

**FAIRFAX COUNTY PLANNING COMMISSION
TRANSPORTATION COMMITTEE/
TRANSPORTATION ADVISORY COMMISSION MEETING
WEDNESDAY, NOVEMBER 3, 2010**

COMMITTEE MEMBERS PRESENT:

Frank A. de la Fe, Hunter Mill District
Jay P. Donahue, Dranesville District
Earl L. Flanagan, Mount Vernon District
James R. Hart, At-Large
Kenneth A. Lawrence, Providence District
Timothy J. Sargeant, At-Large

COMMITTEE MEMBERS ABSENT:

None

TRANSPORTATION ADVISORY COMMISSION MEMBERS PRESENT:

Jeffrey Parnes, Chair, Sully District
Jennifer Joy Madden, Vice Chair, Hunter Mill

FAIRFAX COUNTY DEPARTMENT OF TRANSPORTATION STAFF PRESENT:

Jeffrey C. Hermann, Bicycle and Pedestrian Planner, Bicycle and Pedestrian Programs
Calvin C. Lam, Transportation Planner II, Coordination and Funding Division
Charlie Strunk, Bicycle Coordinator, Transportation Planning Division

PLANNING COMMISSION OFFICE STAFF PRESENT:

Barbara J. Lippa, Executive Director
Kara A. DeArrastia, Deputy Clerk

OTHERS PRESENT:

Daniel W. Goodman, Senior Planner, Toole Design Group
Robert S. Patten, Senior Planner, Toole Design Group
Bruce Wright, Fairfax Advocates for Better Bicycling

ATTACHMENTS:

- A) Tysons Corner Bicycle Master Plan Presentation by Toole Design Group
- B) Cycle Tracks: Concept and Design Practices

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Chairman Frank A. de la Fe called the meeting to order at 7:06 p.m., in the Board Conference Room, 12000 Government Center Parkway, Fairfax, Virginia 22035.

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Commissioner Lawrence MOVED THAT THE TRANSPORTATION COMMITTEE MINUTES OF OCTOBER 20, 2010 BE APPROVED.

Commissioner Hart seconded the motion which carried unanimously.

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Jeffrey Hermann, Bicycle and Pedestrian Planner and Project Manager, Bicycle and Pedestrian Programs, Fairfax County Department of Transportation (FCDOT), explained that the creation of a Countywide Bicycle Master Plan was divided into two phases with Phase 1 focusing on the Tysons Corner area and Phase 2 focusing on the rest of Fairfax County.

Robert Patten and Daniel Goodman, both Senior Planners with Toole Design Group, the consultant firm working on this project, delivered a PowerPoint presentation on the draft Tysons Corner Bicycle Master Plan, as shown in Attachment A. Throughout their presentation, they responded to questions from Committee and Transportation Advisory Commission (TAC) members regarding the information provided and the maps and photographs depicted on the slides.

Chairman de la Fe noted that a private roadway located along Ashgrove Lane toward Northern Neck Drive was currently only used by the Teets family under a special agreement. He suggested that this route be added to the bicycle network plan because it was a critical connection for bicyclists and pedestrians.

Commissioner Lawrence stated that one of the provisions of the Comprehensive Plan for Tysons Corner was that the initial phases of development should provide public facilities and road improvements. He said several landowners in the Tysons East area were collaborating on development plans and FCDOT staff should be involved in these meetings. He noted that the grid of streets study had not yet been completed and the preference in the Policy was for public streets. Commissioner Lawrence explained that if the Virginia Department of Transportation (VDOT) did not permit the placement of utilities and stormwater management facilities underneath future roadway improvements, the County would need to negotiate with the Tysons landowners and developers to ensure that everyone's interests were considered. He suggested that staff involved in these negotiations identify and enumerate the criteria or desire points so that they would serve the interests of the Tysons Committee. Mr. Patten agreed with this suggestion.

Commissioner Lawrence pointed out that widening streets to accommodate bicycle lanes would increase the impermeable area, which would create stormwater management problems. Mr. Patten said some jurisdictions were addressing this issue when providing bicycle lanes. He explained that the green street concept, a natural stormwater management approach that used plants to treat stormwater before it was discharged, was being pioneered. He indicated that the first green street to be built in a small town was in Edmonston, Maryland.

Mr. Goodman noted that a cycle track was an emerging, innovative concept being implemented in many jurisdictions, such as Washington, DC, New York, Denmark, the Netherlands, and Indianapolis. He explained that a cycle track was a bicycle path along a road, physically separated from vehicular traffic, distinct from the sidewalk, and not shared with pedestrians. He

said there were numerous cycle track designs dependent upon the unique characteristics of the specific roadway space, the tracks could be one-way or two-way, and bicycle traffic could move with or against the flow of vehicular traffic. Mr. Goodman showed photographs of a cycle track in Indianapolis, as depicted in Attachment B. Mr. Patten pointed out that the curb extensions at the corners helped protect the parking lane and that Indianapolis had incorporated the green street design into a number of its cycle tracks.

In response to a question from Commissioner Lawrence, Mr. Patten said cycle tracks could be composed of pervious pavement depending upon local design. Commissioner Lawrence suggested that this be considered.

A brief discussion ensued on the use of motorized wheelchairs and Segways on cycle tracks and sidewalks. Charlie Strunk, Bicycle Coordinator, Transportation Planning Division, FCDOT, stated that the *Code of Virginia* had been amended in 2004 to govern the use of "electric personal assistive mobility devices" on designated sidewalks or crosswalks, noting that they were allowed on the Washington & Old Dominion Trail.

Referring to Attachment B, Mr. Goodman showed more examples of cycle track designs used in New York City and Cambridge, Massachusetts. He said he thought that the Cambridge design was applicable to the vision for Tysons Corner because it provided efficient and effective integration with all modes of travel and did not give preference to any one mode. Mr. Goodman explained that a vision was needed for Route 7 and International Drive to ensure that proposed redevelopment along these corridors would create a framework to accommodate cycle tracks.

Commissioner Lawrence recommended that integration of parking facilities for various types of bicycles, such as adult tricycles, be considered in the initial planning for new development to ensure that a pattern was established.

Mr. Patten also noted that construction of Phase 1 of the Metrorail Silver Line was scheduled for completion in late 2013. He said he, Mr. Goodman, and FCDOT staff would work with the Washington Metropolitan Area Transit Authority (WMATA) to identify the exact location of bicycle facilities at the Metro stations to ensure they were accessible. He explained that the planned developments bordering the stations were also being examined and that the bicycle plan would include recommendations to integrate bicycle improvements and facilities to support an emerging pattern.

