Strawberry Creek Downtown

A Data Collection Study to Daylight Strawberry Creek
June 1999

Prepared for the City of Berkeley
by Wolfe Mason Associates

In association with:
Elmwood Consulting
Michal Moore
Woody Triley, P.E.
Urban Advantage
Waterways Restoration Institute
Executive Summary

This data collection study is in four sections. Section 1 provides an introduction to the study, outlines the purpose and assumptions of the study, the study area and both the history of Strawberry Creek; in particular, and creek restoration in general. Section 2 presents the data collection categories, briefly characterizes each block and then presents the data block-by-block. Section 3 outlines key implications of the data, briefly describes the daylighting scenarios and then presents the five scenarios for Strawberry Creek Downtown. Section 4 outlines 'Next Steps'.

In the final analysis, Civic Center Park (Blocks 6 and 9) is the only place with sufficient public right-of-way to have a full flow restoration in the nine block study area without the City acquiring property. A Civic Center Park restoration of Strawberry Creek would likely cost between $1.5 million and $2.5 million. If the City were to acquire property for a daylighting of Strawberry Creek, Center, Oxford to Shattuck (Block 4) deserves particular attention due to its large right-of-way, pedestrian orientation and current institutional land uses and would likely cost between $4 million and $5 million, excluding acquisition costs.

If the City were to daylight the creek in a public right-of-way outside of Civic Center Park, a portion of the water from Strawberry Creek could be used to create a smaller stream in a roadway- a partial flow daylighting. The width of this partial flow daylighting could vary from 13 to 28 feet with a depth of 3 to 18 feet depending on whether the creek were to be placed on Addison, Center or Allston. Blocks 4, 5, 6 and 9 deserve particular attention if the City wishes to pursue a partial flow daylighting. For relative comparison purposes between scenarios, a one block partial flow daylighting is estimated to cost between $2 million and $3.5 million on Center, Oxford to Shattuck.

Another option to bring water to Downtown is to construct a canal. A canal could have widths varying from 6 to 12 feet but would likely have a constant 1 to 3 foot depth. Blocks 4, 5, 6, 7 and 9 deserve particular attention if the City wishes to pursue a canal in a public right-of-way. For relative comparison purposes, a one block canal is estimated to cost between $1 million and $1.5 million on Center, Oxford to Shattuck.

With any scenario, a full flow restoration, a partial flow daylighting or a canal, bridges or culverts could be constructed to maintain traffic along Oxford, Shattuck, Milvia and Martin Luther King, Jr. Way if the daylighting were to span more than one block.

The range of options, or scenarios briefly described above, along with symbolically acknowledging Strawberry Creek, are the implications arrived at from an examination of the data collected. These implications are outlined in Section 3 of this study.

It is our belief that this study does indeed provide 'a logical framework' within which to evaluate the implications of daylighting Strawberry Creek. Yet, as Richard Feynman, a pre-eminent noble laureate, once noted, there is a difference between the questions 'If I do this what will happen?' and 'Well, do I want that to happen?' Now comes the more difficult task of answering the latter question. It is our hope that this study will add to the ongoing spirited public discussion.
Introduction

BACKGROUND

In July 1998, the City of Berkeley retained Wolfe Mason Associates, in association with Elmwood Consulting, Michal Moore, Urban Advantage, Woody Trihey, P.E. and Waterways Restoration Institute to conduct a data collection and implications study for daylighting Strawberry Creek within a nine-block area of Downtown Berkeley. ‘Daylighting’ refers to the process of excavating buried streams from culverts so that once again water may flow exposed.

Study Area

The area under consideration is generally from the University of California Berkeley campus to the Old City Hall. The specific study area is defined by City streets: Addison to the north; Allston to the south; Oxford to the east; and Martin Luther King, Jr. Way to the west. The project area contains a number of historic structures, parking areas, retail stores, housing units, and public amenities, such as BART and Civic Center Park.

Purpose of the Study

Over the years, Strawberry Creek, which currently flows through a buried concrete ‘box’ culvert within the downtown area, has been the focus of much discussion among community members. The topic of these discussions range from daylighting the creek to repairing the existing culvert and making no changes in the existing landscape. To address the community, the City authorized this study to:

- Collect data which can serve as the baseline for discussions among City officials, community groups and business interests;
- Outline potential implications associated with daylighting Strawberry Creek within the defined study area;
- Identify the range of daylighting possibilities;
• Provide a logical framework within which an evaluation of these implications may be subsequently addressed.

This study has been conducted not to weigh the values of various scenarios, but to collect the data and outline the implications so that others, be they City staff, City Council, or citizens at large, can consider the ramifications of daylighting Strawberry Creek and decide upon a recommended concept for further detailed technical analysis and design.

HISTORY OF STRAWBERRY CREEK

Strawberry Creek is a perennial stream, fed by surface runoff, groundwater and regulated EBMUD releases, which runs from the Berkeley Hills to the San Francisco Bay within the City of Berkeley. At the time of European settlement, Strawberry Creek meandered along (what is today) Allston Street from Oxford to Milvia, crossing over to (what is now) Center Street from Milvia to Martin Luther King, Jr. Way.

Today, long reaches of the creek upstream of downtown, including the two forks traveling through the UC Berkeley campus, are in an open channel. However, the creek from campus to Sacramento Street has been placed in a culvert and runs underground. Such culverting began as early as 1890, at the intersection of Oxford and Allston. Strawberry Creek appears to have been completely culverted in Downtown by 1930. A north fork of Strawberry Creek, which historically converged in (what is today) Civic Center Park, has also been culverted and runs along Addison Street (the north fork or 'Addison Street culvert'), independent of the Allston Street culvert (south or main fork) through Downtown.

Culverting has historically been used to address flooding concerns and ‘reclaim’ land for subsequent building and roads. With this approach, creeks become part of the man-made infrastructure and are maintained as storm drains, thereby losing many of their inherent benefits, such as wildlife habitat. Over time, maintenance and potential ‘failures’ of the culverts/storm drains become an ongoing issue and cost, and remain so indefinitely given the nature of water. The failures in 1962, beneath what would become the YMCA, illustrate the magnitude of the ongoing maintenance costs involved. Numerous failures were addressed in 1968, alone.

A significant section of the Allston culvert through Civic Center Park had to be abandoned and an entirely new culvert constructed in 1979. A failure of the Allston Street culvert through Civic Center Park in 1997 is only the most recent example of historic failures.

The City's Storm Drainage Master Plan, prepared by an independent consultant in 1994, identifies three engineering projects along the existing Allston culvert from Oxford to Milvia to replace or rehabilitate the culvert to maintain service. The estimated cost is $2.9 million in 1994 dollars.
Historic Photos of Strawberry Creek

Allston Way looking east from Shattuck Avenue circa 1889. Strawberry Creek is located in the lower left hand corner of the photo beneath the large canopied oak. Photo credit: Berkeley Architectural Heritage Association.

Allston Way looking east circa 1899. Strawberry Creek has been culverted. Photo credit: Berkeley, the Town and the Gown of It.
Historic Failures of the Strawberry Creek Culvert

Sections of typical failures addressed in the Allston street culvert in 1962.

The City of Berkeley faced numerous repairs of the culvert in 1968.
CREEK RESTORATION AND DOWNTOWN

What is Creek Restoration?
Creek restoration is not simply having water run through channels above ground. Hydrologists and fluvial geomorphologists have specific criteria for what constitutes a ‘restored’ stream, including:

- The stream has a floodplain;
- Its channel is in dynamic equilibrium between the forces of erosion and sedimentation;
- The degree of stream curvature, or sinuosity, is appropriate to the width of the creek, the slope of the land and the stream bed material; and
- The stream supports aquatic and terrestrial life. Usually appropriate vegetation, particularly native shrubs and trees, are present to create a habitat to support this life and maintain both the channel form and shape.

Only when a stream provides these hydrologic and biologic functions should it be considered ‘restored’. This is not to say that a channel which moves water in other ways is not valuable, but such channels cannot be called restored streams.

Understanding this definition of creek restoration has direct bearing on Strawberry Creek in Downtown Berkeley. As noted above, one purpose of this study is to identify the range of daylighting possibilities: from a fully restored stream (a truly ‘restored’ creek) to an aesthetically pleasing canal.

Why Daylight a Creek in Downtown?
Ongoing culvert repairs and economic development concerns have led many communities to evaluate and consider restoring natural waterways within their downtowns. Opportunities and benefits, as well as the constraints of establishing and maintaining natural water systems in developed downtowns, must be considered. Questions for Berkeley might include:

- Given that portions of the current culvert alignment runs under existing buildings, what would happen in the event of culvert failure.
- Does the culvert achieve its purpose of efficient water conveyance?
- Considering the age and condition of the culvert, are there other more attractive, beneficial and dependable ways to capture the inherent benefits of a stream and still convey water from the hills to the Bay through Downtown Berkeley?
- What type of identity or focal point does the City and community wish to develop for downtown?
What Have Other Communities Done?
San Luis Obispo provides an interesting case study. According to Ken Schmidt, former mayor of San Luis Obispo, the possibility of enhancing a creek in downtown captured the imagination of a number of individuals in the 1970's. Many business owners, however, strongly opposed the idea. After years of public discussion, the City undertook the project. Since completion of creek enhancements, the downtown has experienced increased and sustained vibrancy. In addition, the downtown along the creek has a real 'sense-of-place' with walkways, public plazas and pedestrian shopping malls. In fact, many of the original dissenters have become ardent supporters of the creek and its positive effects on downtown.

Photo Credit: Steve Price, Urban Advantage.

The daylighting in San Luis Obispo has brought increased and sustained vibrancy to the downtown.

Santa Rosa provides another California example as portions of a creek run through downtown. According to Mike Sheppard, planner for the City of Santa Rosa, to the east of downtown the creek remains in a 'natural' state. The creek is channelized west of downtown and to the rural areas of the county and the Laguna de Santa Rosa. City Hall, the Federal Building and a two block area of downtown are over a 15 foot by 15 foot box culvert. In the 1950's, with the aid of federal funds and the Army Corps, a 4 or 5 block area of the channel just west of downtown was riprapped on both sides and the bottom. With this change to the creek water temperatures in the canal can now reach about 80 degrees, too hot for much aquatic life. The city developed a master plan in 1991 which calls for the creek east of downtown to remain in a natural state and to be restored where currently channelized. Since the land is mostly owned by the water agency, no property acquisition is required. There is no traffic pattern alteration as the creek already has several crossings. This downtown restoration project is part of the Prince Memorial Greenway and has meet with a great deal of enthusiasm from the community and city staff. The major impetus for the restoration has come
from the desire to have a bicycle and pedestrian connection with Sebastopol to the west. The Army Corps is also involved, but this time is interested in the restoration elements of the greenway along the entire length of 13 miles.

As cities begin to daylight creeks, maintenance of open channels often falls to a City or a local flood control agency. And since daylighting takes place for many reasons in addition to simply water conveyance, it becomes essential that the channels are maintained in a way which provides for all the inherent benefits of the creek.

As these and other efforts in Colorado, New Mexico, Oregon, Washington, Minnesota, Illinois, Georgia and Rhode Island illustrate, there are a remarkable variety of approaches depending on individual, community, and civic values.

Lithia Creek in Ashland, Oregon runs through downtown.

Photo Credit: Gary Mason, Wolfe Mason Associates.

Breckenridge, Colorado provides for access to this creek in the center of town.

Photo Credit: Nina Wagner.
Are There Funding Opportunities?
The benefits creeks provide are diverse. As such, funding opportunities can be diverse as well. When a project aims to prevent future loss of lives and property due to disasters, one funding source may be the Hazard Mitigation Grant Program developed by FEMA, the Federal Emergency Management Agency. When a project addresses circulation and employs alternative transportation options, such as greenways, Department of Transportation TEA 21 funds may be an option. Federal Housing and Urban Development funds might be sought when a creek is part of a broadly conceived economic development program. Traditional funding for creek projects has come from the State Department of Water Resources. A number of water and park bonds are scheduled to appear on this year’s ballot which may potentially provide millions of dollars for the Urban Streams Program. At the local level, a variety of funding strategies, such as a citywide assessment district, could be structured by the City for the development and management of a creek in Downtown Berkeley.

DATA COLLECTION ASSUMPTIONS
The possible impacts of a restored creek or canal (or anything in-between) for the study area are wide ranging. The Consultant Team, in conjunction with City staff, drew on collective experience to organize and focus the data collection effort, based on the following key assumptions:

Definition of Data
In order to collect information, the type of data needed to be defined. Existing conditions are certainly one type of data. At issue, however, was whether hypothetical changes within the study area, if yet to be implemented or even approved, should be considered data. For the purposes of this study only those projects approved and funded constitute data. Projects such as these are denoted by the word ‘Future’ in Section 2 Data Collection.

Public Right-of-Way vs. Buildings
Another key assumption is related to the most likely course for the water. In theory, it is possible to run water from one point to another in many, many ways throughout the Downtown. With the potential for building demolition, the possible courses are countless. It was decided, based on cost considerations, to primarily focus on using public right-of-way (which includes public streets and sidewalks), not buildings as the potential future water course. For the purpose of this study public right-of-way also includes land which the city owns, such as Civic Center park.

ORGANIZATION OF THE REPORT
Following this introductory section, Section 2 defines the data collection categories and presents the data collected in a block-by-block description of existing conditions relevant to the possibility of daylighting Strawberry Creek in the Downtown. Section 2 is a compendium of data and is not intended to be read as a narrative. For key findings of the data presented in Section 2, see Section 3 ‘Key Findings of the Data’. Section 3 goes on to illustrate five scenarios that depict the range of possible approaches to Strawberry Creek Downtown. Section 4 outlines ‘Next Steps’ and presents possible project evaluation criteria.
2 Data Collection

INTRODUCTION
This section of the study presents a block-by-block summary of data gathered and used to present implications of daylighting Strawberry Creek in the study area.

DATA COLLECTION CATEGORIES
Six categories of data were collected related to Strawberry Creek. It is not intended to be an exhaustive analysis of general conditions in the study area. Every effort has been taken to insure the accuracy of the data herein presented. Wolfe Mason Associates, however, assumes no responsibility for the ultimate accuracy of the information.

Hydrology/Hydraulics
Hydrology/Hydraulics data concerns the movement of water in the study area. In particular, the following data has been collected:

- Ground distances
- Ground slopes of the reaches identified
- Discharges for the standard design storm recurrence intervals (1.5, 10, 25, 100)
- The location of the Strawberry Creek culverts and pipe depth (street elevation to invert)

Key References for Hydrology/Hydraulics
City of Berkeley Storm Drainage Master Plan prepared by CH2M Hill, 7/94
Bay Area Rapid Transit Berkeley - Richmond Line - Strawberry Creek Plan & Profile Sheet US0-0 page 32; Berkeley Richmond Line Plan & Profile Allston Way to Berkeley Way Sheet CT34-0 p.15
Right-of-Way
Right-of-Way data concerns the amount of nominally available space for any possible daylighting.
- Total width of public right-of-way building to building
- Street width curb to curb
- Sidewalk width
- Street tree quantities

Circulation
Since the possible daylighting of the creek is anticipated to occur in the public right-of-way, conditions related to circulation largely focused on activities in the surrounding streets, such as:

BART and Transit
- location of entrances/exits or stops
- routes
- taxi stands

Vehicular Movement
- existing traffic controls
- relative traffic volumes

Delivery and Loading
- off-street access such as driveways
- docks/doors which front on street

Bicycle Movement
- location of existing bike lanes
- street classifications for bicycles (paths, boulevards, lanes, routes)
- quantity of bike parking
- counts for blocks and intersections (highest peak period use for a.m., p.m. and midday)

Pedestrian Movement
- location of crosswalks
- counts for blocks and intersections (highest peak period use for a.m., p.m. and midday)

Parking
Parking considerations include:
- Number and types of on-street parking
- Size and access to off-street parking facilities

Land Use & Urban Economics
The current zoning designation is presented for each block. In addition each block is categorized based on the following land use categories. This data has been collected to give a general sense of the blocks and allow a degree of comparison.
- Commercial (professional, retail, service, etc.)
- Public
- Parking
- Residential
- Vacant Land/Vacant Property

Key References for Right-of-Way
City of Berkeley: Storm Drain and Sewer Maps Sheets 120, 127, 301, 302, 303, 304
City of Berkeley Mapping Project

Key References for Circulation
AC Transit Street & Route Map - Richmond to Fremont
Berkeley Bicycle Plan Prepared for the City of Berkeley by Wilber Smith Associates. 12/98
Bicycle Turning Movement Summary for the City of Berkeley Downtown Signal Retiming Project prepared by Baymetrics Traffic Resources
Pedestrian Movement Summary for the City of Berkeley Downtown Signal Retiming Project prepared by Baymetrics Traffic Resources
Strawberry Creek Downtown Data Collection: Bicycles, Pedestrians, Transit, Parking prepared by Elmwood Consulting 1/99

Key References for Parking
Strawberry Creek Downtown Data Collection: Bicycles, Pedestrians, Transit, Parking prepared by Elmwood Consulting 1/99
Land Use & Urban Economics Data for Downtown Berkeley prepared by Michal Moore 4/99

Key References for Land Use & Urban Economics
Land Use & Urban Economics Data for Downtown Berkeley prepared by Michal Moore 4/99
Alameda County Assessor’s Parcel Maps
Official Zoning Map of the City of Berkeley Plate Six
Urban land economic data focused on existing improvement and land values. This data has been collected so as to provide a relative comparison between the blocks. A land utilization analysis was used to determine economic potential of a property. This analysis identified properties which are economically underutilized and therefore considered to be prime targets for new investment.

- Street frontage
- Relationship to and need for parking by block (high, moderate, low)
- Ratio of current improvement values to current land values

Utilities
A number of different utilities traverse the study area. Virtually all are underground. Data was collected for the following:

- Electric Distribution
- Electric Transformers
- Gas
- Sewer and Storm Drain
- Telephone
- Water
- Cable Television

STUDY AREA
The data, as described above, is organized around each east-west street: Addison, Center and Allston. Although adjacent property acquisition may be an option, if the possible daylighting of the creek were to occur without property acquisition, the creek would likely be centered in the public right-of-way. Therefore, the focal point of each block is the street itself. Data for Shattuck and Milvia is presented in both the block to the east and west. For example, data for Shattuck near Addison is listed in both block 1 and block 2.

Addison
1 Oxford to Shattuck
2 Shattuck to Milvia
3 Milvia to Martin Luther King, Jr. Way

Center
4 Oxford to Shattuck
5 Shattuck to Milvia
6 Milvia to Martin Luther King, Jr. Way

Allston
7 Oxford to Shattuck
8 Shattuck to Milvia
9 Milvia to Martin Luther King, Jr. Way
Orthographic Photo of Study Area
Examples of Hydrology Data Collected

In its natural state Strawberry Creek is a ‘gully’ type channel with high, steep banks. The image above depicts the bankfull channel, also referred to as the active channel, as the area below the ‘65 CFS’ line. Image: Waterways Restoration Institute.

