a top priority, community members complained about the poor condition of sidewalks and asked that sidewalks be attractive and easy to clean. After the September 2015 community workshop, local vendor Evan Linden told the Daily Californian

"Years ago, (Telegraph Avenue) used to be a hub for intellectual and creative expression. To see them put an effort towards the arts and that type of energy can be exciting - I just want to see that excitement turn into action."

-The Daily Californian, September 16, 2015

Following the September workshop, preliminary drawings were displayed in a storefront at 2499 Telegraph for two months through winter 2016. An electronic survey of residents and stakeholders was conducted by TBID. In January 2016, the TBID Board of Directors met to review the Plan and agreed on final recommendations.

Stakeholder Input. *TPRP was developed with significant stakeholder input, such as with a September 2015 workshop that examined draft design elements. Photos show groups discussing: sidewalk etching (top) and public art (below).*

Design Objectives

Throughout the process, these design objectives provided an important touchstone.

- ***Give Telegraph a fun, welcoming, people-friendly sense of place that attracts attention and strengthens Telegraph as a destination.***
- ***Make Telegraph a center for art by supporting ongoing activities and art installations that help unify the street while allowing for diverse ideas and expression.***
- ***Incorporate innovative features that echo Telegraph's cultural themes, such as through the incorporation of "green infrastructure" and other best practices.***
- ***Make Telegraph a safer, more inviting pedestrian corridor, while accommodating efficient reliable transit and bicycle access, and discouraging pass-through and fast-moving private vehicle traffic.***
- ***Address commercial loading and other functional needs through programming, scheduling, and physical design.***

Design Elements

Overview

The Telegraph Public Realm Plan provides design and implementation guidance for public realm improvements. Proposed improvements address both functional needs and perception-changing enhancements. In the long-term plan, recurring design elements and features contribute to a unified sense of the district.

Several design elements have been developed. Many of them will be combined within the Durant Plaza and Dwight Triangle Demonstration Projects. Other elements will happen incrementally as funding becomes available. "Shared street" and other improvements will occur during a final phase.

Sidewalk Etching. Currently, many sidewalks are broken, sticky and stained. A concrete grinding machine will be used to remove dirt and level surfaces, and a colorful permanent chemical stain will be applied to the exposed sidewalk aggregate to create an enhanced easy-to-clean sidewalk surface.

Public Art. Public art is proposed to enhance Telegraph's reputation as an engaging cultural destination. The TPRP makes recommendations consistent with Berkeley's recently adopted "Telegraph Public Art Plan." An artistic "way-finding cabinet" is envisioned near Bancroft.

Modular Stations. "Modulars" that will be made of corrugated metal and be brightly colored will combine trash and recycling receptacles, story-telling panels, and sidewalk lighting. By combining these elements, the modulars will help reduce visual clutter and add design consistency along Telegraph. Located near cross streets, the modular stations will create visually-distinct and rhythmic accents.

Scramble Intersections. Scramble intersections emphasize pedestrian safety and convenience by allowing pedestrians to cross diagonally at an intersection by adding an additional pedestrian-only phase to traffic lights. A colored pattern would highlight scramble intersections.

The intersection at Bancroft can be implemented more immediately, as it already has a pedestrian-only phase. The technical feasibility of other scramble intersections requires further study.

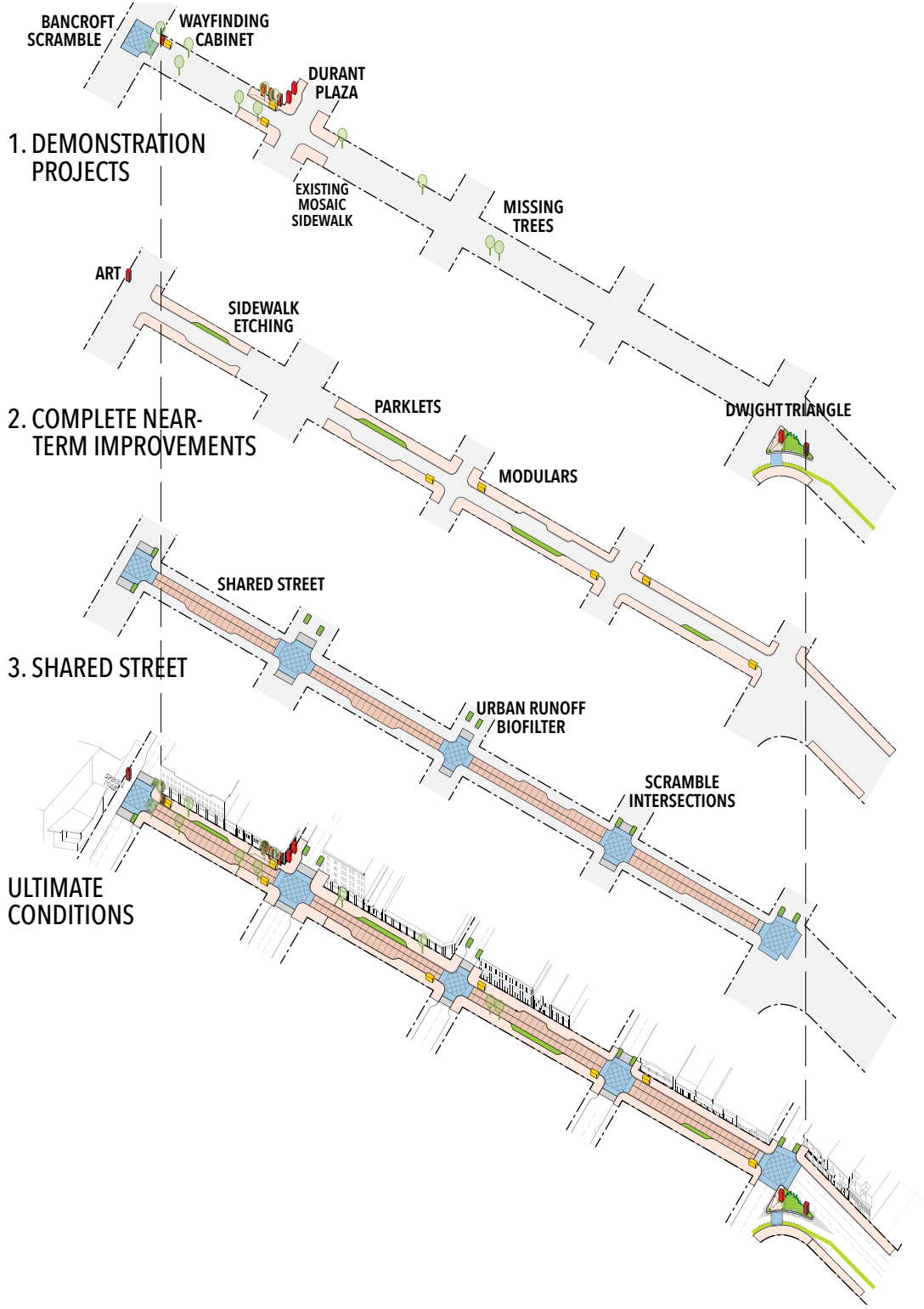
Parklets. A parklet is a sidewalk extension that provides amenities by incorporating seating, plants, and a protective railing or planter box. On Telegraph, parklets will have artistic expressions to further strengthen Telegraph as a cultural destination. Parklets can be installed in Telegraph loading zones, so long as loading needs are adequately addressed.

Street Trees. Street trees help make Telegraph more attractive and inviting. New trees will be installed where trees are missing or diseased. The City's Forestry Division and UC Berkeley's Landscape Architect have selected tree species that can help unify the Avenue aesthetically and make reference to Sproul Plaza, the gateway between city and campus.

Street Lighting. Light fixtures and light poles contribute to a street's character. Existing lighting will be retrofitted to be part of Telegraph's new visually-engaging composition. In the long term, lighting may be replaced to be more pedestrian in scale.

Shared Street. Telegraph north of Dwight Way can become more pedestrian-friendly while still accommodating traffic. A shared street is a shared circulation space used simultaneously by pedestrians, bicyclists and motorists. It is a plaza-like place with a single ground plane, storefront to storefront, without being interrupted by a curb. Permeable pavers can be used to capture urban run-off and create an attractive ground plane.