Noting that none of the Tysons Metro stations would provide commuter parking and would only have bus drop off and kiss and ride areas, Chairman de la Fe said space would need to be reserved for bicycle parking facilities and lockers. Mr. Patten pointed out that space would be reserved on the streetscape. He explained that key issues included creation of a safe transition for bicyclists from the roadway to the station area, accessible location of bicycle parking, and thorough planning of cycling routes to stations that were convenient, efficient, and attractive to less-experienced cyclists.

TAC and Committee members, staff, and the consultants discussed ways to diversify the types of services offered to encourage more people to commute by bicycle.

Concluding the presentation, Mr. Patten showed a map depicting the catchment areas for each Tysons Metro station and levels of accessibility based on the quality of the existing routes. He noted that the areas labeled two or three needed on-road and off-road improvements and trail connections so that they were viable to the full range of cyclists. Mr. Patten next referred to the list of policies and programs and reviewed the initial framework for the phasing and implementation of the Tysons Corner Bicycle Master Plan.

A brief discussion ensued on the questions listed at the end of the presentation. Chairman de la Fe pointed out that the Planning Commission would rely on the expertise of staff and the consultants for further information. He said a major part of the Bicycle Master Plan was an education/awareness campaign for bicycle facilities and shared lane markings.

Replying to a question from Commissioner Flanagan, Mr. Patten described planned improvements to Route 7 to include a shared bicycle/pedestrian path on both sides, consolidated driveways, minimized crossing points, signals for bicycle and pedestrian traffic, and outdoor seating areas.

Jenifer Joy Madden, Vice Chair and Hunter Mill representative, TAC, indicated that the upcoming transit circulator study would consider whether buses should have designated lanes or if bicycles and buses should share a lane. Chairman de la Fe said he agreed that this should be considered, noting that it would not be developed until the second phase of the circulator system.

Bruce Wright, representing Fairfax Advocates for Better Bicycling, commented that consideration should be given to how the Fairfax County Bicycle Master Plan would apply to the development process and whether it would be part of the Transportation Plan or its own separate plan. Commissioner Lawrence said he believed it should be a separate plan because this would attract more awareness. Mr. Wright added that developers should refer to both the Bicycle Master Plan and the Transportation Plan when drafting transportation models. Chairman de la Fe also pointed out that the Board of Supervisors could add a reference to the Trails and Bicycle Maps in the Comprehensive Plan.

Chairman de la Fe thanked Mr. Patten and Mr. Goodman for their informative presentation.

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The meeting was adjourned at 8:13 p.m.
Frank A. de la Fe, Chairman

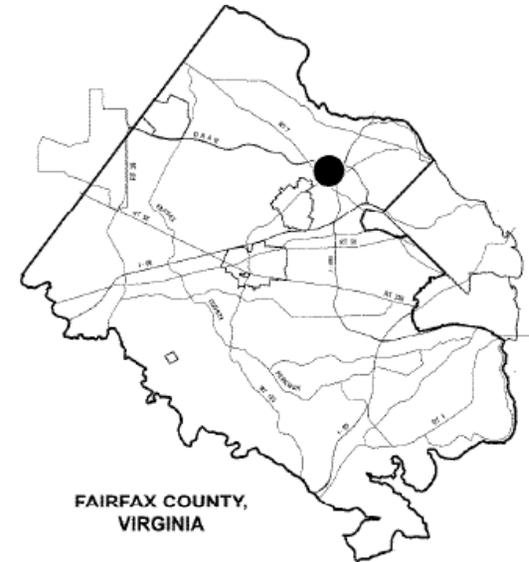
An audio recording of this meeting is available in the Planning Commission Office, 12000 Government Center Parkway, Suite 330, Fairfax, Virginia 22035.

Minutes by: Kara A. DeArrastia

Administratively Approved: October 17, 2011

Kara A. DeArrastia, Clerk
Fairfax County Planning Commission

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TYSONS CORNER BICYCLE MASTER PLAN

FAIRFAX COUNTY PLANNING
COMMISSION, TRANSPORTATION
COMMITTEE

November 3, 2010

PROJECT OVERVIEW



Key Project Elements and Outcomes

- Public input
- Stakeholder engagement
- Bicycle network plan
- Phased implementation plan
- Policy and program recommendations



PUBLIC OUTREACH



- Bicycle Advisory Committee (3 of 6 completed)
- Public meetings (1 of 2 completed)
- *Community Walk* website (closes 11/12)
- Stakeholder interviews (ongoing)
- Coordination with standing committees
 - TMSAMS (2 of 2 completed)
 - Fairfax TAC (11/16)
 - Fairfax Trails & Sidewalks Com (10/13)
 - Bike tour (10/22)
- Planning Commission Transportation Committee (Tonight!)