A key component of creek restoration is creating a channel similar to its natural tendency. This is done by analyzing a ‘reference reach’. As depicted above the reference reach used to develop the hydrology data for this study suggests a meander belt of 72 feet. For purposes of implications, a ‘squeezed’ belt of 65 feet has been employed.
Examples of Hydrology/Hydraulics Data Collected

BART's Richmond Line runs north-south along Shattuck Avenue through the study area. The Strawberry Creek culvert located on Allston crosses the BART station in the Allston/Shattuck intersection. The section above depicts how the culvert sits below the top of the station envelope on a structurally reinforced, continuous concrete cradle.

The City of Berkeley maintains a number of storm drain culverts in the study area. The sections above depict both the 'typical' nature of the culvert as well as the typical types of failure. The section on the right indicates that Strawberry Creek, contained in this culvert, is attempting to reestablish more natural channel geometry.
Examples of Circulation Data Collected

The pedestrian information, provided by Elmwood Consulting, relied on field observations but also took advantage of recent studies commissioned by the City. The above graphic depicts pedestrian counts for the Center/Oxford intersection.

Bikeway Network

Legend

Paths (Class 1)
Multi-use (null, non-paved only)
Boulevards (bicycle priority street)
NOTE: Future designation of bike boulevards is to be determined during the Berkeley boulevard planning process
Lanes (Class 2)
Two-way for bicycles only
Class 2.5
Upgraded bike route with upgraded improvements
Routes (Class 3)
Highly recommended - no special markings
Connections to Existing / Proposed Routes in other Cities
BART Station
Bikeway Network Number

Sources:
* Proposed and Existing Bikeways inventory, April 14, 1999
* Willner Smith Associates
* City of Berkeley Staff

Circulation data related to bikes relied on the 'Berkeley Bicycle Plan' prepared for the City of Berkeley by a consultant. The plan was adopted by City Council on January 12, 1999.
Examples of Land Use & Urban Economics Data Collected

Zoning information has been obtained from recently revised City of Berkeley documents. The above image depicts the two zones in the study area: C-2 Commercial and R-4 Neighborhood (Civic Center Park).

<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
<th>Business Name</th>
<th>Street Name</th>
<th>Land Value</th>
<th>Improv Value</th>
<th>Total Val.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>N. Berkeley</td>
<td>noon</td>
<td>306,352.00</td>
<td>507,271.00</td>
<td>$813,523</td>
<td></td>
</tr>
<tr>
<td>N. Berkeley</td>
<td>Landmark Theatre</td>
<td>267,540.00</td>
<td>337,695.00</td>
<td>$605,235</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. Berkeley</td>
<td>Santa Fe Station</td>
<td>119,769.00</td>
<td>133,589.00</td>
<td>$253,358</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. Berkeley</td>
<td>Bank of America</td>
<td>958,050.00</td>
<td>638,700.00</td>
<td>$1,596,750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. Berkeley</td>
<td>Center</td>
<td>532,233.00</td>
<td>1,094,010.00</td>
<td>$1,626,243</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N. Berkeley</td>
<td>Center</td>
<td>1,161,779.00</td>
<td>691,923.00</td>
<td>$1,853,602</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Land Use & Urban Economic data has been developed from assessor’s parcel maps. The above image has been extracted from the analysis provided by Michal Moore, subconsultant and depicts the land value and improvement values used in the land utilization analysis to determine the economic potential of a property.
Examples of Utility Data Collected

PG&E classifies gas lines based on transmission pressure: transmission pressure, high pressure distribution, semi-high pressure distribution and low pressure distribution.

The above map depicts low pressure distribution gas mains on Addison, Oxford to Shattuck.

PacBell maintains numerous underground conduits for telephone service in the study area. The above map depicts two such conduits located on the north and south sides of Addison, Milvia to Martin Luther King, Jr. Way.
Examples of Utility Data Collected (continued)

The City of Berkeley maintains sanitary sewer and storm water drains in the study area. Sanitary sewer classification is based on pipe diameter, normally expressed in inches. The above map depicts sanitary sewer lines on Center, Oxford to Shattuck.

The presence of BART in the study area is significant. The section depicted above plots the elevation of the station envelope in relation to the ground surface. Note that the top of the station envelope is approximately 10 feet below the ground surface.
Examples of Utility Data Collected (continued)

PG&E classifies electric utilities as primary or secondary. The above map depicts a primary line and bank of transformers on Center, Milvia to Martin Luther King, Jr.

East Bay Municipal Utility District maintains water mains in the study area. Water distribution main classification is based on pipe diameter expressed in inches, the pipe's material and the year installed. The above map depicts a 12 inch water main installed in 1959 on Allston, Milvia to Martin Luther King, Jr.
BLOCKS AT A GLANCE

A brief character description for each block is provided below.

Addison

*Oxford to Shattuck*

This block is dominated by a parking garage and numerous off-street parking lots. There is relatively little pedestrian activity and only a few retail shops.

Addison

*Shattuck to Milvia*

This block is the designated Arts District featuring the Berkeley Repertory Theatre. There are plans to improve the streetscape. Off-street parking demand is relatively high as an access to one of the two main garages in the study area is from Addison. The roadway is among the narrowest in the study area. One of the two culverts which contain Strawberry Creek is located beneath the roadway in this block.

Addison

*Milvia to Martin Luther King, Jr. Way*

This block is dominated by many one and two story professional/residential buildings as well as car-oriented businesses such as a car stereo installation shop, a car repair facility and a tire shop. There is relatively high pedestrian activity as Vista Community College is located at the corner of Addison and Milvia. One of the two culverts which contain Strawberry Creek is located beneath the roadway.

Center

*Oxford to Shattuck*

This block is dominated by pedestrian-oriented retail on the south side of the street, such as a movie theatre and restaurants. The recently widened sidewalk on Center, the largest in the study area, serves as the major corridor for pedestrian traffic from BART and transit to the University of California, Berkeley campus. Only two properties span the north side of the street offering the greatest amount of property for potential acquisition with the least number of acquired parcels. One of which, the UC Printing building, currently uses the roadway for extensive delivery and loading. Center Street in this block has the largest nominally available space for any possible daylighting outside of Civic Center Park.

Center

*Shattuck to Milvia*

The Berkeley BART station, the busiest in the East Bay, as well as stops for a dozen or so AC Transit bus lines are located in the eastern portion of this block. Two multistory buildings (Wells Fargo and Washington Mutual), the tallest in the study area, also are located near Shattuck. Off-street parking demand is relatively high as access to both main garages in the study area is possible from Center.
Center
*Milvia to Martin Luther King, Jr. Way*
Civic Center Park, along with other public buildings which include numerous City of Berkeley offices, dominate this block. The park, a historic landmark, provides the greatest amount of open space for potential daylighting. Off-street parking is moderate. The main Strawberry Creek culvert is located on the north edge of the park.

Allston
*Oxford to Shattuck*
In the near term, this block is expected to see the greatest amount of (re)development in the study area. Two mixed-use buildings are to be built, one on the north side and one on the south side of the street. Demand for off-street parking is relatively high as the City maintains a surface lot with access from Allston. The main Strawberry Creek culvert is located beneath Oxford and Allston.

Allston
*Shattuck to Milvia*
The Shattuck Hotel, one of the two main parking garages in the study area, the YMCA and the Berkeley Main Post Office characterize this block. Access to the parking garage is from Allston. This block has a relatively high amount of pedestrian traffic. The main Strawberry Creek culvert is located beneath the roadway.

Allston
*Milvia to Martin Luther King, Jr. Way*
Civic Center Park, City Hall, Berkeley High School and the Berkeley Community Theatre characterize this block. As with Center between Milvia and Martin Luther King, Jr. Way, the park provides the greatest amount of open space for potential daylighting. There is a high demand for on-street delivery and loading at the Berkeley Community Theatre. Off-street parking is relatively high. One of the highest volume midblock pedestrian crossings is located between Civic Center Park and Berkeley High School.
Addison
Oxford to Shattuck

Photo of Addison looking west from the Addison/Oxford intersection.

Hydrology/Hydraulics
- 415 feet ground distance, 185 feet across Shattuck
- 2 percent ground slope east to west
- Strawberry Creek is not located in this block

Right-of-Way
- Total width approximately 60 feet
- Street width approximately 42 feet
- Sidewalk width approximately 18 feet: 9 feet on the north, 9 feet on the south
- No street trees

Circulation

BART and Transit
- AC Transit routes 7, 8, 9, 43, 51, 64, 65, 604, 605, F run along Shattuck.
- Shattuck Square at the Addison/Shattuck intersection has an entrance to the BART station.

Vehicular Movement
- Supports the lowest volumes of traffic compared to Center (block 4) and Allston (block 7) between Oxford and Shattuck.
• Stop sign on Addison at Addison/Oxford intersection
• Stoplight at Addison/Shattuck intersection

Delivery and Loading
• 4 curb cuts on the north (3 west of 2199, 1 west of 2119)
• 3 curb cuts on the south (2 at 2150, 1 east of 2112)
• Off-street alley and car access to the north at Terminal Place

Bicycle Movement
• The primary flow of bicycle traffic is south to north throughout the day on Shattuck through the Addison/Shattuck intersection.
• Addison is not a designated bikeway.
• Future: The Bike Plan calls for Oxford to have a designated Class 2 bike lane.

Pedestrian Movement
• Crosswalks are located on the south, west and north sides of the Addison/Oxford intersection
• Crosswalks are located on all sides of the Addison/Shattuck intersection, both Shattuck northbound and Shattuck southbound
• Addison/Shattuck intersection has approximately 1,300 pedestrians per hour at peak period

Parking
• 25 on-street vehicle spaces: 5 green, 17 1-hour metered, 2 yellow, 1 blue
• North side of street: 15 vehicle spaces in UC lot below grade
• North side of street: 26 vehicle spaces in UC lot at grade
• North side of street: 8 vehicle spaces in apartment lot
• South side of street: 168 vehicle spaces in UC garage
• 12 bicycle spaces

Land Use & Urban Economics
• Six properties front on Addison in this block. The uses are predominantly public, parking and residential. Uses include six stories of residents, a three story parking garage, numerous off-street vehicle lots and a few retail shops.
• Land utilization, as measured by improvement value to land value ratios, varies from low (one) to high (one). (Note: economic data incomplete for four properties).
• This block is zoned C-2 Commercial.

Utilities

Electric Distribution
• An underground primary distribution line in northbound Shattuck Avenue (north and south of Addison)
• A one-gauge underground secondary distribution main in a portion of Addison
• A three gauge underground secondary distribution main in the western portion of Addison. This line also connects laterally to a similar main in southbound Shattuck.
• A one-gauge underground secondary distribution junction box in Addison (midblock)
• An underground secondary bus (Addison/Shattuck intersection)
Electric Transformers
- A one-bank underground primary transformer (at northbound Shattuck intersection)
- A three-bank underground secondary (subsurface) transformer in north block (west corner)

Gas
- Low pressure distribution main in eastbound Addison (limited to western half of the block), with five service connections (three curb valves; two standard)

Sewer and Storm Drain
- 12-inch storm drain runs north-south along Oxford at Addison/Oxford intersection.
- 12-inch storm drain in the northern portion of Addison which runs the length of the block.
- 8-inch storm drain in the northwestern quarter of the street.
- 12-inch storm drain runs north-south at western edge of street.
- 12-inch storm drain angles from northern edge of Addison to middle of Shattuck northbound.
- 6-inch storm drain angles from southern edge of Addison to middle of Shattuck northbound.
- 10-inch storm drain runs in the middle of Addison across Shattuck northbound and Shattuck southbound.
- Storm drain of unknown size runs north-south on Addison between Shattuck northbound and Shattuck southbound.
- 8-inch sanitary sewer runs in the middle of the street for the length of Addison (eight laterals to the north).
- 6-inch sanitary sewer runs in the middle of the street for the length of Addison (seven laterals to the south).
- 10-inch sanitary sewer angles from southern edge of Addison and runs in the middle of Addison across Shattuck northbound and Shattuck southbound.
- 27-inch sanitary sewer becomes a 36-inch sanitary sewer as it runs through the western portion of the Addison/Shattuck northbound intersection.
- 10-inch sanitary sewer angles from the southwest corner of the Addison/Shattuck northbound intersection to the center of Addison between Shattuck northbound and Shattuck southbound.
- 8-inch sanitary sewer turns south to west in middle of Addison/Shattuck northbound intersection.

Telephone
- Two underground conduits run north-south in the Addison/Oxford intersection.
- Underground conduits run north-south in the Addison/Shattuck intersection.

Water
- 10-inch main runs down the northern portion of Addison the length of this block and turns south in the Addison/Shattuck northbound intersection. One valve in the Addison/Oxford intersection. One valve Addison/Shattuck northbound intersection. (Five laterals-north and six laterals -south).
- Hydrant off the 10-inch main, northeast corner of the Addison/Shattuck northbound intersection
- Hydrant off the 10-inch main to the north midblock
- 8-inch main runs north-south along eastern edge of Shattuck northbound and connects with the 10-inch main in the Addison/Shattuck northbound intersection.
- 6-inch runs north-south at western edge of Oxford through the Addison/Oxford intersection.
- 10-inch main runs north-south along eastern edge of Oxford through the Addison/Oxford intersection and connects with the 10-inch main which runs east-west down Addison.
- 48-inch main runs north-south along eastern edge of Oxford through the Addison/Oxford intersection.

Cable Television
- No facilities
Utility Maps for Addison Oxford to Shattuck (continued)
Addison
Shattuck to Milvia

Photo of Addison looking west from the Addison/Shattuck intersection.

Hydrology/Hydraulics
- 650 feet ground distance
- 1.5 percent ground slope east to west
- Selected recurrence intervals and estimated discharges in cubic feet per second: 1.5: 30 cfs, 5: 80 cfs, 10: 120 cfs (340 cfs SWM model), 25: 155 cfs, 50: 180 cfs, 100: 350 cfs
- The north fork of Strawberry Creek is in a storm drain in this block 13.5 to 14.8 feet deep.

Right-of-Way
- Total width approximately 60 feet
- Street width approximately 36 feet
- Sidewalk width approximately 24 feet: 12 feet on the north, 12 feet on south. There are sidewalk ‘bulb-outs’ at each end of this block.
- 9 street trees on the north and 12 street trees on the south

Circulation
BART and Transit
- The southeast corner of the Addison/Shattuck southbound intersection has an entrance to the BART station
- AC Transit routes 7, 8, 9, 43, 51, 64, 65, 604, 605, F along Shattuck
- AC Transit route 8 runs along Milvia
Vehicular Movement
- Supports the lowest volumes of traffic compared to Center (block 5) and Allston (block 8) between Shattuck and Milvia.
- Stoplight at the Addison/Shattuck intersection
- Stop signs at the Addison/Milvia intersection

Delivery and Loading
- 4 curb cuts on the north (2071, west of 2015, and 2 west of 2011)
- 3 curb cuts on the south (2026, 2020 and east of 2100)

Bicycle Movement
- Milvia is the designated north-south bicycle route through the Downtown and a bike boulevard.
- Addison/Shattuck intersection has approximately 120 bikes per hour at peak period.

Pedestrian Movement
- Crosswalks are located on all sides of the Addison/Shattuck intersection, both Shattuck northbound and Shattuck southbound.
- Crosswalks are located on all sides of the Addison/Milvia intersection.
- Addison/Shattuck intersection has approximately 1,300 pedestrians per hour at peak period.

Parking
- 39 on-street vehicle spaces: 6 green, 24 1-hour metered, 5 yellow, 4 blue
- South side of street: 400 vehicle spaces in five story garage
- 8 bicycle spaces

Land Use & Urban Economics
- Nine properties front on Addison in this block. The uses are predominantly professional, parking and service. Uses include 12 stories of professional, a five story parking garage and a theatre (Berkeley Repertory). A number of buildings appear vacant while some are under construction.
- Land utilization, as measured by improvement value to land value ratios, varies from very low (six) to high (three).
- This block is designated the Arts District. There are current plans to improve the streetscape to make the block more pedestrian friendly.
- This block is zoned C-2 Commercial.

Utilities

Electric Distribution
- An underground primary distribution line, primarily in westbound Addison
- An underground primary distribution line in southbound Shattuck (south of Addison)
- A three-gauge underground primary distribution line in Addison
- Two, three gauge underground primary distribution lines in southbound Shattuck (north and south of Addison)
- Three underground primary distribution lines in Milvia (north of Addison)
- Four underground primary distribution lines in Milvia (south of Addison)
- Two, three gauge underground secondary distribution mains in Addison (limited to the western portion of the block)
• A three-gauge underground secondary main in Addison (limited to eastern portion of the block)
• Three, three-gauge underground secondary distribution mains in southbound Shattuck Avenue (north of Addison)
• Two, three gauge underground secondary distribution mains in southbound Shattuck Avenue (south of Addison)
• Two, three gauge underground secondary distribution main in Milvia (north of Addison)
• A three-gauge underground secondary distribution main in Milvia (south of Addison)
• Two underground secondary buses in Addison (midblock)

Electric Transformers
• A one-bank underground primary transformer in Addison (midblock)
• A one-bank underground primary transformer in Addison/Shattuck intersection
• A three-bank underground secondary transformer in Addison (mid block)
• A three-bank underground secondary transformer in Addison/Shattuck intersection
• A one-bank underground secondary (subsurface) in Addison (midblock)
• Two underground secondary buses (midblock in Addison; Addison/Shattuck intersection)
• Two, three gauge junction boxes (midblock in Addison; Addison/Milvia intersection)

Gas
• Low pressure distribution main (primarily eastbound Addison); with 10 service connections (one curb valve, two curb meter and seven standard)
• Low pressure distribution main in southbound Shattuck (north and south of Addison)

Sewer and Storm Drain
• 3'6" by 5'3" egg shaped storm drain enters Addison/Shattuck southbound intersection from the north, turns west and runs in the middle of Addison westward for approximately 650 feet.
• 15-inch sanitary sewer runs length of Addison with nine laterals to the north.
• 18-inch sanitary sewer enters Addison/Shattuck southbound intersection from the north and connects with the 15-inch sanitary sewer in intersection.
• 10-inch sanitary sewer runs through the Addison/Shattuck southbound intersection to eastern portion of Addison, jogs north-south and runs down the southern portion of Addison to the Addison/Milvia intersection for approximately 590 feet with seven laterals to the south.
• 8-inch sanitary sewer runs for 40 feet at southwest corner of Addison and connects with 10-inch sanitary sewer.

