

Constructing Sidewalks for All Users

June 29, 2011

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Constructing Sidewalks for All Users

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Goals of workshop – help participants understand

- Sidewalk design.
- Universal Design Principles.
- Complete Streets design.

And learn to

- Implement a successful roadway and sidewalk reconstruction program.
- Successfully advocate for additional funding.

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2. ADA Standards – Universal Design
3. Construction Access
4. Sidewalk Materials
5. Traffic Calming
6. Bike Facilities
7. Street Trees
8. Private Property
9. 5 Year Sidewalk and Street Plan

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Cambridge

- Small, diverse.
- 105,000 people.
- 15,000 +/- PWD.
- 110,000 jobs.



Public spaces should be designed for all users



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Pedestrians – Accessibility – ADA



ADA Standards

ADAAG / MAAB

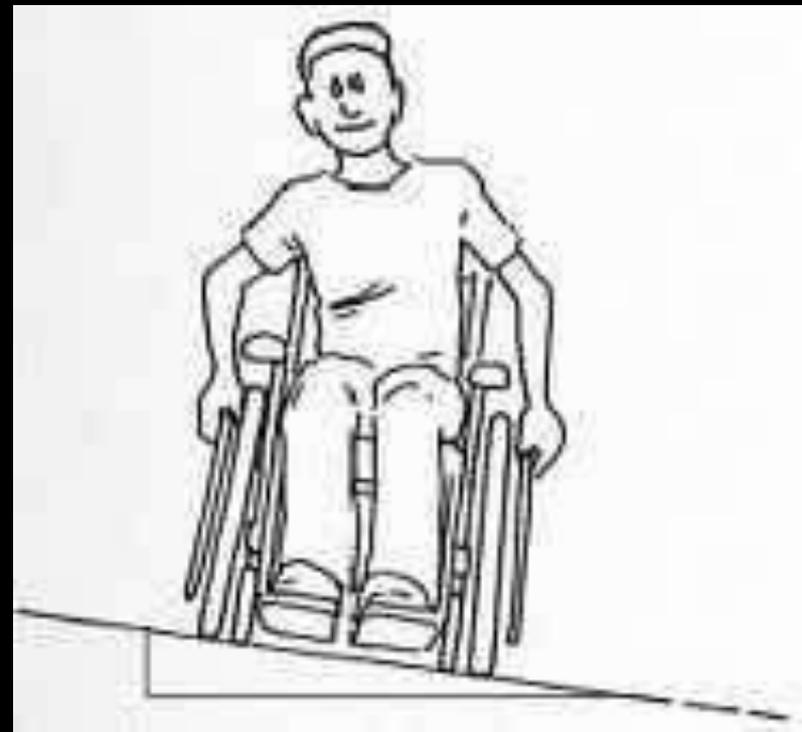
Specific Standards

Sidewalks

Width

Cross-slope

Curb Cuts – Pedestrian ramps

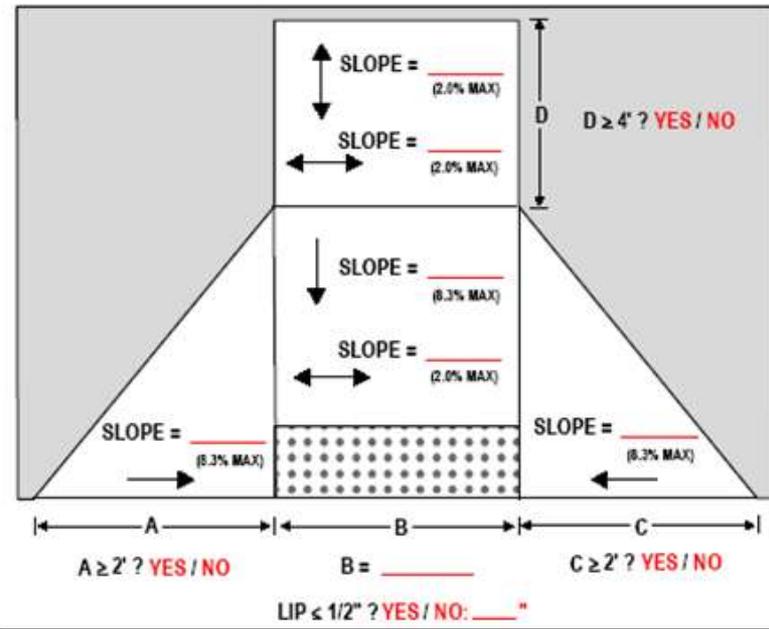


ADA Standards

Smart Level & Inspection Forms

LOCATION _____ DATE INSPECTED _____

RAMP # _____ BY _____



Universal Design

| PRINCIPLE | APPLICATION | GRAPHIC |
|---|--|---|
| <p><u>Equitable use.</u> The design should be useful and convenient for all people of different disabilities</p> | To overcome a considerable inequality, the fully able pedestrian will use steps, and the pedestrian with reduced mobility will use a ramp. |  |
| <p><u>Flexible use.</u> The design should be adapted to a wide variety of individual preferences and capabilities</p> | The length of the ramps should be such that the user does not get fatigued, for which intermediate rest areas are implemented. |  |
| <p><u>Simple and intuitive use.</u> The design should be easy to understand, regardless of the experience, knowledge, linguistic abilities, or concentration level of the user.</p> | Entrance to a TransMilenio station from a public space should be the most direct and shortest route possible. |  |
| <p><u>Use with sensitive information.</u> The design should communicate the necessary information in an effective manner.</p> | The use of blue seats for senior citizens or pregnant women on buses connected to TM. |  |
| <p><u>Use with tolerance for error.</u> The design should reduce to a minimum the risks and adverse consequences of accidental actions.</p> | Crosswalks with curb ramps at street corners are being used more and more by pedestrians, guaranteeing more safety than at other crossing points. |  |
| <p><u>Use with reduced physical effort.</u> Elements designed in the urban context should be utilized by the users with a minimum of fatigue.</p> | Transversal inclines in public spaces should be made in such a way as to not affect the balance of the pedestrian. |  |
| <p><u>Use with ergonomic spaces</u> Elements designed in the urban context should contemplate efficient and comfortable use with a minimum of fatigue.</p> | The special area for wheelchair users on buses connected to TransMilenio should allow them to travel efficiently and provide safety belts that are easy to adjust. |  |

TABLE 1. PRINCIPLES OF UNIVERSALITY ADAPTED TO PEDESTRIAN MOBILITY

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Access During Construction



MUTCD, 2009:

The latest edition of the Manual on Uniform Traffic Control Devices, (MUTCD), 2009, published by the US DOT / Federal Highway Administration, includes specific requirements for pedestrian access in work zones.