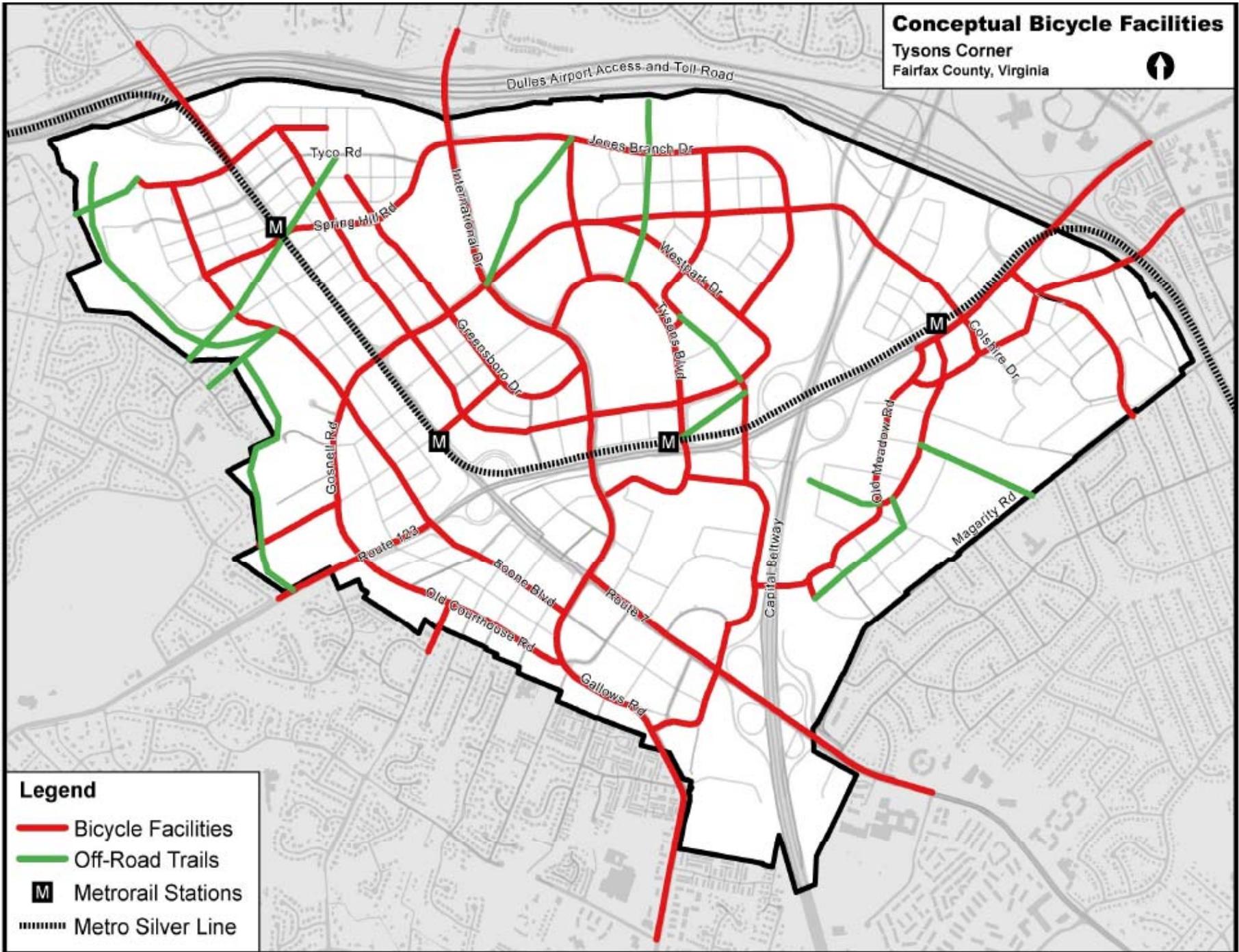
PLAN GOALS



GOALS	SPECIFIC ELEMENTS
Fully integrate bike improvements into the planning and development process in Tysons Corner	Silver Line, road improvements, private sector development, phasing strategies, etc.
Improve bicycle safety, access and connectivity to, from, through and within Tysons Corner	On and off-road improvements, wayfinding and signage, intersections, access ramps, multi-modal and intermodal services, connections to schools/parks/regional destinations, etc.
Foster the development of a bike culture in Tysons Corner	Education and encouragement programs, public-private partnerships, recreational cycling, TDM, etc.
Make bicycling a viable transportation choice for cyclists – young and old, novice and experienced, occasional and regular.	On and off-road facilities, support facilities such as bike parking and commuter showers, etc.

Conceptual Bicycle Facilities

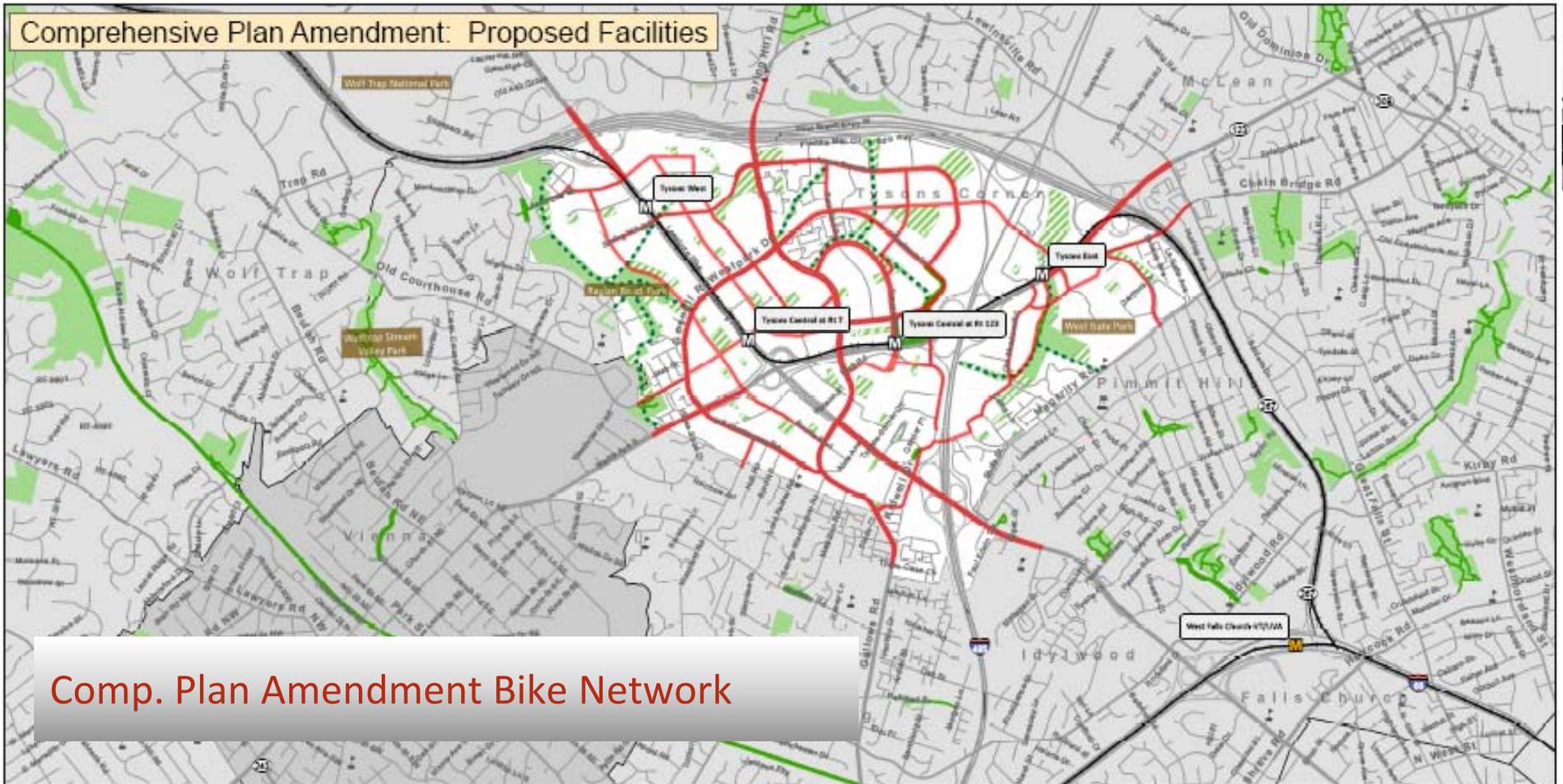
Tysons Corner
Fairfax County, Virginia



Legend

-  Bicycle Facilities
-  Off-Road Trails
-  Metrorail Stations
-  Metro Silver Line