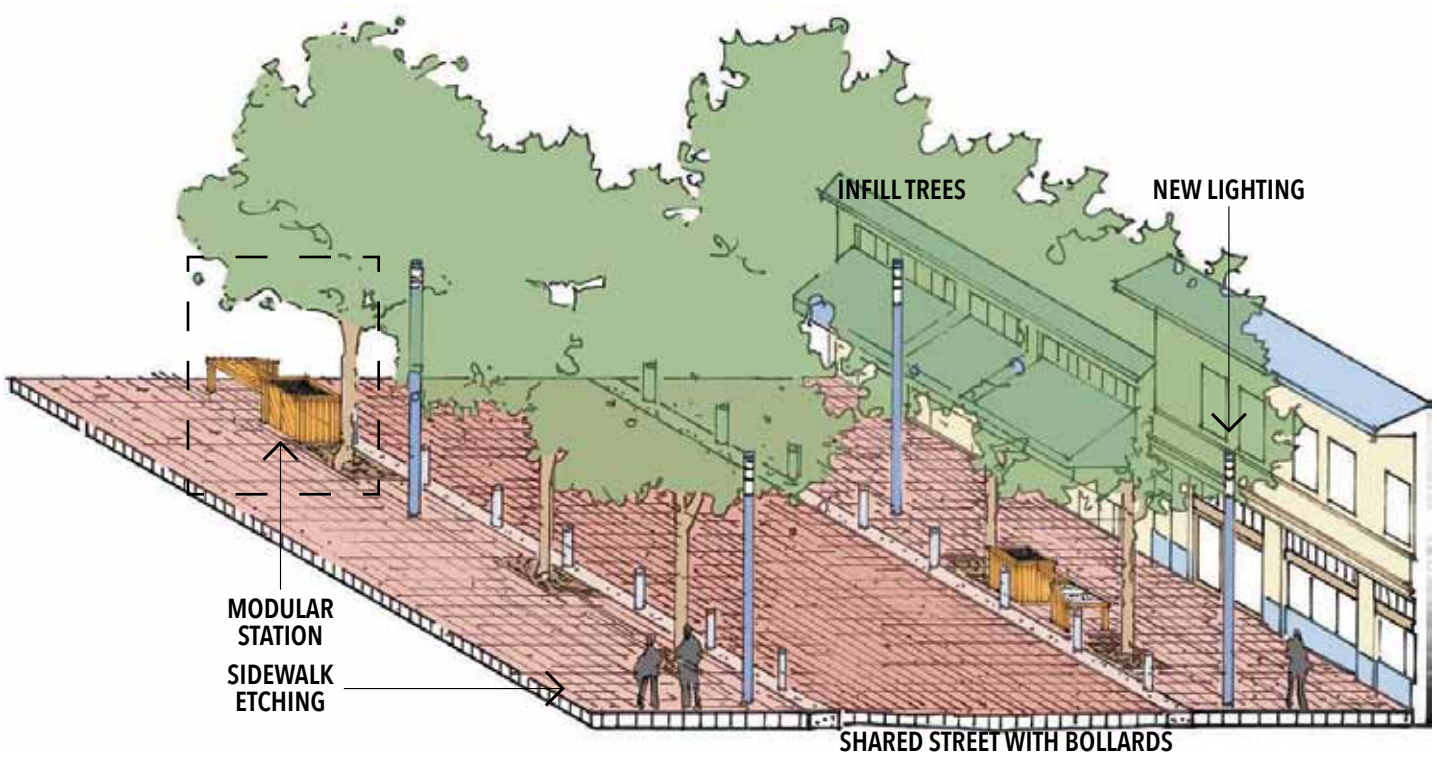
Green Infrastructure. Along east-west side streets, curbside drainage will be interrupted if raised intersections accompany the shared street concept. This will necessitate new stormwater drains where side streets to the east (upslope) intersect with Telegraph. The new drains offer opportunities for urban runoff filtration features. These green infrastructure features can be compact with little vegetation or can be associated with large "rain gardens."



Phasing Strategy

Many of the aforementioned design elements will be combined within the "Durant Plaza" and "Dwight Triangle" Demonstration Projects, as part of an initial phase. After the Demonstration Projects are completed, design elements will be installed in other locations incrementally as ideas are tested and funding becomes available.

Shared street and green infrastructure improvements will require major funding, and are therefore assumed to occur during a final phase. A "shared street," with a plaza-like surface that extends seamlessly across Telegraph, forms the centerpiece for ultimate conditions. TPRP must, therefore, emphasize near-term improvements but in the context of an ultimate vision. If major funding is secured early on, these "final phase" improvements can be accelerated, and the TPRP's emphasis on incremental change can be replaced with an emphasis on a more unified palette of features (such as by using new pedestrian-scaled street lighting and replacing all street trees to install a single species). Over the long term, TPRP may also need to be updated to address the possibility of dedicated bus lanes, 2-way traffic, or other conditions that may require extensive decision-making and community input.



Ultimate Condition. TRPR proposes a plaza-like shared street and new lighting as a final phase. Sidewalk etching may remain or, if necessary, sidewalks can be replaced.

Modular Station. *Modulars stations will be comprised of colorful metal panels that enclose trash and recycling compactors. Placed near every intersection, modular stations will give visual interest and rhythm to the district.*

Sidewalk Etching

Etching and Staining Concrete. *Two samples of concrete sidewalk is shown, where the proposed process of etching and staining has been applied.*

Etching and Staining Concrete. *The process of etching and staining was tested on Sather Lane, near Telegraph Avenue. The photo above right illustrates how sidewalks will look after the proposed process of etching and staining has been applied.*

The poor condition of sidewalks is a top complaint among Telegraph stakeholders. In many places, Telegraph's sidewalks are broken, stained, or sticky from tree aphid secretions. Most sidewalks are comprised of coarse exposed aggregate intermixed with fine sands that have deteriorated over time. Even after cleaning, the surface appears unclean and the surface is uneven. A disordered patchwork of different types of concrete and scoring patterns adds to sidewalks' unappealing appearance.

TPRP proposes "sidewalk etching," where sidewalks receive a permanent chemical stain. A grinding machine will prepare sidewalks for staining by removing dirt and leveling uneven surfaces. A goal is to create smooth, stable, slip-resistant, durable, attractive sidewalks, to eliminate tripping hazards that is comfortable to traverse for those using wheelchairs, walkers or canes. The etching process will create a visually distinct walking surface that will approach terrazzo in appearance.

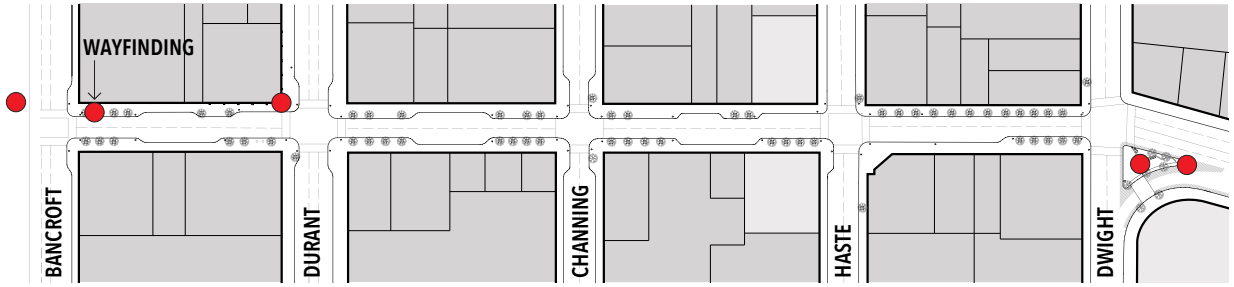
The TBID already has a sidewalk steam cleaning program in place, which is frustrated by the present extent of sticky grime. Expand the existing sidewalk cleaning program to maintain the appearance of sidewalks once they are etched and stained. Consider replacing street trees infested with aphids, which drop sticky litter (see "Street Trees").

Public Art

Public art is vital to Telegraph's identity as a cultural center. It is an important place-making element that can integrate easily into Telegraph's urban environment and limited right-of-way. It can emphasize and celebrate that it is the intersection of "town and gown."

"The Telegraph District Public Art Plan" was created in parallel with the TPRP and adopted by Berkeley's Civic Arts Commission in 2015. The Public Art Plan proposes themes and strategies that intersect with the TPRP's focus on place-making and celebrating the arts. Consider both permanent art (selected through Berkeley's public art process) and temporary art (which might be sponsored by UC Berkeley's Department of Art or a local art organization). "Functional art," such as decorative bike racks and trash cans, are desired. Address ongoing concerns around vandalism and maintenance.

Funding and programming for permanent public art can take time. Consider interim installations to boost Telegraph's identity as a cultural destination in the near term.



Telegraph Public Art Plan. *Locations shown are consistent with the Telegraph Public Art Plan. If public art is installed at Bancroft, it will be selected in partnership with UC Berkeley.*

Examples of Public Art. *The sculpture, "Street Life" (at left), is an example of permanent "signature" art. More informal art, such as musical use of artifacts (at right), should also be considered, particularly in the near term.*

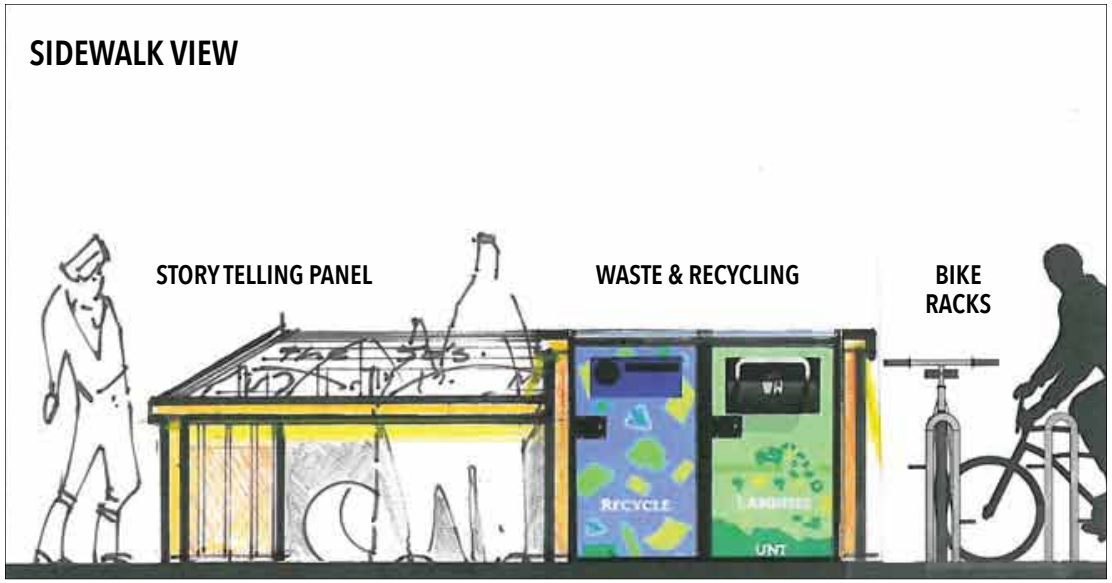
Artifacts at Corporation Yards. *Unused granite and concrete pieces that are stored at UC Berkeley's Richmond Field Station (lower left) can be used to retain a new berm at Dwight Triangle (simulated at right). Also present are structural steel pieces from the Golden Gate Bridge (top left). Elements like these can add local historical richness to the storytelling of Telegraph.*

Modular Stations

"Modulars" are an organizing element intended to give order to the existing happenstance array of furnishings and create rhythmic accents for the district. The modular units will be comprised of corrugated metal decking panels brightly painted to create a visually-engaging design element. Modulars will enclose trash and recycling compactors, such as the "Big Belly" brand. Modulars will also incorporate LED lighting and story-telling exhibits that will tell Telegraph's stories in photographs and words. LED lighting will be concealed near the top of each station to illuminate the adjacent sidewalk.

