

A photograph of a city street scene. In the foreground, a white bus with green and red stripes and the number 2708 is partially visible on the left. A group of diverse pedestrians is walking across the street. In the background, there is a brick building with green awnings and a sign that reads "CONSTITUTION SQUARE". To the right, a modern building with a grid-like facade is visible. The scene is set in an urban environment with trees and a clear sky.

PEDESTRIAN ENVIRONMENTS & SHARED STREETS

1462 **PEDESTRIAN**
1463 **ENVIRONMENTS &**
1464 **SHARED STREETS**

1465 **PRINCIPAL CONSIDERATIONS**

1466 **Pedestrian Priority.** This chapter describes
1467 features that delineate where pedestrians can
1468 walk safely and enjoy shared experiences. If
1469 appropriately designed, these features make
1470 the pedestrian experience more attractive.
1471 There are numerous co-benefits associated
1472 with enhanced pedestrian environments. At-
1473 tractive environments are foundational to
1474 Downtown’s retail success and as a residential
1475 neighborhood. The walking experience is also
1476 an integral part of transit use, as every trip be-
1477 gins “on foot.”

1478 Downtown’s primary function is as a place to
1479 engage in social, cultural, and commercial activ-
1480 ity. Consequently, special emphasis needs to
1481 be given to the safety, comfort, and convenience
1482 of pedestrians. Automobiles need to be accom-
1483 modated, but negative impacts from cars on pe-
1484 destrians should be minimized where possible.

1485 **Enhancing the Pedestrian Realm.** In Down-
1486 town, the factors that generally define what is –
1487 and what is not – part of the pedestrian realm
1488 are curbs and buildings. Buildings define one
1489 edge to most sidewalks. While private uses,
1490 pedestrian-friendly building design, and mid-
1491 block pedestrian connections are extremely
1492 important, private building and site attributes

***Facing Page: Pedestrian Realm.** The experience of walking and sitting will play a critical role in Downtown’s success as a destination – and as a place to live and work. Staff photo.*

1493 are controlled by the City’s Zoning Ordinance
1494 and the Downtown Design Guidelines – and
1495 several related pedestrian-oriented issues will
1496 need to be addressed when the zoning and
1497 guidelines are amended.

1498 Within City-controlled rights-of-way, the loca-
1499 tion and shape of curbs strongly influence pe-
1500 destrian safety and comfort – and how public
1501 space can be used. Spaces that are behind
1502 curbs are generally the most protected spac-
1503 es for pedestrians, and are where pedestrian
1504 amenities and landscaping may be placed.
1505 While the SOSIP seeks to optimize pedestrian
1506 space, curbs must also be positioned to pro-
1507 vide adequate dimension for the safe move-
1508 ment of motorized vehicles and bicycles.

1509 Beyond the curb, pedestrian activity is ex-
1510 tended into roadways’ lanes and intersections
1511 through the use of crosswalks, medians, and
1512 special features. Jaywalking aside, these are
1513 the places where pedestrians and cars share
1514 the same space and injury to pedestrians is of
1515 greatest concern. The design and placement of
1516 crosswalks, medians, and special features must
1517 address pedestrian safety but also pedestrian
1518 convenience. Pedestrians often react to overly
1519 circuitous routes with frustration and jaywalking.

1520 **Context-Sensitive Design.** Older urban set-
1521 tings often have narrow streets and high pedes-
1522 trian volumes, conditions that are not fully rec-
1523 ognized by modern street design manuals that
1524 were developed with suburban growth in mind.
1525 By allowing narrower lanes and tighter intersec-
1526 tions, Berkeley has joined other cities like San
1527 Francisco, and Portland, Oregon, where similar
1528 pedestrian-oriented standards have been ad-
1529 opted, and balanced mixed-mode approaches
1530 are becoming accepted more broadly as evi-
1531 denced by ITE’s “Context Sensitive Solutions in
1532 Designing Major Urban Thoroughfares”.

1533 **Pedestrian Safety & Lane Widths.** Narrower
 1534 travel lanes make streets safer for pedestrians
 1535 by slowing traffic and significantly reducing
 1536 severe injuries. In fact, the likelihood of fatal
 1537 or serious pedestrian injuries becomes very
 1538 rare when vehicle travel speeds fall below 20
 1539 miles per hour (Source: Anderson, McLean,
 1540 Farmer, Lee and Brooks, Accident Analysis
 1541 & Prevention Study, 1997). At the same time,
 1542 travel lanes should not be made so narrow that
 1543 motorists cannot safely pass bicyclists, par-
 1544 ticularly when motorized vehicles are traveling
 1545 significantly faster.