Comprehensive Plan Amendment: Proposed Facilities



Comp. Plan Amendment Bike Network

Legend

- Metrorail Station
- Proposed Bike Facilities
- Metrorail
- Existing Paved Trail
- Planned Park Trail
- Existing Park
- Planned Park
- School

0 0.3 0.6 1.2 Miles

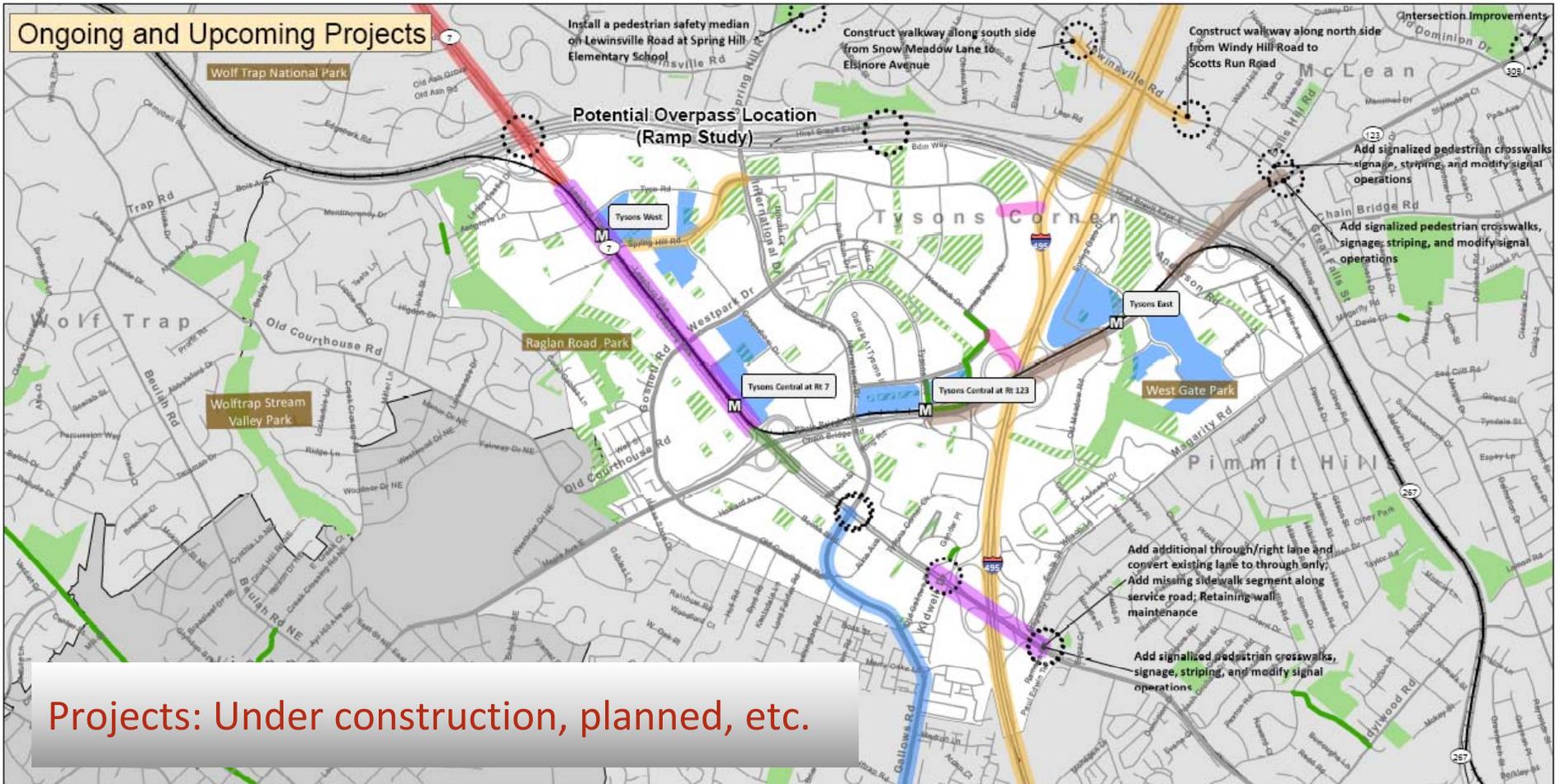


Tysons Corner Bicycle Master Plan

September 2010

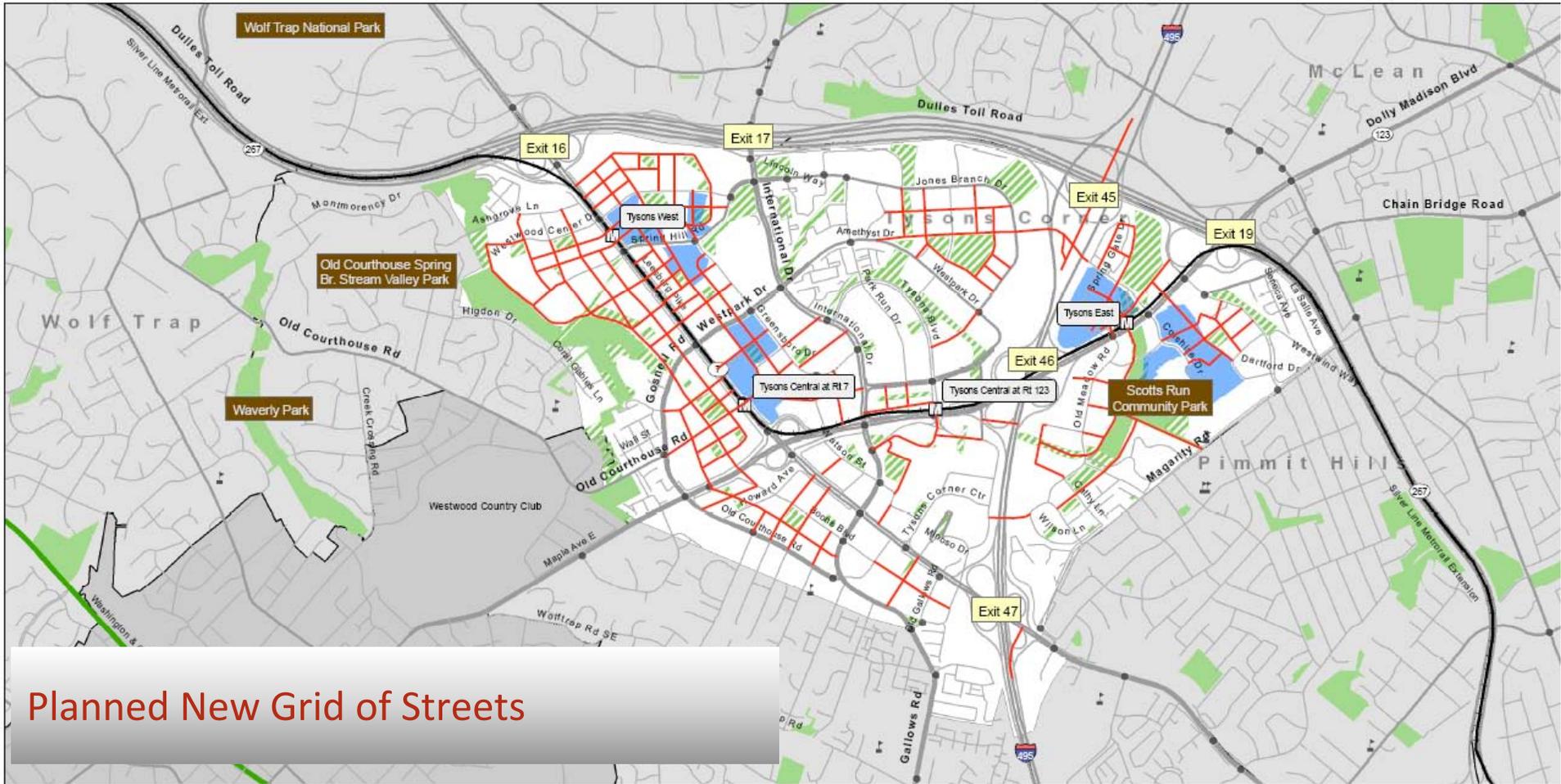
TooleDesignGroup
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CAMBRIDGE
 SYSTEMATICS