Modulars' system of corrugated panels and L-shaped corner connections will make them easy to assemble, and allow for easy maintenance of lighting and trash/recycling compactors. To resist tagging and vandalism, modulars will have an enamel finish and can be easily touched up.

While modulars have potential as a rhythmic element along Telegraph Avenue, community stakeholders questioned their value. Before committing to their wide spread use, the performance of modulars will be tested as part of the Durant Plaza demonstration area (see "Durant Plaza"). Modulars may need to be adapted to particular locations due to unique space constraints and conditions.



Multi-Purpose Modulars. *The colorful modular units will provide an artful and organizing element. The units will be made using low-cost but attractive decking panels.*

Modulars. *Modular units will incorporate functional elements, interpretive exhibits, and lighting that will light adjacent sidewalks and uplight trees.*

Art Tree. *Some modular station locations have missing street trees. Art trees, such as is depicted, might be installed with uplighting.*

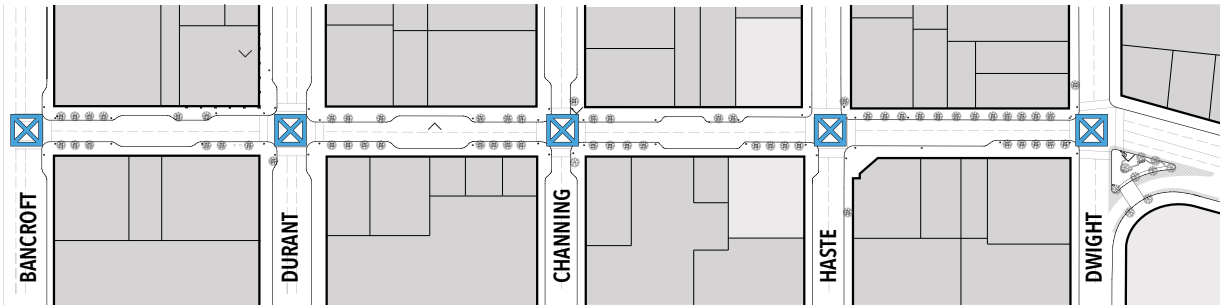
Bike Racks. *Metal panels can be welded or bolted to standard bike racks for a more artistic custom look. Bike racks will accompany most modular stations.*

Scramble Intersections

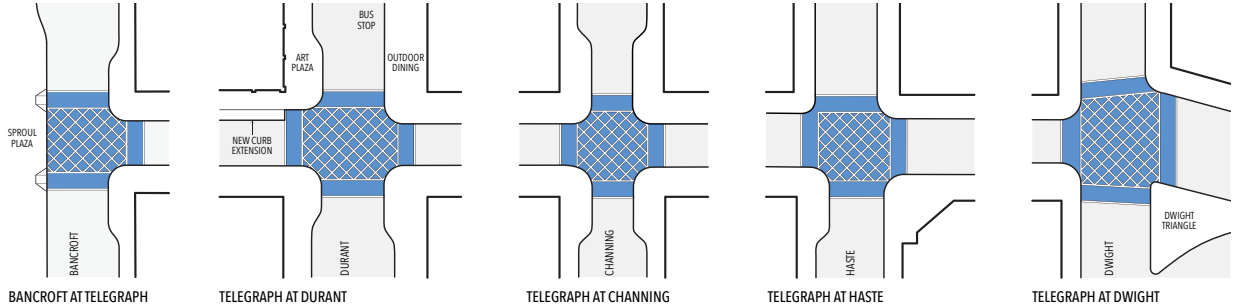
Scramble intersections are proposed at all five intersections of the planning area, but especially at Bancroft Way and Durant Avenue because of high foot traffic. Scrambles allow pedestrians to cross diagonally at an intersection, as well as parallel with vehicle traffic. Diagonal crossing is accommodated by adding an additional and pedestrian-only phase to traffic lights.

Scramble intersections calm traffic and yield a more pedestrian-oriented environment. Giving priority to pedestrians, similar to shared streets. By combining scramble intersections with shared street improvements, upper Telegraph can become a one-of-a-kind destination that capitalizes on its biggest advantage – being a place for people. (See also "Shared Street Improvements")

Special paint treatments, such as vibrant thermoplastic paints, accompany scramble intersections so motorists know to yield. The special paint treatments also present a place-making opportunity. Scramble intersections will be visually distinct and reinforce Telegraph as a unique destination. At intersections where pedestrian counts do not warrant a scramble, distinctive, artfully-designed crosswalks can be used.



Scramble Locations. *Scramble intersections can calm traffic and make a more pedestrian-oriented place. Scrambles or distinctive, artfully designed crosswalks are suggested for all five intersections in the planning area, and may be especially advantageous at Bancroft and Durant.*



Scrambles Illustrated. *Scramble intersections typically follow transportation engineering conventions (above).*

Artful Crosswalk. *If a scramble is not possible at an intersection, consider crosswalks with bold colors and artistic patterns.*

Parklets

A parklet is a sidewalk extension that provides more space and amenities for people using the street. Parklets may incorporate seating, plants, and a protective barrier where adjacent to traffic, such as a railing or planter box. Parklets can also be artistic expressions that further strengthen Telegraph as a cultural destination.

Each parklet can be programmed and designed to complement nearby businesses. Food-serving businesses may especially benefit from adjacent parklets.

In the planning area, parklets might be installed where there are loading zones, if loading needs are adequately addressed. Parklets would need to be durable but designed for easy removal, if the loss of a particular loading zone proved to be problematic, or to make way for permanent improvements.

Example of a Parklet at Saul's. *Simple canopies create an outdoor room. Planters buffer seating from roadway. Design: Trachtenberg Architects*

Example of a Parklet at Cheeseboard. *Berkeley's first parklet was sponsored by the Cheeseboard Collective and has successfully generated more interest and activity along north Shattuck Avenue. This parklet incorporates art, seating, plants, and protective railing along traffic lanes. Design: Levitch Architects-Builders*

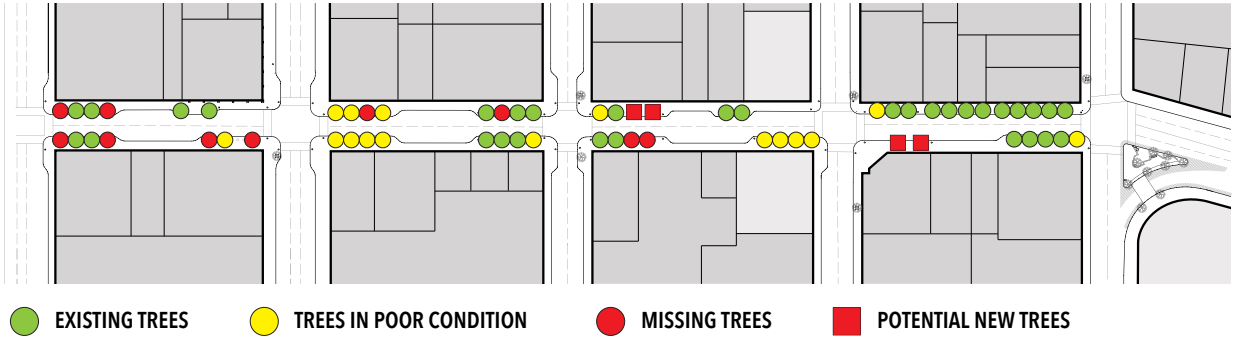
Street Trees

Street trees are critical to making Telegraph more attractive and inviting. A consistent rhythm and canopy of street trees can unify character. In addition, while most trees are reasonably healthy, many drop sticky litter from the secretion of tree aphids, which blackens sidewalks and is a nuisance for vendors.

For near-term benefits, street trees will be planted where missing and replaced where in poor condition or drop sticky litter due to aphids. The TBID will keep an inventory of trees and their health in the planning area. The City will continue efforts to improve tree health, such as by expanding tree wells, loosening soil, or installing heavy-duty tree guards. Installing trees and tree well treatments will follow the City Urban Forestry Division's standards and guidelines.

The City's Forestry Division, in consultation with UC Berkeley's Landscape Architect, recommends new tree species: "Street keeper" Honeylocust or Pyramidal European Hornbeam. Their yellow fall foliage will complement and reference the sycamores at Sproul Plaza. The long-term vision of TPRP may include replacing all trees to create a more unified and dramatic setting.

The City will continue to emphasize tree care for tree health and public safety. The top surface of tree basins will be kept the same level as surrounding grade, such as by topping the tree basin with decomposed granite (DG), covering the basin with sand-set paving stones, or with a metal grate. Note that new trees are vulnerable and water them regularly during the dry season.



