City of Cambridge **Community Development Department** | westernavenue.info

Western Avenue Reconstruction

Community design process
June 2010

This project is a collaboration between the Public Works, Community Development and the Traffic, Parking & Transportation Departments.

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contents

public process

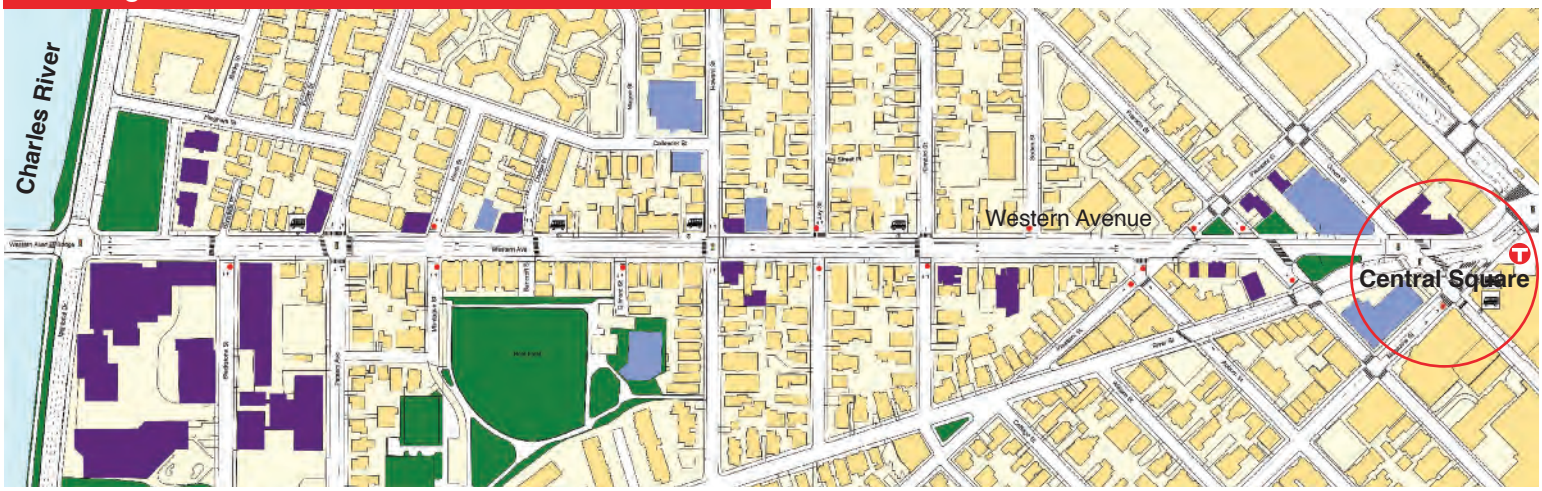
The public process for the conceptual design runs from January until June 2010. A *mailing* went out to 4,000 residents inviting them to participate in the project. A *survey* of residents provided insight into likes and dislikes about Western Avenue. *Outreach to business, church, and community leaders* in the area was conducted to understand the needs of their constituents. A series of four informal *neighborhood walks* were held. A city-appointed *Advisory Committee* representing a cross-section of resident and business interests in the corridor had six intensive meetings, and will continue to meet until construction begins in 2011. *Community-wide public meetings* were held March 31 and June 29. Over 300 people receive e-mail updates.

Advisory Committee
Lawrence Adkins
Bill August
Mertin Betts
Velmer Brooks
Kathy Cannon
Erin Gullage
Megan Krey
Marc Leuchner
Bob Nesson
Brad Nissenbaum
Abdullah Daoud
Reuben Dottin
Caitlin Gallagher
David Gibbs
Marvin Gilmore
Eran Segev
Anne Shuhler
Artis Spears
Pastor Lawrence Ward

Building uses

- residential
- public
- commercial

Existing conditions of Western Avenue



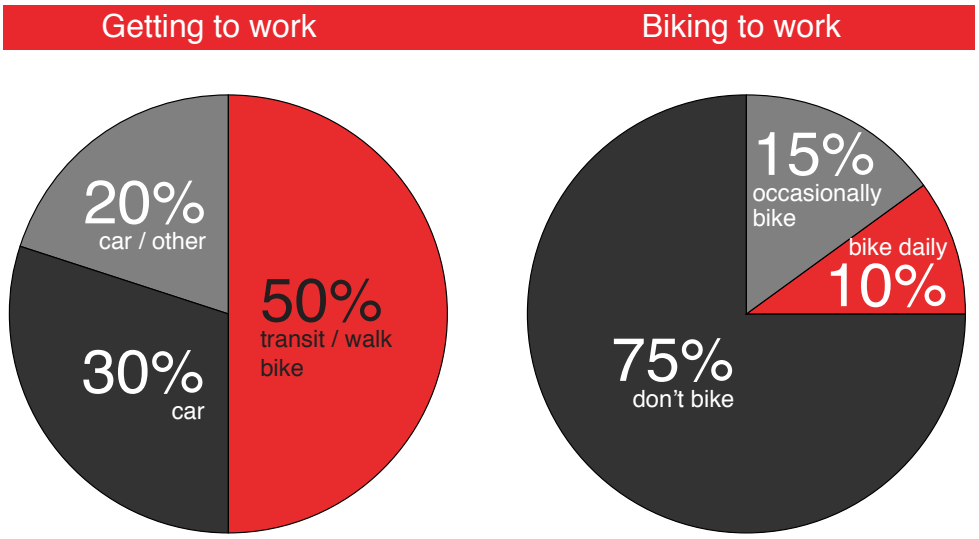
overview

Project summary

Western Avenue is scheduled to be fully reconstructed beginning in summer 2011. The underground stormwater and sewer system, roadway, and sidewalks will all be replaced. The redesign will consider all street users: walkers, bicyclists, bus riders, and drivers. Traffic patterns, lighting, trees, and green space will all be considered in the process.