Projects: Under construction, planned, etc.

<p>Tysons Corner Bicycle Master Plan</p>		<p>September 2010</p>	



Planned New Grid of Streets

Proposed Grid of Streets and Near Term Planned Development

Figure 4

0 0.25 0.5 1 Miles

- Legend**
- Silver Line Metrorail Stations
 - Metrorail
 - Traffic Signal
 - School
 - Existing Park
 - Planned Park
 - Proposed Grid of Streets
 - Near Term Planned Development



Transit Network



Transit Network

Legend

- Metrorail Station
- Metrobus Stop
- Metrobus Route

0 0.3 0.6 1.2 Miles



KEY ISSUES



Key Issues

How to get cyclists through interchanges or across the Beltway and Dulles Toll Road.

Establishing and signing bike routes in and out of Tysons, through Tysons and within Tysons.

Creating access routes to Metro that are direct, time efficient and attractive to less-experienced cyclists.

Access to Metro for residents within and outside of Tysons; Using the Bike for egress to office jobs.

Discontinuity of bike facilities that results from a process that changes roadways 1,2 or 3 developments at a time.

Serving student and staff trips to and from Middle and High Schools.



PLANNING TOOLBOX



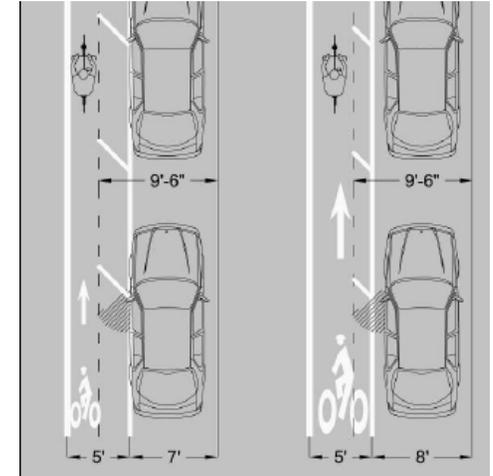
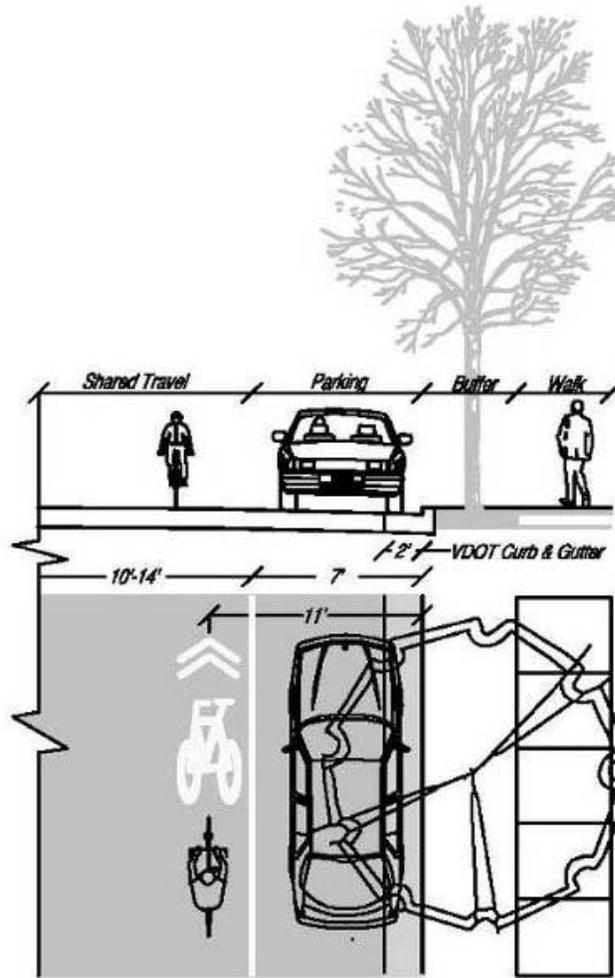
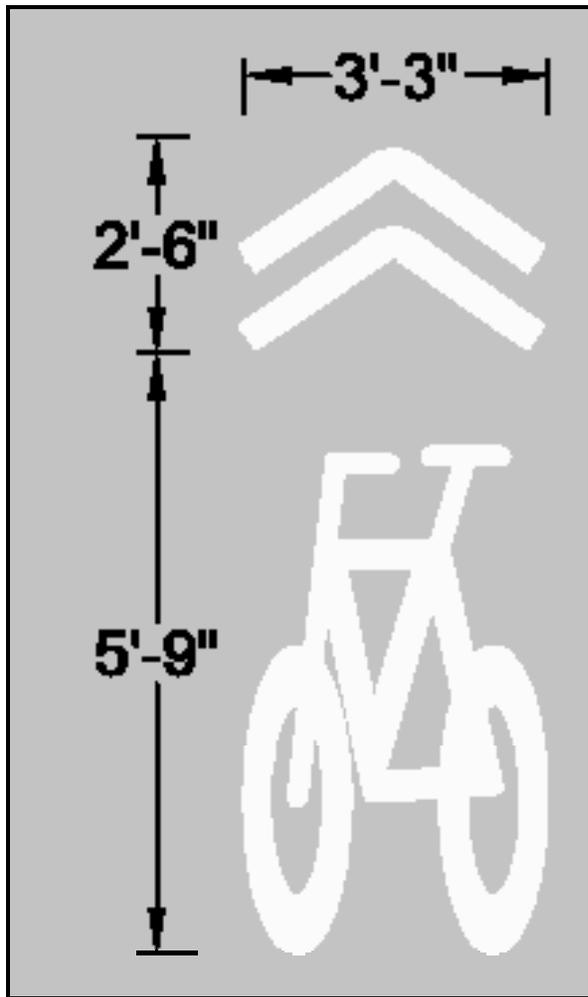
Shared Roadways