- Where pedestrian routes are closed, alternate pedestrian routes shall be provided.
- Whenever possible, work should be done in a manner that does not create a need to detour pedestrians from existing routes or crossings.

Construction Access



Construction Access



Snow Clearance



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Sidewalk Materials



Concrete

Sidewalk Materials



**Molded Brick –
City Hall
Paver**

Sidewalk Materials



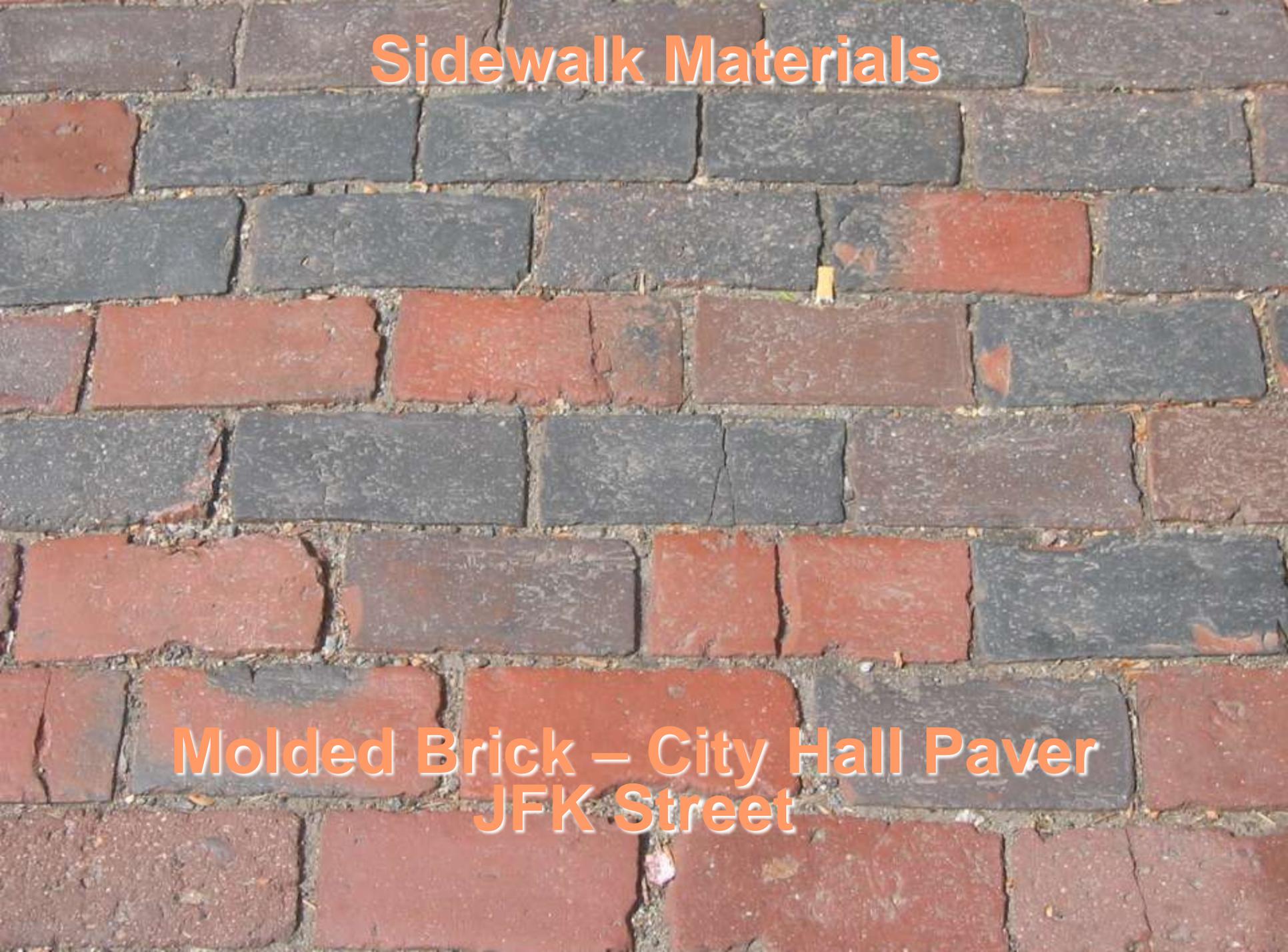
**Molded Brick – City Hall Paver
Brattle Street**