Schedule

Winter '10 - Spring '10	Summer '10 - Spring '11	Summer '11 - Winter '12
community design process	construction documents	construction



survey results

- Community survey
- January / February 2010
- Mail-in postcard and online
- 150 responses received
- General questions regarding transportation habits and opinions to the street as it exists today

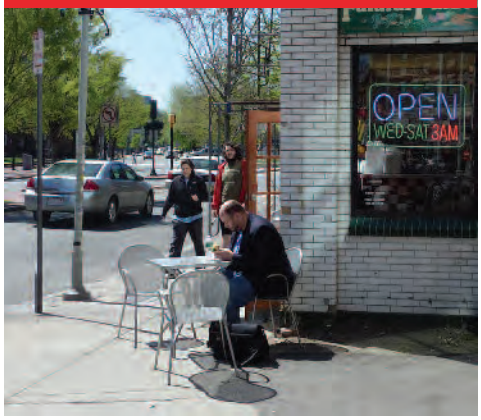
Getting around the neighborhood today:
Most respondents walk or bike within the neighborhood at least once per day. Some reported making such trips over 30 times per week.

Positive perceptions of the street:
New bicycle lane, local businesses, planters, street trees, dramatic sunset views, direct connection between Central Square, the river and Boston / Watertown.

Negative perceptions of the street:
Speeding vehicles, feeling unsafe crossing the street, looks like a thoroughfare not a neighborhood street, traffic back-ups during rush hour and on Sundays, heavy truck traffic, potholes and poor pavement / sidewalk condition, and dilapidated houses and abandoned properties.

Speeding vehicles:
Speeding vehicles and unsafe pedestrian conditions has been a concern of the community for many years. While the posted speed limit of Western Avenue is 25 mph, average vehicle speed is about 32 mph.

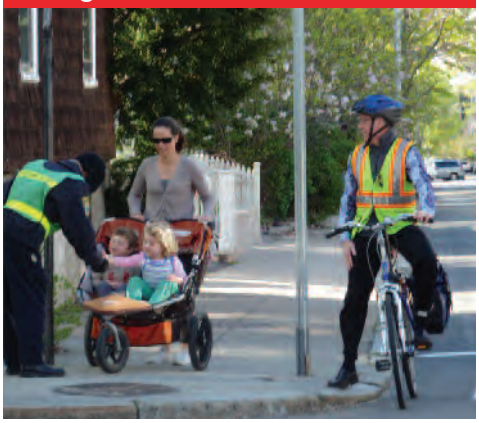
Retail district



Regional roadway

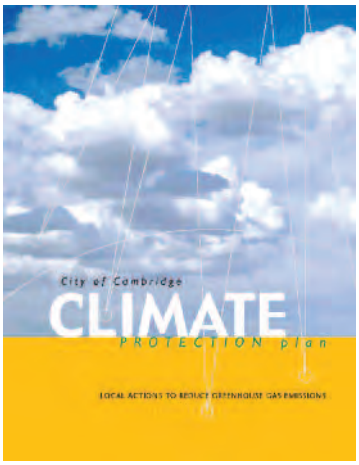
Front yard

Neighborhood street



challenges

Final design must balance needs
Western Avenue is a public roadway that provides for various competing uses. The final design for the street and sidewalk must balance all of these needs equitably. River Street and Western Avenue serve as regional roadways connecting Cambridge, Somerville, and points north to the Mass Pike. Western Avenue also serves as a local street for the Riverside Neighborhood, home to retail establishments, a transit corridor, and a front yard to all who live on the street.



Cambridge's Climate Protection Plan: This includes a goal of reducing vehicle miles traveled to 10% below 1990 levels, while increasing the use of public transportation, bicycling and walking.

city policies

Source: Towards a Sustainable Future: Cambridge Growth Policy Document (1993, 2007)

policy #22

Undertake reasonable measures to improve the functioning of the city's street network, without increasing through capacity, to reduce congestion and noise and facilitate bus and other non-automotive circulation.

policy #23

Encourage all reasonable forms of non-automotive travel including, for example, making improvements to the city's infrastructure to support bicycling and walking.