Striped/Paved Shoulders



SHARED LANE MARKINGS



PLANNING TOOLBOX



Bicycle Lanes



Climbing Lanes



BUFFERED BIKE LANE



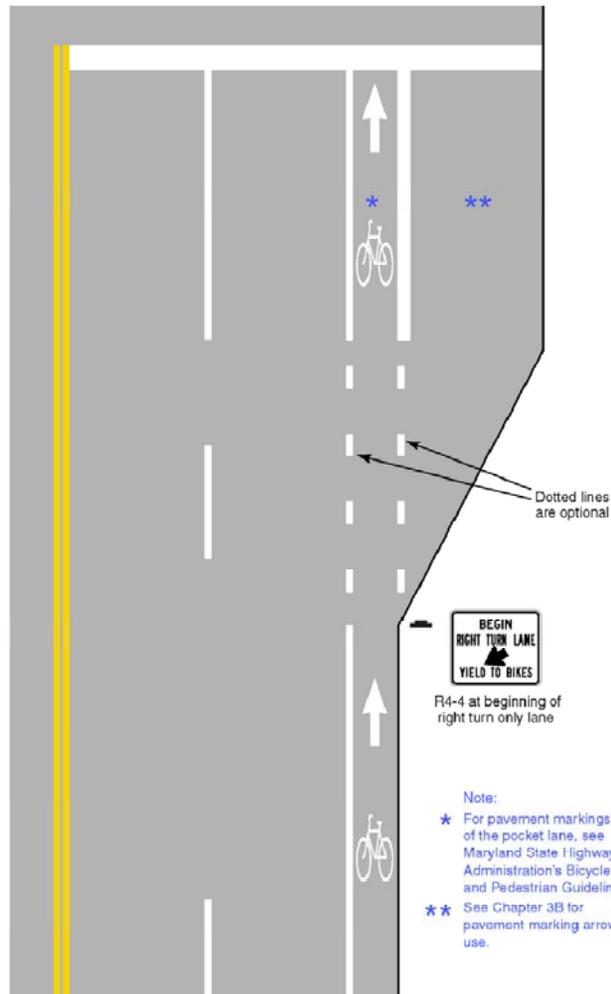
SIDE PATH



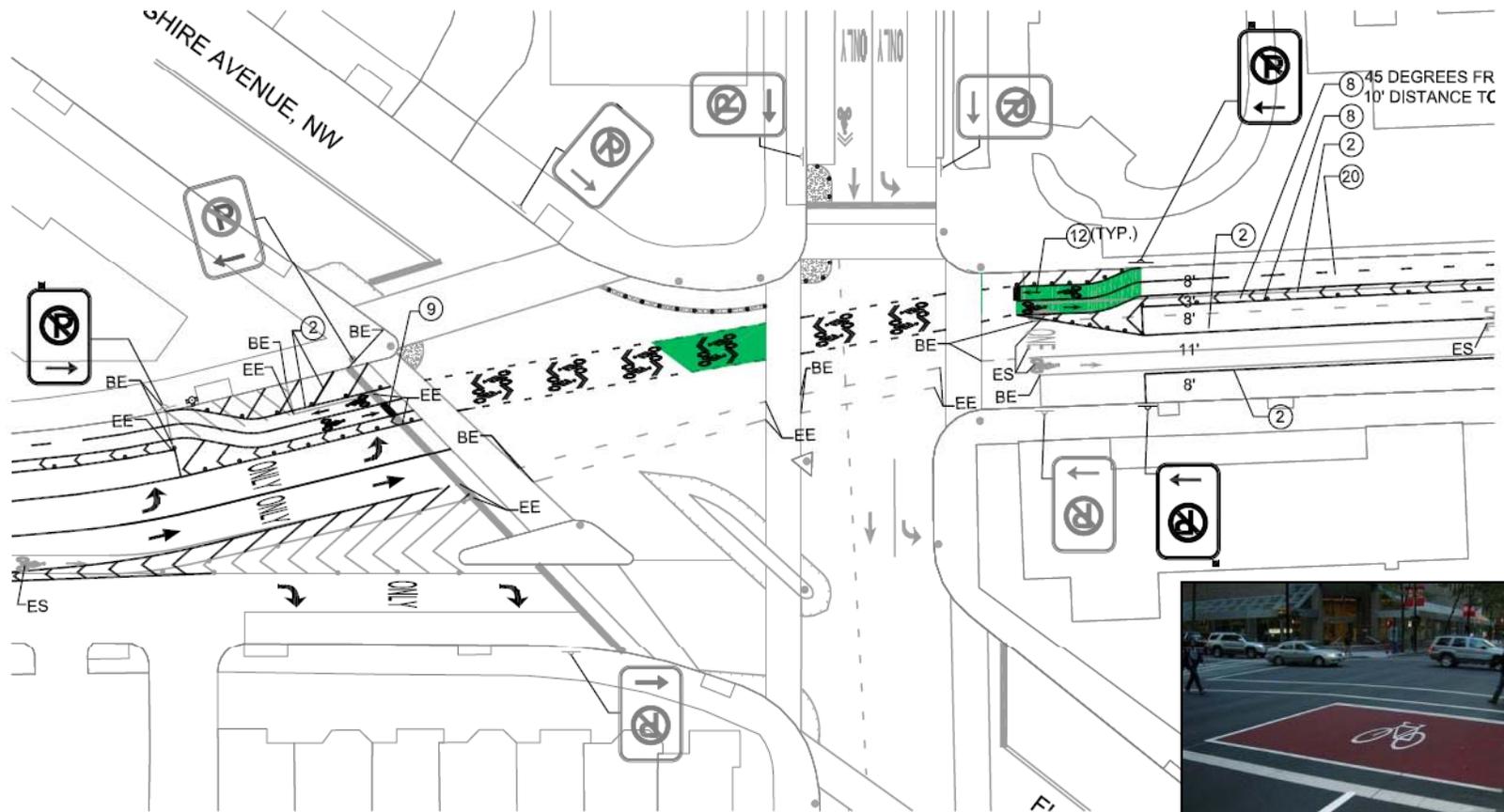
CYCLE TRACK



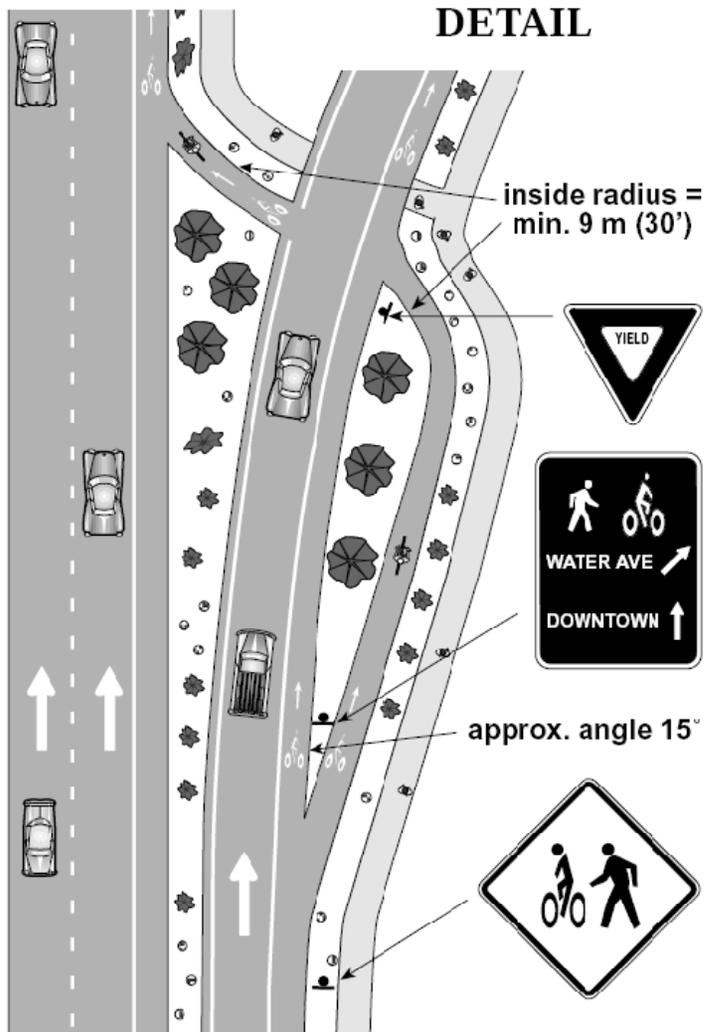