1546 Because the widths of rights-of-way are fixed,
 1547 sidewalks and landscaping widths are what
 1548 remains after vehicle and bicycle lanes and
 1549 on-street parking are accounted for. Traffic
 1550 modeling for the Downtown Area Plan's EIR
 1551 has demonstrated that travel lanes can be
 1552 eliminated on several street segments without
 1553 significantly increasing congestion. On-street
 1554 parking can also be reconfigured to make
 1555 more space available for pedestrians.

1556 **Pedestrian Crossings.** At the corners of in-
 1557 tersections, tighter curb radii bring curbs farther
 1558 into the intersection. Tighter curb radii and pe-

1559 destrian refuge areas shorten pedestrian cross-
 1560 ing distances and increase the ability for pedes-
 1561 trians and motorists to see each other. These
 1562 features also slow vehicles to speeds that make
 1563 serious and fatal injuries unlikely. While tighter
 1564 curb radii may make turns more difficult for the
 1565 longest vehicles, wider curb radii come at the
 1566 expense of the pedestrian and tighter curb radii
 1567 are more appropriate to Downtown.

1568 **Curb Extensions.** Curb extensions extend the
 1569 sidewalk into the parking lane to reduce pedes-
 1570 trian crossing distances, slow traffic, and im-
 1571 prove pedestrians' ability to see oncoming mo-
 1572 torists and vice versa. Curb extensions are also
 1573 called "bulb-outs" and "bump-outs" to describe
 1574 their shape. In addition to enhancing pedestrian
 1575 safety, curb extensions can contain street fur-
 1576 nishings, green infrastructure measures, and
 1577 other amenities. Curb extensions also enlarge
 1578 the part of each corner that is devoted to the
 1579 pedestrian, and make it easier to fit two curb
 1580 ramps in line with a pedestrian's path of travel.

1581 **Shared Streets.** There are also "shared
 1582 streets" or plazas where pedestrians, motor-
 1583 ists, and bicyclists share the same plaza hard-
 1584 scape. Shared streets are common in Europe

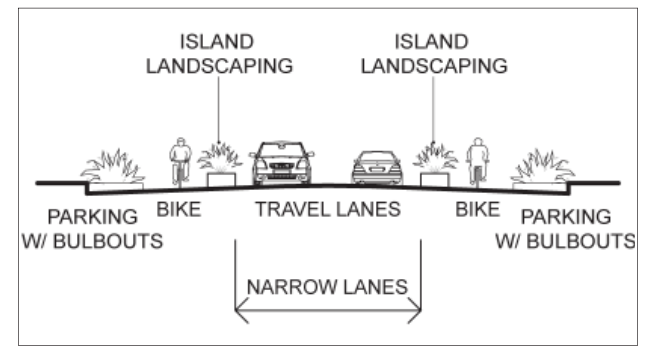
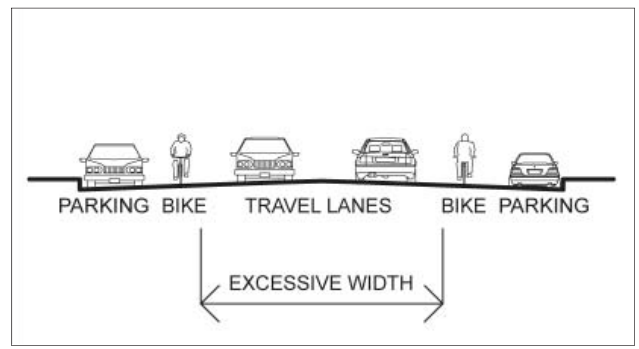


Figure e.1. Lane Widths & Traffic Calming. Motorists tend to speed up when travel lanes are excessive or few landscaped islands are present.

1585 and are being seen increasingly in the United
 1586 States. In these settings, the comfort and safe-
 1587 ty of the pedestrian is emphasized through the
 1588 use of materials and design. Vehicles move
 1589 very slowly and pedestrians clearly have the
 1590 right of way. Shared streets are appropriate
 1591 where pedestrian use of the space has priority
 1592 over vehicles, and where citywide impacts on
 1593 vehicle through-traffic have been addressed.

1594 **Landscaping.** Landscaping and special
 1595 features can help separate pedestrians from
 1596 traffic, but also limit where pedestrians move.
 1597 Landscaping should be thought of as an inte-
 1598 gral part of pedestrian environments because
 1599 trees and landscaping create favorable micro-
 1600 climates and make paths more attractive.