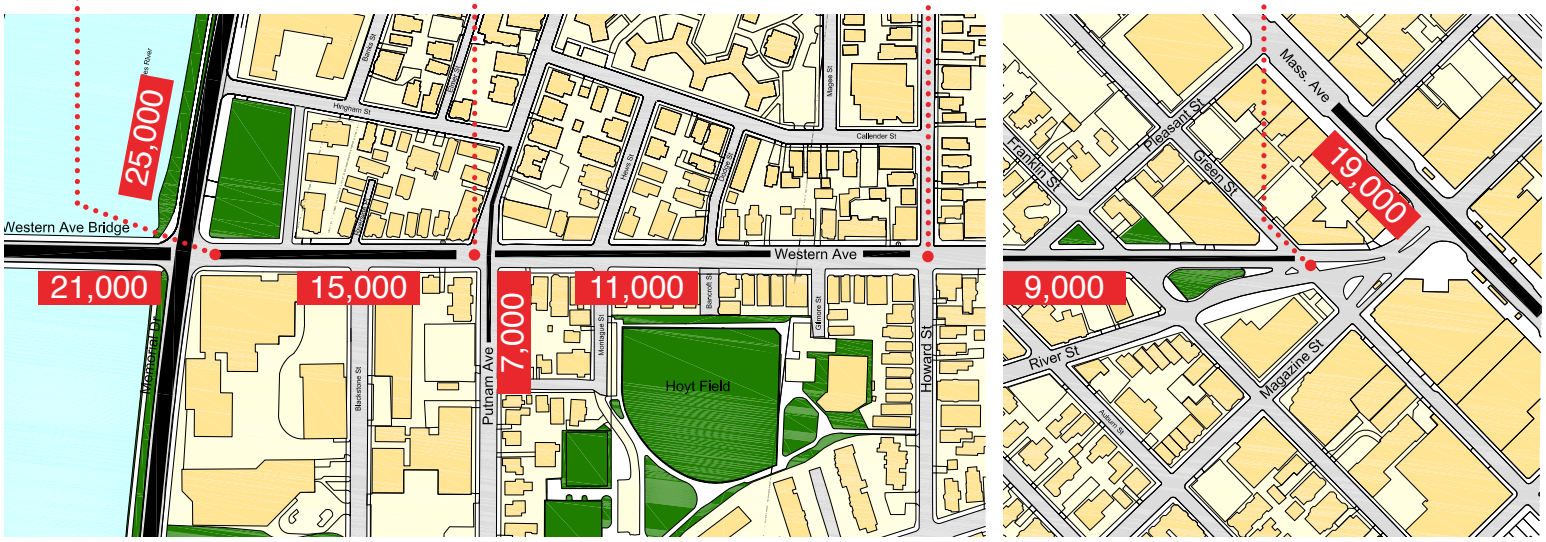
Daily cars | Rush hour users

Memorial
124 peds
31 bikes
1,300 cars

Putnam
202 peds
58 bikes
830 cars

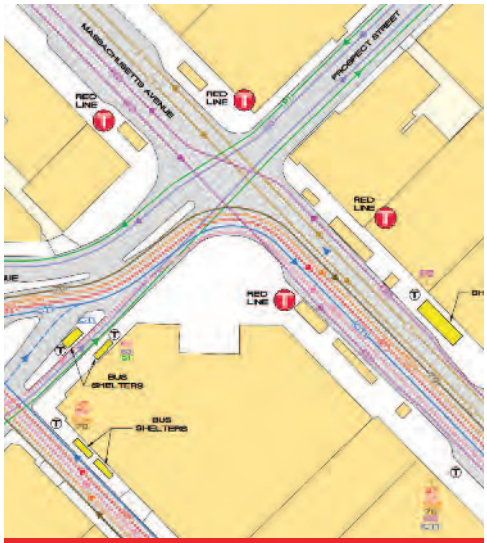
Howard
219 peds
54 bikes
700 cars

River/Green
556 peds
59 bikes
450 cars



Cyclists/walkers count data collected in early May 2009

transportation corridor



Bus routes at Central Square

Transit
Central Square is an important subway and bus hub. Buses run on Western Ave. 5am until midnight — #70/70A Watertown / Waltham (3,500 riders per weekday), #64 Beacon St. / Oak Square (500 riders per weekday). There are 4 bus stops along the corridor, none have shelters or seating.

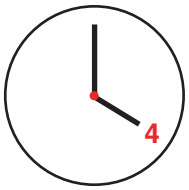
Walkers
During peak hours (late afternoon weekdays), about 500 pedestrians use Western Ave. / Green St. intersection. Roughly 125 walk on Western Ave.'s river end, but nice weekends see many more.

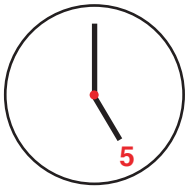
Bicyclists
A bicycle lane now exists since summer 2009. About 60 cyclists use Western Ave. during peak hours (about 1 per minute). Significantly more cyclists use the Western Ave. Bridge and river path.

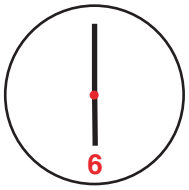
Cars
Memorial Drive, the bridge and Mass Ave. carry significantly more cars per day than Western Ave. There are 50% more cars on Western Ave. past Putnam Ave. than up by Central Square.