Telephone
• Underground conduit runs east-west in middle of street, western portion. Connects to north and south sides of Addison.

Water
• 6-inch main runs down the northern portion of Addison in this block. One valve in the western portion of the Addison/Shattuck southbound intersection (nine laterals to the north and eight laterals to the south).
• Hydrant off the 6-inch main at the northwest corner of the Addison/Shattuck southbound intersection.
• Hydrant off the 6-inch main to the north, midblock.
• Hydrant off the 6-inch main at the northeast corner of the Addison/Milvia intersection.
• 12-inch main runs north-south through the Addison/Shattuck southbound intersection and connects with the 6-inch main which runs east-west down Addison.
• 8-inch main runs north-south through the Addison/Milvia intersection with two valves in the intersection.
Cable Television

- No facilities
Utility Maps for Addison Shattuck to Milvia (continued)
Addison

Milvia to Martin Luther King, Jr. Way

Photo of Addison looking east from the Addison/Martin Luther King, Jr. Way intersection.

Hydrology/Hydraulics

- 670 feet ground distance
- 1.5 percent ground slope east to west
- Selected recurrence intervals and estimated discharges in cubic feet per second: 1.5: 30 cfs, 5: 80 cfs, 10: 120 cfs (406 cfs SWM model), 25: 155 cfs, 50: 180 cfs, 100: 350 cfs
- The north fork of Strawberry Creek is in a storm drain pipe in this block 14.8 to 17 feet deep.

Right-of-Way

- Total width approximately 60 feet
- Street width approximately 42 feet
- Sidewalk width approximately 18 feet: 9 feet on the north, 9-10 feet on the south
- 8 street trees on the north and 18 street trees on the south
Circulation

BART and Transit
- AC Transit route 8 runs along Milvia.
- Addison is used as an alternative bus route when Center street is closed due to events at Civic Center Park between Milvia and Martin Luther King, Jr. Way.

Vehicular Movement
- Supports the lowest volumes of traffic compared to Center (block 6) and Allston (block 9) between Milvia and Martin Luther King, Jr.
- Four way stop sign at the Addison/Milvia intersection
- Two way stop sign at the Addison/Martin Luther King, Jr. intersection on Addison
- Right turn only westbound on Addison at Martin Luther King, Jr.

Delivery and Loading
- 6 curb cuts on the north (1935, 1933, east of 1931, 1931, 1927, east of 1915)
- 3 curb cuts on the south (east of 1950, east of 1912, east of 1900)

Bicycle Movement
- Milvia is a designated Bicycle Boulevard (north-south bicycle route through the Downtown).

Pedestrian Movement
- Crosswalks are located on all sides of the Addison/Milvia intersection.
- Crosswalks are located on the east, north and west sides of the Addison/Martin Luther King, Jr. intersection.

Parking
- 40 on-street vehicle spaces: 2 green, 33 1-hour metered, 4 yellow, 1 blue
- North side of street: unknown number of off-street spaces behind 1935, midblock
- North side of street: 4 off-street spaces at 1911, west end of block
- North side of street: 25-35 off-street, underground spaces below The Promenade, west end of block
- North side of street: 10 off-street spaces at 1927
- North side of street: 15 off-street spaces, westernmost end of block
- South side of street: 16 off-street spaces west of Addison Court, west end of block
- South side of street: 21 off-street spaces adjacent to 1900, west end of block
- 6 bicycle spaces

Land Use & Urban Economics
- Nine properties front on Addison in this block. The uses are predominantly professional, public and service. Uses include 9 total stories of professional, a community college and automotive repair shops.
- Land utilization, as measured by improvement value to land value ratios, varies from very low (five) to high (one), with low (two) and moderate (one) also represented.
- This block is zoned C-2 Commercial.
Utilities

Electric Distribution
- Two underground primary distribution lines in Addison
- Three underground primary distribution lines in Milvia (north of Addison)
- Four underground primary distribution lines in Milvia (south of Addison)
- Two underground primary distribution lines in southbound Martin Luther King, Jr. (north of Addison)
- A three-gauge underground primary distribution line in Addison
- Between one and three, three-gauge secondary distribution mains in Addison
- Two, three-gauge underground secondary distribution mains in Milvia (north of Addison), connecting to a three-gauge junction box (in intersection)
- A three-gauge underground secondary distribution main in Milvia (south of Addison), connecting to three-gauge junction box (in intersection)
- Five underground secondary buses (four midblock; one in Addison/Martin Luther King, Jr. intersection)
- A three-gauge underground secondary junction box at the Milvia/Martin Luther King, Jr. intersection

Electric Transformers
- A one-bank underground primary transformer in Addison (midblock)
- A one-bank underground primary transformer in Addison/Martin Luther King, Jr. intersection
- A three-bank underground secondary transformer at Addison/Martin Luther King, Jr., intersection
- A one-bank underground secondary (subsurface) transformer in Addison (midblock)
- Two, one-bank underground primary transformers in Addison (midblock)
- A one-bank underground primary transformer in Addison/Martin Luther King, Jr. intersection
- A three-gauge underground primary junction box in Addison (midblock)

Gas
- Low pressure distribution main in eastbound Addison, with 14 service connections (three curb meter, two curb valve and nine standard)
- Low pressure distribution main in northbound Martin Luther King, Jr. (south of Addison)
- Low pressure distribution main in southbound Martin Luther King, Jr. (north and south of Addison)

Sewer and Storm Drain
- 3'6" by 5'3" egg shaped storm drain continues through the Addison/Milvia intersection from the east and runs in the middle of Addison westward for approximately 660 feet through the intersection of Addison/Martin Luther King, Jr.
- 24-inch storm drain connects from the north with the 3'6" by 5'3" egg shaped storm sewer in the Addison/Martin Luther King, Jr. intersection.
- 15-inch sanitary sewer runs length of Addison in this block with approximately 15 laterals to the north.
- 10-inch sanitary sewer runs length of Addison in this block with approximately 15 laterals to the south and connects with 15-inch sanitary sewer in the Addison/Martin Luther King, Jr. intersection.
Telephone
- Underground conduit runs length of block in southern sidewalk.
- Underground conduit runs length of block in northern sidewalk.
- Underground conduit runs north/south in Addison/Milvia intersection.

Water
- 6-inch main runs down the northern portion of Addison in this block. One valve in the eastern portion of the Addison/Martin Luther King, Jr. intersection (ten laterals to the north and seven laterals to the south).
- 6-inch main runs north-south through the Addison/Martin Luther King, Jr. intersection.

Cable Television
- No facilities
Utility Maps for Addison  *Milvia to Martin Luther King, Jr. Way* (continued)
Center
Oxford to Shattuck

Photo of Center looking west from Center/Oxford intersection.

Hydrology/Hydraulics
- Approximately 460 feet ground distance
- 2 percent ground slope east to west
- Strawberry Creek is not located in this block.

Right-of-Way
- Total width approximately 80 feet
- Street width approximately 50 feet
- Sidewalk width approximately 35 feet: 15 feet on the north, 20 feet on south
- 3 street trees on the north and 15 street trees on the south

Circulation
BART and transit
- AC Transit routes 40 and 40L run along Oxford to Center and Center from Oxford to Shattuck.
- AC Transit routes 7, 8, 9, 43, 51, 64, 65, 604, 605, 40, 40L, F along Shattuck.
- The northeast corner of the Center/Shattuck intersection has a bus stop for the AC transit 40 and 40L lines on Center and the UC shuttle on Shattuck. This is a major layover point.
• The southeast corner of the Center/Shattuck intersection has a bus stop for the AC transit 7, 8, 9, 43, 51, 64, 65, 604, 605 lines.
• Center between Oxford and Shattuck is the main connection from public transit to the University of California, Berkeley campus.

Vehicular Movement
• Supports the highest volumes of traffic compared to Addison (block 1) and Allston (block 6) between Oxford and Shattuck.
• Cross-campus Drive south of the Center/Oxford intersection is one of the most important vehicle entrances to west side of campus.
• Stoplight at Center/Oxford intersection
• Stoplight at the Center/Shattuck intersection

Delivery and Loading
• 3 curb cuts on the north (2145 - UC Press building, 2 Bank of America)
• no curb cuts on the south

Bicycle Movement
• Center/Oxford intersection has approximately 100 bikes per hour at peak period.
• The primary flow of bicycle traffic at the Center/Oxford intersection is north-south and west-east in the morning, south-north, north-south and west-east at midday, and north-south and south-north in the afternoon.
• Center/Shattuck intersection has approximately 120 bikes per hour at peak period.
• The primary flow of bicycle traffic at the Center/Shattuck intersection is south-north throughout the day with an equal emphasis on north-south in the afternoon.
• Future: The Bike Plan calls for Oxford to have Class 2 bike lanes.

Pedestrian Movement
• Crosswalks are located on all four sides of the Center/Oxford intersection.
• Crosswalks are located on all four sides of the Center/Shattuck intersection.
• Center has a major midblock pedestrian crossing.
• Center/Oxford intersection has approximately 1,000 pedestrians per hour at peak period.
• Center/Shattuck intersection has approximately 2,700 pedestrians per hour at peak period.

Parking
• 30 on-street vehicle spaces: 20 green, 6 1-hour metered, 1 white, 3 yellow
• North side of street: 36 off-street vehicle spaces in Bank of America lot
• Future: Reino multispace parking meters are to be installed on Center
• 8 bicycle spaces

Land Use & Urban Economics
• Six properties front on Center in this block. The uses are predominantly retail, residential and public. Uses include 4 total stories of residential, numerous small retail shops/restaurants, a theatre and the UC Printing Services building.
• Land utilization, as measured by improvement value to land value ratios, varies from very low (two) to moderate (one), with low (two) also represented. (Note: economic data incomplete for one property).
This block is zoned C-2 Commercial.

Future: The University of California is considering how to replace the current UC Printing building with a more pedestrian focused use such as museum or gallery.

Future: 4 story complex situated in current parking lot off Oxford Lane

Utilities

Electric Distribution

- An underground primary distribution line in Center (limited to western portion of the block)
- An underground primary distribution line in northbound Shattuck (north and south of Center)
- A three-gauge underground primary distribution line in northbound Shattuck (south of Center), This line continues laterally to a similar distribution line in southbound Shattuck
- A three-gauge underground secondary distribution main in Center.
- Two-three gauge underground secondary distribution mains in northbound Shattuck Avenue (north of Center)
- A three-gauge underground secondary distribution main in northbound Shattuck Avenue (south of Center)
- A three-gauge junction box in Center/Shattuck intersection.
- Two, three-gauge junction boxes (one midblock, one at Center/Oxford intersection)
- An underground secondary bus in Shattuck intersection.

Electric Transformers

- Two, one-bank transformers in Center
- Two, three-bank underground (subsurface) secondary transformer bank in Center (one midblock; one in west corner)

Gas

- Low pressure distribution main in eastbound Center, with seven service connections (one curb meter, six standard)
- Low pressure distribution main northbound Shattuck (north and south of Center), and connecting laterally to a similar distribution main in southbound Shattuck

Sewer and Storm Drain,

- 12-inch storm drain runs north-south at eastern edge of Shattuck at Center/Shattuck northbound intersection and connects with one 12-inch storm drain/catch basin on the north side of Center and one 12-inch storm drain/catch basin on the south side of Center
- 24-inch storm drain runs north-south at eastern edge of Shattuck at Center/Shattuck northbound intersection and connects with 12-inch storm drain further west in Center/Shattuck southbound intersection.
- 27-inch sanitary sewer runs north-south along Oxford at Center/Oxford intersection
- 6-inch sanitary sewer runs along the northern portion of Center in this block for approximately 500 feet with approximately eighteen laterals to the north.
- 15-inch sanitary sewer from UC runs down the northern portion of Center in this block for approximately 510 feet with one lateral to the north.
- 8-inch sanitary sewer runs down the middle of Center in this block for approximately 500 feet with approximately eight laterals to the north and eight laterals to the south.
- 6-inch sanitary sewer runs along the southern portion of Center in this block for approximately 500 feet with approximately twenty laterals to the south.
- 36-inch sanitary sewer runs north-south along eastern portion of Shattuck northbound at Center/Shattuck northbound intersection.
• 12-inch sanitary sewer runs north-south along eastern portion of Shattuck northbound and connects with the 36-inch sanitary sewer at the Center/Shattuck northbound intersection.

**Telephone**

• Two underground conduits run north-south in the Center/Oxford intersection.
• Underground conduits run north-south in the Center/Shattuck intersection.

**Water**

• 8-inch main runs down the middle of Center for the length of this block (one lateral to the north and approximately ten laterals to the south). One valve in the Center/Oxford intersection. One valve in the Center/Shattuck northbound intersection.
• Hydrant off the 8-inch main at the southwest corner of the Center/Oxford intersection.
• 6-inch main runs north-south at western edge of Oxford through the Center/Oxford intersection.
• 12-inch main runs north-south along eastern edge of Oxford through the Center/Oxford intersection.
• 48-inch main runs north-south along eastern edge of Oxford through the Center/Oxford intersection.
• 10-inch main runs north-south along the eastern edge of Shattuck northbound through the Center/Shattuck northbound intersection.

**Cable Television**

• No facilities
Utility Maps for Center Oxford to Shattuck
Utility Maps for Center Oxford to Shattuck (continued)

Sewer and Storm Drain

Water

Telephone
Center
Shattuck to Milvia

Photo of Center looking west from Center/Shattuck intersection.

Hydrology/Hydraulics
- Approximately 650 feet ground distance
- 2-3 percent ground slope east to west
- Strawberry Creek is not located in this block.

Right-of-Way
- Total width approximately 70
- Street width approximately 48 feet
- Sidewalk width approximately 22 feet: 10 feet on the north, 12 feet on the south
- 6 street trees on the north and 3 street trees on the south

Circulation

BART and Transit
- The main entrance to the BART station is located on the southwest corner of the Center/Shattuck intersection. There are approximately 20,000 entries and exits for BART per day (station as a whole).
- AC Transit routes 7, 8, 9, 43, 51, 64, 65, 604, 605, 40, 40L, F run along Shattuck.
- AC Transit routes 8, 9, 15 and 67 along Center from Shattuck to Milvia.
- AC Transit routes 8 and 9 run along Milvia.
The northwest corner of the Center/Shattuck intersection has a bus stop for AC Transit lines 8, 9, 15, 67 and a Lawrence Berkeley Lab (LBL) Shuttle stop.

The southwest corner of the Center/Shattuck intersection has a bus stop for AC Transit lines 15 and 67.

The northeast corner of the Center/Milvia intersection has a bus stop for AC Transit lines 15 and 67 and LBL Shuttle stop.

The northwest corner of the Center/Shattuck intersection has an entrance to the BART station.

Taxi stand southbound lane of Shattuck adjacent to BART.

The AC Transit bus stops at the northwest and southwest corners of the Center/Shattuck intersection are part of the transit hub and are the major transfer points in Berkeley.

**Vehicular Movement**

- Stoplight at the Center/Shattuck intersection
- Stoplight at the Center/Milvia intersection

**Delivery and Loading**

- 3 curb cuts on the north (2065 - Wells Fargo building, west of 2065, east of 2015)
- 4 curb cuts on the south (western edge of Washington Mutual building, 2055, 2 east of 2020)

**Bicycle Movement**

- Milvia is a designated Bicycle Boulevard (north-south bicycle route through the Downtown).
- Center street is currently designated with Class 2 bike lanes.
- Center/Shattuck intersection has approximately 120 bikes per hour at peak period.
- Center/Milvia intersection has approximately 95 bikes per hour at afternoon peak period.
- The primary flow of bicycle traffic at the Center/Milvia intersection is south-north, north-south and east-west in the morning, north-south and west-east midday and east-west in the afternoon.

**Pedestrian Movement**

- Crosswalks are located on all four sides of the Center/Shattuck intersection.
- Center/Shattuck intersection has approximately 2,700 pedestrians per hour at peak period.
- Crosswalks are located on all four sides of the Center/Milvia intersection.
- Center/Milvia intersection has approximately 780 pedestrians per hour at peak period.

**Parking**

- 28 on-street vehicle spaces: 11 green, 11 1-hour metered, 1 white, 4 yellow, 1 blue
- North side of street: 400 off-street vehicle spaces in five story garage
- South side of street: 54 off-street vehicle spaces in lot
- 4 bicycle spaces
- North side of street: 16 bicycle spaces in Center Street garage
- South side of street: 20 bicycle spaces in Washington Mutual building (for tenants)

**Land Use & Urban Economics**

- Eleven properties front on Center in this block. The uses are predominantly professional and parking. Uses include retail, service and food.
- Land utilization, as measured by improvement value to land value ratios, varies from very low (four) to high (two), with low (three) and moderate (one) also represented.
- This block is zoned C-2 Commercial.
Utilities

Electric Distribution

- In the eastern portion of the block, three underground primary distribution lines in the street, connecting to a one-bank underground primary transformer in Center
- In the western portion of the block, two underground primary distribution lines in Center
- An underground primary distribution line in southbound Shattuck (north and south of Center)
- Four underground primary distribution lines in Milvia (north of Center)
- Three underground primary distribution lines in Milvia (south of Center)
- Four underground primary distribution lines in Milvia (north of Center)
- A three-gauge underground primary distribution line in the street
- A three-gauge underground primary distribution line in Milvia (south of Center)
- A three-gauge underground primary distribution line in southbound Shattuck (south of Center)
- Two, three gauge underground primary distribution lines in Shattuck (north of Center)
- A one-gauge underground secondary distribution main in Center (limited to the eastern portion of the street)
- A three-gauge underground secondary distribution main in Center
- A three-gauge underground secondary distribution main in Center (limited to the western portion of the street)
- A three gauge underground secondary distribution main in Milvia (north of Center)
- Two, three gauge underground secondary distribution mains in Milvia (south of Center)
- Four underground secondary buses (two midblock, one in Center/Milvia intersection, one in Center/Shattuck intersection)
- A three-gauge junction box in Center (midblock)

Electric Transformers

- A one-bank underground primary transformer in Center (midblock)
- A one-bank underground primary transformer in Center/Shattuck intersection
- A one-bank underground primary (subsurface) transformer in Center (midblock)
- Two, three-bank underground secondary transformers in Center (midblock)
- A three-bank underground secondary transformer in Center/Shattuck intersection
- A three-bank underground secondary transformer in north of Shattuck (midblock)
- An underground secondary (subsurface) transformer in Center (west side)

Gas

- High pressure distribution main in westbound Center (primarily in western portion of the block), with nine curb meter service connections
- High pressure distribution main in northbound Milvia (for a short distance north of Center)
- Low pressure distribution main in southbound Shattuck (and connecting laterally to distribution main in northbound Shattuck)

Sewer and Storm Drain

- 6-inch storm drain runs northeast to southwest through Center/Milvia intersection with two 6-inch east-west storm drain laterals to the south.
- 6-foot by 6-foot storm drain culvert crosses Milvia south of the Center/Milvia intersection.
- 10-inch sanitary sewer runs in the middle of Center the length of this block with approximately three laterals to the north.
- 6-inch sanitary sewer runs in the middle of Center the length of this block with approximately twelve laterals to the north and eighteen laterals to the south.
- 10-inch sanitary sewer runs south-north from the middle of the Center/Milvia intersection.
- 6-inch sanitary sewer runs north-south in the middle of the Center/Milvia intersection.
- 6-inch sanitary sewer runs south-north at the eastern edge of the Center/Milvia intersection.