1601 **Bus Service.** Bus operations and the need for
 1602 safe boarding and alighting at bus stops should
 1603 be considered and addressed. AC Transit staff
 1604 and “Designing with Transit” should be con-
 1605 sulted during design development.

1606 **Relationship to Other Documents.** Note
 1607 that the following recommendations highlight
 1608 and augment Berkeley’s Pedestrian Mas-

1609 ter Plan, Bicycle Master Plan, and Municipal
 1610 Code. Users of this document should refer to
 1611 these other documents for additional back-
 1612 ground and recommendations. A few recom-
 1613 mendations made by the SOSIP are inconsis-
 1614 tent with these other documents because of
 1615 Downtown’s unique needs and setting. Until
 1616 adopted by Council as formal amendments to
 1617 the Pedestrian and Bicycle Master Plans, SO-
 1618 SIP recommendations are only as such.

1619 POLICIES AND ACTIONS

1620 **Policy 2.1, Pedestrian Realm.** Enhance
 1621 and increase protected areas for pedestrians,
 1622 while promoting bicycling and accommodating
 1623 motor vehicles.

1624 a. Pedestrians and wheelchair users shall
 1625 have an uninterrupted path of travel. On
 1626 commercial streets, maintain a minimum
 1627 6-foot wide unobstructed path free from
 1628 fixed features and moveable furniture.

1629 b. Position transit shelters, newsracks, trash
 1630 receptacles, and other obstructions to
 1631 facilitate access and ease of pedestrian

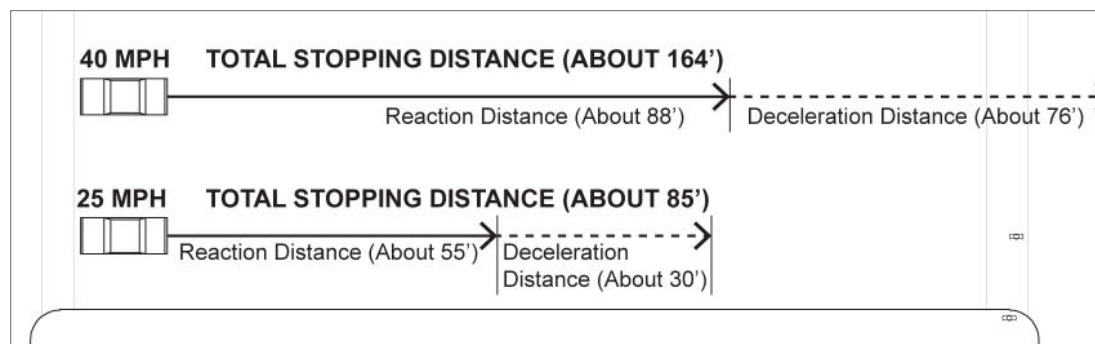
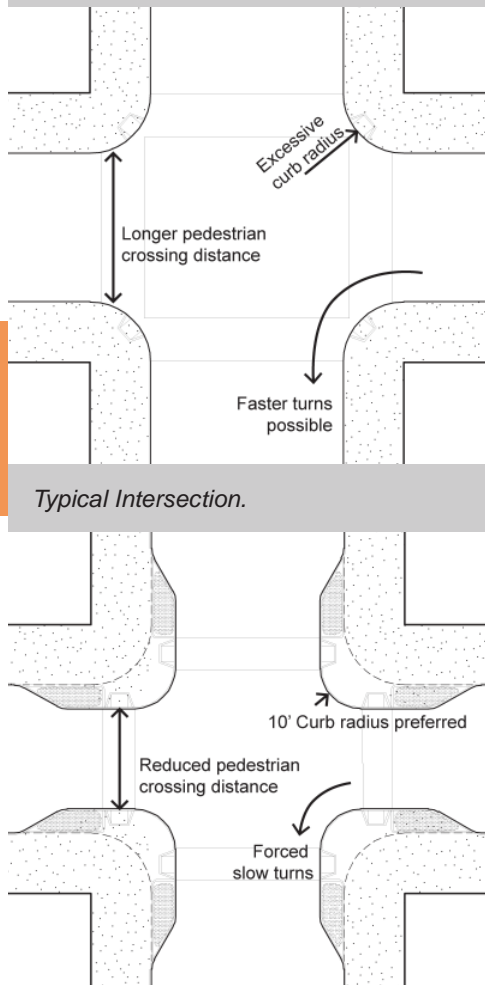


Figure e.2. Travel Speeds & Pedestrian Safety. The rate and severity of pedestrian injuries goes up as the speed of traffic increases.