Traffic backup

Travel time between Cental Square and the river (pm)

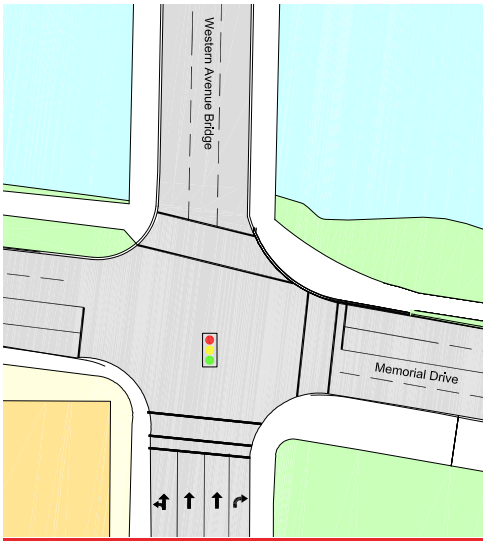
3 minutes @ 

6 minutes @ 

8 minutes @ 

4 minutes @ 

traffic



Western Ave. at Memorial Drive

Peak
Traffic is heaviest during afternoon rush hour, with backups typically extending to Putnam Avenue, and often to Jay Street. It takes about 8 minutes to travel from Central Square to the river during the peak of rush hour, where it usually only takes 3. Occasionally, backups extend to Central Square. Backups also occur on Sundays when a section of Memorial Drive serves as “Riverbend Park.” Presently, two travel lanes are needed for Western Avenue during these peak times. Otherwise, one lane is sufficient, with the second lane contributing to excess vehicle speeds.

Signal coordination
A collaboration with Massachusetts Department of Transportation and the Department of Conservation and Recreation is underway to investigate ways to improve the operations of the traffic signals on both sides of the River Street and Western Avenue bridges through coordination. If agreed upon, this could significantly improve the operation of the intersection of Western Avenue and Memorial Drive. These improvements would allow Western Avenue to function with only one travel lane from Central Square down to about Gilmore Street (Concepts 4 and 5), with minimal impact on travel time.

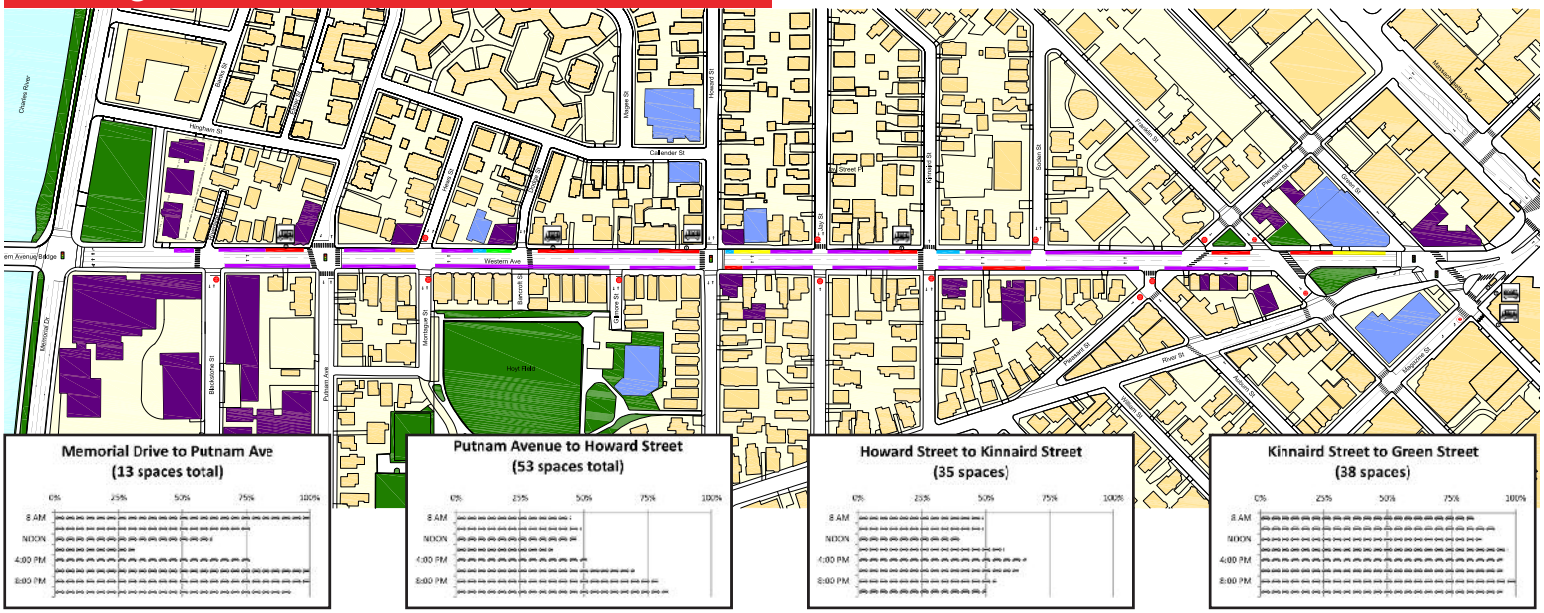
Parking regulations

- no parking
- 30 min 8am-5pm except sat & sun
- 1 hour 8am-6pm except sun
- handicapped
- 2 hour 8am-6pm except sun
- permit except sun

Building uses

- residential
- public
- commercial

Parking utilization



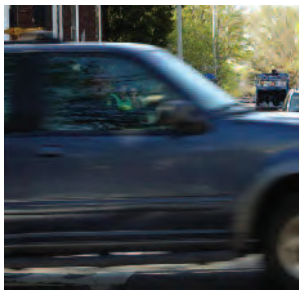
parking

There are roughly 140 parking spaces along Western Avenue. A parking study was conducted in May and September 2009, which noted the number of occupied spaces in each block at two hour intervals, from 8am-midnight.