Trees Missing and in Poor Condition. *Along upper Telegraph, several street trees are missing and several more are in poor condition. The location of trees missing and in poor condition was mapped preliminarily by TBID, the City's Forestry Division, and UC Berkeley's Landscape Architect.*

Telegraph Street Trees. *Where they are present, street trees contribute to Telegraph's welcoming people-friendly atmosphere.*

Tree Grates and Tree Guards. *A long-term vision may include distinctive tree grates and guards. However, tree grates and guards often have a short life span and can conflict with trees. Decomposed granite offers a more affordable alternative.*

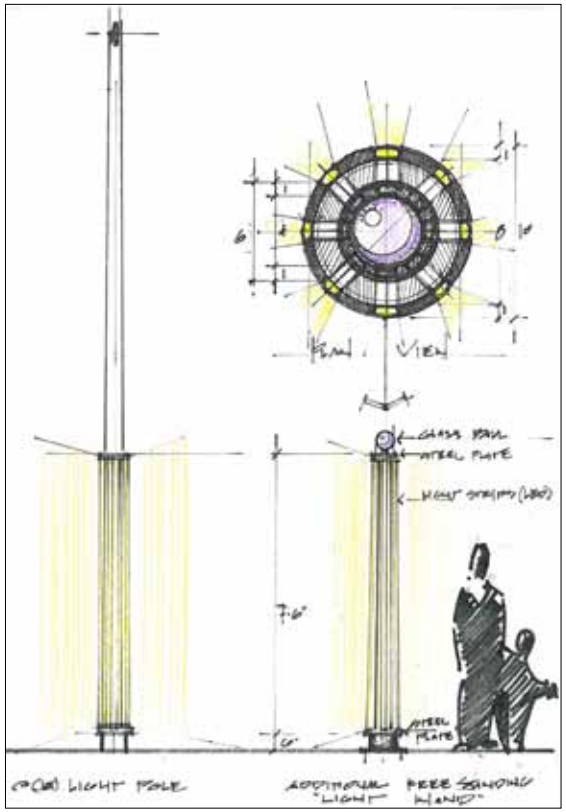
Pedestrian-Scaled Lighting

Light fixtures and light poles are among a street's more visible features and contribute to each street's character. Existing automobile-scaled cobrahead lighting will be replaced by or enhanced with new pedestrian-scaled lighting. To be more human in scale, light poles will be eighteen feet or less. A light illumination analysis may identify locations where additional poles are needed.

New lighting will be consistent in character with other street improvements, as is illustrated below. A comprehensive long-term planning and construction program is recommended (see "Implementation"), and would provide an ideal opportunity to select light fixtures and poles in a coordinated way.

Light pole replacement also presents an opportunity for wiring sound systems, outlets for holiday lights, and Wi-Fi antenna.

Existing Lighting. *Existing light poles and fixtures are purely utilitarian and distract from creating a more coherent sense of place.*



Placemaking Role. *Lighting can be used architecturally to shape pedestrian space. In the near-term, the lower part of existing light poles can be retrofitted with LEDs. Long-term planning can coordinate the style of lighting with the motif of the Avenue as a whole.*

Shared Street Improvements

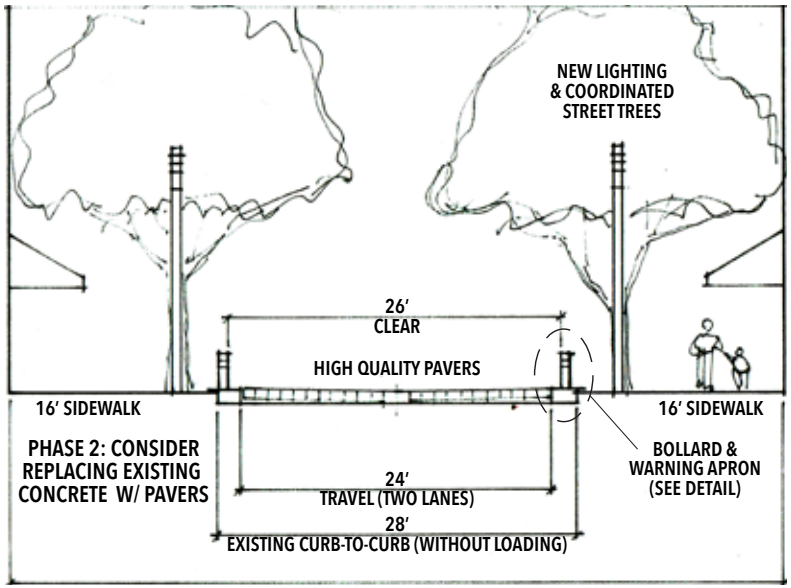
The TPRP proposes that, ultimately, Telegraph north of Dwight Way will become a "shared street." A shared street is a shared circulation space used simultaneously by pedestrians, bicyclists, transit and motorists. It is a plaza-like place with a single ground plane, storefront to storefront, without being interrupted by a curb.

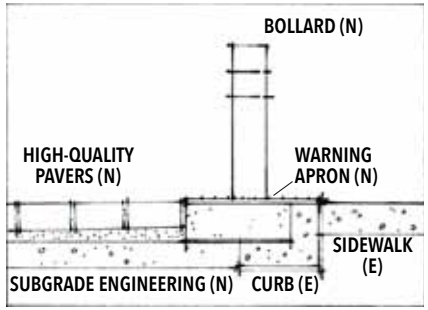
With shared streets, pedestrians can cross safely midblock while slow moving vehicular traffic is also allowed. Shared streets slow traffic by using visual and physical cues to communicate to motorists that pedestrians have priority: by extending plaza materials and features across the shared street, by ramping traffic up to the same level as pedestrian space on either side, and by presenting boundaries to traffic with bollards and tactile warning strips.

While a shared street is designed to allow private vehicles and transit traffic, it can be closed to traffic to create a temporary pedestrian-only plaza, such as during Telegraph's holiday sales, street fairs and music events.

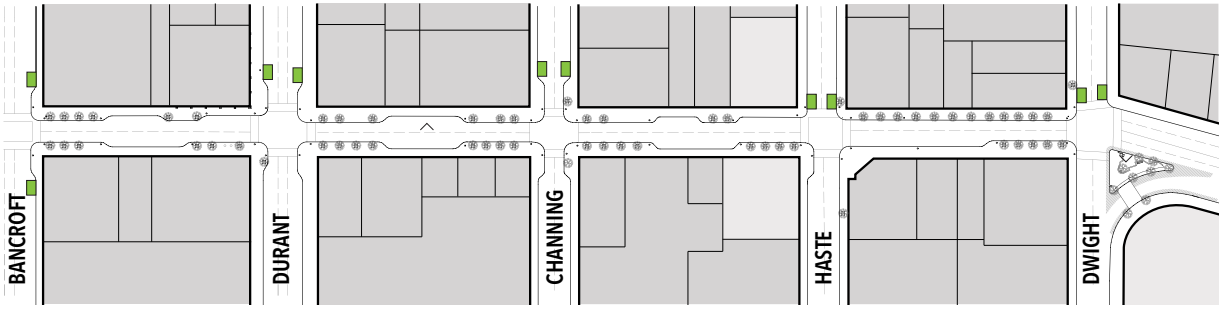
Ideally, a shared street would extend from Dwight Way to Bancroft Avenue, to help make Telegraph a distinctive, pedestrian-focused destination. The block between Bancroft and Durant presents a unique opportunity to create a shared street because of high pedestrian volumes.

Shared Street Examples. *Shared streets are common in Europe and Asia (at left), and are increasingly found in the United States (at right). Shared Streets work best when they have a single horizontal surface with pavers. Bollards, rather than curbs, delineate where vehicles can pass.*





Shared Street Cross Section. *Shared streets will be accompanied by bollards to delimit vehicles and tactile warning strips so visually-impaired persons can distinguish where motor vehicles may be present. In phase 2, the existing sidewalk concrete can be replaced with pavers.*



Rain Gardens. *Rain gardens are suggested on Channing and Haste adjacent to the scramble intersections at those corners.*

Green Infrastructure

Along east-west side streets, curbside drainage will be interrupted if raised intersections accompany the shared street concept. This will necessitate new stormwater drains where side streets to the east (upslope) intersect with Telegraph. The new drains offer opportunities for "green infrastructure." Green infrastructure filters "urban runoff" that would otherwise carry pollutants into storm drains. Green infrastructure can be compact with little vegetation or can be associated with large "rain gardens."

Green Infrastructure. *"Rain gardens" offer an attractive way to filter urban runoff as it flows through vegetation and soil. Rain gardens have been used in urban settings in Portland, Oregon (at left), and El Cerrito (at right). Design development can address wear and tear that may be expected along Telegraph. Photos shown are illustrative and options exist which cost less and would be easier to maintain.*