**Telephone**
- Underground conduits run north-south in the Center/Shattuck intersection.
- Underground conduit runs length of block in northern sidewalk.
- Underground conduit runs midblock in southern sidewalk.
- Underground conduits runs north-south in the Center/Milvia intersection.

**Water**
- 6-inch main runs in the southern portion of Center the length of this block (approximately 10 laterals to the north and ten laterals to the south). One valve at the Center/Shattuck southbound intersection. One valve at the Center/Milvia intersection.
- Hydrant off the 6-inch main at the southwest corner of the Center/Shattuck southbound intersection.
- 12-inch main runs north-south through the Center/Shattuck southbound intersection. One closed gate valve in the Center/Shattuck southbound intersection.
- 8-inch main runs north-south along the eastern edge of the Milvia through the Center/Milvia intersection.
- 16-inch main runs north-south through the middle of the Center/Milvia intersection.

**Cable Television**
- No facilities
Utility Maps for Center Shattuck to Milvia (continued)
Center
Milvia to Martin Luther King, Jr. Way

Photo of Center looking east from the Center/Martin Luther King, Jr. Way intersection

Hydrology/Hydraulics
- 600 feet ground distance
- 2-2.5 percent slope east to west
- Selected recurrence intervals and estimated discharges in cubic feet per second: 1:5: 65-100 cfs, 10: 406 cfs, 25: 534 cfs, 100: 900-1000 cfs
- The south fork of Strawberry Creek is in a storm drain culvert in this block 17-18 feet deep.

Right-of-Way
- Total width approximately 70 feet
- Street width approximately 56 feet
- Sidewalk width approximately 14 feet: 9 feet on the north, 4-5 feet on south
- 3 street trees on the north and 15 street trees on the south

Circulation

BART and Transit
- AC Transit routes 15 and 67 run along Center from Milvia to Martin Luther King, Jr.
- AC Transit routes 8 and 9 run along Milvia.
- The southwest corner of the Center/Milvia intersection has a bus stop for AC Transit lines 15 and 67.
Vehicular Movement
- Supports more traffic than Addison (block 3) but less than Center (block 6) between Milvia and Martin Luther King, Jr.
- Stoplight at the Center/Milvia intersection
- Stop sign at the Center/Martin Luther King, Jr. intersection on Center
- Future: stoplight at Center/Martin Luther King, Jr. intersection scheduled for FY 99/2000.

Delivery and Loading
- 4 curb cuts on the north (east of 1947, 1931, east of 1907, PG&E building)
- 1 curb cut on the south (City Hall)

Bicycle Movement
- Milvia is designated a Bicycle Boulevard (north-south bicycle route through the Downtown).
- Center street is currently designated with Class 2 bike lanes.

Pedestrian Movement
- Crosswalks are located on all four sides of the Center/Milvia intersection
- Crosswalks are located on the south, east and north sides of the Center/Martin Luther King, Jr. intersection

Parking
- 65 on-street vehicle spaces: 6 green, 23 1-hour metered, 3 white, 3 blue, 30 permit
- North side of street: 11 off-street vehicle spaces in lot behind Veteran’s Memorial, west end of block
- North side of street: 10 off-street vehicle spaces in lot next to PG&E
- 2 bicycle spaces

Land Use & Urban Economics
- Three properties front on Center in this block. The uses are predominantly professional and public. Uses include professional (6 stories), residential, a homeless shelter for men with approximately 50 beds, a weekly farmers market and Civic Center Park, a designated historical landmark.
- Land utilization, as measured by improvement value to land value ratios, varies from low (one parcel) to high (one parcel) (Note: economic data incomplete for one property).
- This block is zoned C-2 Commercial and R-4 Neighborhood.

Utilities

Electric Distribution
- Two underground primary distribution lines located in Center (limited to eastern portion of the block)
- Three underground primary distribution lines in Milvia (south of Center)
- Four underground primary distribution lines in Milvia (north of Center).
- A three-gauge underground primary distribution line in Center
- A three-gauge underground primary distribution line in Center (limited to the eastern portion of the block)
- A three-gauge underground primary distribution line in southbound Martin Luther King, Jr. (south of Center)
- A three-gauge underground secondary distribution main located middle of the street (limited to the eastern portion of the block)
Two, three gauge underground secondary distribution lines located in the street (limited to western portion of the block), connecting to two secondary buses (one midblock; one in Martin Luther King, Jr. intersection)

- A three-gauge underground secondary distribution main in middle of Milvia (north of Center).
- Two, three gauge underground secondary distribution mains in middle of Milvia (south of Center)
- A three-gauge underground secondary distribution main in Martin Luther King, Jr. (north of Center)
- Two, three-gauge underground secondary distribution mains in middle of Martin Luther King, Jr. (south of Center)
- Four underground secondary buses (two midblock; one in Center/Milvia intersection, one in Center/Martin Luther King, Jr. intersection)

**Electric Transformers**

- A one-bank underground primary (subsurface) transformer in Center/Milvia intersection
- A one-bank underground primary transformer in Center (midblock).
- A three-bank underground secondary transformer in Center (midblock)
- A three-block underground secondary transformer in Milvia (near Federal Credit building)
- A three-bank underground (subsurface) transformer (in north block, midblock)
- An underground secondary bus in Center/Martin Luther King, Jr. intersection

**Gas**

- High pressure distribution main in westbound Center, with four service connections (two curb valves; two curb meters)
- Low pressure distribution main in southbound Martin Luther King, Jr. (north and south of Center)
- Low pressure distribution main in northbound Martin Luther King, Jr. (north of Center)
- An electrolysis test station in Martin Luther King, Jr. intersection

**Sewer and Storm Drain**

- 5-foot by 6-foot culvert which contains Strawberry Creek runs the length of this block, south of the road, through Civic Center Park.
- 10-inch sanitary sewer runs south-north from the middle of the Center/Milvia intersection.
- 6-inch sanitary sewer runs north south in the middle of the Center/Milvia intersection.
- 6-inch sanitary sewer runs in the middle of Center the length of this block with approximately seventeen laterals to the north and sixteen laterals to the south.
- 6-inch sanitary sewer runs north south in the middle of the Center/Martin Luther King, Jr. intersection.

**Telephone**

- Underground conduit runs north-south in the Center/Milvia intersection.
- Underground conduit runs the length of this block in the north sidewalk.
- Underground conduit runs east-west from Milvia for a third of the block in the south sidewalk then crosses over Center and connects with northside conduit.

**Water**

- 6-inch main runs in the southern portion of Center the length of this block (approximately three laterals to the north and two laterals to the south). One valve at the Center/Milvia intersection. One valve at the Center/Martin Luther King, Jr. intersection.
- 6-inch main connects from the south in the Center/Martin Luther King, Jr. intersection with the 6-inch main which runs down Center.
- 6-inch main connects from the north in the Center/Martin Luther King, Jr. intersection with the 6-inch main which runs down Center.
- 16-inch main runs north-south through the middle of the Center/Milvia intersection.

**Cable Television**
- 2-inch conduit runs north-south along western edge of Civic Center Park, south of Center.
Utility Maps for Center Milvia to Martin Luther King, Jr. Way (continued)
Allston
Oxford to Shattuck

Photo of Allston looking west from Allston/Oxford intersection.

Hydrology/Hydraulics
- 560 feet ground distance
- 2.3 percent ground slope east to west
- Selected recurrence intervals and estimated discharges in cubic feet per second: 1.5: 65-100 cfs, 10: 406 cfs, 25: 534 cfs, 100: 900-1000 cfs
- The south fork of Strawberry Creek is in a storm drain pipe in this block 7-10 feet deep.

Right-of-Way
- Total width approximately 55 feet
- Street width approximately 35 feet
- Sidewalk width approximately 20 feet: 10 feet on the north, 10 feet on south
- 10 street trees on the north and no street trees on the south

Circulation
BART and Transit
- No east-west bus lines.
- AC Transit routes 40 and 40L run along Oxford past Allston.
- AC Transit routes 7, 8, 9, 43, 51, 64, 65, 604, 605, 40, 40L, F run along Shattuck.
- The northeast corner of the Allston/Shattuck intersection has an entrance to the BART station.
Vehicular Movement
- Cross-campus Drive north of the Allston/Oxford intersection is one of the most important vehicle entrances to west side of campus.
- Supports more traffic than Addison (block 1) but less than Center (block 4) between Oxford and Shattuck.
- Stop sign at the Allston/Oxford intersection on Allston
- Stoplight at the Allston/Shattuck intersection

Delivery and Loading
- 3 curb cuts on the north (west of 2171, east of 2121 and east of 2109)
- 4 curb cuts on the south (3 east of 2134 and 1 west of 2134)

Bicycle Movement
- The primary flow of bicycle traffic at the Allston/Shattuck intersection is west-east and south-north in the morning, south-north and north-south both midday and afternoon.
- Future: The Bike Plan calls for Oxford to have Class 2 bike lanes.

Pedestrian Movement
- Crosswalks are located on the north and west sides of the Allston/Oxford intersection.
- Crosswalks are located on all four sides of the Allston/Shattuck intersection.
- Allston/Shattuck intersection has approximately 2,000 pedestrians per hour at peak period.

Parking
- 33 on-street vehicle spaces: 5 green, 12 1-hour metered; 5 2-hour metered, 2 white, 8 yellow, 1 blue
- North side of street: 32 off-street vehicle spaces in lot
- South side of street: 127 off-street vehicle spaces in lot
- 14 bicycle spaces

Land Use & Urban Economics
- Seven properties front on Allston in this block. The uses are predominantly retail and public. Uses include food, service and the temporary public library building.
- Land utilization, as measured by improvement value to land value ratios, varies from very low (two) to moderate (two) with low (two) also represented.
- This block is zoned C-2 Commercial.
- Future: 60+ unit apartment complex currently in design review, north side of street.
- Future: Gaia building at south side of street
- Future: Magnes museum north side of street

Utilities

Electric Distribution
- Two underground primary distribution lines in Allston (limited to the western portion of the block)
- An underground primary distribution line in northbound Shattuck Avenue (north and south of Allston)
- A three-gauge underground primary distribution line northbound Shattuck Avenue (north and south of Allston). This line connects laterally to similar distribution line in southbound Shattuck.
A three-gauge underground secondary distribution main in northbound Shattuck Avenue (south of Allston)

Between one and two, three-gauge underground secondary distribution lines

A three-gauge underground primary junction box in Allston/Shattuck intersection.

Two three-gauge junction-box in Allston (midblock)

An underground secondary bus (midblock)

A one-gauge underground secondary junction box at Allston/Oxford intersection

Electric Transformers

A one-bank underground primary transformer in Allston (midblock)

A one-bank underground primary (subsurface) transformer in Allston (midblock)

A one-bank underground primary transformer at BART station

A three-bank underground primary transformer in Shattuck (midblock)

Two, three-bank underground secondary transformers in Shattuck (midblock)

A three-bank underground secondary (subsurface) transformer in Allston (midblock)

Gas

High pressure distribution main in westbound Allston, with two curb valve service connections

Low pressure distribution main in eastbound Allston, with five service connections (two curb meter; two curb meter; one standard)

High pressure distribution main in Oxford (north and south of Allston)

Low pressure distribution main in northbound Shattuck (north and south of Allston)

One electrolysis test station (Oxford intersection)

Sewer and Storm Drain

5-foot by 6-foot storm drain culvert, which contains Strawberry Creek, angles northeast to southwest from the Oxford Lane/Oxford intersection to the middle of Allston, midblock, and continues west through the Allston/Shattuck intersection.

24-inch storm drain runs north-south in the Allston/Shattuck intersection and connects with the 5-foot by 6-foot storm drain.

12-inch sanitary sewer runs approximately 250 feet down the middle of Allston from the Allston/Oxford intersection angles southwest (two laterals to the north) and continues as an 8-inch sanitary sewer towards the Allston/Shattuck northbound intersection (one lateral to the south).

6-inch sanitary sewer runs approximately 180 feet midblock along the northern edge of Allston (five laterals to the north), jogs northeast to southwest and connects with the 12-inch sanitary sewer in the middle of Allston.

6-inch sanitary sewer runs approximately 220 feet west from midblock to the southeast corner of the Allston/Shattuck northbound intersection (approximately five laterals to the south).

36-inch sanitary sewer runs north-south along eastern portion of Shattuck northbound at Allston/Shattuck northbound intersection.

Telephone

Underground conduit runs east-west the length of the street this block.

Two underground conduits run north-south in the Allston/Oxford intersection.

Water

8-inch main runs in the northern portion of Allston for the length of this block. One eastern valve at the Allston/Shattuck intersection. One western valve at the Allston/Oxford (four laterals to the north and seven laterals to the south).
- Hydrant off 8-inch main at the northeast corner of Allston/Shattuck intersection.
- Hydrant off 8-inch main to the north just east of midblock.
- 6-inch main runs north-south and connects with 8-inch main just east of midblock. One valve at edge of street.
- 12-inch main runs north-south along the eastern edge of the Allston/Shattuck intersection. One northern valve on the 12-inch main. One southern valve on the 12-inch main.
- 6-inch main runs north-south at western edge of Oxford and connects with east-west 8-inch main.
- One hydrant off 6-inch main, northwest corner of Allston/Oxford intersection
- 48-inch main runs north-south along eastern edge of Oxford through the Allston/Oxford intersection.
- 8-inch main runs north-south to the Allston/Oxford intersection and connects with the 8-inch main which runs east-west down Allston. Three valves in the intersection.

**Cable Television**
- No facilities
Utility Maps for Allston *Oxford to Shattuck* (continued)
Allston
Shattuck to Milvia

Photo of Allston looking west from Allston/Shattuck intersection.

Hydrology/Hydraulics
- 560 feet ground distance
- 2.3 percent ground slope east to west, 1.8 percent slope east to west across Shattuck
- Selected recurrence intervals and estimated discharges in cubic feet per second: 1.5: 65-100 cfs, 10: 406 cfs, 25: 534 cfs, 100: 900-1000 cfs
- The south fork of Strawberry Creek is in a storm drain pipe in this block 10-17 feet deep.

Right-of-Way
- Total width approximately 60 feet
- Street width approximately 38 feet
- Sidewalk width approximately 22 feet: 12 feet on the north, 10 feet on south (12 feet on the south from Harold Way to the Allston/Milvia intersection).
- 12 street trees on the north and no street trees on the south

Circulation

BART and Transit
- The northwest corner of the Allston/Shattuck intersection has an entrance to the BART station.
AC Transit routes 7, 8, 9, 43, 51, 64, 65, 604, 605, 40, 40L, F run along Shattuck.
AC Transit route 9 runs along Allston from Shattuck to Milvia.
AC Transit route 9 runs along Milvia.
The northwest corner of the Allston/Shattuck intersection has an AC transit bus stop for the 7, 40, 40L, 43, 51, 64 and 65 lines.

Vehicular movement
Allston supports similar volumes of vehicular traffic as Center (block 5), but greater traffic volumes that Addison (block 2) between Shattuck and Milvia.
Stoplight at the Allston/Shattuck intersection
Stop sign at the Allston/Harold Way intersection on Harold Way
Stoplight at the Allston/Milvia intersection

Delivery and Loading
2 curb cuts on the north (2075 - Vista Community College annex, 2045)
2 curb cuts on the south (2070 alley west end of Shattuck Hotel and 2000-Post Office)

Bicycle Movement
Milvia is a designated Bicycle Boulevard (north-south bicycle route through the Downtown).
The primary flow of bicycle traffic at the Allston/Milvia intersection is west-east in the morning, equal in all directions midday, and south-north, north-south and west-east in the afternoon.
Allston/Milvia intersection has approximately 100 bikes per hour at peak period.
Allston/Shattuck intersection has approximately 150 bikes per hour at peak period.

Pedestrian Movement
Fairly consistent flow of pedestrian travel due to nearby uses such as Berkeley High School, the YMCA, City Hall, and the Post Office.
Crosswalks are located on all for sides of the Allston/Shattuck intersection.
Crosswalks are located on all for sides of the Allston/Milvia intersection.
Allston/Shattuck intersection has approximately 2,000 pedestrians per hour at peak period.
Crosswalks are located on the south, east and west sides of the Allston/Harold Way intersection.
Allston/Milvia intersection has approximately 900 pedestrians per hour at peak period.

Parking
45 on-street vehicle spaces: 7 green, 13 metered green, 12 metered, 7 white, 4 yellow, 2 blue
North side of street: approximately 500 vehicle spaces in six story garage
38 bicycle spaces

Land Use & Urban Economics
Four properties front on Allston in this block. The uses are predominantly public. Uses include retail, service, the Berkeley Main Post Office and the YMCA. (The Shattuck Hotel fronts on Shattuck).
Land utilization, as measured by improvement value to land value ratios, varies from moderate (one) to high (one) (Note: economic data incomplete for two properties).
This block is zoned C-2 Commercial.
Utilities

Electric Distribution
- An underground primary distribution line in the southbound Shattuck Avenue (north and south of Allston)
- Four underground primary distribution lines in Milvia (north and south of Allston)
- A one-bank underground primary transformer in Milvia/Harold Way intersection
- A three-gauge underground primary distribution line (limited to the eastern portion of the block)
- A three-gauge underground primary distribution line in Milvia (north and south of Allston)
- A three-gauge underground primary distribution line in southbound Shattuck (south of Allston)
- A three-gauge underground primary distribution line in southbound Shattuck (north and south of Allston)
- Two, three-gauge underground secondary distribution mains in Allston (limited to the eastern portion of the block)
- Four, three-gauge underground secondary distribution mains in Allston (limited to the western portion of the block)
- Two, three-gauge underground secondary distribution mains in southbound Shattuck (south of Allston)
- A three-gauge underground secondary distribution main in Milvia (north and south of Allston)
- A three-gauge underground primary junction box in Allston/Shattuck intersection
- Two, three gauge underground secondary buses (two midblock; Allston/Milvia intersection)

Electric Transformers
- A one-bank underground primary transformer in Allston/Milvia intersection
- Four, three-bank underground secondary transformers (two midblock; Allston/Milvia intersection)

Gas
- High pressure main in westbound Allston, with four service connections (two curb meter; one curb valve; one standard)
- Two electrolysis test stations (one midblock; one near Shattuck)
- Low pressure distribution main in southbound Shattuck (north and south of Allston)

Sewer and Storm Drain
- 5-foot by 6-foot storm drain culvert, which contains Strawberry Creek, gradually becomes a 96-inch diameter pipe as the culvert crosses through BART in the Allston/Shattuck intersection. The 5-foot by 6-foot culvert then continues down the middle of Allston to the Allston/Harold Way intersection where the culvert turns from southeast to northwest and runs to the eastern edge, midblock, of Milvia (two laterals to the north)
- 6-inch sanitary sewer angles from the northwest corner of the Allston/Shattuck intersection 100 feet to the middle of the road where it turns west and continues approximately 550 feet as an 8-inch sanitary sewer through the Allston/Milvia intersection (three laterals to the north, five laterals to the south).
- 6-inch sanitary sewer is located at the northern edge of the street, midblock (one lateral angles northeast from the eastern end).