Corner Bulbouts.

Figure e.3. Curb Radii & Bump-Outs.

At intersections, large sweeping curbs allow faster and less safe traffic speeds. Tighter curb radii help slow traffic. Tighter radii also reduce the crosswalk distances in which pedestrians are exposed to traffic, especially when combined with corner “bump-outs” or curb extensions.

1632 movement. Where space behind such fea-
 1633 tures is unusable, it should be minimized
 1634 except for maintenance needs.

1635 c. Expand areas available for pedestrians
 1636 (and bicyclists) by repurposing unneces-
 1637 sary and excessive motor-vehicle travel
 1638 lanes (i.e., where unacceptable levels of
 1639 congestion and unsafe conditions would not
 1640 result). Lane eliminations proposed by the
 1641 SOSIP were evaluated by the 2009 Down-
 1642 town Area Plan EIR, and are the basis for
 1643 the schematic design concepts presented
 1644 under “Major Projects.” However, travel
 1645 lanes should only be eliminated after traffic
 1646 modeling and environmental analysis have
 1647 determined that pedestrian/bicycle safety,
 1648 transit operations, and traffic considerations
 1649 have been adequately addressed.

1650 d. For pedestrian and bicycle improvements,
 1651 minimum travel lane widths may be nar-
 1652 rower Downtown than is generally allowed
 1653 in Berkeley. Doing so will make it possible
 1654 to widen sidewalks, increase planting, in-
 1655 crease tree root areas, and add urban
 1656 amenities. Allow travel lanes as narrow
 1657 as 10 feet on side streets and 10.5 feet on
 1658 major streets (such as Shattuck, Univer-
 1659 sity, Oxford-Fulton, Martin Luther King Jr.
 1660 Way), except where needed to accommo-
 1661 date buses – in which case 11 feet should
 1662 generally be provided. Recommendations
 1663 for bicycle lanes should also be factored
 1664 (see Bicycle Network & Facilities). Parallel
 1665 parking lanes may be between 7 to 8 feet in
 1666 width, and should be 8 feet where the doors
 1667 on parked vehicles are likely to conflict with
 1668 bicycles; parking lanes must always be 8’
 1669 alongside Class II bicycle lanes.

1670 e. After anticipated parking and transit pro-
 1671 grams become effective, convert diagonal

1672 parking to parallel parking to widen side-
 1673 walks and increase landscaping in locations
 1674 with high levels of pedestrian activity. In the
 1675 near term, on-street parking that is lost be-
 1676 cause of street and open space improve-
 1677 ments should be replaced with additional
 1678 on-street parking within a reasonable walk-
 1679 ing distance (as depicted in Major Projects).

1680 f. Consider the use of parking lanes for other
 1681 activities in areas of high pedestrian activ-
 1682 ity and when parking demand is addressed.
 1683 Examples include weekend dining, occa-
 1684 sional street fairs, and temporary art instal-
 1685 lations. Activities should be separated from
 1686 travel lanes with substantial planters, railings,
 1687 or other elements. Elements should also be
 1688 designed to alert motorists and prevent pe-
 1689 destrians from stepping into travel lanes.

1690 **Policy 2.2, Pedestrian Crossings & Traffic**
 1691 **Calming.** Enhance safety where pedestrians
 1692 cross traffic through the use of crosswalk, pe-
 1693 destrian refuge, and traffic calming features.

1694 a. Curb radii as tight as 10 feet should be al-
 1695 lowed in Downtown, and curb radii should
 1696 generally not exceed 15 feet.⁴ Where vehi-
 1697 cle turning remains a concern, the “effective”
 1698 turning radius (and not solely the curb radi-
 1699 us) should be considered, such as: where
 1700 parking lanes are clear near intersections,
 1701 or where larger trucks can safely move into
 1702 other lanes on an occasional basis. Address
 1703 bus operation needs during design develop-
 1704 ment. Where a larger curb radius must be
 1705 used, consider using reflectors or special
 1706 paving to delineate a 10-foot radius to dis-
 1707 courage high-speed turns by vehicles.

⁴ Berkeley Municipal Code Section 21.40.150 calls for a minimum curb radius of 15 feet.

1708 b. Consider adding curb extensions or “bulb-outs” at intersections, especially intersections with higher rates of collisions involving pedestrians, but only in ways that allow passengers to safely board and alight at bus stops.