Demonstration Projects

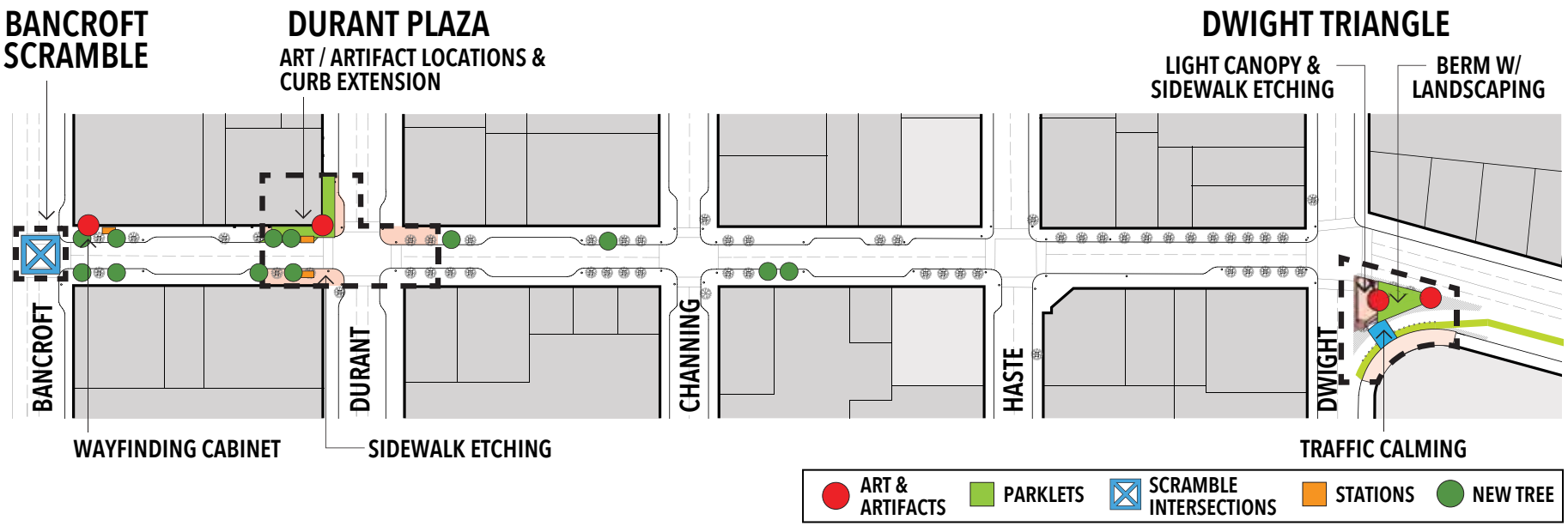
Overview

Demonstration projects focus on attainable low-cost projects that can effect high-impact transformations. The demonstration projects also provide an opportunity to test and refine design features that will be repeated along Telegraph Avenue to implement a long-term vision.

Two target areas have been identified for making low-cost, high-impact improvements. "Durant Plaza" and "Dwight Triangle" offer wider sidewalks extra right-of-way in highly visible locations, which allow these demonstration areas to incorporate place-making features leveraging limited near-term resources.

Demonstration projects also include the scramble intersection at Bancroft Avenue, where heavy pedestrian traffic and the phasing of light signals indicate that a scramble intersection is already feasible.

Durant Plaza Opportunity. *The intersection of Telegraph Avenue and Durant Avenue presents a special opportunity for improvements because Durant has a wider right-of-way and wider sidewalks east of Telegraph. On Telegraph, a bus stop pull-out can be replaced with a parklet (i.e. curb extension).*



Dwight Triangle. *Telegraph Avenue's right of way widens south of Dwight Way, where a large traffic island can be redesigned to make a pedestrian-friendly passage and distinct landscaped passage.*

Durant Plaza

Durant Avenue is just one block from the UC Berkeley campus and has wider right of way and sidewalks than other cross streets. The northeast corner of Telegraph and Durant presents a unique opportunity to create a small plaza comprised of art and artifacts and demonstrates proposed new features for Telegraph, including sidewalk etching and the modular units.

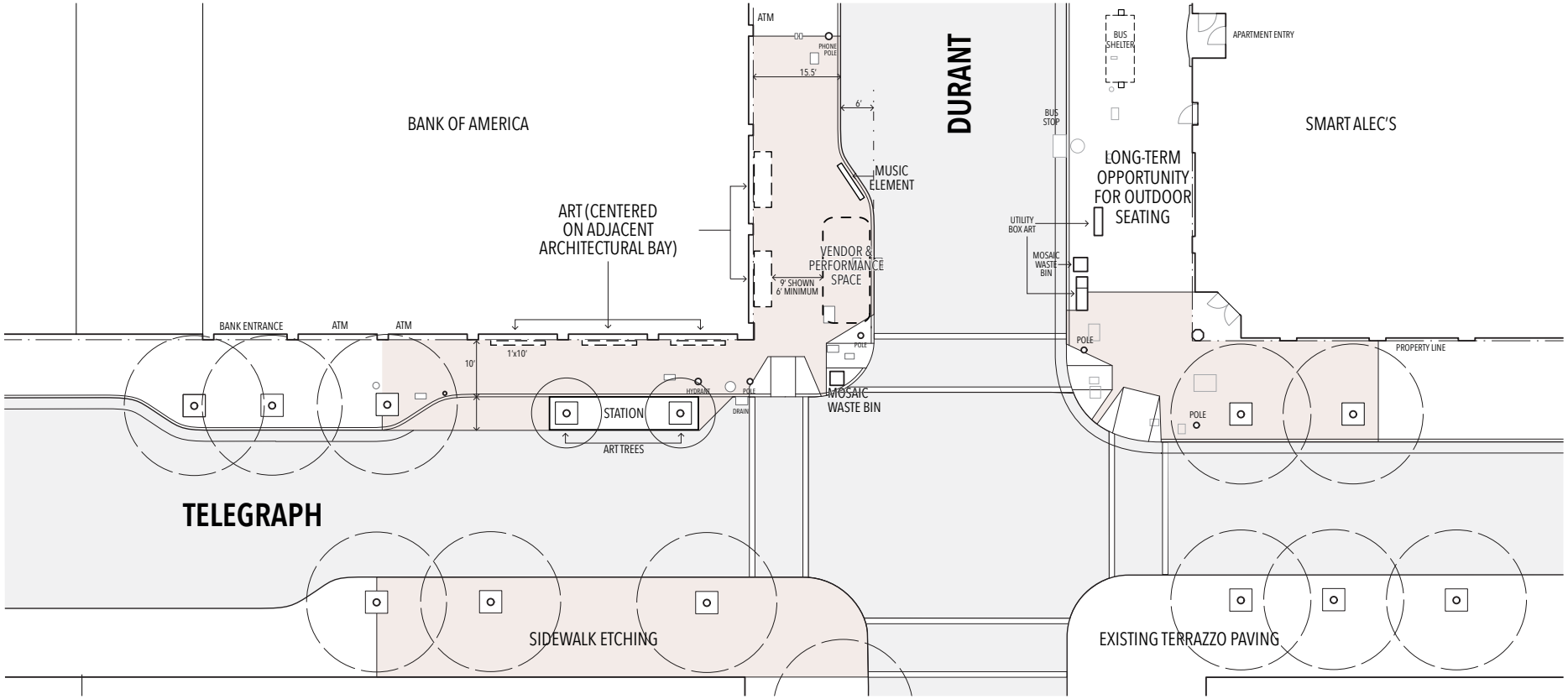
Art will be framed by the ornate architectural bays of the adjacent Bank of America building. Art will have a narrow profile and be located to provide ample room for pedestrian circulation. To accelerate improvements, temporary installations might be until permanent art can be selected and installed.

A modular unit will be built on a concrete sidewalk extension on the northeast corner of Telegraph and Durant, where a bus stop has been vacated. The remainder of the extension would be used by vendors. Another modular will be constructed on the northwest corner where it will not intrude on favored vendors' locations. Care will be taken so that street vendors are not be displaced by the modulars.

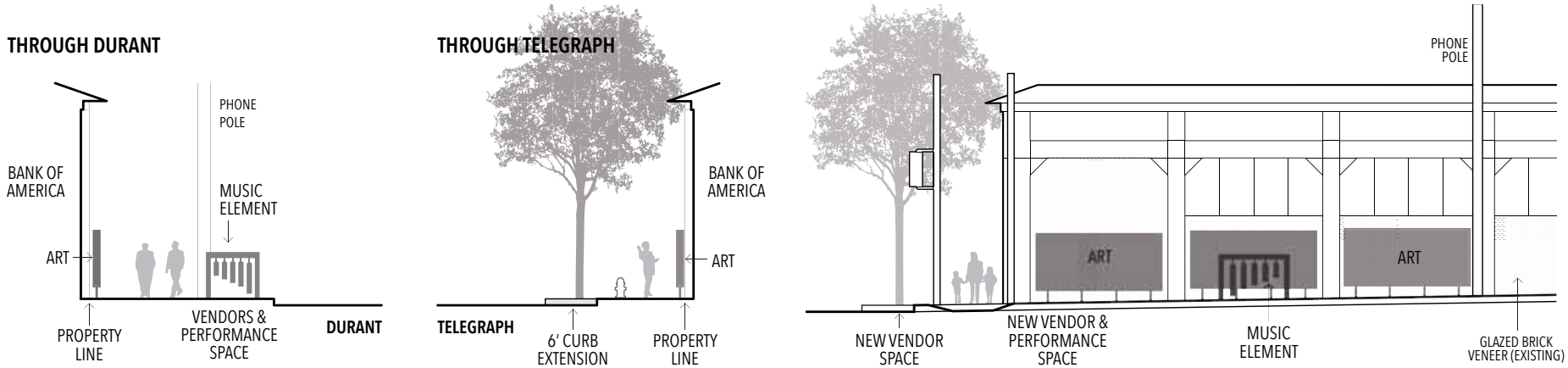
To accentuate Durant as a special place, sidewalk etching will occur on three corners of the intersection, with the mosaic sidewalk on the southwest corner remaining in place. The southeast corner presents a special opportunity for outdoor dining if sponsored by the adjacent restaurant.