Results of the parking study

- Night-time residential parking is very tight on the upper and lower sections of the street.
- Parking supply exceeds demand in the middle section of the street, with 20% to 50% empty spaces.
- Businesses have indicated a desire for more metered parking.

safety



efficiency



pleasantness


community goals

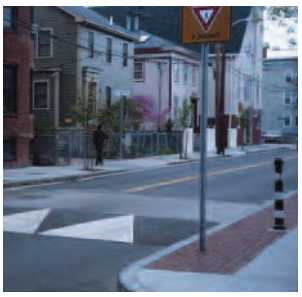
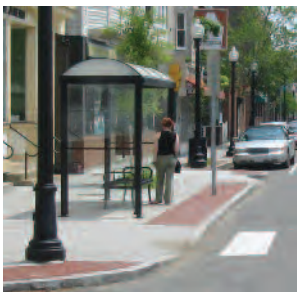
The following goals have been developed in conjuction with the Western Avenue Advisory Committee:

- Ensure corridor is safe for all users
- Maintain adequate traffic flow
- Reinforce residential character
- Ensure appropriate traffic speed
- Improve conditions for walking, bicycling, and transit riders
- Provide disability access
- Improve access to businesses
- Help meet stormwater environmental goals through green design
- Provide adequate parking
- Environmental sustainability
- Improve landscaping

bikes



peds

street



toolbox

Bikes: *Bicycle lanes* are standard for major streets in Cambridge, and have significantly increased the number of cyclists. *Cycle tracks* separate bicyclists from the roadway and are gaining popularity in the US (see Vassar Street). A *Shared Lane Marking* is used when there is not enough space for a bicycle lane.

Peds: *Zebra stripes* are the most visible markings for crosswalks. *Curb ramps* reduce barriers for persons with disabilities and parents pushing strollers. *Curb extensions* increase visibility and shorten crossing distance. *Raised crosswalks* prioritize peds and slow vehicles. *Smooth sidewalks* are critical to providing accessibility to the widest spectrum of users. Brick edging alongside a concrete walking surface combines aesthetic and function.

Street: *Narrow travel lanes* reduce vehicle speed. *Traffic signal coordination* improves the efficiency of intersections. Streets can be redesigned to move the same number of cars with fewer lanes at a slower but steady pace. *Underutilized roadway* can be given to sidewalks and pocket parks, increasing socializing opportunities. *Chicanes* help calm traffic. *Back-in angle parking* is easier than parallel parking, puts all parking on one side while keeping capacity. *Trees and public* art add character to the street.