Telephone
- Underground conduit runs north/south in Allston/Milvia intersection.
- Underground conduit angles from center of Allston/Harold Way intersection to southwest corner of intersection.
- Underground conduit angles from center of Allston/Harold Way intersection to southeast corner of intersection.
- Underground conduit runs north from center of Allston/Harold Way intersection.
- Underground conduit runs south from center of Allston/Harold Way intersection.

**Water**
- 12-inch main runs in the middle of the street the length of Allston in this block (five laterals to the north).
- Hydrant off 12-inch main to the north, midblock, opposite Harold Way
- Hydrant off 12-inch main at the southwest corner of Allston/Shattuck intersection
- 6-inch main runs north south through the Allston/Harold Way intersection and connects with 12-inch main. One valve in Allston/Harold Way intersection.
- Hydrant off 6-inch main southeast corner of Allston/Harold Way
- 6-inch main runs north-south through the middle of the Allston/Shattuck intersection. One valve on 6-inch main middle of Allston/Shattuck intersection. One valve on 6-inch main northwest corner of Allston/Shattuck intersection.

**Cable Television**
- No facilities
Utility Maps for Allston Shattuck to Milvia

Symbols for PG&E Electric Maps:
- UNDERGROUND / CUSTOMER UNDERGROUND
- 3-WIRE 12000 VOLT UNDERGROUND PRIMARY
- 300 ALUM TRIPLEX UNDERGROUND SECONDARY & SERVICES
- 3-WIRE BANK OF TRANSFORMERS
- SUBSTATIONS
- RACKMOUNTED TRANSFORMER
- PRIMARY SPLERESE / EQUIPMENT ENCLOSURE
- PRIMARY & SECONDARY WIRE SIZE CHARGE

Symbols for PG&E Gas Maps:
- TRANSMISSON GAS LINE (TRANSMISSON PRESS. 1450 PSI MAX)
- DISTRIBUTION GAS MAIN (DISTRIBUTION PRESS. 60 PSI MAX)
- DISTRIBUTION GAS MAIN (L.P. 1.000 PSI MAX)
- GAS MAINS TIE (U.S. TIE OR INTERSCTIONS)
- GATEWAY OF GVR
- PREASURE CONTROL FITTING (MIDDLE TAP)
- PRESSURE CONTROL FITTING (END TAP)
- ELECTRICAL TEST STATION (ELECTRICAL PROTECTION)
- METER (ELECTRICAL PROTECTION)
- TERRAIN OF MOUNTED ELECTRICAL PROTECTION
- DISTRICT REGULATING STATION
- GAS SERVICE WITH OUROVERPEL
- GAS SERVICE WITH OUIROVERPEL
- GAS SERVICE WITH OUIROVERPEL
- GAS SERVICE WITH OUIROVERPEL
Utility Maps for Allston Shattuck to Milvia (continued)
Allston

Milvia to Martin Luther King, Jr. Way

Photo of Allston Way looking east from the Allston/Martin Luther King, Jr. Way intersection.

Hydrology/Hydraulics
- Approximately 600 feet ground distance
- 2-2.5 ground percent slope east to west
- Strawberry Creek is not located in this block.

Right-of-Way
- Total width approximately 60 feet
- Street width approximately 43 feet
- Sidewalk width approximately 17 feet: 4-5 feet on the north, 12 feet on south.
- No street trees on the north and 8 street trees on the south.

Circulation

BART and Transit
- AC Transit route 9 runs along Milvia.
- The northeast corner of the Allston/Martin Luther King, Jr. intersection has an AC transit bus stop for the 15 line.

Vehicular Movement
- Supports the highest volumes of traffic compared to Addison (block 3) and Center (block 6) between Milvia and Martin Luther King, Jr.
- Stoplight at the Allston/Milvia intersection
- Stoplight at the Allston/Martin Luther King, Jr. Way intersection
Delivery and Loading
- 1 curb cut on the north (City Hall)
- 3 curb cuts on the south (1 east, 1 west and 1 at the Berkeley Community Theatre)

Bicycle Movement
- Milvia is a designated Bicycle Boulevard (the north-south route through Downtown).
- Allston/Martin Luther King, Jr. intersection has approximately 95 bikes per hour at peak period.
- The primary flow of bicycle traffic at the Allston/Martin Luther King, Jr. intersection is west-east throughout the day, with east-west traffic as well in the afternoon.

Pedestrian Movement
- Crosswalks are located on all four sides of the Allston/Milvia intersection.
- Allston/Milvia intersection has approximately 900 pedestrians per hour at peak period.
- Crosswalks are located on all four sides of the Allston/Martin Luther King, Jr. intersection.
- Allston/Martin Luther King, Jr. intersection has approximately 380 pedestrians per hour at peak period.
- There is a major midblock pedestrian crossing demand between Berkeley High School and Civic Center Park.

Parking
- 40 on-street vehicle spaces: 7 green, 21 2-hour metered, 4 white, 7 yellow, 1 blue

Land Use & Urban Economics
- Two properties front on Allston in this block. The uses are predominantly public and include a public park, a public high school and a community theatre (Note: economic data incomplete for these properties).
- This block is zoned C-2 Commercial and R-4 Neighborhood.

Utilities

Electric Distribution
- Above ground distribution line eastbound Allston (limited to western portion of block)
- Four underground primary distribution lines in Milvia (north and south of Allston)
- A three gauge underground primary distribution line in westbound Allston (limited to the western portion of the block)
- A three-gauge underground primary distribution line in the southbound Martin Luther King, Jr. (north of Allston)
- A three-gauge underground primary distribution line in Milvia (north and south of Allston)
- A three-gauge underground secondary distribution main in Milvia (north and south of Allston)
- Two, three-gauge underground secondary distribution mains in Martin Luther King, Jr. (north of Allston)
- A three-gauge underground secondary bus in Allston/Milvia intersection
- A three-gauge underground secondary bus in Allston/Martin Luther King, Jr. intersection
Electric Transformers
- A one-bank underground primary transformer (just north of Martin Luther King, Jr. intersection)
- A one-bank underground primary transformer in Allston/Milvia intersection
- Two, one-bank underground primary transformers at Berkeley High School Entrance (Allston)
- Two, three-bank underground secondary transformers at Berkeley High School entrance (Allston)
- A six-bank underground transformer at Berkeley High School entrance (Allston)
- A three-bank underground secondary transformer in Allston/Milvia intersection
- A three-bank underground secondary transformer in Allston/Martin Luther King, Jr. intersection
- A six-bank above ground transformer at Berkeley High School entrance (Allston)

Gas
- High pressure gas main in westbound Allston, with no service connections
- High pressure distribution main in southbound Milvia (north and south of Allston)
- Low pressure distribution main in southbound Martin Luther King, Jr. (north and south of Allston)

Sewer and Storm Drain
- A storm drain of unknown dimensions runs along the eastern edge of Civic Center Park from the Allston/Martin Luther King, Jr. intersection to the 5-foot by 6-foot storm drain culvert.
- 10-inch sanitary sewer runs approximately 660 feet down the middle of Allston from the Allston/Milvia intersection west to the Allston/Martin Luther King, Jr. intersection (two laterals to the north and five laterals to the south).

Telephone
- Underground conduit runs east-west the length of this block in middle of street.
- Underground conduit runs north-south midblock.
- Underground conduit runs north/south in Allston/Milvia intersection.
- Underground conduit angles from center of Allston/Milvia intersection to northwest corner of intersection.

Water
- 12-inch main runs in the middle of the street the length of Allston in this block. One valve on the 12-inch main, eastern edge of Allston/Martin Luther King, Jr. intersection. One valve on the 12-inch main, western edge of Allston/Milvia intersection.
- 6-inch main runs north-south along the eastern edge of Civic Center Park through the Allston/Martin Luther King, Jr. intersection
- 16-inch main runs north-south along the western edge of Milvia through the Allston/Milvia intersection. One valve northwest corner of intersection.

Cable Television
- 2-inch conduit runs north-south along the western edge of Civic Center Park, north of Allston.
Utility Maps for Allston  Miloia to Martin Luther King, Jr. Way

SYMBOLS FOR P.G.&E. GAS MAPS

SYMBOLS FOR P.G.&E. ELECTRIC MAPS
Utility Maps for Allston Milvia to Martin Luther King, Jr. Way (continued)
INTRODUCTION
The previous section, Section 2 defines the data collection categories and presents the data collected in a block-by-block description of the existing conditions relevant to the implications of daylighting Strawberry Creek in the Downtown. This section, Section 3 lists the key findings of the data and illustrates five scenarios that depict possible approaches to daylighting Strawberry Creek. These scenarios were developed in light of the key findings of the data and can be viewed as a continuum to address these findings. On the one end, the creek is given full consideration, with relatively less consideration given to the existing infrastructure (Scenario 1 - ‘No-Constraints’ Full Flow Restoration). On the other end, the existing infrastructure is given full consideration, with relatively less consideration given to the creek (Scenario 5 - Symbolic Acknowledgment).

KEY FINDINGS OF THE DATA

Hydrology/Hydraulics

- The reference reach on campus, or the stretch of stream used to determine the dimensions for a restored Strawberry Creek downtown, indicates that the shape and form of Strawberry Creek is inherently unstable. In its natural state, it is a ‘gully’ type channel with very high and steep banks. These slopes range from 1:1.7 to vertical (for a cross-section of this channel see Section 2 Examples of Hydrology Data Collected). This channel type lacks a floodplain which makes it easy for the meandering active channel to attack and erode its banks. The implication is that channel stability would require the construction of more gradually sloped banks (2:1 or flatter) or harder stream banks than would be found in a perfectly ‘natural’ setting.
A restored Strawberry Creek capable of carrying the full flow of water through the study area would need to have a bankfull channel, or active channel, of approximately 17 feet wide and 1.3 feet deep. The bankfull channel is the 'active' channel formed by the approximately 1 in 1.5 year flood. Accommodating a floodplain, or the area adjacent to the bankfull channel where water can overflow during storms, would require approximately 46-55 feet. The implication of this is that the meander belt width (the width of the bankfull channel and floodplain) is approximately 65+ feet. This 65+ feet would 'safely' move the water for the approximately 1 in 100 year event. An additional 40 to 72 feet would be required to construct gradually sloped banks along the outer margins of the flood plain.

A full flow restoration of Strawberry Creek would require a meander belt (MB) of 65+ feet.

Without property acquisition the only place to accommodate a full flow restoration of Strawberry Creek in the study area is Civic Center Park. The current elevation of the profile is 18 feet below the ground surface in the park. The implication is that approximately 72 additional feet are needed in order to provide gradually sloped banks along the outer margins of the floodplain to approximate the 2:1 slope necessary for slope stability.

There are at least two ways to reduce the amount of space needed to daylight Strawberry Creek. One way is to build a wall to stabilize the bank instead of relying on 2:1 slopes to provide slope stability (see for example, A Variation on Scenario 2). The other way is to raise the elevation of the profile, also referred to as the hydraulic grade of the creek. This can be done by pumping, flattening the channel slope, creating a baffle structure or changing the slope of the pipe which delivers the water to the daylighting site.

The elevation of the profile can be raised by changing the slope of the pipe which delivers the water to the daylighting site. 'Flattening' the pipe slope from 2% to 0.5% for 500 feet can raise the profile 7.5 feet.

When the elevation of the profile is raised the amount of width needed for a daylighting, which also maintains 2:1 slopes, is reduced.
- It is likely that with any daylighting in the study area, a diversion or flow control structure would be required. This structure would ideally be placed in the existing culvert and divert high flows and bed load. For Scenario 3, it may also be necessary to place a geotextile fabric beneath the open channel to keep water from seeping into the adjacent ground and contacting utilities.

- The Allston culvert passes through the BART station and is encased in a 96-inch pipe in the Allston/Shattuck intersection. This pipe sits atop a continuous concrete cradle which has been structurally reinforced. The implication is that without elevating the profile of the creek or changing the current configuration of the BART station envelope, this 96-inch pipe provides the only opportunity to move the water across Shattuck.

This section depicts how the culvert sits below the top of the station envelope on a structurally reinforced, continuous concrete cradle.

**Right-of-Way**
- According to the City’s administrative regulation A.R. 5.2, traffic on a public-right-of-way cannot be removed without the land reverting to the adjacent property owner. Therefore it would violate this regulation to completely close a street to traffic and use all the roadway area for the creek. One implication of this regulation is that a minimum of 24 feet is required to maintain a street capable of two-way vehicular traffic, as 12 feet is considered a standard design width for a lane of traffic. Twelve-foot lanes also provide a measure of room for bikes. If an existing two lane street where to be converted to one way, a minimum of 12 feet, as opposed to 24, would be required.
Circulation

BART and Transit

- Depending on the specific site of the daylighting and the direction of traffic lanes maintained, it is likely that an east-west route (Addison, Center, Allston) in the study area would be impacted, although there are only a few such routes. BART and north-south routes (Oxford, Shattuck, Milvia, Martin Luther King, Jr. Way), of which there are many more, however, would not appear to be significantly impacted as one approach could be to build bridges across these streets or move water through these intersections in buried culverts.

Vehicular Movement

- All streets in the study area are two-way. A one way assumption is employed for east-west streets in Scenario 2 and Scenario 3. Scenario 4 retains two-way traffic flow where possible. The implication of these assumptions is that the current vehicular movement patterns, the locations of the lanes and access to adjacent properties would likely change if the creek where to be daylighted. Emergency vehicle access could still be maintained either by providing access along a pedestrian walkway/utility corridor (see Utilities below), or by a bridge.

Delivery and Loading

- East-west streets in the study area are heavily used for delivery and loading - double parking and off-street access to docks and back building entrances, as well as dumpster access. Any daylighting would change access to adjacent businesses and residences. The degree of this impact would vary depending on the new configuration of traffic lanes. With lanes of traffic placed on one side of the street and not the other, bridges or alternative approaches, such as limited use of a pedestrian walkway/utility corridor (see Utilities below), may be required.

Bicycle Movement

- Striped bicycle lanes must be at a minimum 4 feet wide when there is no adjacent parking and 5 feet wide when there is adjacent parking. There are no width requirements for signed routes. One implication is that to provide the maximum space for a daylighting striped lanes adjacent to vehicles have been replaced with space provided by the pedestrian walkway/utility corridor (see Utilities below).

Pedestrian Movement

- Although required by the City to be at a minimum 4 feet wide, currently sidewalks in the study area range from 4 feet to 20 feet. Current design standards for pedestrian oriented retail recommend a minimum sidewalk width of 10 feet. The implication of this ten foot sidewalk dimension is that the width of certain existing sidewalks in the study area would be increased while some decreased. Utility corridors would provide for additional pedestrian width in many of the scenarios which follow.

Parking

- Currently there is on-street parking on both sides of the street along Addison, Center and Allston in the study area. Most on-street parking is parallel. In order to obtain the maximum space for daylighting, on-street parking is removed on east-west streets (Addison, Center, Allston). The presence of numerous parking garages in the downtown, however, would likely serve as a sub-
stitute for the loss of on-street parking. With Scenario 4 - Canal in a Public Right-of-Way, it is theoretically possible to 'trade' a lane of traffic for a lane of parking where two lanes of traffic are maintained. The general implication is that the overall amount of parking in the study area would be reduced unless alternative parking, or reduced parking demand, were developed.

**Land Use & Urban Economics**

- Civic Center Park is the largest open space in the study area. Since it is in public ownership, there are theoretically fewer issues regarding acquisition or use. However, the park is designated a historic landmark. One implication of this is that a substantial change in the current configuration of the park would require review by the Landmarks Preservation Commission.
- A degree of the land in the study area is both retail and auto oriented. One implication of this is the need to maintain access to parking structures in the downtown which are frequently used to capacity. Parking structures, given current auto use, are economically significant and could likely mitigate the effect that removing on-street parking would have on the current adjacent land uses.

**Utilities**

- Portions of both the existing Addison and Allston culverts which contain the north and south fork of Strawberry Creek are considered inadequate. Three engineering projects were identified in 1994 by an independent consultant from Oxford to Milvia for the Allston culvert to replace or rehabilitate the pipe to maintain adequate service. It has been recommended that the Addison culvert also be replaced or rehabilitated. One implication of this is that all of the following scenarios dealing with Strawberry Creek will incur significant costs with varying degrees of magnitude.
- Utilities beneath roads within the study area are likely to be between 36” and 60” deep. Three feet of soil cover over utilities in roadways is a minimum requirement in the study area. Virtually all utilities in the road of a public right-of-way would likely be abandoned and reinstalled if daylighting were to take place. Temporary service to adjacent buildings would be necessary during the new joint trenching and utility construction.
- According to PG&E joint trenches may include telephone, cable television facilities, electric and gas but may not contain sanitary sewer or storm drain. State law requires a separation of 10 horizontal feet between sanitary sewer and water. Sanitary sewer and water should not be stacked due to separation issues as well as slope concerns since sanitary sewer lines flow based on gravity. One implication of this is that a minimum of 10 feet is required for utilities on each side of the street. This space at the ground surface can be used for pedestrians, bicycles, emergency vehicle access and limited delivery and loading.

One possible approach to utilities examined is that of utility vaults, or concrete structures which encase utilities. Such vaults, however, must be capable of allowing access for repair and replacement and are likely to be at a minimum 8-10 feet wide in the study area. Lateral service connections would still be necessary from the vault. Therefore it is unlikely that vaults would reduce the amount of space needed for a utility corridor. The image at left depicts a typical joint trench.
• It is theoretically possible to place utilities beneath the sidewalk. Utilities, however, would unlikely be placed any closer than 5 feet to the adjacent building as adjacent building substructures may limit sidewalk trenching. This 5 foot space would also be needed to provide access for maintenance and replacement. One implication is that utility maintenance and replacement would thus involve trenching the sidewalk. Another implication, however, is that if the sidewalk were used as the utility corridor at least 5 feet of width would could be gained for daylighting.