Sidewalk Materials



Molded Brick – City Hall Paver

Sidewalk Materials



Molded Brick – City Hall Paver
JFK Street

Sidewalk Materials



**Wire Cut Brick
DeWolfe Street**

Sidewalk Materials

Wire Cut Brick
Charles Square Hotel

Pedestrians – Sidewalk Materials





Roadway: Crosswalks



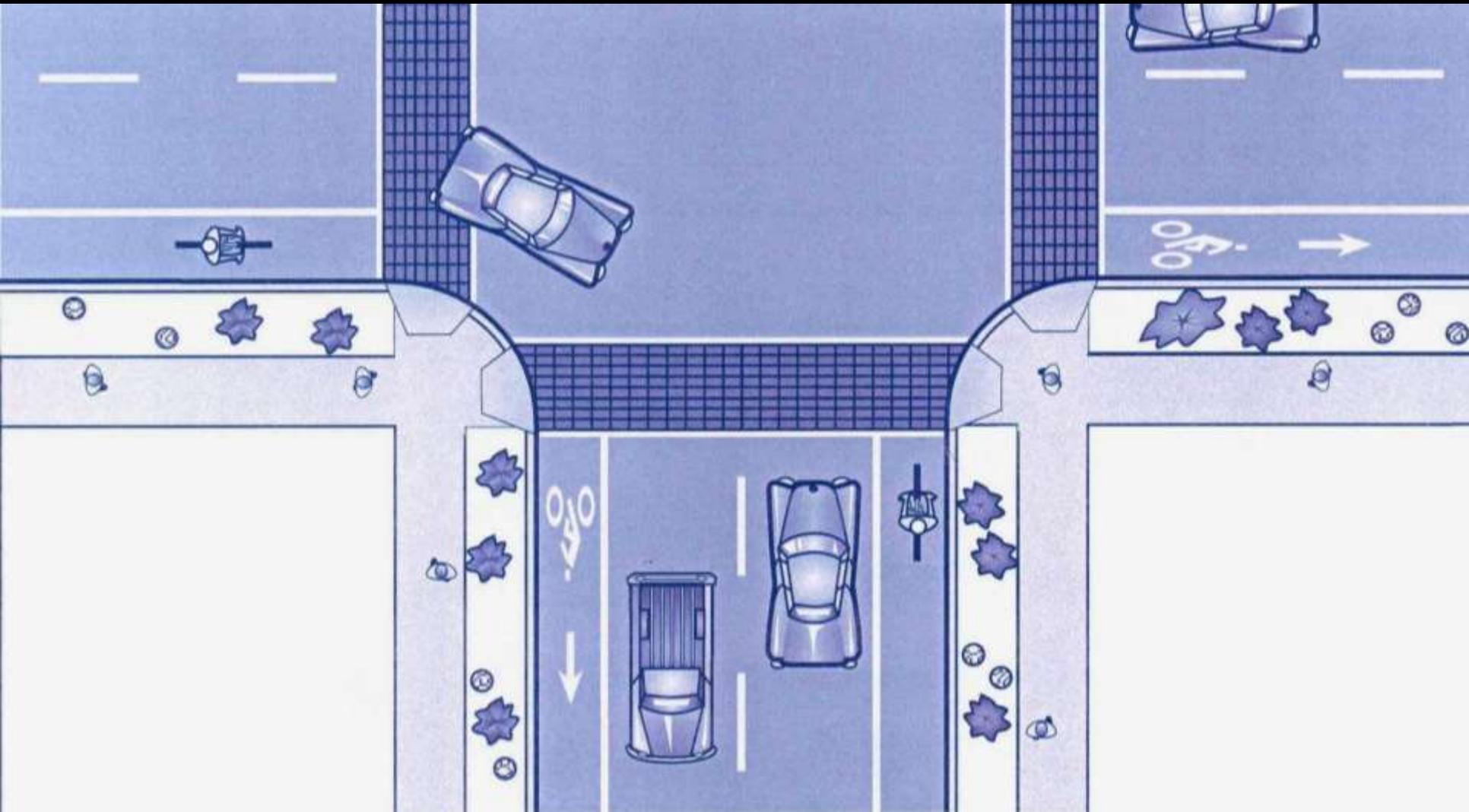
Standard Zebra Crosswalks



Standard Zebra Crosswalks

Textured Crosswalks

Textured crosswalks: Theory – more visible. Reality?