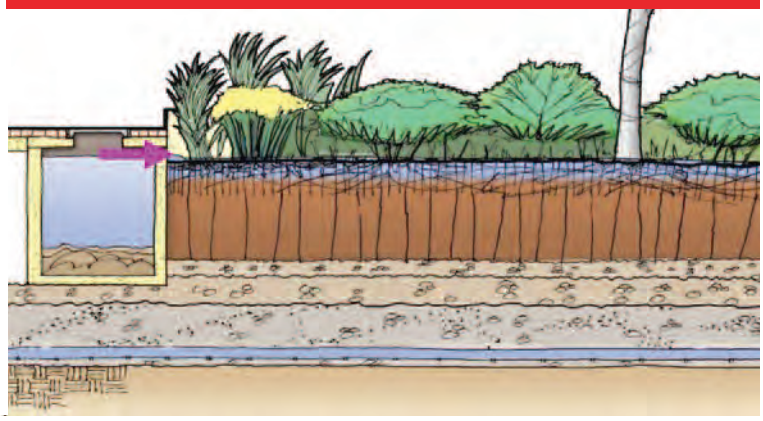

Brick edging

Bioretention system

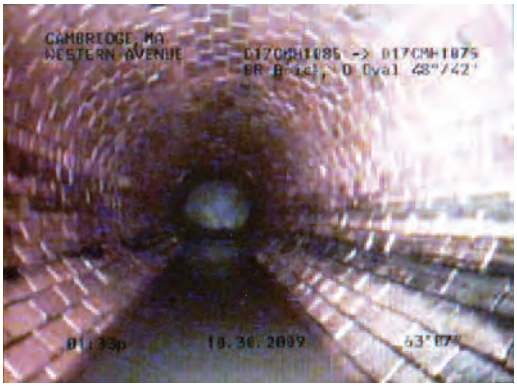
Rain garden

Pervious asphalt

Pollutant removal

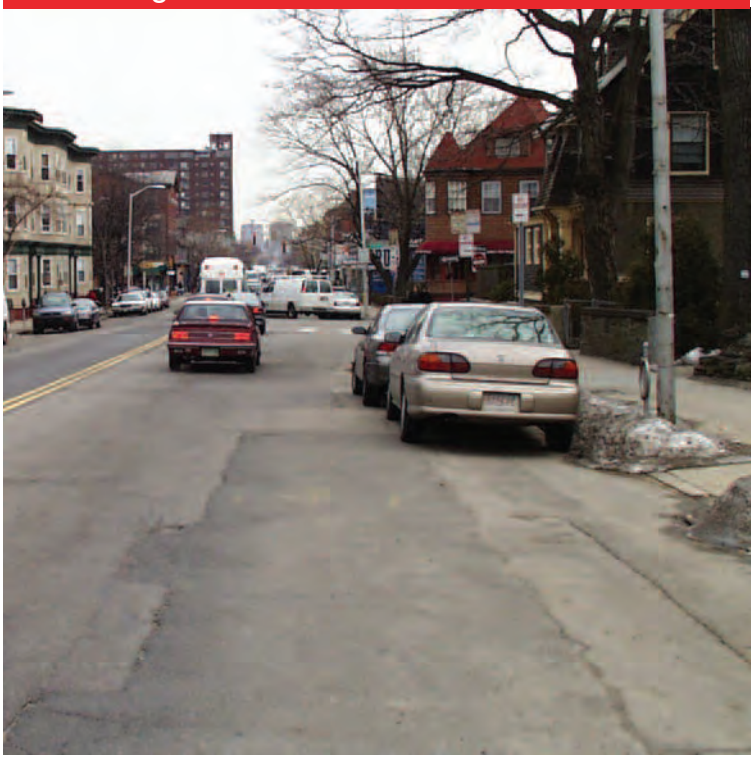


green design



The current stormwater and sewer system was installed in 1870 and made out of brick. It is in serious need of replacement. The new system must meet stringent water quality objectives. When it rains, oil, antifreeze, detergents, pesticides and other pollutants are washed from driveways, yards, parking lots, businesses, construction sites, and streets into storm drains eventually into our waterways. Green design elements can help: rain gardens, bioretention systems, and pervious paving materials. A bioretention system is an underground tank that contains natural biomaterial to remove pollutants and bacteria from street rain runoff. On the sidewalk surface above the system, planted trees, grasses, and shrubs enhance pollutant removal, and add aesthetic value to the urban landscape.

Cambridge Street — before



Cambridge Street — after

transformation

Complete Street
One design element may itself seem insignificant in changing the feel of a street. Many different components all come together to create a street that works safely, equitably, and comfortably for all users, regardless of age or ability. Redesigns of Massachusetts Avenue, Lafayette Square, Brookline Street, Cambridge Street, and Vassar Street are all recent examples of recently completed “complete street” projects.

Urban design
Street design is more than just providing an opportunity for people to get from place to place. It’s about creating a neighborhood-friendly, enjoyable place to be, to rest, and to interact socially with others. Significant attention is going toward improving the greenspace that exists between Green and Pleasant Streets (see next page). Street lighting, bus shelters, benches, trash / recycling receptacles and bicycle racks are amenities being considered as part of this project.

design concepts

All concepts will be evaluated using the following criteria:

- Traffic calming / vehicle speed
- Pedestrian crossing safety
- Expanded sidewalk space for walking and sitting
- Bicycle facility safety and comfort
- Bus operations and efficiency
- Rush hour vehicle capacity
- Parking availability
- Snow clearance / maintenance ease
- Emergency vehicle access
- Innovative design
- Construction cost

Regardless of which concept is selected, the new design for Western Avenue will include: additional cross walks, new curb ramps, curb extensions, improved bus stops and street trees.

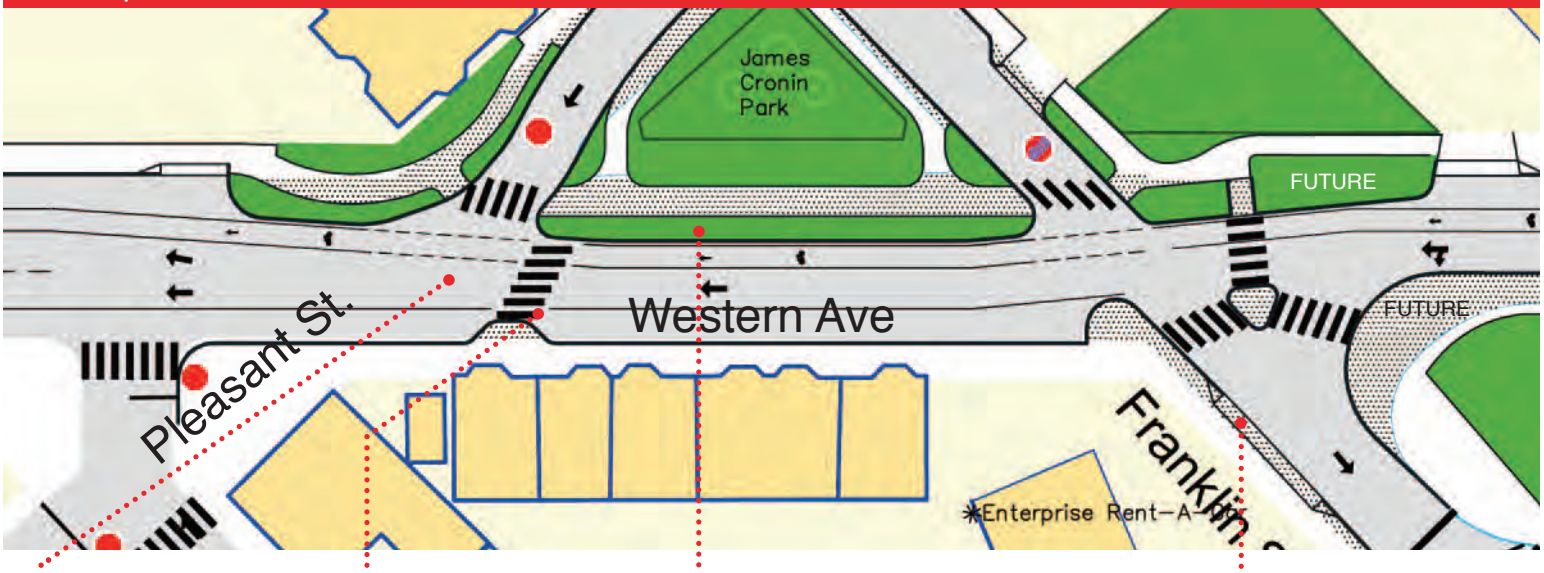
Upper Western Avenue: One concept involves a 1-lane street from Central Square to Pleasant Street.