• BART poses key infrastructure constraints. The top of the station envelope is located approximately 10 feet below the surface for the entire length of the study area along Shattuck. This is higher than the level at which the creek currently flows. The implication is that in its current configuration, BART would act as a ‘dam’ in certain scenarios unless the top of the station envelop were lowered and structurally reinforced or the elevation of the creek’s profile were raised.

The top of the BART station envelope is approximately 10 feet below the ground surface.
SCENARIOS AT A GLANCE

The five scenarios which follow depict possible approaches to daylighting Strawberry Creek. These scenarios can be viewed as a continuum and have been developed in light of the key findings of the data. On the one end with Scenario 1 - ‘No-Constraints’ Full Flow Restoration, the creek is given full consideration, with relatively less consideration given to the existing infrastructure. On the other end with Scenario 5 - Symbolic Acknowledgment, the existing infrastructure is given full consideration, with relatively less consideration given to the creek.

Scenario 1
‘No-Constraints’ Full Flow Restoration
This scenario explores a full flow restoration of Strawberry Creek without consideration of the existing infrastructure by acquiring property and removing buildings. The outcome of this examination is that the creek could be restored anywhere in the study area if enough property were acquired and bridges built.

Scenario 2
Full Flow Restoration
This scenario explores a full flow restoration of Strawberry Creek primarily situated in a public right-of-way. The outcome of this examination is that Center, Oxford to Shattuck could accommodate a full flow restoration if the City were to acquire the two properties on the north side of the Center Street. Without property acquisition, the only place with sufficient public right-of-way to have a full flow restoration in the study area is Civic Center Park.

Scenario 3
Partial Flow Daylighting in a Public Right-of-Way
This scenario explores a partial flow daylighting which functions as a stream designed to fit in a public right-of-way. The outcome of this examination is that the varying widths of Addison, Center and Allston, the requirement of at least one traffic lane and the need for a utility corridor leave varying widths, from 13 to 28 feet depending on the street, and varying depths, from 3-18 feet, again depending on the street, for a partial flow restoration. Center between Oxford and Shattuck has the largest nominally available right-of-way for a partial flow daylighting in the study area.

Scenario 4
Canal in a Public Right-of-Way
This scenario explores a daylighting which does not function as a stream but instead moves water in a canal which could be designed to fit in a public right-of-way, at or below grade. The outcome of this examination is that the desire to maintain existing traffic patterns and the need for a utility corridor leave varying widths, from 6 to 12 feet depending on the street, for a canal. The depth of the canal however, would likely be a constant 1 to 3 feet.

Scenario 5
Symbolic Acknowledgment
This scenario explores symbolically acknowledging Strawberry Creek in downtown. The outcome of this examination is that the creek could be acknowledged in numerous ways and locations by such things as a fountain and educational signage.

The Scenarios described in this section can be viewed as a continuum.
Understanding the Presentation of the Scenarios

Scenario 4
Canal in a Public Right-of-Way

Each Scenario begins with a brief description and the variations which can occur.

Beginning with Scenario 2, the following page provides an example of the Scenario labeled 'A Variation of Scenario ...'. Here stacked top to bottom are an existing conditions image, a digitally enhanced image illustrating an example of the scenario and a descriptive cross section. Center is depicted in each of the Variations because it has the largest nominally available right-of-way for daylighting.
A 'Graphical Summary of the Scenario...' then presents existing condition cross-sections and cross-sections reflecting the scenario, one for each block in the study area except for Scenario 1 where 3 cross sections are presented. These cross sections are diagrammatic and only intended to convey relative proportions. For the exact dimensions refer to the block-by-block explanations which follow. An X indicates that the scenario does not work for the indicated block given the parameters set forth for the Scenario (not shown at left but see Scenario 2 for example).

Packing
The existing dimensions of horizontal sections are shown later in this block. If the current configuration of car and packing is maintained, and no changes were placed on the northeast, it indicates the current design needs to remain.

Land Use & Upland Economics
The existing would not require property acquisition or building envelopes.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 1: Center Oakley to Bradlee Utilities).

Each block is then presented. First the right-of-way dimensions are outlined. Second, a graphic representation of these requirements is shown. Finally, likely impacts are discussed by data collection category. Many may find these implications repetitive. The intent, however, is to have each block 'stand-alone'.
Scenario 1

‘No-Constraints’ Full Flow Restoration

This scenario would require the extensive acquisition of property, either through the purchase of the property or the acquisition of easements/setbacks with new development, to restore a bankfull channel, floodplain and gradually sloping banks that can accommodate the full flow of Strawberry Creek. This approach essentially ‘re-envision’ the downtown with the stream as the focus of the downtown’s urban design. It provides an opportunity for increased pedestrian oriented retail spaces and is inspired by other downtown restorations such as San Luis Obispo.
Graphical Summary of Scenario 1 - Oxford to Martin Luther King, Jr. Way

1.1 Oxford to Shattuck

1.2 Shattuck to Milvia

1.3 Milvia to MLK, Jr. Way
1 'No-Constraints' Full Flow Restoration

**Oxford to Martin Luther King, Jr. Way**

The location of the creek in Scenario 1 has been based on design criteria such as creating connections between public spaces and expanding pedestrian environments. For instance, from a design perspective restoring Strawberry Creek in a public right-of-way is too framed and lacks in a real sense of discovery. Restoration between newly constructed mixed-use buildings brings added interest and value to the pedestrian environment by excluding vehicles. Restoration mid-block between Oxford and Shattuck also provides a strong connection to BART and the University of California, Berkeley campus. Restoration across Center, Shattuck to Milvia provides a closer relationship to the Addison Arts District. Restoration in the middle of Civic Center Park gives unity and connection to the four buildings which face onto the park: Civic Center plaza, the Veterans’ Memorial, Old City Hall and Berkeley High School. The width needed varies from Oxford to Martin Luther King, Jr. Way.

*Plan view of Scenario 1 a 'No-Constraints' restoration from Oxford to Martin Luther King, Jr. Way. This scenario 're-envision' s downtown.*

This is the only scenario which would completely redirect the entire flow of Strawberry Creek from the Allston culvert for the entire length of the study area.
1.1 Oxford to Shattuck
The creek would have a bankfull channel of 17 feet by 1.3 feet deep, a flood plain of approximately 65+ feet and have banks laid back at 2:1. In this reach, near Oxford, where the depth to invert is 7-10 feet below the ground surface the restoration top-of-bank to top-of-bank would amount to approximately 105 feet. With two 10 foot pedestrian paths the total distance becomes 125 feet.
1.2 Shattuck to Milvia

The creek would have a bankfull channel of 17 feet by 1.3 feet deep, a flood plain of approximately 65+ feet and have banks laid back at 2:1. In this reach, between Shattuck and Milvia, where the depth to invert is 13.5 feet below the ground surface, the restoration top-of-bank to top-of-bank would amount to approximately 109 feet width two 10 foot pedestrian paths the total distance becomes 139 feet.
1.3 Milvia to Martin Luther King, Jr. Way

In the western portion of the study area, near Martin Luther King, Jr. Way where the flowline is 18 feet below the surface the restoration top-of-bank to top-of-bank would amount to approximately 137 feet. With two 10 foot pedestrian paths the total distance becomes 157 feet.
This scenario envisions a restored floodplain and bankfull channel that can accommodate the full flow of Strawberry Creek situated primarily in a public right-of-way. The restoration of the creek is given relatively more priority than the existing infrastructure. The public right-of-way, for the purposes of this study, includes roadways and sidewalks as well as property owned by the City, such as Civic Center Park. This type of restoration would require a minimum of approximately 66+ feet for the floodplain and bankfull channel.

A number of variations could occur within this scenario, such as:

- property acquisition
- number of traffic lanes (one way/two way)
- sidewalk width
- bank configuration (slope of banks, bank treatments)
- elevation of the profile (current depth to invert, raised depth to invert)
A Variation of Scenario 2

Existing Conditions

Looking northeast on Center between Oxford and Shattuck.
See Scenario 2.2.1
Full Flow Restoration - Center Oxford to Shattuck

Illustration of Scenario 2

Descriptive Cross Section
A Variation of Scenario 2

Looking northeast across Civic Center Park towards Center See Scenario 2.2.3 Center, Milvia to Martin Luther King, Jr. Way.

Illustration of Scenario 2

Descriptive Cross Section

Existing Poplars and Trees

Civic Center Park
Graphical Summary of Scenario 2

Addison

2.1.1 Oxford to Shattuck

Center

2.2.1 Oxford to Shattuck

2.2.2 Shattuck to Milvia

Allston

2.3.1 Oxford to Shattuck

2.3.2 Shattuck to Milvia

2.3.3 Milvia to MLK, Jr. Way

2.1.2 Shattuck to Milvia

2.2.3 Milvia to MLK, Jr. Way

2.3.3 Milvia to MLK, Jr. Way
2.1 Full Flow Restoration on Addison

The nominally available right-of-way building-to-building on Addison remains constant from Oxford to Martin Luther King, Jr. Way and is approximately 60 feet.

2.1.1 Oxford to Shattuck

The minimum width for a full flow restoration is approximately 65+ feet for the bankfull channel and floodplain. As depicted below, only 60 feet is available from building-to-building. A full flow restoration requires an additional 50+ feet.

Therefore, there is insufficient right-of-way on Addison, Oxford to Shattuck to accommodate a full flow restoration in a public right-of-way without property acquisition.
2.1.2 Shattuck to Milvia
The minimum width for a full flow restoration is approximately 65+ feet for the floodplain. As depicted below, only 60 feet is available from building-to-building. A full flow restoration requires an additional 50+ feet.

Therefore, there is insufficient right-of-way on Addison, Shattuck to Milvia to accommodate a full flow restoration in a public right-of-way without property acquisition.
2.1.3 Milvia to Martin Luther King, Jr. Way

The minimum width for a full flow restoration is approximately 65+ feet for the floodplain. As depicted below, only 60 feet is available from building-to-building. A full flow restoration requires an additional 50+ feet.

Therefore, there is insufficient right-of-way on Addison, Milvia to Martin Luther King, Jr. Way to accommodate a full flow restoration in a public right-of-way without property acquisition.
2.2 Full Flow Restoration on Center
The nominally available right-of-way building-to-building varies on Center.

2.2.1 Oxford to Shattuck
The nominally available right-of-way building to building on Center in this block is 80 feet. Fifty-two feet is needed to accommodate one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet), sidewalk on the north (10 feet) and an existing sidewalk on the south (20 feet). This leaves 28 feet for the floodplain. A full flow restoration, however would require approximately 65 feet for the floodplain. Without property acquisition, only 80 feet is nominally available. With the acquisition of the two northern parcels on Center Street between Oxford and Shattuck, however, an additional 125 feet of nominally available right-of-way could be acquired. With this additional space, the creek could be restored with a bankfull channel of 17 feet by 1.3 feet deep, a floodplain of 65 feet and have banks laid back at 2:1. This would amount to a restoration of approximately 105 feet top-of-bank to top-of-bank.

Hydrology/Hydraulics
This restoration would have a high degree of naturalness. An upstream flow control structure would be required to divert the water for the restoration from the Allston Street culvert. This type of structure would ideally be placed under Oxford. The exact dimensions of such a structure would require site specific hydraulic design. Either a bridge at the Oxford intersection or the placement of 100-150 feet of pipe would be necessary to move the water from the main/south fork in the current Allston culvert to the restoration site. A new pipe would be required to return the water back to the Allston culvert in the Allston/Shattuck intersection if a daylighting were not to take place downstream on Center.
Circulation
One lane of traffic could be maintained. The major loading and delivery in this block is for the UC Printing Services building. Such intense delivery use would be reduced or eliminated if the property were acquired for a full flow restoration. Delivery for the businesses on the south side of Center could make use of the one lane of traffic retained or, alternatively Oxford Lane. Added sidewalk width would further enhance this block as a major pedestrian corridor to the UC Berkeley campus.

Parking
The current demand for off-street parking is relatively high, mostly on the north side of the street in the Bank of America parking lot. With the acquisition of this property, the existing parking configuration would be modified or eliminated.

Land Use & Urban Economics
With only two institutional properties on the north side of Center, the Bank of America and the University of California Printing Services, the logistics of acquisition would be considerably less than other blocks. The City could acquire property through set back requirements, easements or outright purchase. With two, 2:1 banks as shown above approximately 35 feet would remain on the northern edge of the restoration if both parcels were fully acquired. This space could be increased by approximately 20 feet if a wall replaced one 2:1 bank. Mixed use housing and retail, for instance, could be built at the northern edge. Due to the scale of the cross section, this is not shown above - refer to A Variation on Scenario 2 which illustrates this possibility.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Center Oxford to Shattuck Utilities).
2.2.2 Shattuck to Milvia

The nominally available right-of-way building-to-building on Center in this block is 70 feet. Forty-two feet is needed to accommodate one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet), sidewalk on the north (10 feet) and sidewalk on the south (10 feet). As depicted below, only 70 feet is available from building-to-building. A full flow restoration requires an additional 40+ feet.

Therefore, there is insufficient right-of-way on Center, Shattuck to Milvia to accommodate a full flow restoration in a public right-of-way without property acquisition (see Scenario 1.2).
2.2.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way in this block is 70 feet. Civic Center Park, however, provides an additional 285 feet of right-of-way to the south. Thirty-two feet is needed on the north side of the street to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), and a sidewalk on the south (10 feet). With Civic Center Park, there is sufficient right-of-way for a full flow restoration in the public right-of-way.

Hydrology/Hydraulics
The creek would have a bankfull channel of 17 feet by 1.3 feet deep, a flood plain of approximately 65 feet and could have banks laid back at 2:1. In this reach where the current depth to invert is 18 feet below the ground surface the restoration top-of-bank to top-of-bank would amount to approximately 137 feet with 2:1 slopes with the current elevation of the profile. The width of the restoration could be reduced if a wall were to be constructed instead of a slope on either side (see A Variation of Scenario 2 at the beginning of Scenario 2) or the elevation of the profile could be raised. This restoration would have a relatively high degree of naturalness. The existing culvert between Milvia and Martin Luther King, Jr. Way could be abandoned.

Circulation
One lane of traffic could be maintained. It is possible to maintain two lanes of traffic with an additional 12 feet of encroachment into Civic Center Park. In fact two lanes are shown in A Variation of Scenario 2.

Parking
On-street parking could be removed or retained. Retained on-street parking would increase the encroachment into the park by an additional 8-10 feet for one lane of parallel and 16-20 for two lanes of parallel parking.
Land Use & Urban Economics
This restoration would not require property acquisition or building demolition, only a change in the current land use for a portion of Civic Center Park, which is designated a historic landmark.

Utilities
A number of utilities may need to be abandoned and relocated depending on the exact alignment of the restored creek (see Section 2 Data Collection: Center Milvia to Martin Luther King, Jr. Way Utilities).
2.3 Full Flow Restoration on Allston
The nominally available right-of-way building-to-building varies on Allston.

2.3.1 Oxford to Shattuck
The nominally available right-of-way on Allston, Oxford to Shattuck is approximately 55 feet. The minimum width for a full flow restoration is 65 feet for the floodplain. As depicted below, only 55 feet is available from building-to-building. A full flow restoration requires an additional 60+ feet.

Therefore, there is insufficient right-of-way on Allston, Oxford to Shattuck to accommodate a full flow restoration in a public right-of-way without property acquisition.
2.3.2 Shattuck to Milvia
The total right-of-way width on Allston from Shattuck to Milvia is approximately 60 feet. The minimum width for a full flow restoration is 65 feet for the floodplain. As depicted below, only 60 feet is available from building-to-building. A full flow restoration requires an additional 50+ feet.

Therefore, there is insufficient right-of-way on Allston, Shattuck to Milvia to accommodate a full flow restoration in a public right-of-way without property acquisition.
2.3.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way in this block is 60 feet. Civic Center Park, however, provides an additional 285 feet of right-of-way to the north. Thirty-two feet is needed to accommodate one lane of traffic which also functions as a utility corridor (12 feet), sidewalk on the north (10 feet) and a sidewalk on the south (10 feet). With Civic Center Park, there is sufficient right-of-way for a full flow restoration in the public right-of-way.

Hydrology/Hydraulics
The creek would have a bankfull channel of approximately 17 feet by 1.3 feet deep, a flood plain of approximately 65 feet and have banks laid back at 2:1. In this reach where the current depth to invert is 18 feet below the ground surface the restoration top-of-bank to top-of-bank would amount to approximately 137 feet with 2:1 slopes. The width of the restoration could be reduced if a wall were to be constructed as opposed to a slope on either the north or south side. The width could also be reduced if the elevation of the profile were raised. This restoration would have a high degree of naturalness. The existing culvert between Milvia and Martin Luther King, Jr. Way could be abandoned. The placement of 200-300 feet of pipe would likely be required to move the water from the existing culvert to the restoration site just west of the Allston/Milvia intersection. This pipe could be laid flatter than the current 2% ground slope thereby raising the elevation of the profile.

Circulation
One lane of traffic could be maintained. It is possible to maintain two lanes of traffic with an additional 12 feet of encroachment into Civic Center Park. This additional encroachment may be desirable to accommodate delivery and loading at the Berkeley Community Theatre.
Parking
On-street parking could be removed or retained. Retained on-street parking would increase the encroachment into the park by an additional 8-10 feet for one lane of parallel and 16-20 for two lanes of parallel parking.

Land Use & Urban Economics
This restoration would not require property acquisition or building demolition, only a change in the current land use for a portion of Civic Center Park.

Utilities
A number of utilities may need to be abandoned and relocated depending on the exact alignment (see Allston Milvia to Martin Luther King, Jr. Way Utilities). Depending on the location of the new culvert which would deliver water to the daylighting site, different sets of utilities would be impacted to the east of Milvia on Allston (see Section 2 Data Collection: Allston Milvia to Martin Luther King, Jr. Way Utilities).
Scenario 3
Partial Flow Daylighting in a Public Right-of-Way

This scenario envisions removing a portion of the flow (approximately 5 cfs) from the existing culvert and placing this water in a scaled down channel 2.5 feet wide by 6 inches deep with a floodplain of 4.5 feet (7 feet width). The remainder of the water would continue in an existing culvert, either the Addison culvert or the Allston culvert. This scenario gives relatively equal weight to the creek and existing infrastructure compared to other scenarios. The bank configuration would utilize the right-of-way which remains after the necessary widths have been apportioned for one lane of traffic, sidewalk and utilities.