Bird's eye perspective - before



Bird's eye perspective - proposed



**What the pedestrian
sees**

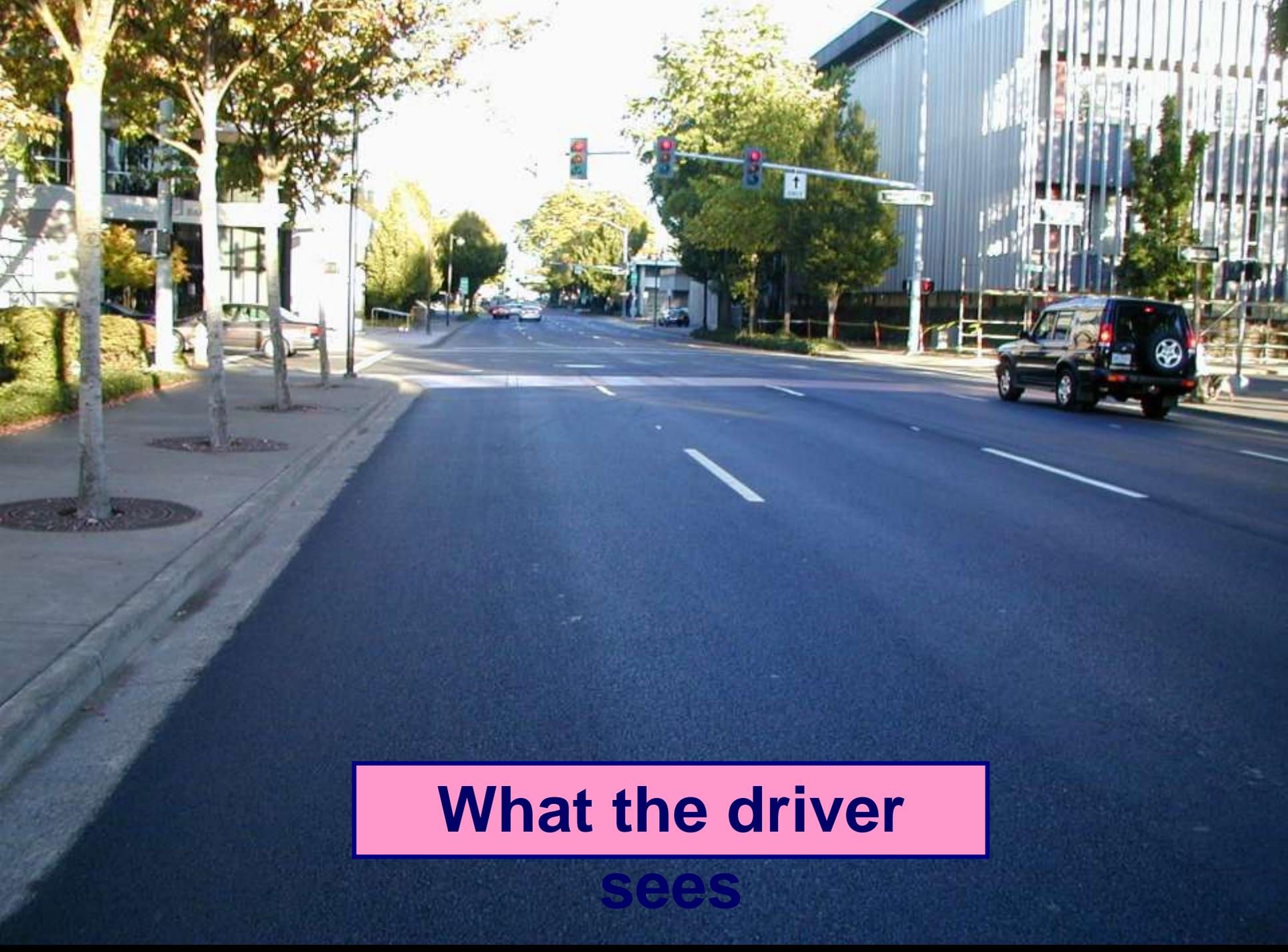


**What the driver
sees**



What the pedestrian

sees



What the driver

sees





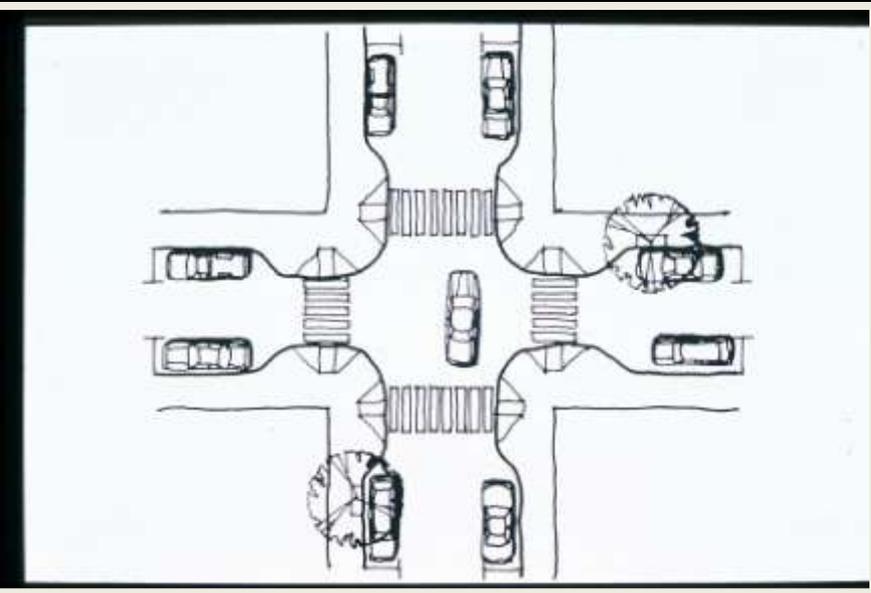


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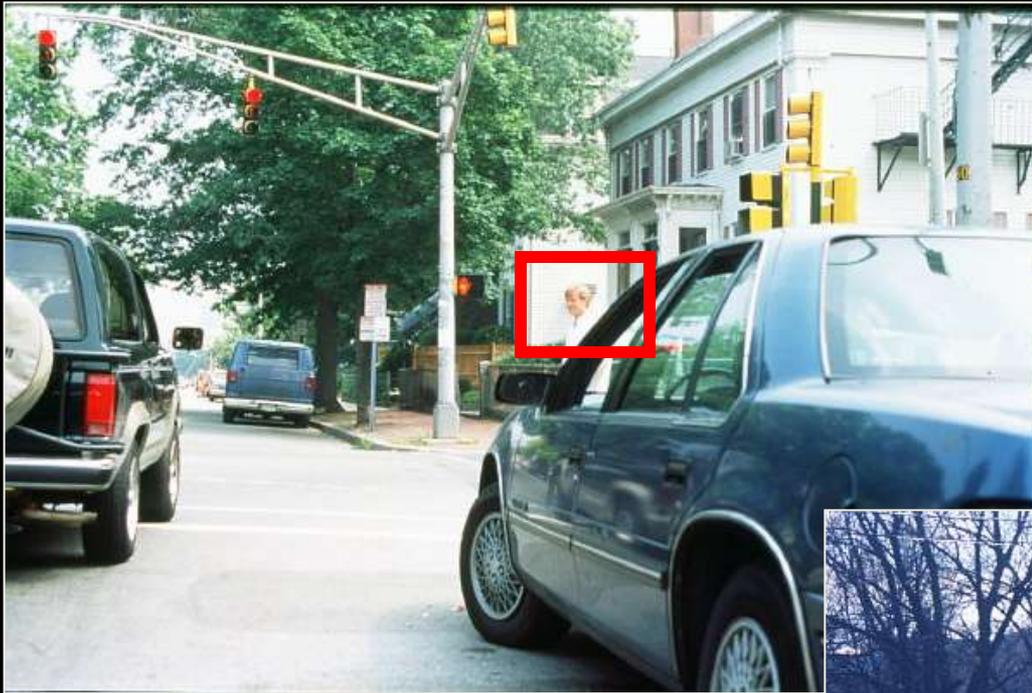
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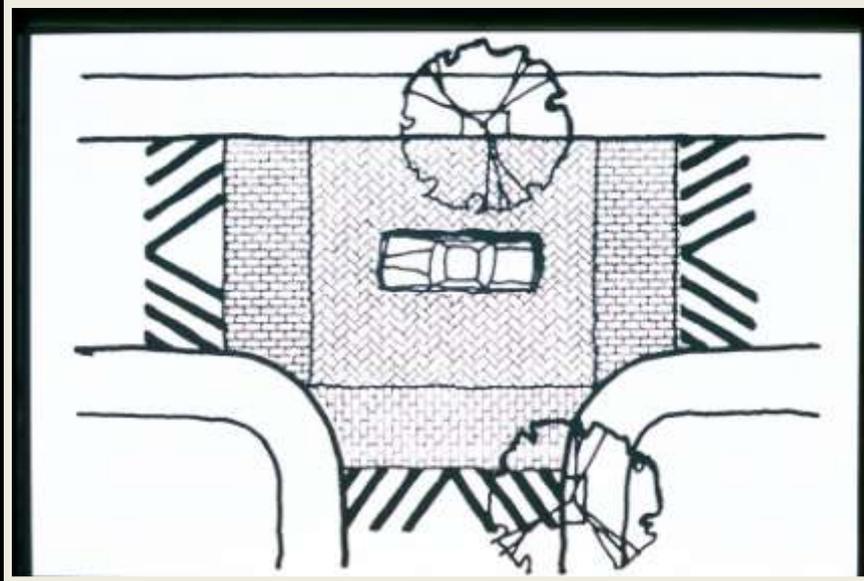
Curb extensions