Pleasant Street to Gilmore Street: Five concepts were developed. Concepts 4 and 5 include one travel lane, but would transition to two travel lanes at Gilmore Street. Concepts 1, 2, and 3 would continue to Blackstone Street.

Blackstone Street to Memorial Drive: One concept is to have three travel lanes along with a bicycle facility on the right that will connect to MassDOT's bike facilities on the bridge (currently under design).

All of these concepts are currently undergoing evaluation. In late July 2010, a design concept for Western Avenue will be selected. Engineering design begins and construction documents will be ready in time for construction in the summer of 2011.

Concepts 1—5, Franklin to Pleasant Streets



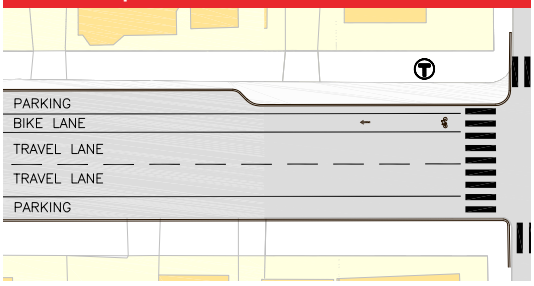
slower vehicles
narrowed roadway

safer crossings
shorter crosswalks

more greenspace
expanded Cronin park

wider sidewalks

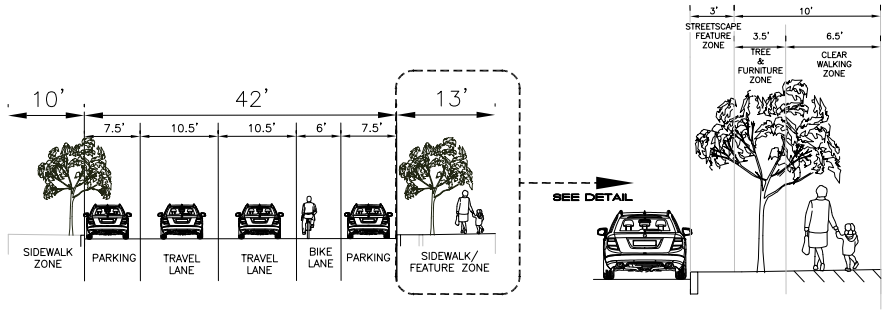
Concept 1



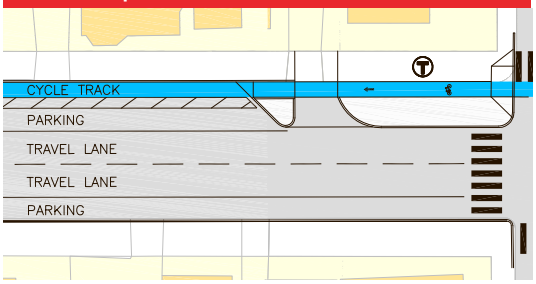
Key elements:

- Mass. Ave. to Pleasant St. = one travel lane
- Pleasant St. to Memorial Drive = two travel lanes
- Parking on both sides
- Bicycle lane from Mass. Ave. to Memorial Drive
- Sidewalk on right-hand side widened by 3 feet

Note: This is almost the same as exists on Western Avenue today, except slightly narrower (today's street is 45 feet wide total).