A number of variations could occur within this scenario, such as:
- the amount of flow (cfs)
- number of traffic lanes (one way/two way)
- location of traffic lanes (lanes on one side of the street with none on the other or lanes on each side of the street with the creek in-between)
- location and amount of on-street parking
- bridges or culverts to move water across north/south streets
- sidewalk width
- bank configuration (slope of banks, treatments)
- elevation of the profile (current depth to invert, raised depth to invert)

Bank configurations can have 1) a wall on one side and a slope on one side or 2) slopes on both sides. The --- indicates that the elevation of the creek's profile could be raised.
A Variation of Scenario 3

Existing Conditions

Looking northeast on Center between Oxford and Shattuck.
See Scenario 3.2.1 Center, Oxford to Shattuck.

Illustration of Scenario 3

Descriptive Cross Section
Graphical Summary of Scenario 3

Addison

3.1.1 Oxford to Shattuck

Center

3.2.1 Oxford to Shattuck

Allston

3.3.1 Oxford to Shattuck

3.1.2 Shattuck to Milvia

3.2.2 Shattuck to Milvia

3.3.2 Shattuck to Milvia

3.1.3 Milvia to MLK, Jr. Way

3.2.3 Milvia to MLK, Jr. Way

3.3.3 Milvia to MLK, Jr. Way
3.1 Partial Flow on Addison
The nominally available right-of-way building-to-building on Addison remains constant from Oxford to Martin Luther King, Jr. Way and is approximately 60 feet.

3.1.1 Oxford to Shattuck
The nominally available right-of-way building-to-building on Addison, Oxford to Shattuck is 60 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 18 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics
This daylighting would have a moderate degree of naturalness. The existing Allston culvert would be maintained. Since the Addison culvert is not in this block water would likely be taken from the Allston culvert. A flow control structure at the upstream end of the daylighting would be required to divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert under Oxford. The exact dimensions of such a structure and pool would require site specific hydraulic design. The placement of at least 400-500 feet of pipe would likely be necessary to move the water from the current Allston culvert to the daylighting site. The beginning of the daylighting could vary depending on the desired elevation of the profile. This length of pipe could be laid flatter than the existing 2% ground slope thereby elevating the profile approximately 7 feet. Without elevating the profile a new storm drain would need to be constructed to return the water to the Allston culvert.

Circulation
One lane of traffic could be maintained.
Parking
The current demand for off-street parking in this block is relatively high. If the current configuration of off-street parking were to be maintained, either location of the traffic lane (on the north or south side of the street) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Addison (one lane on the north side shown above). To avoid impacting the UC garage, the daylighting could begin further west on Addison.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Addison Oxford to Shattuck Utilities).
3.1.2 Shattuck to Milvia

The nominally available right-of-way building-to-building on Addison, Shattuck to Milvia is 60 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 18 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics

This daylighting would have a moderate degree of naturalness. The existing Allston culvert would be maintained. The existing Addison Street culvert would likely require realignment in this block (approximately 650 feet) to provide the space necessary for a partial flow daylighting if the current elevation of the creek’s profile were to be recreated. This Addison Street culvert could provide the water for the daylighting. A flow control structure at the upstream end of daylighting would be required to divert high flows and bed load. This type of structure would ideally be placed in the existing/realigned culvert under Addison near Shattuck. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing culvert to move it through the Addison/Milvia intersection.

Circulation

One lane of traffic could be maintained. Delivery and loading would need to be examined in greater detail as Addison, between Shattuck and Milvia, is the designated Arts District.
Parking
The current demand for off-street parking is relatively high in this block. If the current configuration of off-street parking is maintained, either location of the traffic lane (on the north or south side of the street) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Addison (one lane on the north side shown above). Access to one of the two main garages in the study area could be diverted to Center.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition. Careful design would be required to minimize the impact that a partial flow restoration would have on the Art designation of this block, particularly access to the Berkeley Repertory Theatre.

Utilities
In addition to the existing Addison Street culvert, a number of additional utilities would need to be abandoned and relocated (see Section 2 Data Collection: Addison Shattuck to Milvia Utilities).
3.1.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way building-to-building on Addison Shattuck to Milvia is 60 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 18 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics
This daylighting would have a moderate degree of naturalness. The existing Allston culvert would be maintained. The existing Addison Street culvert would likely require realignment in this block (approximately 670 feet) to provide the space necessary for a partial flow daylighting if the current profile of the culverted creek were to be recreated. This Addison Street culvert would provide the water for the daylighting in this block. A flow control structure at the upstream end of daylighting would be required if daylighting does not also take place upstream between Shattuck and Milvia. This structure would divert high flows and bed load and would ideally be placed in the existing/realigned culvert under Addison near Milvia. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing/realigned culvert to move it through the Addison/Martin Luther King, Jr. Way intersection. Alternatively a bridge could be built across Milvia.

Circulation
One lane of traffic could be maintained. If the current configuration of off-street parking is maintained, either location of the traffic lane (one lane on the north side or one lane on the south side of the street) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Addison (one lane on the north side shown above).
Parking
The current demand for off-street parking is relatively high in this block.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
In addition to the existing Addison Street culvert, a number of additional utilities would need to be abandoned and relocated (see Section 2 Data Collection: Addison Milvia to Martin Luther King, Jr. Way Utilities).
3.2 Partial Flow on Center
The nominally available right-of-way building-to-building varies on Center.

3.2.1 Oxford to Shattuck
The nominally available right-of-way on Center Oxford to Shattuck is 80 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (20 feet). A 20 foot sidewalk on the south side of Center in this block maintains the existing ISTEA improvements. This allows 28 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics
This daylighting would have a moderate degree of naturalness. The existing Allston and Addison culverts would be maintained. An upstream flow control structure would be required to divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert under Oxford. The exact dimensions of such a structure would require site specific hydraulic design. A bridge at the Oxford intersection or the placement of 100-150 feet of pipe would be necessary to move the water from the main/south fork in the current Allston culvert to the daylighting site. Without elevating the profile at the upstream end of the daylighting, it is likely that some type of pump would be necessary at the downstream end of the daylighting site to place the water back in the existing 24" storm drain. Alternatively, a new pipe could be built to return the water back to the Allston culvert in the Allston/Shattuck intersection.

Circulation
One lane of traffic could be maintained. A bridge could serve as a pedestrian crossing mid-block. Delivery and loading to the UC Printing building would be impacted. Added sidewalk width would enhance this block a major pedestrian corridor to the UC Berkeley campus.
Parking
The current demand for off-street parking is relatively high in this block, mostly on the north side of the street in the Bank of America lot. If the current configuration of off-street parking is maintained and the one maintained lane were placed on the north side of the street, it is unlikely that vehicular bridges would be needed (see A Variation on Scenario 3).

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Center Oxford to Shattuck Utilities).
3.2.2 Shattuck to Milvia

The nominally available right-of-way on Center, Shattuck to Milvia is 70 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 28 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics

This daylighting would have a moderate degree of naturalness. The existing Allston and Addison culverts would be maintained. If daylighting were not to occur upstream on Center, Oxford to Shattuck, an upstream flow control structure would be required to divert high flows and bed load. This type of structure would likely be placed in the existing Allston culvert under Shattuck. The exact dimensions of such a structure would require site specific hydraulic design. It is likely that a pump would also be required to raise the depth to invert in this flow control structure high enough to move the water across the top of the BART station envelope. Once elevated, the placement of 350-400 feet of pipe would be necessary to move the water from the current Allston culvert beneath Shattuck to the daylighting site. This poses major constraints given the general congestion of circulation, BART and utilities. If daylighting were also to take place on Center, Milvia to Martin Luther King, Jr. Way a culvert would need to be placed through the Center/Milvia intersection. Alternatively, a bridge could be built. If daylighting were not to take place downstream on Center, Milvia to Martin Luther King, Jr. Way the water could be returned to an existing storm drain in the Center/Milvia intersection. This could be accomplished by pumping, constructing a new culvert (approximately 100-120 feet) or ending the daylighting further upstream at an elevation higher than the existing storm drain.
Circulation
One lane of traffic could be maintained. Both sides of Center just west of Shattuck are major AC Transit stops.

Parking
The current demand for off-street parking is relatively high in this block. If the current configuration of off-street parking is maintained, either location of the traffic lane (on the north side or the south side of the street) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Center (one lane on the north side shown above). Access to both main parking garages in the study area could be diverted to Addison and Allston.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities may need to be abandoned and relocated (see Section 2 Data Collection: Center Shattuck to Milvia Utilities).
3.2.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way on Center Milvia to Martin Luther King, Jr. Way is 70 feet. Civic Center Park, which abuts Center to the south could provide additional right-of-way. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 28 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics
This daylighting would have a moderate degree of naturalness. The existing Allston and Addison culverts would be maintained. If a partial flow daylighting were not to take place upstream a flow control structure would be required to divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert at the northeast edge of Civic Center Park. The exact dimensions of such a structure would require site specific hydraulic design. The placement of 50-80 feet of pipe would be necessary to move the water from the current culvert beneath Milvia to the daylighting site if daylighting were not to occur upstream on Center Shattuck to Milvia. The water could be returned to an existing storm drain at the western edge of Civic Center Park. This would require the construction of a new culvert (approximately 100-120 feet) if the available right-of-way in Civic Center Park were not utilized for an open channel.

Circulation
One lane of traffic could be maintained.

Parking
The current demand for off-street parking is relatively moderate in this block and is mostly to the north. If the current configuration of off-street parking is maintained a lane on the north side of the street would likely obviate the need for bridges. Access to City Hall could be gained from Allston.
Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2
Data Collection: Center Milvia to Martin Luther King, Jr. Way Utilities).
3.3 Partial flow on Allston

The nominally available right-of-way building-to-building varies on Allston.

3.3.1 Oxford to Shattuck

The nominally available right-of-way on Allston, Oxford to Shattuck is 55 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 13 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics

This daylighting would have a moderate degree of naturalness. The existing Allston Street culvert would likely require realignment (approximately 300 feet) to provide the space necessary for a partial flow daylighting if the current elevation of the profile were to be recreated in an open channel. A flow control structure at the upstream end of daylighting would be required. This structure would divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert under Oxford. The exact dimensions of such a structure would require site specific hydraulic design. The placement of 120-160 feet of pipe would be necessary to move the water from the current culvert beneath Oxford to the daylighting site if the daylighting were to begin just west of the Oxford/Allston intersection. Alternatively, the daylighting could begin further west in the block. The water could be placed back in the existing/realigned culvert to move it through the Allston/Shattuck intersection and past BART.

Circulation

One lane of traffic could be maintained.
Parking
The current demand for off-street parking is relatively moderate in this block. If the current configuration of off-street parking is maintained, a lane on the south side of the street could obviate the need for bridges to maintain vehicular access to the parking lot at the southeast corner of Allston and Oxford (one lane on the north side shown above). Alternatively, the daylighting could begin west of the current Allston entrance to the public parking lot.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Allston Oxford to Shattuck Utilities).
3.3.2 Shattuck to Milvia

The nominally available right-of-way on Allston, Shattuck to Milvia is 60 feet. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 18 feet for a partial flow channel, floodplain and banks.

Hydrology/Hydraulics

This daylighting would have a moderate degree of naturalness. The existing Allston Street culvert would likely require realignment (approximately 350 feet) to provide the space necessary for a partial flow daylighting if the current elevation of the profile were to be recreated in an open channel. If daylighting were not to take place upstream a flow control structure would be required to divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert just west of Shattuck and BART. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing/realigned culvert if 200-250 feet of pipe connected the end of the daylighting at the Allston/Milvia intersection in this block to the existing culvert located on Milvia between Center and Allston. Alternatively, the daylighting could end were the culvert jogs northwest under the YMCA building. If daylighting were to take place downstream on Allston, Milvia to Martin Luther King, Jr. Way the water could be moved across the Allston/Milvia intersection in 50-80 feet of new pipe.

Circulation

One lane of traffic could be maintained. With one lane of traffic placed on the north side of the street a bridge would be necessary, however, if vehicular access to Harold Way were to be maintained. Alternatively, Harold Way could become a cul-de-sac. Vehicular access to the main post office could be diverted from Allston to Kittredge.
Parking
The current demand for off-street parking is relatively high in this block. If the current configuration of off-street parking is maintained and one lane of traffic is placed on the north side of the street it is unlikely that bridges would be needed to maintain vehicular access to the parking garage on Allston.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
In addition to portions of the existing Allston Street culvert, a number of additional utilities would need to be abandoned and relocated (see Section 2 Data Collection: Allston Shattuck to Milvia Utilities).
3.3.3 Milvia to Martin Luther King, Jr. Way

The nominally available right-of-way on Allston Milvia to Martin Luther King, Jr. Way is 60 feet. Civic Center Park, which abuts Allston to the north could provide additional right-of-way. Forty-two feet is needed to accommodate a sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12 feet), an additional utility corridor (10 feet) and sidewalk on the south (10 feet). This allows 18 feet for a partial flow channel, floodplain and banks.

**Hydrology/Hydraulics**

This daylighting would have a moderate degree of naturalness. The existing Allston culvert located on the northern edge of Civic Center Park would be maintained. If daylighting were not to take place upstream on Allston Shattuck to Milvia, a flow control structure at the upstream end of daylighting would be required, most likely in the Allston/Harold Way intersection. This structure would divert high flows and bed load. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing culvert if 200-250 feet of pipe connected the end of the daylighting in this block to the existing culvert on the north edge of Civic Center Park. Alternatively, the channel could remain open through a portion of Civic Center Park.

**Circulation**

One lane of traffic could be maintained. If this lane were placed on the south side, large truck access and student/patron drop-off to Berkeley High and the Community Theatre could be maintained. With one lane of traffic placed on the north side of the street a bridge or alternative approaches would likely be necessary. As there is a heavily used mid-block pedestrian crossing from Berkeley High to Civic Center Park, a pedestrian bridge could be built mid-block across the partial flow creek.
Parking
The current demand for off-street parking is relatively high.

Land Use & Urban Economics
This restoration would not require property acquisition or building demolition.

Utilities
In addition to portions of the existing Allston Street culvert, a number of additional utilities would need to be abandoned and relocated (see Section 2 Data Collection: Allston Milvia to Martin Luther King, Jr. Way Utilities).
Scenario 4
Canal in a Public Right-of-Way

This scenario envisions moving a portion of the water in an aesthetically pleasing canal relying on an architectural treatment for Strawberry Creek. High flows would continue to be carried in an existing culvert. This scenario gives relatively more weight to the infrastructure than the creek but allows for many intriguing urban design approaches. Scenario 4 differs from Scenario 3 in that there is no attempt made to restore the shape or form of a creek. Additionally, under this scenario existing conditions were modified only to the degree necessary to accommodate a canal 6 feet wide, at a minimum. This would typically involve removing on-street parking and maintaining two lanes of traffic. Where two lanes of traffic are depicted, it is theoretically possible to ‘trade’ one lane of traffic for one lane of on-street parking.

A number of variations can occur within this scenario, such as
- the amount of flow (cfs) up to the hydraulic capacity of the canal
- number of traffic lanes (one way/two way)
- location of traffic lanes (lanes on one side of the street with none on the other or lanes on each side of the street with the creek in-between)
- location and amount of on-street parking
- bridges or culverts to move water across north/south streets
- sidewalk width
- wall configuration and canal width (slope of walls, treatments)
- elevation of the profile

Since the water in this scenario will need to be raised from its current elevation of 10-18 feet below the ground surface to a higher elevation, it is possible to place the water at an elevation above the current grade and locate the canal at the right-of-way surface. The need for utility relocation, abandonment and a corridor could be reduced.
Looking northeast on Center between Oxford and Shattuck. See Scenario 4.2.1 Canal in a Public Right-of-Way Center, Oxford to Shattuck.
Graphical Summary of Scenario 4

Addison

Center

Allston

4.1.1 Oxford to Shattuck

4.1.2 Shattuck to Milvia

4.1.3 Milvia to MLK, Jr. Way

4.2.1 Oxford to Shattuck

4.2.2 Shattuck to Milvia

4.2.3 Milvia to MLK, Jr. Way

4.3.1 Oxford to Shattuck

4.3.2 Shattuck to Milvia

4.3.3 Milvia to MLK, Jr. Way
4.1 Canal on Addison

The nominally available right-of-way building-to-building on Addison remains constant from Oxford to Martin Luther King, Jr. Way and is 60 feet.

4.1.1 Oxford to Shattuck

The nominally available right-of-way building-to-building on Addison, Oxford to Shattuck is 60 feet. Fifty-two feet accommodates an existing sidewalk on the north (9 feet), two lanes of traffic (or one lane of traffic and one lane of parking) which also functions as a utility corridor (24 feet), an additional utility corridor (10 feet) and an existing sidewalk on the south (9 feet). This allows 8 feet for a canal (6 foot interior width and 1 foot for each wall shown below).

---

**Hydrology/Hydraulics**

This daylighting would have a low degree of naturalness. The existing Allston culvert would be maintained. A flow control structure at the upstream end of restoration would be required. This structure would divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert under Oxford. As the Addison Street culvert is not located in this block and could not provide the water for a canal, the water would be taken from the Allston Street culvert via a flow control structure. The exact dimensions of such a structure and pool would require site specific hydraulic design. The placement of 400-500 feet of pipe would be necessary to move the water from the current Allston culvert to the daylighting site. The slope of this delivery pipe could be modified to also help bring the water closer to the surface. At the downstream end of the daylighting site the water could be placed into an existing 12” storm drain. This storm drain could be used to move the water through the Addison/Shattuck intersection, although the size of the pipe may need to be increased depending on the size of the flow removed from the Allston Street culvert. Alternatively, bridges could be built and the canal could continue through the Addison/Shattuck intersection.
Circulation
Two lanes of traffic could be maintained.

Parking
The current demand for off-street parking is relatively high. If the current configuration of off-street parking were to be maintained, either location of the traffic lane (on the north or south side of the street) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Addison (one lane on the north side shown above). To avoid impacting the UC garage, the daylighting could begin further west on Addison in this block.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Addison Oxford to Shattuck Utilities).
4.1.2 Shattuck to Milvia
The nominally available right-of-way building-to-building on Addison, Shattuck to Milvia is 60 feet. Fifty-two feet accommodates an existing sidewalk on the north (12 feet), one lane of traffic and a bike lane which also functions as a utility corridor (12-15 feet), an additional utility corridor (10-13 feet) and an existing sidewalk on the south (12 feet). This allows 11 feet for a canal. (9 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics
This daylighting would have a low degree of naturalness. The existing Allston culvert would be maintained. The existing Addison Street culvert may not require realignment given the profile elevation and would provide the water for the daylighting. A flow control structure at the upstream end of daylighting would be required. This structure would divert high flows and bed load. If water were taken from the Addison culvert and a canal were not constructed upstream, a baffle structure or pump system at the upstream end of the daylighting, would be necessary to elevate the profile. This type of structure would ideally be placed in the existing culvert under Addison near Shattuck. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing culvert to move it through the Addison/Milvia intersection.