Find the pedestrian



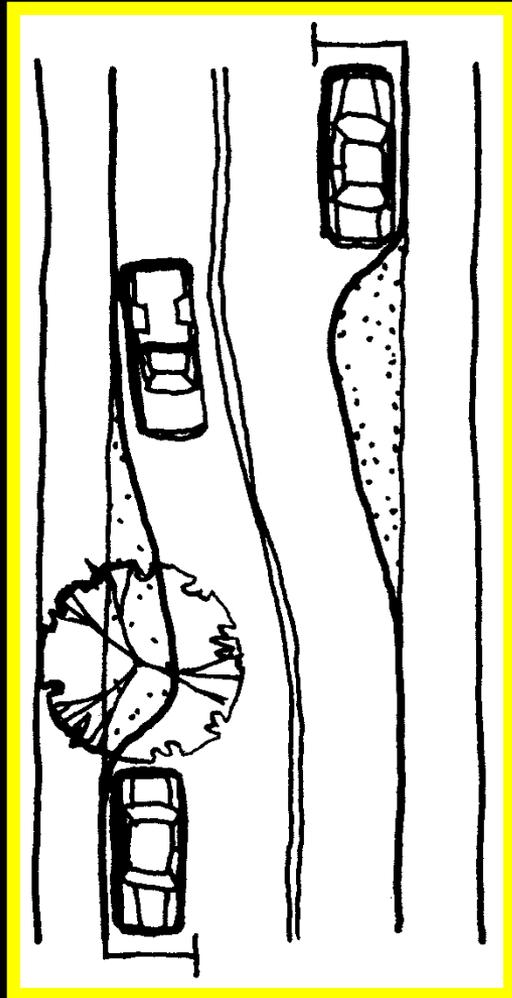
Raised intersection



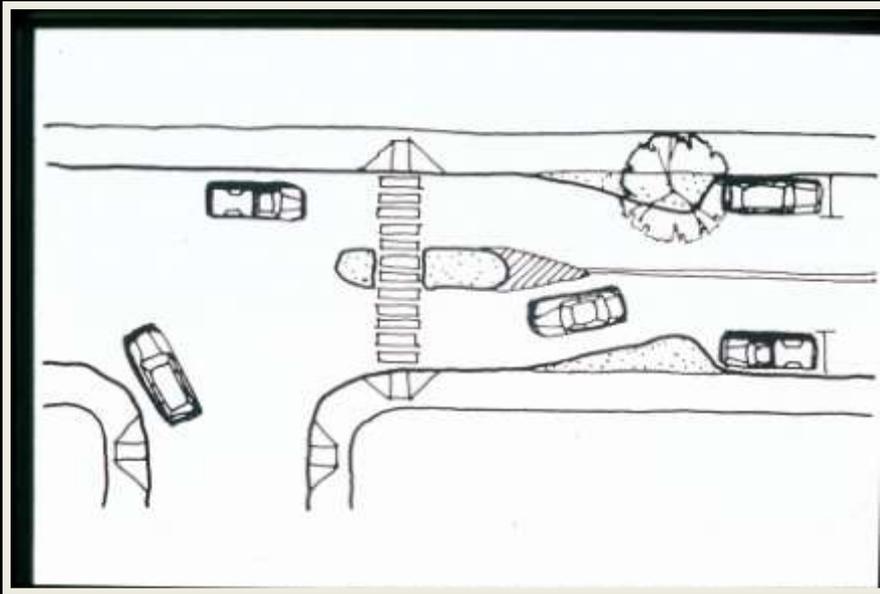
Raised Crossing for Access



Chicanes



Crossing Islands



Shared Street Case Study

Winthrop Street





Winthrop Street
After Improvements

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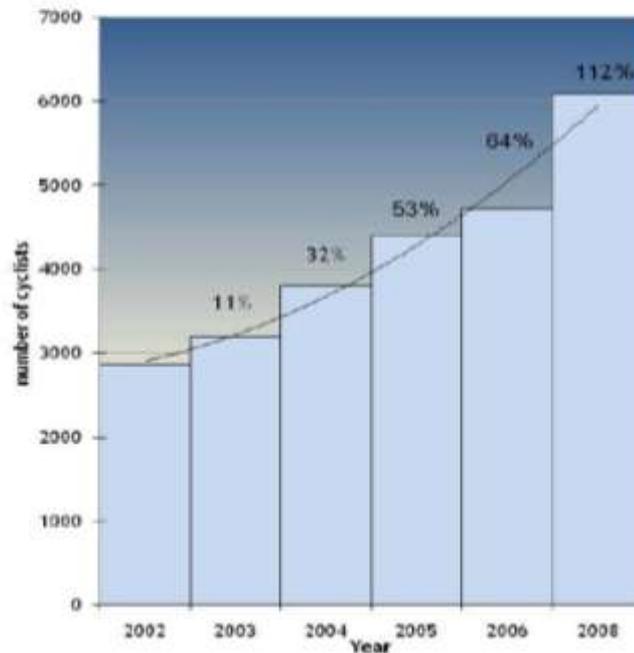
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Biking

More People Bicycling

Between 2002 and 2008, the number of people bicycling in Cambridge at least doubled.