Art Panels. *With limited sidewalk space, public art must have a relatively shallow depth but striking appearance.*

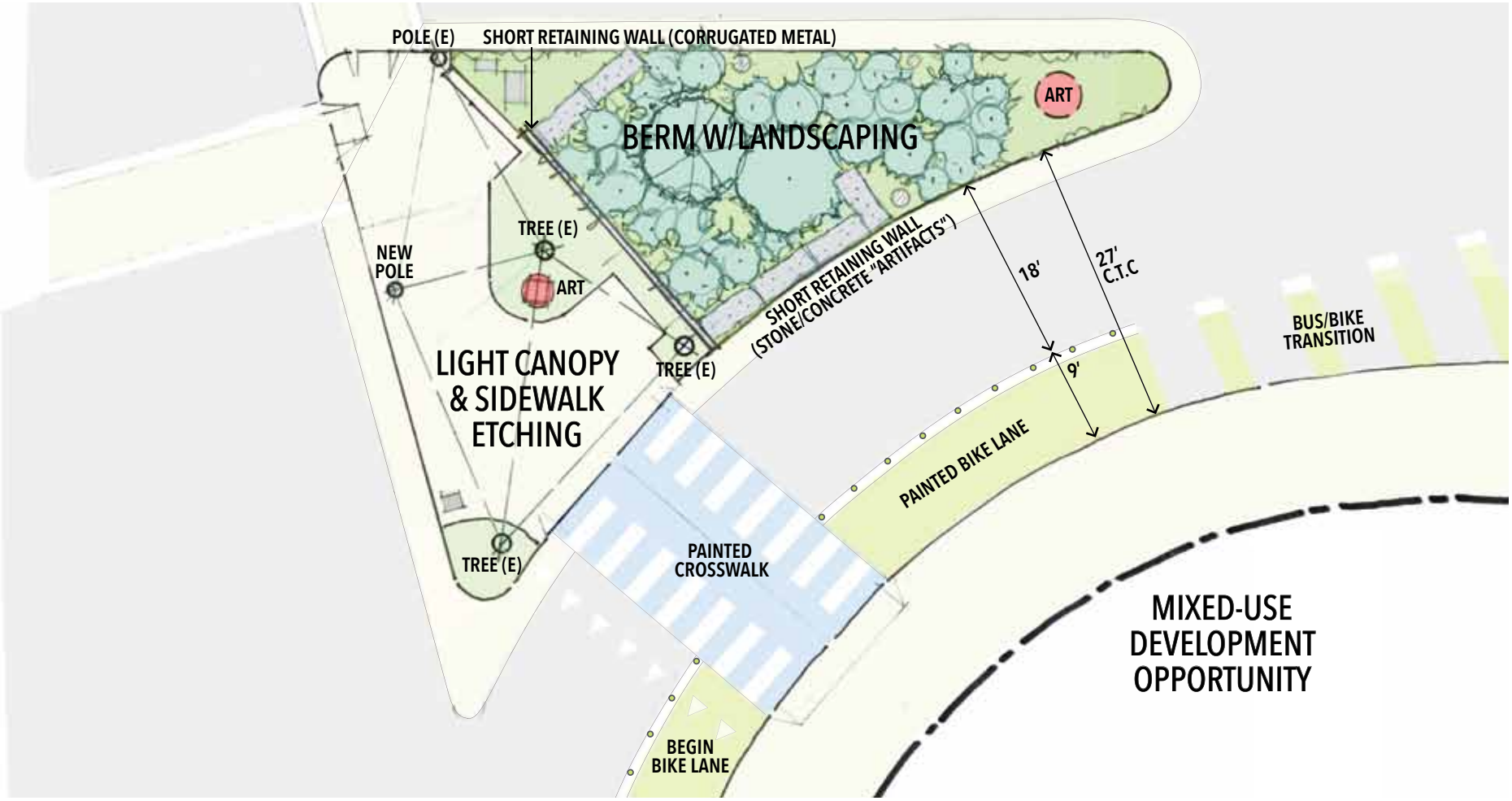
Public Art *Visually interesting public art can make an immediate sense of place framed by the ornate architectural bays of the adjacent Bank of America building (view from north at left, view from east at right).*



Durant Plaza near-term improvements.



Cross Sections and Elevation. *Cross sections (at left) and a south-facing elevation (at right) show how pedestrian paths will be enhanced by art/artifacts.*

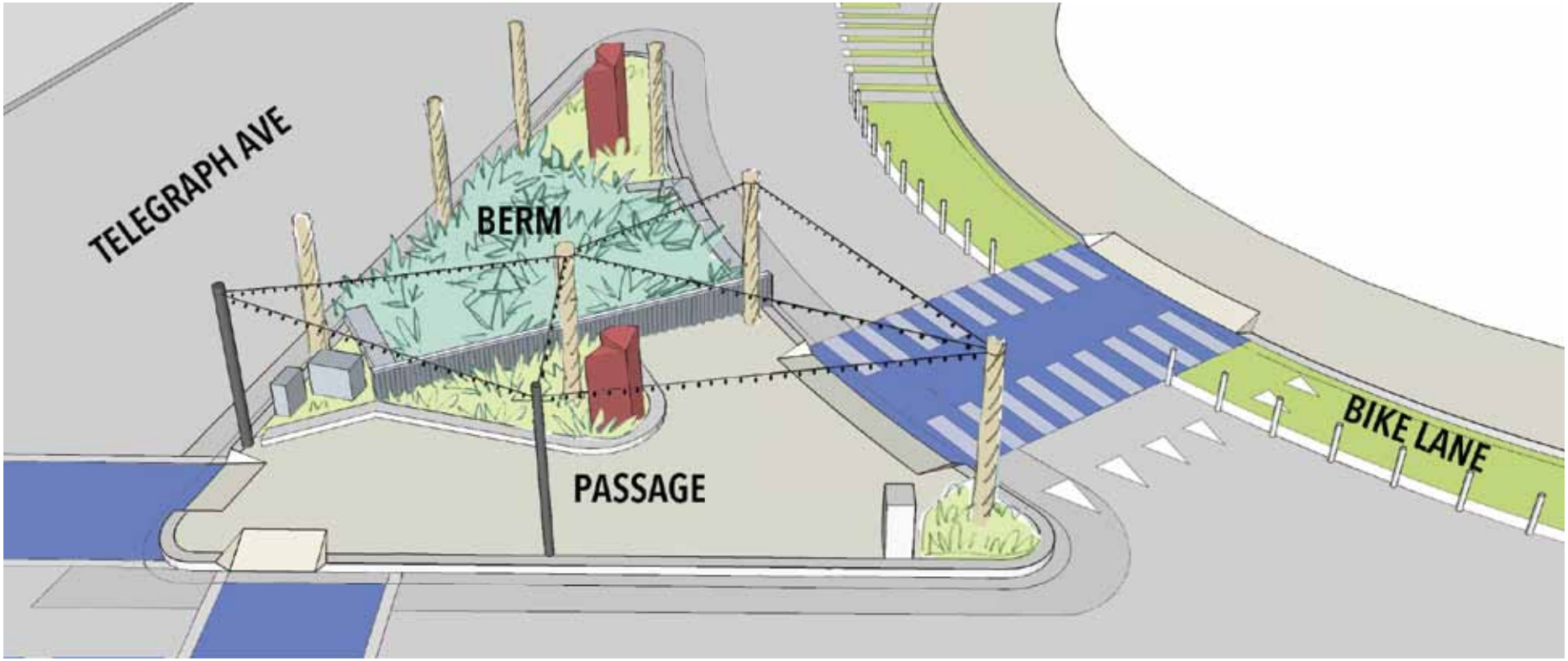


Passage and Berm (Plan View). *Dwight Triangle will enhance the heavily used pedestrian "passage" using lighting, sidewalk etching and art. The remainder of the Triangle will be a berm with landscaping to beautify this prominent gateway location. Options for how to suspend the light cables will explored during design development, as to affix lighting to trees can affect tree health and pose maintenance concerns.*

Dwight Triangle

At the southern entrance to the district, Dwight Triangle is presently surrounded by cars, trucks and buses. Pedestrians pass across the island to get between the northwest and southwest corners of the Dwight/Telegraph intersection. Otherwise, the island is poorly used with a small bench several yards from pedestrian movement.

Proposed improvements for Dwight Triangle fall into two categories: enhancing the well-used pedestrian passage, and creating a heavily landscaped berm across the southern poorly-used part of the island.



Passage and Berm (3D View). *To create a safer more active passage, a canopy of light will be formed along cables suspended by existing trees and poles. A 4-foot corrugated metal wall will be brightly painted and separate the passage from a landscaped berm. Tree branches are not shown to make other featrues more visible.*

The pedestrian "passage" will be brightened by a canopy of lights, further defined by sidewalk etching, and accompanied by traffic calming measures along the sweeping right turn from eastbound Dwight to southbound Telegraph. To slow traffic, break-away bollards will reduce the width of the vehicular travel lane to 18 feet. The bollards will define a bicycle lane that extends bicycle paths on Telegraph south of Dwight. The crosswalk and roadway will be painted to encourage motorists to slow and yield.

To create the island's berm, a large amount of soil will be brought in and retained by retaining walls, which might be substantial concrete or stone blocks from the City's or UC Berkeley's corporation yards. Between the passage and berm, a 4-foot corrugated metal wall will retain soil and have an appearance similar to modular units (see "Modulars"). A visually interesting plant palette will be selected during design development, with thorny and prickly plants recommended to make it difficult to loiter on the berm. The berm might be created at relatively low cost by leaving existing concrete in place and going over it with imported soil.

Art will be installed in two Dwight Triangle locations. Art will be placed on the southern tip of the Triangle for a distinctive gateway; also consider a Telegraph District identity sign in this conspicuous location. Another location is along the pedestrian passage; a large concrete drinking fountain may be respurposed as a pedestal.

Bancroft Scramble

A scramble intersection will be implemented at Bancroft as a near-term demonstration project. Scrambles allow pedestrians to cross diagonally at an intersection, as well as parallel with vehicle traffic. At Bancroft, scramble signal phasing is already in place, in response to relatively high pedestrian volumes in this location. A vibrant combination of thermoplastic paints will be used, such as a white crosshatch across "UC Berkeley blue." The design shown in the photograph is illustrative and a custom design may be developed.