1714 c. Also consider midblock curb extensions where pedestrians frequently jaywalk, where midblock passages meet streets, and in locations that would improve access to Shattuck “park blocks.” Note however that midblock crosswalks should generally be avoided except where higher levels of use can be expected and safety can be maintained. Ramps should accompany midblock crosswalks and consideration should be given to pedestrian-activated flashing beacons or traffic signals. Maintain bus stops with sufficient dimension for passengers to safely board and alight.

1728 d. Curb extensions that are used for pedestrian crossings or seating should be accompanied by metal safety bollards. Curb extensions should generally include landscaping, and might also contain street trees, furnishings, and features to capture urban runoff (see Watershed Management & Green Infrastructure).

1736 e. Curb extensions should be designed to provide adequate drainage and access for transit vehicles, emergency vehicles, and fire hydrants. As indicated in the City’s Pedestrian Master Plan and accompanying environmental documents, the City shall not construct bulb-outs that extend into travel lanes, including bicycle lanes.

1744 f. Temporary curb extensions can be created with stripes, plastic bollards, and raised reflectors, while maintaining wheelchair

1747 accessibility. Temporary curb extensions
1748 may be used where benefits to pedestri-
1749 ans and impacts on traffic are unclear.

1750 g. Consider the use of “neck downs” or “chok-
1751 ers” to clearly communicate pedestrian
1752 crossings to motorists, and to reduce the
1753 perceived width of the street and thereby
1754 slow traffic. Neck downs are created when
1755 a curb extension is paired with another
1756 curb extension across the street.

1757 h. Medians should generally be provided on
1758 streets that have four or more travel lanes,
1759 to give pedestrians a place of refuge and
1760 opportunities for landscaping and urban
1761 runoff features. Crosswalks should “pass
1762 through” medians (with a raised curb on
1763 both sides), to provide a pedestrian refuge.

1764 i. Medians should generally be avoided on
1765 streets that have fewer than 4 travel lanes,
1766 except when used to slow traffic at cross-
1767 walks, since motorists tend to go faster
1768 when they are separated from opposing
1769 traffic lanes. To maintain clear passage for
1770 emergency vehicles, medians can also ne-
1771 cessitate wider travel lanes that increase
1772 vehicle speeds and crossing distances.

1773 j. Right-turning “slip lanes” should not be
1774 combined with pedestrian crosswalks un-
1775 less accompanied by features to slow traf-
1776 fic. Consider elimination of the slip lane
1777 at Bancroft and Fulton. Where existing
1778 slip lanes will remain, features should be
1779 added to reduce vehicle speeds or bring
1780 vehicles to a full stop before proceeding.

1781 k. Perpendicular ramps allow pedestrians
1782 and people in wheelchairs to access the
1783 sidewalk perpendicular to stopped traffic,
1784 and to enter into the crosswalk directly

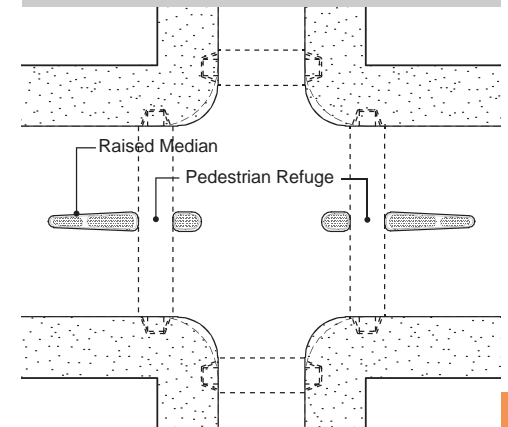


Figure e.4. Pedestrian Refuge Areas. Along crosswalks, a raised curb or median protects pedestrians – especially those with limited mobility – who are only able to cross part of the way before encountering traffic because the signal has changed.