INTERSECTION DESIGN



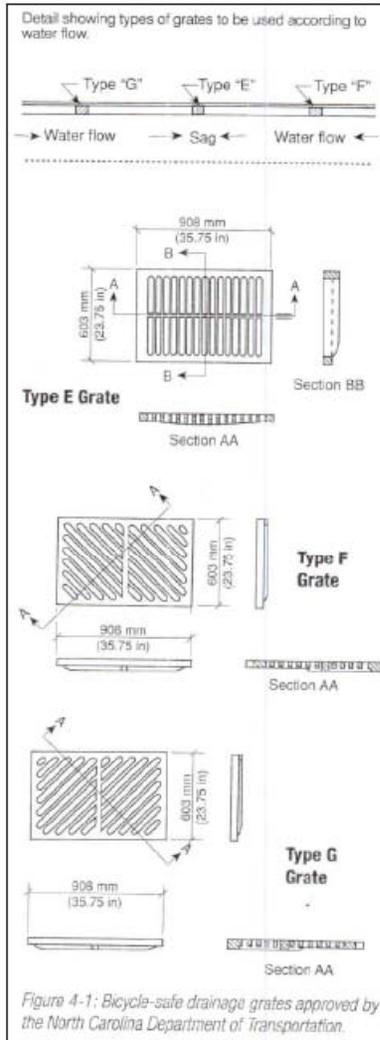
INTERSECTION DESIGN



INTERCHANGE CROSSING DESIGN



OTHER CONSIDERATIONS



BIKE PARKING





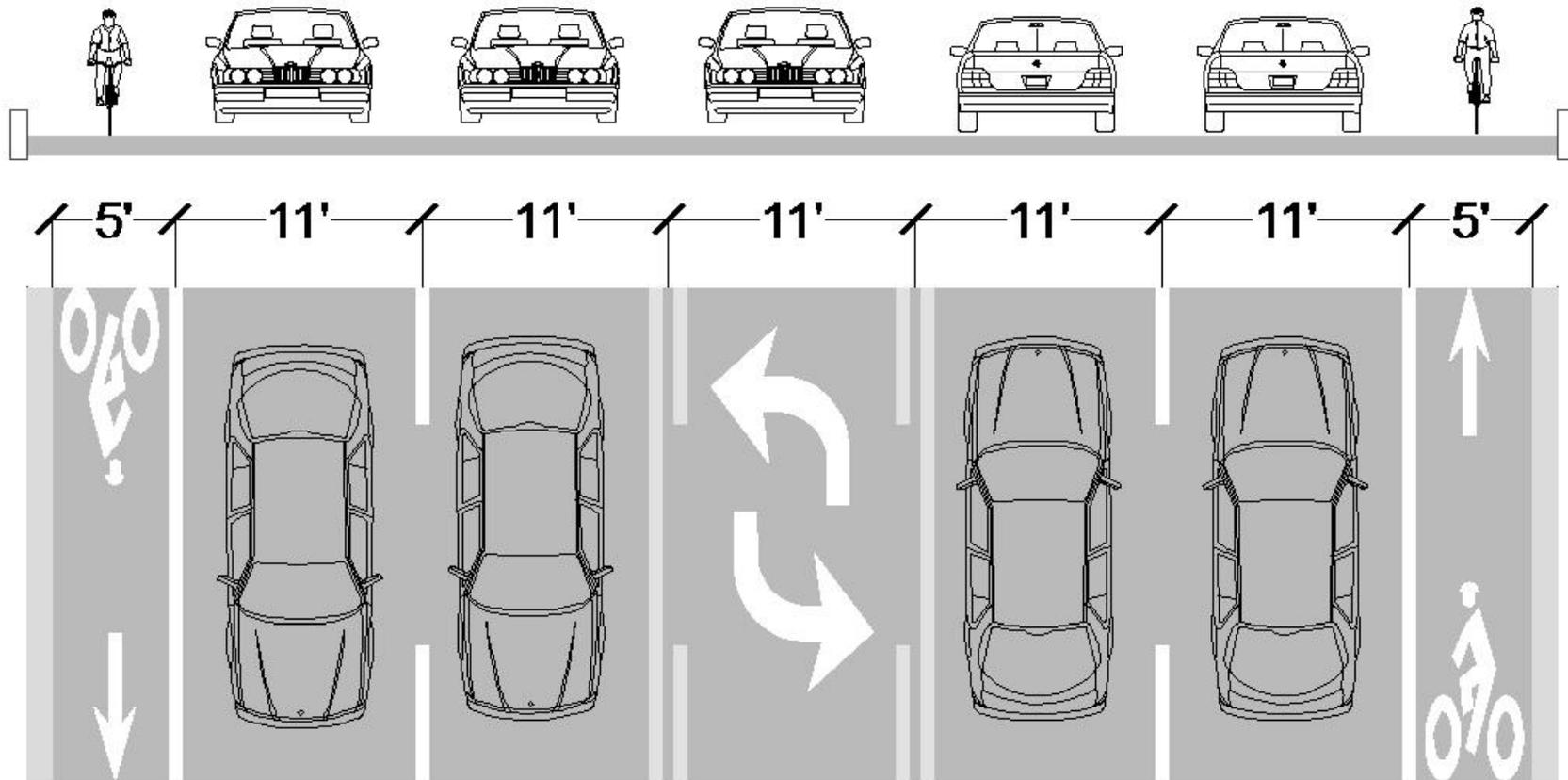
ORGANIZING ELEMENTS



- Existing Roads
 - Lane diets
 - Road diets