Circulation
One lane of traffic could be maintained. Delivery and loading would need to be examined in greater detail as Addison, between Shattuck and Milvia, is the designated Arts District.
Parking
The current demand for off-street parking is relatively high in this block. If the current configuration of off-street parking is maintained, either location of the traffic lane (on the north side or the south side) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Addison (one north side lane shown above). A lane on the south side, without a bridge, would limit access to one of the two main parking garages in the study area. Access from Center street, however, would still be maintained.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition. Careful design would be required to minimize the impact that a partial flow restoration would have on the Arts District.

Utilities
A number of utilities may need to be abandoned and relocated (see Section 2 Data Collection: Addison Shattuck to Milvia Utilities).
4.1.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way building-to-building on Addison, Milvia to Martin Luther King, Jr. Way is 60 feet. Fifty-two feet accommodates an existing sidewalk on the north (9 feet), two lanes of traffic (or one lane of traffic and one lane of parking) which also functions as a utility corridor (24 feet), an additional utility corridor (10 feet) and an existing sidewalk on the south (9 feet). This allows 8 feet for a canal (6 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics
This daylighting would have a low degree of naturalness. The existing Allston culvert would be maintained. The existing Addison Street culvert may not require realignment given the profile elevation and would provide the water for the daylighting. A flow control structure at the upstream end of daylighting would be required if a daylighting does not take place upstream between Shattuck and Milvia. This structure would divert high flows and bed load and would ideally be placed in the existing culvert under Addison near Milvia. The exact dimensions of such a structure would require site specific hydraulic design. In addition to the flow control structure, a baffle structure or pump system at the upstream end of the daylighting would be necessary to elevate the profile. The water could be placed back in the existing culvert to move it through the Addison/Martin Luther King, Jr. Way intersection.

Circulation
Two lanes of traffic could be maintained.

Parking
The current demand for off-street parking is relatively high in this block. If the current configuration of off-street parking is maintained, either location of the traffic lane (north side or south side of the street) would likely require bridges or
alternative approaches to maintain vehicular access to the opposite side of Addison (two lanes on the north side of the street shown above).

**Land Use & Urban Economics**
This daylighting would not require property acquisition or building demolition.

**Utilities**
A number of utilities would need to be abandoned and relocated (see Section 2
Data Collection: Addison Milvia to Martin Luther King, Jr. Way Utilities).
4.2 Canal on Center

The nominally available right-of-way building-to-building on Center varies.

4.2.1 Oxford to Shattuck

The nominally available right-of-way on Center, Oxford to Shattuck is 80 feet. Sixty-nine feet accommodates an existing sidewalk on the north (15 feet), two lanes of traffic (or one lane of traffic and one lane of parking) which also functions as a utility corridor (24 feet), an additional utility corridor (10 feet) and an existing sidewalk on the south (20 feet). This allows 11 feet for a canal. (9 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics

This daylighting would have a low degree of naturalness. The existing Allston and Addison culverts would be maintained. An upstream flow control structure would be required to divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert under Oxford. The exact dimensions of such a structure would require site specific hydraulic design. The placement of 100-150 feet of pipe would be necessary to move the water from the current Allston culvert to the daylighting site. Alternatively, a bridge across Oxford could be built. If the slope of the water delivery pipe to the canal does not bring the water as close to the surface as desired, a baffle structure or pump system at the upstream end of the daylighting would be necessary to elevate the profile to the desired depth. At the downstream end of the restoration site the water could be placed back in the existing 24” storm drain. Alternatively, if a daylighting were to also occur on Center, Shattuck to Milvia approximately 200 feet of pipe or a bridge and canal could placed in Center/Shattuck intersection to move the water across the intersection.

Circulation

Two lanes of traffic could be maintained.
Parking
The current demand for off-street parking is relatively high mostly for the north side of the street in the Bank of America parking lot. If the current configuration of off-street parking is maintained and the traffic lanes were placed on the north side, it is unlikely that vehicular bridges would be needed.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Center Oxford to Shattuck Utilities).
4.2.2 Shattuck to Milvia
The nominally available right-of-way on Center, Shattuck to Milvia is 70 feet. Fifty-nine feet accommodates an existing sidewalk on the north (10 feet), two lanes of traffic and a bike lane (or one lane of traffic and one lane of parking) which also functions as a utility corridor (24-27 feet), an additional utility corridor (10 feet) and an existing sidewalk on the south (12 feet). This allows 11 feet for a canal (9 foot interior width and 1 foot for each wall shown below).

![Diagram of Shattuck to Milvia]

Hydrology/Hydraulics
This daylighting would have a low degree of naturalness. The existing Allston and Addison culverts would be maintained. An upstream flow control structure would be required if daylighting on Center, Oxford to Shattuck were not also undertaken. This structure would divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert under Shattuck. The exact dimensions of such a structure would require site specific hydraulic design. If water is removed at the Allston/Shattuck intersection from the existing culvert, it is likely that a pump would also be required to elevate the profile in high enough to move the water across the top of the BART station envelope. Once elevated, the placement of 350-400 feet of pipe would be necessary to move the water from the current Allston culvert beneath Shattuck to the daylighting site. The slope of this pipe could be constructed to also elevate the profile. The water could be returned to an existing storm drain in the Center/Milvia intersection if daylighting were not to take place downstream on Center, Milvia to Martin Luther King, Jr. Way in which case approximately 50-80 feet of pipe, or an open canal and bridge, would need to be placed through the Center/Milvia intersection.

Circulation
Two lanes of traffic could be maintained.
Parking
The current demand for off-street parking is relatively high in this block. If the current configuration of off-street parking is maintained either location of the traffic lane (two lanes on the north side of the street or two lanes on the south side) would likely require bridges or alternative approaches to maintain vehicular access to the opposite side of Center (two lanes on the north side shown above). Access to two of the main garages in the study area is from Center in this block. Conceivably, garage access could be diverted to the Addison and Allston entrances, respectively.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Center Shattuck to Milvia Utilities).
4.2.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way on Center, Milvia to Martin Luther King, Jr. Way is 70 feet. Civic Center Park, which abuts Center to the south could provide additional right-of-way. Fifty-six feet accommodates an existing sidewalk on the north (9 feet), two lanes of traffic (or one lane of traffic and one lane of parking) which also functions as a utility corridor (24 feet), a bike lane (6 feet), an additional utility corridor (10-12 feet) and an existing sidewalk on the south (5 feet). This allows 14 feet for a canal (12 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics
This daylighting would have a low degree of naturalness. The existing Allston and Addison culverts would be maintained. An upstream flow control structure would be required if daylighting on Center, Shattuck to Milvia were not also undertaken. This structure would divert high flows and bed load. This type of structure would ideally be placed in the existing Allston culvert at the northeast edge of Civic Center Park. The exact dimensions of such a structure would require site specific hydraulic design. The placement of 50-80 feet of pipe would be necessary to move the water from the current culvert beneath Milvia to the daylighting site if daylighting were not to occur upstream on Center, Shattuck to Milvia. Instead of pipe, a bridge could be built across Milvia and a portion of the creek could be open in Civic Center Park. The water could be returned to an existing storm drain at the western edge of Civic Center Park. This would require the construction of a new culvert/canal (approximately 100-120 feet) could also be open through a portion of Civic Center Park on its return to the storm drain at the western edge of the park.

Circulation
Two lanes of traffic could be maintained.
Parking
The current demand for off-street parking is moderate in this block. If the current configuration of off-street parking is maintained, placing the traffic lanes on the north side of the street (as shown above) would likely obviate the need for bridges. Access to City Hall could take place from Allston.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Center Milvia to Martin Luther King, Jr. Way Utilities).
4.3 Canal on Allston

The nominally available right-of-way on Allston varies.

4.3.1 Oxford to Shattuck

The nominally available right-of-way on Allston, Oxford to Shattuck is 55 feet. Approximately 44 feet accommodates an existing sidewalk on the north (10 feet), one lane of traffic which also functions as a utility corridor (12-15 feet), an additional utility corridor (10-12 feet) and an existing sidewalk on the south (10 feet). This allows 11 feet for a canal (9 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics

This daylighting would have a low degree of naturalness. The existing Allston Street culvert may not require realignment depending on the elevation of the profile. A flow control structure at the upstream end of daylighting would be required. This structure would divert high flows and bed load and would ideally be placed in the existing Allston culvert under Oxford. A baffle structure or pump system at the upstream end of the daylighting, in the Addison/Oxford intersection would likely be necessary to elevate the profile. The exact dimensions of such a structure would require site specific hydraulic design. The placement of 120-160 feet of pipe would also be necessary to move the water from the current culvert beneath Oxford to the daylighting site if the daylighting were to begin just west of the Oxford/Allston intersection. The slope of the water delivery pipe could also help elevate the profile. Alternatively, the daylighting could begin further west in this block. The water could be placed back in the existing culvert to move it through the Allston/Shattuck intersection and past BART. Alternatively, a bridge could be built across Shattuck

Circulation

One lane of traffic could be maintained.
Parking
The current demand for off-street parking is relatively moderate. If the current configuration of off-street parking is maintained, a lane on the south side of the street could obviate the need for bridges or alternative approaches to maintain vehicular access to the parking lot at the southeast corner of Allston and Oxford. Alternatively, the daylighting could begin west of the current entrance to the public parking lot.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Allston Oxford to Shattuck Utilities).
4.3.2 Shattuck to Milvia
The nominally available right-of-way on Allston, Shattuck to Milvia is 60 feet. Forty-nine feet accommodates an existing sidewalk on the north (12 feet), one lane of traffic and a bike lane which also functions as a utility corridor (12-15 feet) an additional utility corridor (10-12 feet) and sidewalk on the south (10 feet). This allows 11 feet for a canal (9 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics
This daylighting would have a low degree of naturalness. The existing Allston Street culvert may not require realignment in this block. A flow control structure at the upstream end of daylighting would be required if daylighting on Allston Shattuck to Milvia were not also undertaken. This structure would divert high flows and bed load and would ideally be placed in the existing culvert just west of Shattuck past and BART. A baffle structure or pump system at the upstream end of the daylighting just west of the Allston/Shattuck intersection may be necessary to elevate the profile if daylighting upstream were not to occur. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing culvert if 200-250 feet of pipe connected the end of the daylighting in this block to the existing culvert as it crosses Milvia between Center and Allston. Alternatively, the daylighting could end where the existing culvert jogs northwest beneath the YMCA. If daylighting were to take place downstream on Allston, Milvia to Martin Luther King, Jr. Way the water could be moved across the Allston/Milvia intersection in 50-80 feet of new pipe or theoretically, a canal with a bridge.

Circulation
One lane of traffic could be maintained. Post office vehicles could access the Berkeley Main Post Office from Kittredge. With one lane of traffic on the north side of the street access to the parking garage could be maintained but a bridge would be necessary, however, for vehicular access to Harold Way. Alternatively Harold Way could become a cul-de-sac.
Parking
The current demand for off-street parking is relatively high in this block. Access to one of the two main garages in the study area is from Allston.

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of utilities would need to be abandoned and relocated (see Section 2 Data Collection: Allston Shattuck to Milvia Utilities).
4.3.3 Milvia to Martin Luther King, Jr. Way
The nominally available right-of-way on Allston, Milvia to Martin Luther King, Jr. Way is 60 feet. Civic Center Park, which abuts Allston to the north could provide additional right-of-way. Forty-six feet accommodates an existing sidewalk on the north (5 feet), one lane of traffic and a bike lane which also functions as a utility corridor (12-18 feet), a bike lane (6 feet) an additional utility corridor (10 feet) and an existing sidewalk on the south (12 feet). This allows 14 feet for a canal (12 foot interior width and 1 foot for each wall shown below).

Hydrology/Hydraulics
This daylighting would have a low degree of naturalness. The existing culvert located on the northern edge of Civic Center Park would be maintained. If daylighting were not to take place upstream on Allston, Shattuck to Milvia, a flow control structure would be required most likely in the Allston/Harold Way intersection. This structure would divert high flows and bed load. If sufficient elevation were not gained by flattening the slope of the pipe which delivers water to the canal in this block, a baffle structure or pump system at the upstream end of the daylighting, may be necessary to elevate the profile. The exact dimensions of such a structure would require site specific hydraulic design. The water could be placed back in the existing culvert if 200-250 feet of pipe connected the end of the daylighting in this block to the existing culvert on the northwest edge of Civic Center Park. Alternatively, a daylighting could take place across Civic Center Park, as well.

Circulation
One lane of traffic could be maintained. If this one traffic lane were placed on the south side, large truck access and student/patron drop-off to Berkeley High and the Community Theatre could be maintained. With one lane of traffic placed on the north side of the street a bridge or alternative approaches would likely be necessary since there is a heavily used mid-block pedestrian crossing from Berkeley High to Civic Center Park, a pedestrian bridge could be built mid-block across the canal.
Parking
The current demand for off-street parking is relatively high mostly to the south (serving the Berkeley Community Theatre and Berkeley High School).

Land Use & Urban Economics
This daylighting would not require property acquisition or building demolition.

Utilities
A number of additional utilities would need to be abandoned and relocated depending on the profile (see Section 2 Data Collection: Allston Milvia to Martin Luther King, Jr. Way Utilities).
This scenario envisions symbolically acknowledging Strawberry Creek in the study area. Scenario 5 gives the most weight to the infrastructure of the five scenarios presented in this study. Symbolic approaches are wide ranging. Portland, for instance, pays tribute to its creeks with fountains. Educational signage could also depict the history of the creek.
Fountains such as this one in Seattle, Washington can introduce water into downtown settings and provide a gathering point for pedestrians.

Fountains placed along the street, such as this one also in Portland, Oregon add character to a streetscape while acknowledging the city's natural heritage.
Scenario 5
Symbolic Acknowledgment

Fountains may also be interactive, such as this one in Portland as well.

The recently completed FDR Memorial in Washington D.C. provides a spectacular example of employing water as a symbolic element.
INTRODUCTION

Section 1 provides an introduction to the data collection study, outlining the purpose and assumptions of the study, the study area and both the history of Strawberry Creek, in particular, and creek restoration, in general. Section 2 outlines the data collection categories and presents the data block-by-block. Section 3 outlines key findings of the data and draws implications, presenting a range of scenarios to address Strawberry Creek Downtown. This section, Section 4, outlines 'Next Steps'.

PUBLIC REVIEW AND COUNCIL DIRECTION

The next step in the process is for City Council to determine, with public input and discussions, whether or not to advance any of the scenarios presented for further detailed technical analysis and design.

In an attempt to organize the evaluation process and determine a scenarios' relative desirability, an 'evaluation matrix' has been developed on the following pages. This matrix presents, by data collection category, what are likely to be viewed as significant evaluation criteria. Through this public review process it is likely that additional criteria will be developed. It should also be kept in mind that many of the inherent benefits of daylighting creeks cannot be as easily quantified as the costs, but nonetheless should be considered in any type of evaluation.
## Scenario Evaluation Matrix

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Right of Way</th>
<th>Hydrology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sufficient</td>
<td>Insufficient</td>
</tr>
<tr>
<td><strong>Right of Way</strong></td>
<td><strong>Hydrology</strong></td>
<td></td>
</tr>
<tr>
<td>Scenario 1 ‘No-Constraints’ Full Flow Restoration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Oxford to Martin Luther King, Jr Way.</td>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Scenario 2 Full Flow Restoration</td>
<td></td>
<td>High</td>
</tr>
<tr>
<td>2.1 Full Flow Restoration on Addison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Full Flow Restoration on Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Full Flow Restoration on Allston</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 3 Partial Flow Daylighting in Public Right-of-Way</td>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>3.1 Partial Flow on Addison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2 Partial Flow on Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Partial Flow on Allston</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 4 Canal in a Public Right-of-Way</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>4.1 Canal on Addison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2 Canal on Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3 Canal on Allston</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3.1 Oxford to Shattuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3.2 Shattuck to Milvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3.3 Milvia to MLK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 5 Symbolic Acknowledgment</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>
NEXT STEP - SITE SPECIFICS

Detailed Technical Analysis and Design
More extensive field investigations will be necessary in this step. For example, utilities will require field verification for a particular site(s). Maps provide a reasonably accurate portrayal of utilities in the study area. The only way, however, to verify the actual and precise location of these utilities is to notify Underground Service Alert (USA). Each utility agency would then be called out and asked to spraypaint the location of their respective utilities. Without greater direction from Council, this would result in both sidewalks and streets (Addison, Center, Allston, Oxford, Shattuck, Milvia and Martin Luther King, Jr. Way) being marked.

This detailed level of technical analysis and design should be undertaken only after the range of possibilities has been narrowed through public discussion and debate. Aspects of this more detailed technical analysis are presented at right.

Environmental Assessment
Many of the implications suggest that various City commissions, departments and subcommittees would likely be involved in evaluating a specific scenario(s) advanced to detailed technical analysis and design. For example, a full flow restoration on Center, Milvia to Martin Luther King, Jr. Way, would change the current land use pattern and design of Civic Center Park and likely require review by the Landmarks Preservation Commission and the Parks & Recreation Commission.

A preliminary CEQA checklist may be necessary depending on the direction provided by Council.

Site Specific Cost Estimates
With five scenarios ranging from a full flow restoration with property acquisition to a symbolic treatment of the creek, 30+ variations by block, different lane configurations, parking configurations, bridges, culverts, sidewalk widths, bank treatments, utility requirements, and length of daylighting within a block, the difficulty in developing comprehensive cost estimates becomes readily apparent. Although a range of cost estimates for Center, Oxford to Shattuck and Civic Center Park have been included in this study for relative comparison purposes between the scenarios, more detailed cost estimates should be undertaken as a next step.

Therefore, more comprehensive site specific cost estimates should be undertaken after Council chooses to advance scenarios to further detailed technical analysis and design.
Thank you:
To all those individuals whom have contributed to this Data Collection Study to Daylight Strawberry Creek. In particular, City of Berkeley staff, subconsultants to Wolfe Mason Associates and the WMA staff.

City of Berkeley Staff:
Deborah Chernin, Project Manager
Dan Akagi
Michael Caplan
Rene Cardinaux
Lisa Caronna-Perley
Chuck Deleuw
Pat Detemple
Bill Knight
Bill Lambert
Nathan Landau
Sam Lee
Lorin Jensen
Pat McGowan
Lee Mennell
Rochelle Wheeler
Henry Yee

Subconsultants:
Michal Moore
Steve Price, Urban Advantage
Ann Riley, Waterways Restoration Institute
Bruce Riordan, Elmwood Consulting
Woody Trihey, P.E.

WMA Staff:
Brent Turner, Project Manager
Robyn Anderson
Jorgen Blomberg
Chris Kukula
Gary Mason, President
Sarah Tamblyn