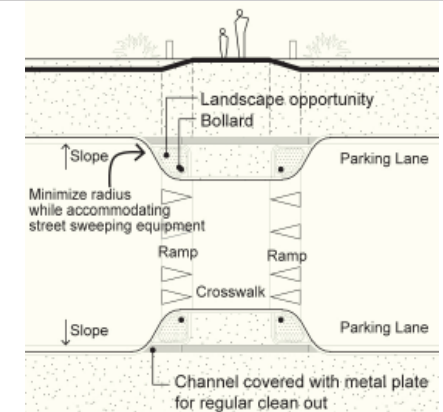
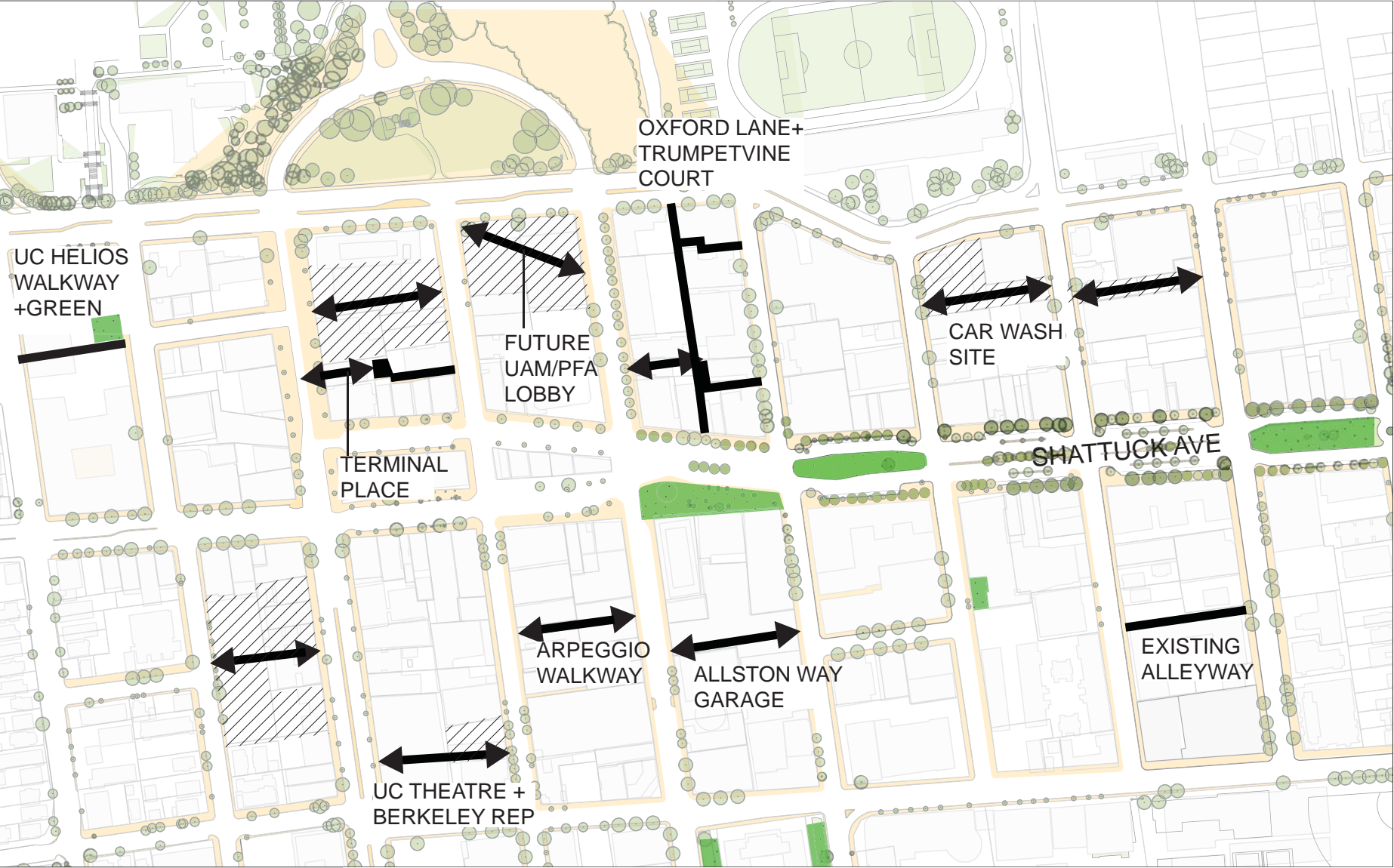


Figure e.5. Midblock Crosswalks. Midblock crosswalks should be considered where block lengths are long and the rate of jaywalking is high. These crosswalks can be accompanied by curb extensions to reduce pedestrian crossing distances. In addition, ramping up to the crosswalk can slow vehicles and make pedestrians in the crosswalk more visible.

Figure e.6. Existing & Potential Connections on Private Property. Midblock connections complement public streets & open space, by shortening walking distances and providing courtyards. The types of connections illustrated could be encouraged using development standards and design guidelines.