CAMBRIDGE BICYCLE COUNTS



Bike Facilities



City has over 18 miles of bike lanes

Yerxa Road Underpass



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Street Trees



Street Trees

- Minimum 36” Sidewalk Available
- New Plantings:
 - 42” Sidewalk – provides more than minimal sidewalk and space to grow.
 - On wider sidewalks, retain $\frac{1}{2}$ sidewalk width for pedestrians



Street Trees



Street Trees



Street Trees



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Façade Improvement Program

Before



High (12") one-step entrance

After



New entrance, ramp and patio

Façade Improvement Program

Before



After



Steep, cramped
entrance

New level entrance

Façade Improvement Program

Before



High (18") two-step entrance

After



New level entrance,
floor lowered inside

Façade Improvement Program

Before



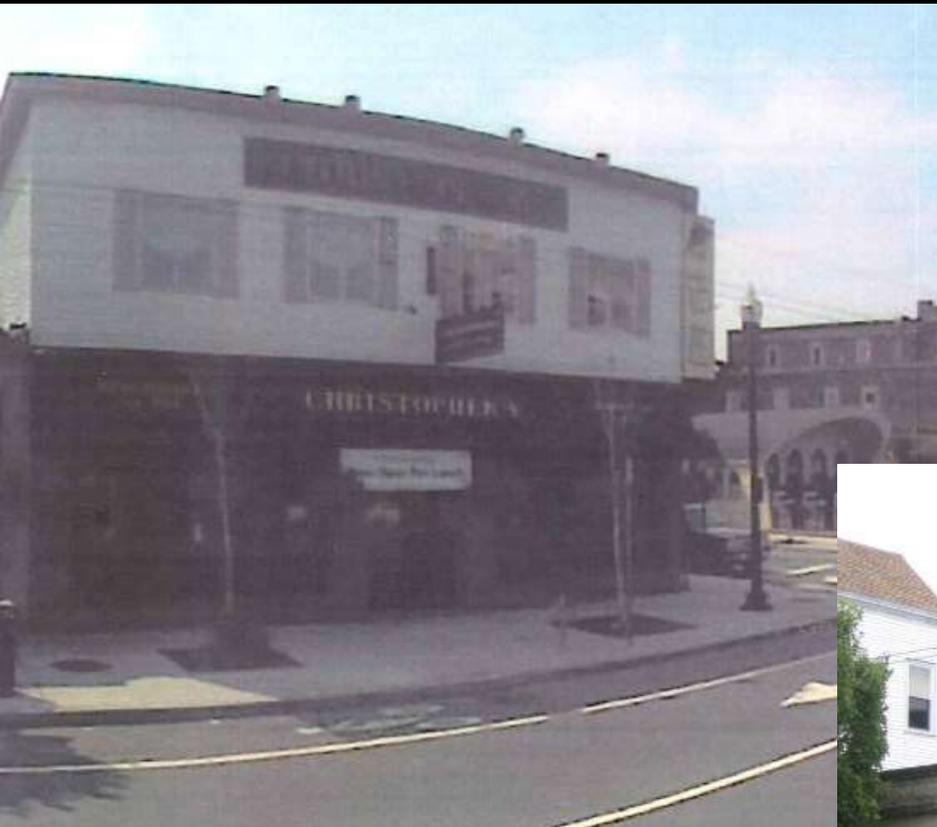
Historic building with four-step entrance & too-steep temporary ramp

After



New entrance, walkway and stair

Outdoor Dining



Opportunity to

- Increase street life
- Create a vibrant street atmosphere
- Support businesses
- Enhance sidewalk plantings.



Outdoor Dining – Need to preserve space for pedestrians



Outdoor Dining

Maintain accessible sidewalk.

Site specific requirement.

- Desire to maintain a minimum of $\frac{1}{2}$ of sidewalk width for pedestrians.
- 10' sidewalk – maintain 5'.
- 4' is the absolute minimum.



Outdoor Dining

Provide accessible seating.

- ADA & AAB regulations.

www.mass.gov/Eeops/docs/dps/aab_regs/521017.doc

- 5%, but not less than 1 table must be accessible.
- Minimum 36" access aisle between accessible tables, entrance and restrooms.