Bancroft Scramble. *These "before" and "after" images reveal the visual impact that a vibrant scramble intersection can have, in addition to associated pedestrian safety and convenience benefits.*

Implementation

The Telegraph Public Realm Plan is not simply an academic document; the plan should inform the activities of public and private sector partners that are committed to increasing the vitality of the Telegraph district, in 2016 and beyond. This section (summarized in Table 1) describes how the design elements can be implemented, including a suggested time horizon for each element, cost estimates, implementation partners, and potential funding sources.

Time Horizon

The time horizon for implementing the design elements ranges from spring 2016 to as far out as five to ten years for the most ambitious projects. Fundraising and planning has already begun for some near-term projects, including Durant Art Plaza and sidewalk etching.

The timing of implementation of public realm improvements will depend in large part on the availability of funding. Generally, projects indicated in Table 1 as 'Near-term' can be completed by 2016 or 2017; projects indicated as 'Medium-term' may require three to five years for implementation; and projects indicated as 'Long-term' require significant additional study, planning and fundraising, and may require five to ten years for implementation.

Implementation Partners

The Telegraph Public Realm Plan can only be implemented through the cooperation of a diverse set of public, private and nonprofit sector partners:

- **Telegraph Business Improvement District (TBID)** is a nonprofit organization committed to improving the pedestrian environment in the district. TBID will play a vital role in coordinating individual projects, recruiting partners, attracting funding, and championing implementation of the TPRP.
- **The City of Berkeley**, in particular the Public Works department (and its Transportation Division), plans and implements a number of public realm maintenance and capital projects, using both municipal general funds and grant funding from a variety of sources. The City should incorporate these design elements into future improvements in the Telegraph district. Other departments, such as Economic Development and Planning and Development, can also contribute to implementation by leveraging private sector funding and partners.
- **Local property owners** are often responsible for public realm improvements adjacent to their property, particularly when they are implementing major development projects.
- **UC Berkeley** makes significant investments in its property adjacent to the study area, provides grant funding for neighborhood improvement projects in Berkeley, and represents an enormous source of human capital that can be leveraged for the implementation of individual projects (e.g., production of art, additional design needs). UC Staff at the Office of Physical & Environmental Planning can advise on project implementation.
- **Artists, Designers, Architects and Arts Organizations** from the local community can be recruited to develop additional designs and construction documents for funded projects.
- **Private contractors** can be engaged as needed for installation and construction.

Potential Funding Sources

Implementation partners can leverage a variety of funding sources to support the construction of the proposed public realm improvements:

- **Public funding for infrastructure projects.** In addition to City of Berkeley general funds for capital projects, the City is eligible for a number of public grant programs and special funds for infrastructure projects, many of which are administered by the Alameda County Transportation Commission. The recent designation of Telegraph as a Priority Development Area qualifies the district for One Bay Area Grants. And other public agencies outside of the City, such as AC Transit and Stop Waste, may be willing and able to align their infrastructure spending with the projects proposed here.
- **Grant Programs and Foundations.** There are a number of local and national grant programs that support public art and neighborhood improvement projects, such as the Chancellor's Community Partnership Fund, the Civic Arts Grants Program, the National Endowment for the Arts, and the Walter & Elise Haas Fund.
- **Private funds.** TBID has funded several small scale public realm improvements in the past, and could leverage funding not only from its own budget but also from local property owners that are willing to invest in projects that will benefit the district and their own property value.

Technical Adequacy

Features noted in the Public Realm Plan are subject to further analysis and refinement, such as adjustments to address traffic operations and other functional concerns. Users of this Plan should also refer to the Municipal Code, Pedestrian Master Plan, Bicycle Master Plan, Transportation Element of the General Plan, and Berkeley's Southside Plan. If a provision of this Plan conflicts with standards found in one of these documents, the other document shall govern until it is amended by City Council. Where these documents allow flexibility, the City should strive to meet the design objectives contained in this Plan.

Telegraph Ambassadors. *Telegraph's Ambassadors provide enhanced maintenance and a welcoming atmosphere. Photo by Ted Friedman.*

Design Elements:	Phasing	Implementation Partners	Cost Estimate	Units	Potential Funding Sources	Next Steps
Sidewalk Etching	Near-Term	TBID, private property owners, COB Public Works	$161K	Per Block	Private property owners	Test chemical stain at Sather Lane.
Public Art	Near-Term	TBID, UC Berkeley, COB Civic Arts Commission, MoreLab, property owners, project developers	$1K-$25K	Per Piece	Private foundations, COB Civic Arts Grants Program, 1% for Art program, project developers	**Funded projects:** Publicize Calls for Artists, make committees to approve designs, sign agreements w/ artists setting timelines for project completion. **Unfunded projects:** Seek out and complete grant applications.
Modular Stations	Near-Term	TBID, Big Belly, COB Public Works	$22K	Per Unit		Pilot Big Belly program in 2016 w/ 6 units.
Scramble/Art Intersections	Medium-Term	TBID, COB Public Works, UC Berkeley	$54K	Per Xing	Alameda County Transportation funds	Develop guidelines w/ Transportation Division.
Parklets	Near-Term/ Ongoing	TBID, COB OED, COB Public Works	$50K	Per Parklet	Local property owners, grants, AC Transit	Develop curb extension plan and timeline w/ AC Transit.
Street Trees	Near-Term/ Ongoing	COB Public Works, TBID	$8K	Per Tree	City of Berkeley	
Street Lighting	Medium-Term	TBID, COB Public Works	$2K	Per Light	Regional transportation grants, private bond funding	Research technology and options.
Green Infrastructure	Medium-Term	TBID, COB Public Works	$10K	Per Xing	Federal green infrastructure funding	
Shared Street	Long-Term	COB Public Works	$5790K	Total All Blocks	Regional transportation grants	
Demonstration Projects:						
Durant Art Plaza	Near-term (2017)	TBID, UC Berkeley, Bank of America, Livable Berkeley	$279K	Total All Plaza	UC Berkeley, Haas Fund	Draw up agreement w/ Bank of America and building owner.
Dwight Triangle	Near-term (2018)	TBID, UC Berkeley (art), Livable Berkeley, COB Public Works	$156K	Total All Triangle	Peets Coffee, Vine Street Investments, Regional transportation grants	Finalize w/ Transportation Division options for slip turn lane from Dwight onto Telegraph.

Implementation Matrix. *The Implementation Matrix represents point-in-time estimates and suggestions, as of March 2016, for how each design element can be implemented. This is a dynamic document that can be updated as new opportunities arise and implementation partners advance toward completion of these projects.*

Operational Needs

Modifications to the public right-of-way, such as the proposed parklets or shared street enhancements, will likely require operational and programmatic changes to accomodate the street's many users. Two immediate examples include:

- **Bus Service.** Telegraph is a key transit corridor; AC Transit's 1 and 1R bus lines are crucial lines serving the East Bay. The implementation of a shared street may be accompanied by programmatic interventions (e.g. "smart signals", dedicated transit lanes) that minimize net impacts on transit accessibility.
- **Loading Zones.** The small businesses on Telegraph generate regular commercial loading traffic that is crucial to the economic vitality of the district. Currently, dedicated loading zones in the Telegraph district are underutilized and loading has a direct impact on traffic flow and the pedestrian environment. These impacts could be mitigated by restricting loading to designated hours, and increasing enforcement of parking restrictions in loading zones.
- **Emergency Response.** Life safety officials warn that shared streets, green infrastructure, and other vehicle lane modifications can have the unintended consequence of reducing response times for fire prevention and ambulances. These impacts can be mitigated through the adoption of adaptive traffic control systems that respond to feedback from emergency vehicles.

Cost Estimates

Using the Implementation Matrix (on the previous page) schematic cost estimates have been created for each design element, based upon the preliminary sketches of this overall planning design package.

These "ballpark" costs can be replaced by more exact estimates as assumptions for construction methods and materials are refined. Furthermore, costs will change based upon how many of the individual elements are done per phase and the lapse time intervals between each phase. Protection of pedestrians and through-traffic will be a factor in each project, so greater efficiency can be achieved by clustering project elements.

Most of the work will be constructed by outside contractors with the TBID ambassadors used for prep, clean-up and unskilled labor wherever possible. Power for the lighting projects will be obtained from existing adjacent underground powerlines running along the inside of the existing curb lines, so no additional power feeds are included in the estimates.

Although the most efficient approach would be to construct design elements as part of a single shared street repaving project, this would not allow for a more immediate but incremental project completion, which is a goal of this TPRP project as a whole.