- EXISTING MIDBLOCK WALKWAY
- ↔ CONCEPTUAL ADDITION
- /// ASSOCIATED DEVELOPMENT SITE
- OPEN SPACE



1785 in their line of travel. Perpendicular curb
1786 ramps are preferred over the use of a less-
1787 protected single ramp.

1788 I. Consider additional crosswalks in Down-
1789 town locations where significant numbers
1790 of pedestrians cross. Crosswalks with high
1791 levels of pedestrian activity should have
1792 “ladder style” crosswalk markings.

1793 m. Flashing beacons should accompany mid-
1794 block crosswalks and unsignalized inter-
1795 sections with higher levels of pedestrian
1796 and/or bicycle traffic.

1797 n. Pedestrian activated (“push-button”) light
1798 signals should be used at intersections
1799 where priority should be given to pedes-
1800 trians on a more occasional “on-demand”
1801 basis. Conversely, pedestrians can be
1802 given priority and signals can be acti-
1803 vated by the presence of cars. All push-
1804 button activated flashing beacon locations
1805 should have “Cross with Caution” signs
1806 in view of the pedestrian who is about to
1807 cross, and be accompanied by “audible
1808 pedestrian signals” (APS).

1809 **Policy 2.3, Midblock Connections on Pri-
1810 vate Property.** Consider ways to enhance the
1811 pedestrian realm beyond what can be attained
1812 through public improvements.

1813 a. While the SOSIP addresses public im-
1814 provements on City land, the public realm
1815 is affected by the way buildings address
1816 public spaces and by public access to pri-
1817 vate plazas and midblock passages. Con-
1818 sider revisions to Berkeley’s Zoning Ord-
1819 inance and Downtown Design Guidelines
1820 to encourage:

1821 • publicly accessible private plazas and
1822 midblock passages;

1823 • window and entry patterns along streets
1824 and public open spaces that provide a
1825 sense of inhabitation and discourage in-
1826 appropriate behavior;

1827 • private uses and activities that help
1828 make streets and public open spaces
1829 more vibrant, such as retail and other
1830 active uses along most streets; and

1831 • adjusting the massing of projects to al-
1832 low solar access to public open spaces.

1833 **Policy 2.4, Shared Streets.** Consider shared
1834 streets as a traffic calming device where a
1835 plaza setting would best serve the needs of
1836 pedestrians, while allowing access by small
1837 volumes of slow auto or bus traffic. Also con-
1838 sider shared street treatments where signifi-
1839 cant numbers of bicycles and motor vehicles
1840 mix but there is insufficient room for a sepa-
1841 rated bike lane (see figure on following page
1842 for potential shared-street locations).

1843 a. Shared streets opportunities appear in the
1844 chapter on Major Projects. On the east
1845 side of Shattuck Square, a plaza or shared
1846 street is proposed. On Milvia, a shared
1847 street is recommended in front of the Civic
1848 Center Building.

1849 b. On Center Street (between Shattuck and
1850 Milvia), a shared street is an alternative for
1851 safely accommodating high volumes of bikes
1852 and pedestrians, while allowing local traffic.

1853 c. Consider shared street treatments on
1854 Allston Way, where high levels of bicycle

1855 and pedestrian traffic are present but access by motor vehicles should be provided.

1856

1857 d. Shared streets should be designed to alert drivers, pedestrians, and bicyclists that they are leaving a conventional street environment and entering a pedestrian-priority space by using special paving and vertical

1858

1859

1860

1861

cal deflection features (gradual enough to avoid injury to persons with disabilities who are riding in vehicles), and other sensor indicators. To maintain plaza paving throughout, bollards and concrete planters should be used instead of curbs, to protect buildings, landscaping, and street furnishings.