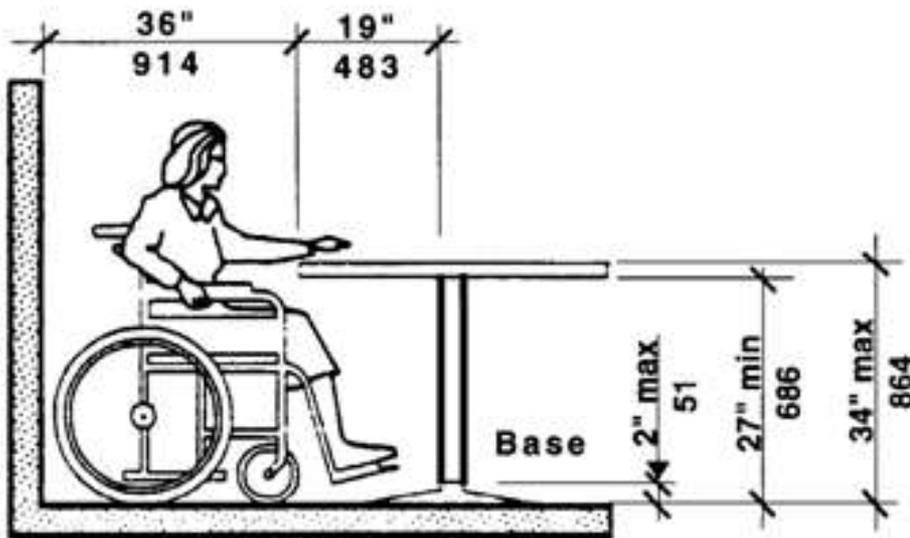
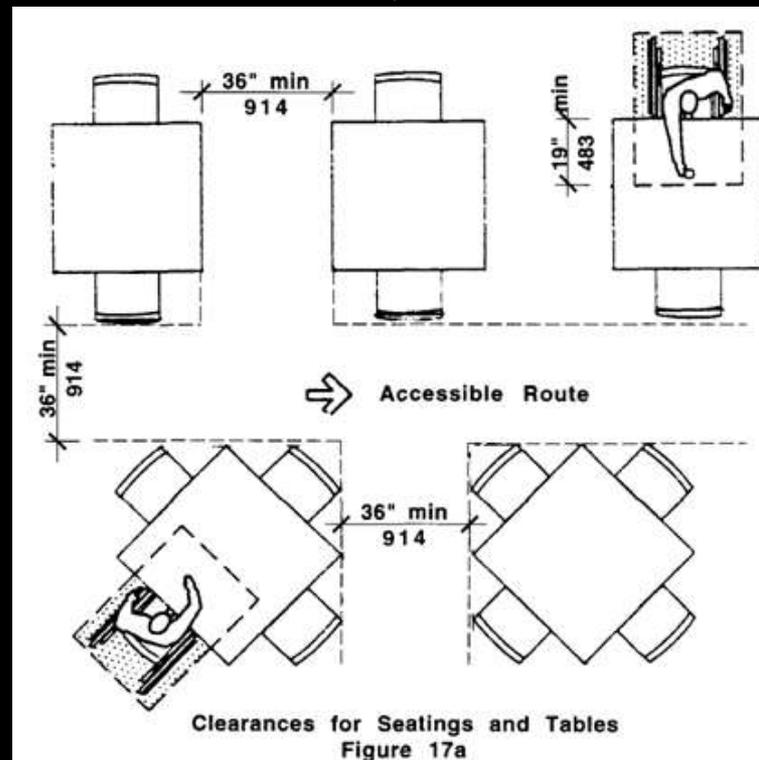


Table Heights and Clearances
Figure 17b



Clearances for Seatings and Tables
Figure 17a

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5 Year Plan



- fourth 5 Year Plan.
- identify the streets and sidewalks anticipated to be reconstructed.
- continued emphasis on a complete streets approach.
- reconstruction of missing ramps on major arterials .

Complete Streets are streets designed for all users – pedestrians, cyclists, bus riders, drivers and residents. More sidewalks are included, which provides for increased accessibility for pedestrians.

This is intended to be a living document that will be updated regularly as conditions change.

5 Year Plan

Prioritization & Scheduling

Reconstruct sidewalks in poor condition and streets in poor condition in **high priority areas**, which are designated as:

- Areas within a 150 foot buffer of Parks, Major Squares, Libraries, Schools, Youth Centers, Elderly Housing and Senior Centers.
- Areas within a 40 foot buffer of bus routes.
- Major thoroughfares, so as to maintain the structural integrity of the street under heavy traffic conditions.
- Commission for Persons with Disabilities' priorities.

Reconstruct neighborhood streets that are in a significantly deteriorated condition, as funding allows.