To help accelerate TPRP's implementation, ballpark construction cost estimates are provided (pages 34 and 35). Hard construction costs and soft costs, such as construction administration, are noted. All estimates are approximate and measured in 2016 dollars.

http://www.meetpat.com.au/

Water Filling Stations. *Water filling stations add amenity. While not among major design elements, they can be considered as TPRP is implemented.*

TPRP PROJECT Construction Costs		Cost	Unit	Area/ Length/Quantity	Total	NOTE: All $'s include material & labor
Design Element						
Sidewalk Etching		**In units of $**				**NOTE: This is a "per block" number**
	Prepwork: Cleaning, Grinding, Etching of concrete	**4.00**	$/sq ft	11,424	45,696	This might be able to be done by TBID ambassadors
	Stain Application	**3.00**	$/sq ft	11,424	34,272	This might be able to be done by TBID ambassadors
	Sealer Application	**2.00**	$/sq ft	11,424	22,848	This might be able to be done by TBID ambassadors
					$102,816	
Total Construction Cost Fees				**23.25%**	**$23,905**	
Total Construction Cost					**$126,721**	
Total Project Cost Fees				**18%**	**$22,809.73**	
Total Project Cost					**$149,530**	
Public Art		**$1K-$25K**	per piece			
	The art piece(s)	---				
	Installation of the piece(s)	---				
	Site prep needed for this installation	---				
					$1K-$25K	
Modular Stations		**In units of $K**				
	Opening up of tree well from 4'x4' to 4'x8'	**0.5**	per piece	1	500	
	Concrete removal behind curb to expose power line	**1.1**	per piece	1	1100	
	Purchase of Big Belly Trash & Recycle units	**1.0**	per piece	1	1000	Includes 1 trash & 1 recycle
	Fabrication of Module unit	**2.5**	per piece	1	2500	
	Installation of Module unit	**1.0**	per piece	1	1000	
	Installation of LED strip lights within Module structure	**1.5**	$/lnl ft	1	1500	Includes 20 lineal feet
	Fabrication & Installation of Telegraph Storyboards	**2.0**	per piece	1	2000	
	Epoxy painting of Modular Unit	**1.0**	per piece	1	1000	
	Fabricationof bike racks w/ special Telegraph logo	**2.0**	per piece	1	2000	Includes 4 racks
	Installation of bike racks	**0.5**	per piece	1	500	Includes 4 racks
	Installation of permeable pavers at base of modular	**0.75**	$/sq ft	1	750	Includes 20 square feet of pavers
					$13,850	
Total Construction Cost Fees				**23.25%**	**$3,220**	
Total Construction Cost					**$17,070**	
Total Project Cost Fees				**18%**	**$3,072.62**	
Total Project Cost					**$20,143**	
Scramble Intersections		**In units of $**				
	Prepwork: Cleaning of specific road intersection area	**2.5**	$/sq ft	3,440	8,600	
	Stencilling design,Application & sealing ofthermoplastic paint	**7.5**	$/sq ft	3,440	25,800	
					$34,400	
Total Construction Cost Fees				**23.25%**	**$7,998**	
Total Construction Cost					**$42,398**	
Total Project Cost Fees				**18%**	**$7,631.64**	
Total Project Cost					**$50,030**	
Parklets		**In units of $**				
	Forming & pouring of 6" non reinforced slab w/ isolation membrane	**15**	$/sq ft	450	6,750	
	Installation of prefabricated perimeter cable rail railing	**150**	$/lnl ft	70	10,500	
	Fabrication and installation of non-lying benches and planterboxes	**250**	$/lnl ft	60	15,000	
					$32,250	
Total Construction Cost Fees				**23.25%**	**$7,498**	
Total Construction Cost					**$39,748**	
Total Project Cost Fees				**18%**	**$7,154.66**	
Total Project Cost					**$46,903**	
Street Trees		**In units of $K**				NOTE: For one treewell
	Opening up of tree well from 4'x4' to 4'x8'	**0.5**	per piece	1	500	
	Removal of sickly tree if one exists	**1.0**	per piece	1	1000	
	Replacement of soil w/ new scarified & ammended soil	**4.0**	$/sq ft	32	128	
	Tap into existing utility line to run low voltage wire for future proofing	**1.5**	per piece	1	1500	
	Plant new tree including deep water pipe and tree support.	**2.0**	per piece	1	2000	
	Installation of decomposed granite at tree well base	**5.0**	$/sq ft	32	160	
					$5,288	
Total Construction Cost Fees				**23.25%**	**$1,229**	
Total Construction Cost					**$6,517**	
Total Project Cost Fees				**18%**	**$1,173.14**	
Total Project Cost					**$7,691**	
Street Lighting		**In units of $K**				
	At existing light standards:					
	Create new power connection at pole base	**1.5**	per piece	1	1500	
	Install 8-8ft long prefab LED light sticks vertically around pole base	**2.5**	per piece	1	2500	based upon lnl ft (64' x 40 $/lnl ft)
	Attach cap ring over top of light sticks	**0.5**	per piece	1	500	
					$4,500	**NOTE: For one treewell**
	At new intermediate light standards:					
	Concrete removal behind curb to expose power line	**1.5**	per piece	1	1500	
	New pole	**2.5**	per piece	1	2500	
	Install 8-8ft long prefab LED light sticks vertically around pole base	**2.5**	per piece	1	2500	based upon lnl ft (64' x 40 $/lnl ft)
	Attach cap ring over top of light sticks	**0.5**	per piece	1	500	
					$7,000	**NOTE: For one treewell**
Total Construction Cost Fees				**23.25%**	**$1,628**	
Total Construction Cost					**$8,628**	
Total Project Cost Fees				**18%**	**$1,552.95**	
Total Project Cost					**$10,180**	

TPRP PROJECT Construction Costs		Cost	Unit	Area/ Length/Quantity	Total	NOTE: All $'s include material & labor	
Design Element							
Green Infrastructure		**In units of $K**					
	Excavate & set drywell w/ biofilter at top of well	**5.0**	per piece	1	5000	based upon 6'x3' x 6' deep	
	Forming & pouring of of raised planter curb at transition to roadway	**1.0**	per piece	1	1000	based upon 20 lnl ft	
	Add soil ammendment & plant bio-grasses	**0.5**	per piece	1	500	based upon 2 cu yds + plantings	
					$6,500		
Total Construction Cost Fees				**23.25%**	**$1,511**		
Total Construction Cost					**$8,011**		
Total Project Cost Fees				**18%**	**$1,442.03**		
Total Project Cost					**$9,453**		
Shared Street		**In units of $**				For a street block averaged at 265'long x 60'wide= 15,900 sf	
	Temporary diversion of traffic around block	**1000**	$/day	14	14,000	Days	
	Blocking off of vehicular traffice / isolation of pedestrian traffic						
	Removal of street paving and base	**15**	$/sq ft	15,900	238,500		
	Set-up connection points to existing power lines for street amenities	**2000**	per piece	1	2,000		
	Installation of underground water drain pipe for swale water retentior	**30**	$/lnl ft	265	7,950		
	Recompaction of soil w/ geofabric underlayment	**5**	$/sq ft	15,900	79,500		
	Regrading of street to transform crown into swale at roadway center	**5**	$/sq ft	15,900	79,500		
	Install baserock	**5**	$/sq ft	15,900	79,500		
	Install permeable pavers from building front to building front	**25**	$/sq ft	15,900	397,500		
	Set-up of all street modular stations & amenities per TPRP Plan	**13850**	per piece	2	27,700	from modular pricing (listed above) 2 per block	
	Green Infrastructure @ each uphill side of intersection street	**6500**	per piece	2	13,000		
	Installation of bollards along street edges	**400**	per piece	106	42,400	Bollards 5' on center : Both sides of the street	
	Installation of tactile street markings along street edges	**25**	$/lnl ft	530	13,250	Both sides of the street	
				per Block	**$994,800**	$3,979,200	All 4 Blocks
Total Construction Cost Fees				**23.25%**	**$231,291**	$925,164	
Total Construction Cost				per Block	**$1,226,091**	$4,904,364	All 4 Blocks
Total Project Cost Fees				**18%**	**$220,696.38**	$882,786	
Total Project Cost				per Block	**$1,446,787**	$5,787,150	All 4 Blocks
DEMONSTRATION PROJECTS							
Durant Art Plaza							
	New stained & etched sidewalk treatment	**10**	$/sq ft	7920	79,200		
	5 outdoor art display pieces within the BofA building column niches	**5000**	per piece	5	25,000		
	1 expanded concrete curb for future parklet	**6750**	per piece	1	6,750	Just the concrete	
	1 modular station with built-in: Pedestrian lighting	**13850**	per piece	1	13,850		
	2 new Big Belly trash & Recycle bins						
	Telegraph storyboard						
	4 new bike racks						
	1 future scramble intersection (+ 1 scramble at Bancroft intersection)	**36120**	per piece	1	36,120		
	2 new street trees w/ expanded tree well (or "art trees")	**5288**	per piece	2	10,576		
	2 new mosaic waste bins	**1000**	per piece	2	2,000		
	1 vendor / performance space	**0**	per piece	1	-	No actual work for this	
	1 music element sculpture	**5000**	per piece	1	5,000		
	Total Hard Costs				**$178,496**		
Total Construction Cost Fees				**23.25%**	**$41,500**		
Total Construction Cost					**$219,996**		
Total Project Cost Fees				**18%**	**$39,599.34**		
Total Project Cost					**$259,596**		
Dwight Triangle							
	New stained & etched sidewalk treatment	**10**	$/sq ft	600	6,000		
	Retained berm planted area at center of triangle	**4.00**	$/sq ft	1400	5,600		
	Retaining wall for berm @ passageway edge	**100**	$/lnl ft	50	5,000		
	Placement of UC artifact columns for soil retention along street	**5000**	per piece	1	5,000		
	2 Outdoor art display pieces:						
	1 focal point piece at southerly tip of triangle	**25000**	per piece	1	25,000		
	1 pedestrian scaled piece over existing pedestal	**5000**	per piece	1	5,000		
	1 Light canopy along main sidewalk passageway	**10000**	per piece	1	10,000		
	New Articulated bike lane w/: Street painting	**36120**	per piece	1	36,120	Used same amount as for Scramble intersection	
	Bollards	**200**	per piece	9	1,800	Plastic breakaway bollards	
	Total Hard Costs				**$99,520**		
Total Construction Cost Fees				**23.25%**	**$23,138**		
Total Construction Cost					**$122,658**		
Total Project Cost Fees				**18%**	**$22,078.51**		
Total Project Cost					**$144,737**		

To add to Total Construction and Sitework costs	% rate
General Conditions	15%
Contractor's Overhead Fees & Insurance	7%
Performance Bond	1.25%
Total Construction Cost Fees	**23.25%**

Soft Costs to add to Total Construction Cost Fees	% rate
Design Cost	10%
Construction Management	5%
3rd Party Inspections	3.00%
Total Project Cost Fees	**18.00%**

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