1862

1863

1864

1865

1866

1867

1868

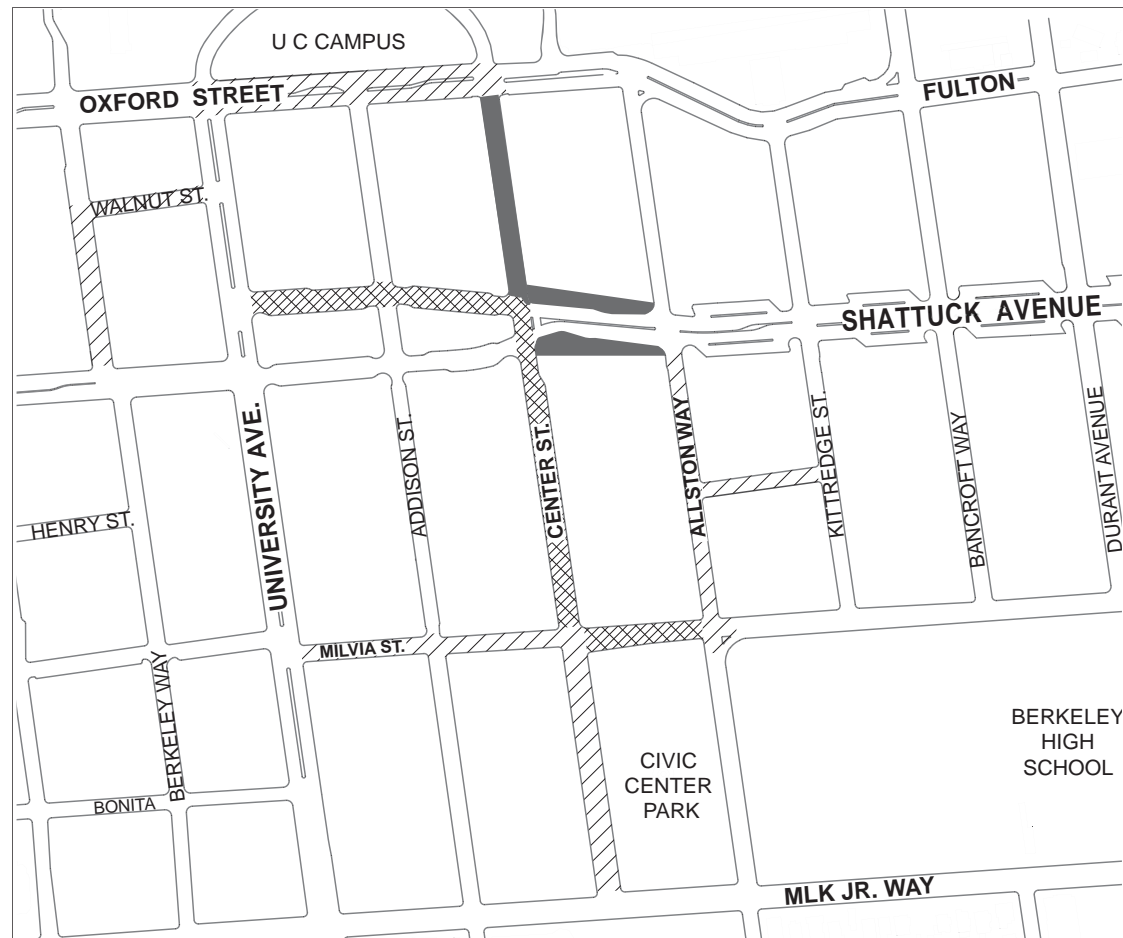


Figure e.7. Potential Shared Streets Locations.

Plaza NoTraffic
 Shared Streets Principal Opportunities
 Shared Streets Possible Opportunities

SHARED STREETS

A shared street removes features that typically segregate vehicles from each other and from pedestrians, so that all road users are more equal with each other. There are fewer signs, lane markings, and traffic lights, thus defusing rigid expectations that cars and people can't mix.

Where applied, the result has not led to more accidents but rather fewer accidents, because everyone yields. Cities that have embraced shared space concepts have witnessed significant decreases in crashes—up to 40%-60% fewer crashes. People entering shared streets experience an elevated sense of awareness. Eye contact increases and motorists modulate their speed to fit conditions.

A European Union pilot of seven shared street projects showed improvements in safety, livability, economic development, and sense of place. Streets serve an important social function as they are the principal space in which we engage other people, but modern practices have focused instead on how people – and especially motorists – can move through spaces quickly and without intermingling. The ideal has been to keep pedestrians completely separate from traffic, which has resulted in faster vehicle speeds and long circuitous routes for pedestrians. Shared streets maintain some separation (with emphasis on safe zones for people with disabilities) but give emphasis to readily understood social norms and human interaction.

In addition, vehicle travel times on shared streets appear to be less than with conventional engineering. While yielding to pedestrians slows motorists, long waits at traffic lights are eliminated.

Where shared streets have been implemented, they were not readily accepted. Sophisticated modeling, pilot projects, and short-term trials were needed to eliminate objections – a long-term process that required a shared commitment to satisfy functional and safety concerns without presupposing a standard solution.



Figure e.8. Mixing Modes. Plaza-like features can be used to pedestrianize spaces while also allowing bicycles and motor vehicles. Motorists are presented with conditions that cause them to slow and yield as needed.