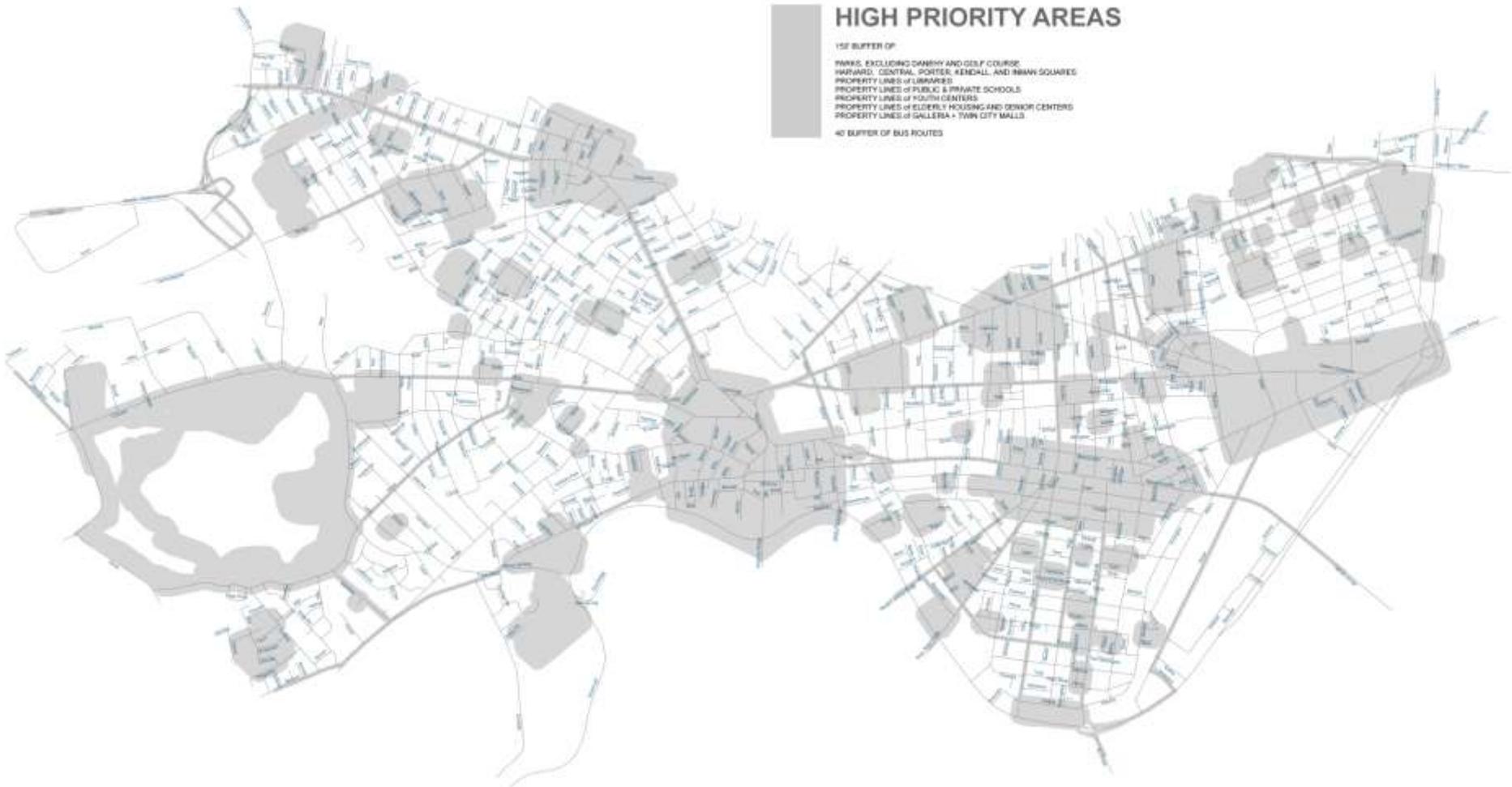


HIGH PRIORITY AREAS

150' BUFFER OF

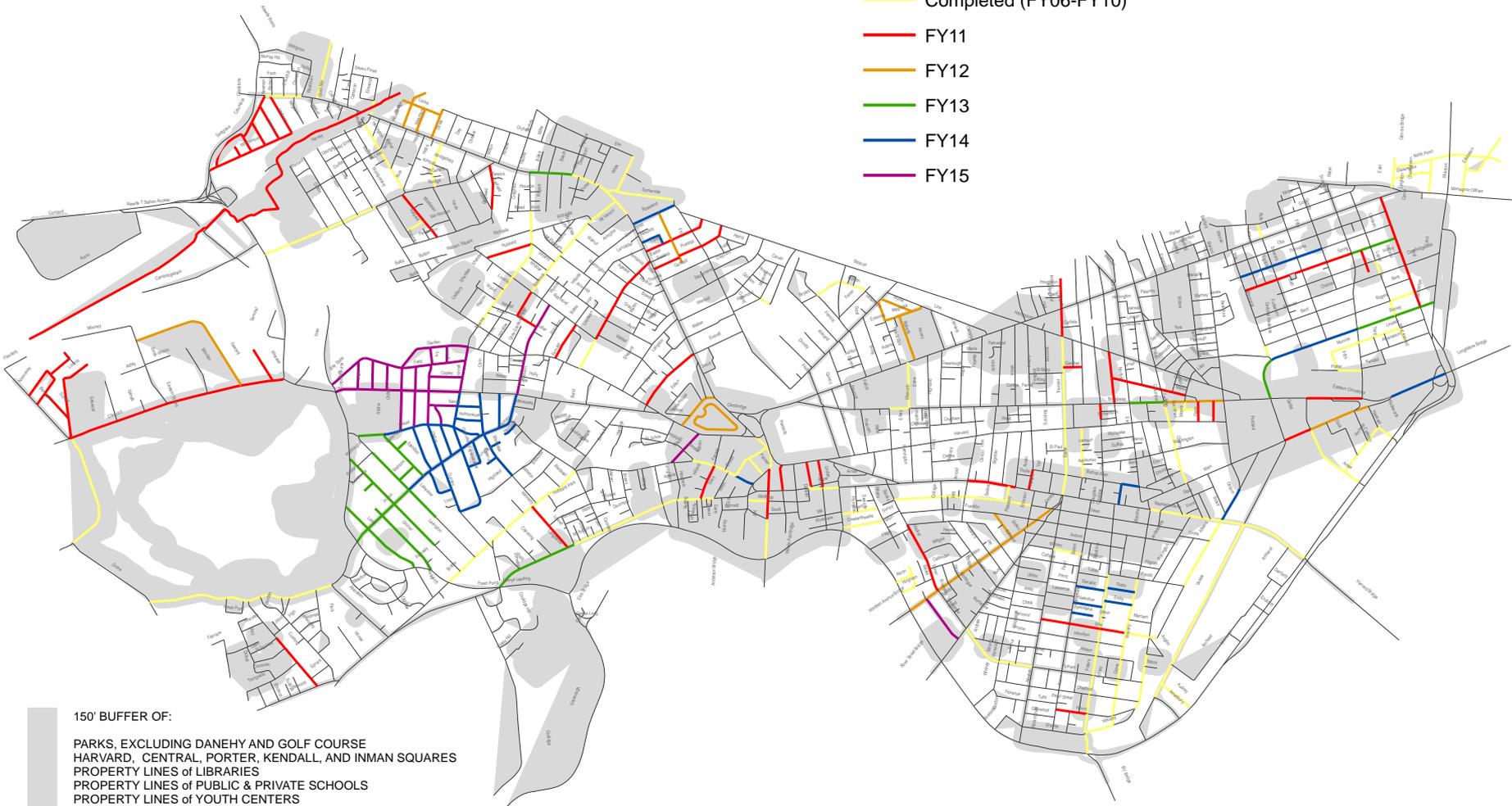
PARKS, EXCLUDING DANNY AND GOLF COURSE
HARVARD, CENTRAL, PORTER, KENDALL, AND INMAN SQUARES
PROPERTY LINES OF LIBRARIES
PROPERTY LINES OF PUBLIC & PRIVATE SCHOOLS
PROPERTY LINES OF YOUTH CENTERS
PROPERTY LINES OF ELDERLY HOUSING AND SENIOR CENTERS
PROPERTY LINES OF GALLERIA + TWIN CITY MALLS

40' BUFFER OF BUS ROUTES



Five Year Plan

-  Completed (FY06-FY10)
-  FY11
-  FY12
-  FY13
-  FY14
-  FY15



150' BUFFER OF:

PARKS, EXCLUDING DANEHY AND GOLF COURSE
HARVARD, CENTRAL, PORTER, KENDALL, AND INMAN SQUARES
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40' BUFFER OF BUS ROUTES

5 Year Plan

Miscellaneous Sidewalk Program

A portion of the Miscellaneous Sidewalk Program funding is reserved for sidewalks and curb cuts where access is of acute importance, as identified by the Commission for Persons with Disabilities and DPW.

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Resources:

www.access-board.gov/prowac/alterations/guide.htm

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Questions?