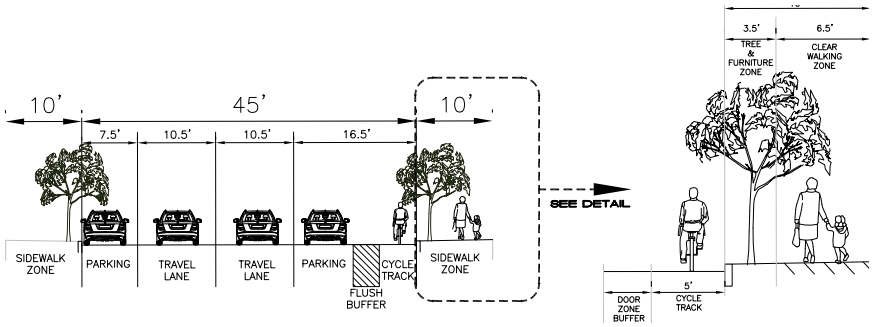


Concept 2

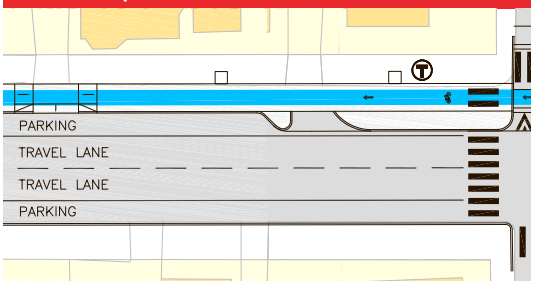


Key elements:

- Mass. Ave. to Pleasant St. = one travel lane
- Pleasant St. to Memorial Drive = two travel lanes
- Parking on both sides
- Bicycle lane from Mass. Ave. to Pleasant St.
- Street level cycle track from Pleasant St. to Memorial Drive

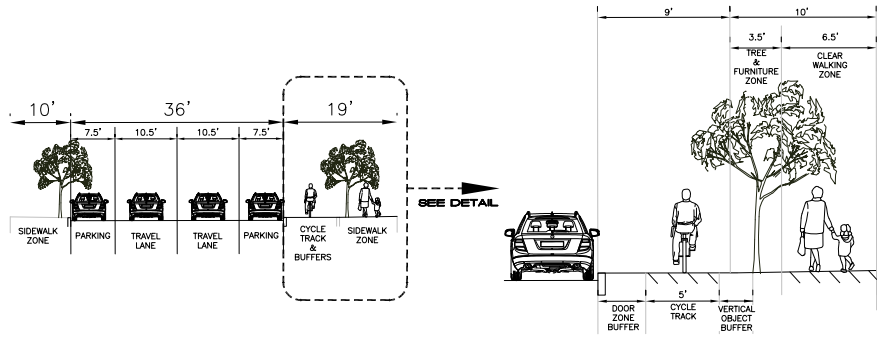


Concept 3

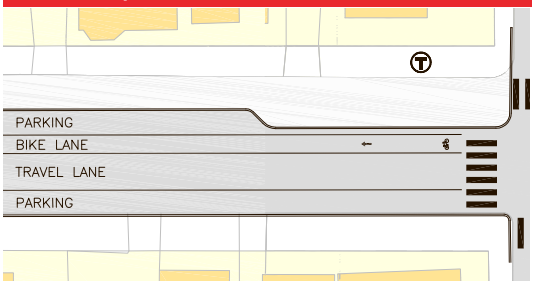


Key elements:

- Mass. Ave. to Pleasant St. = one travel lane
- Pleasant St. to Memorial Drive = two travel lanes
- Parking on both sides
- Bicycle lane from Mass. Ave. to Franklin St.
- Raised cycle track from Franklin St. to Memorial Drive

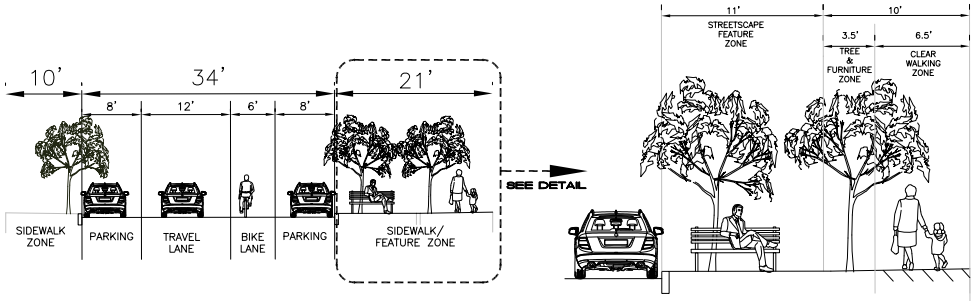


Concept 4

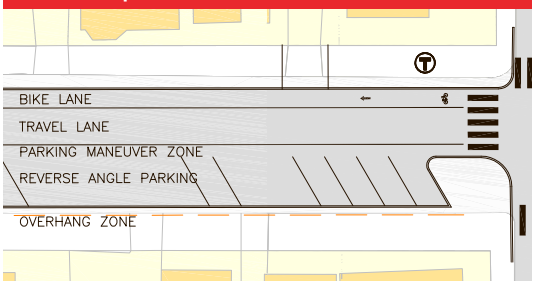


Key elements:

- Mass. Ave. to Gilmore St. = one travel lane
- Gilmore St. to Memorial Drive = two travel lanes
- Parking on both sides
- Bicycle lane from Mass. Ave. to Memorial Drive
- Sidewalk significantly widened



Concept 5



Key elements:

- Mass. Ave. to Gilmore Street = one travel lane
- Gilmore St. to Memorial Drive = two travel lanes
- Back-in angle parking on left side (no loss in overall number of spaces in the corridor)
- Curbside bicycle lane from Mass. Ave. to Memorial Drive
- Sidewalk on right-hand side widened by 4 feet