- Big Corridors
 - Cycle tracks
- Silver Line Stations
 - Access to/parking at station
 - Bike sheds and routes
- Policies and Programs
- Implementation



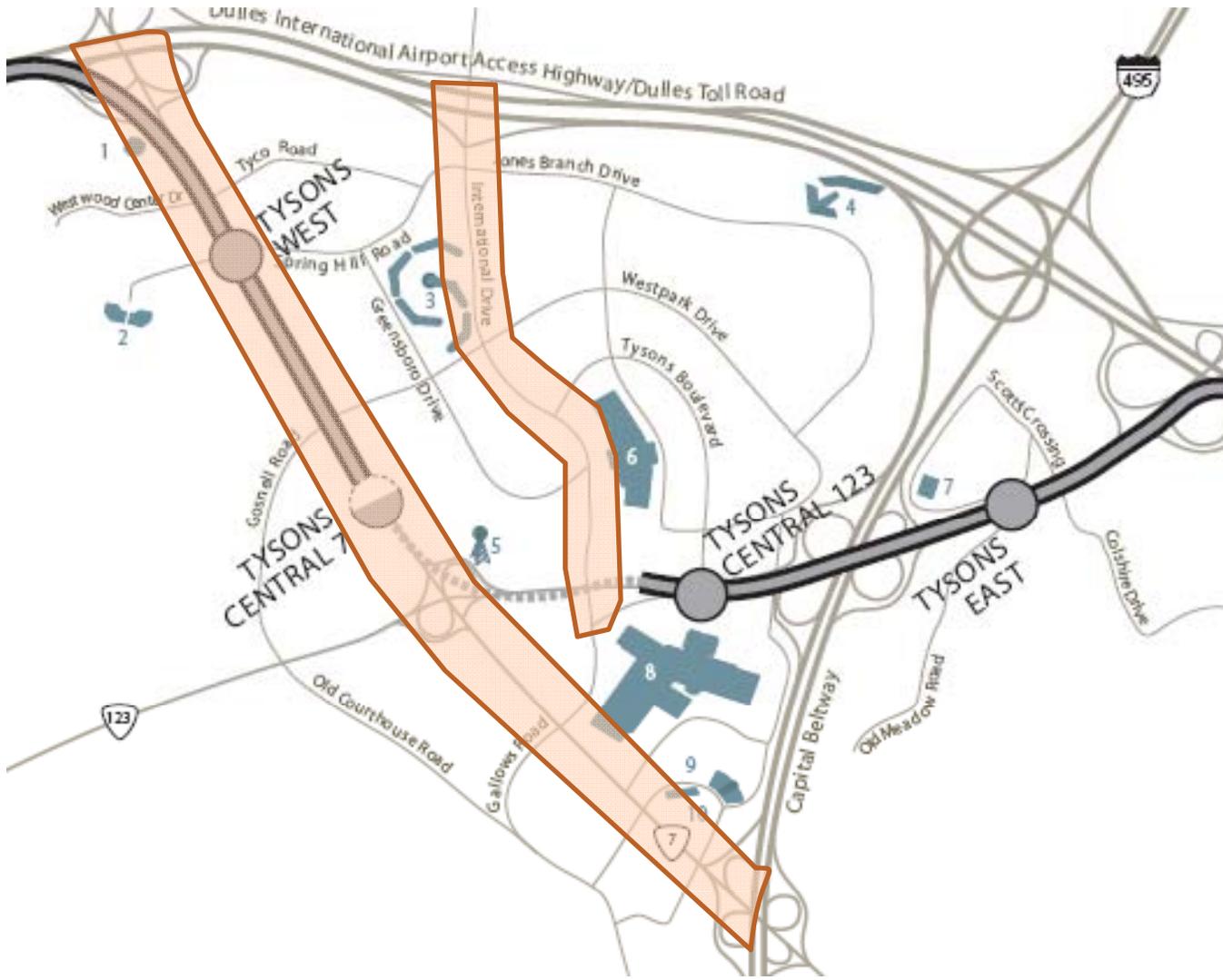
LANE DIET



ROAD DIET



BIG CORRIDORS

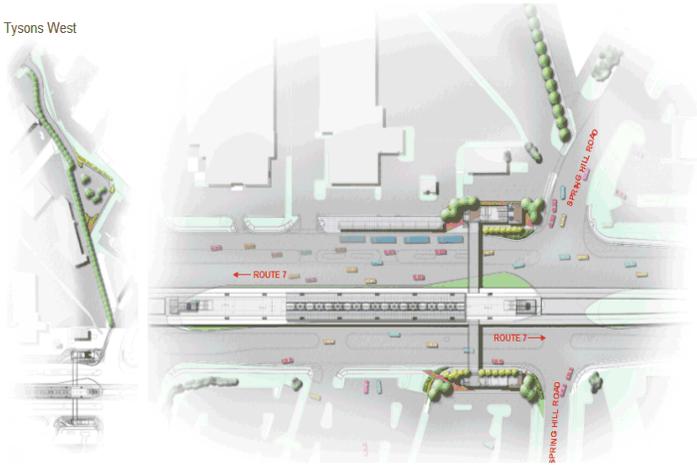




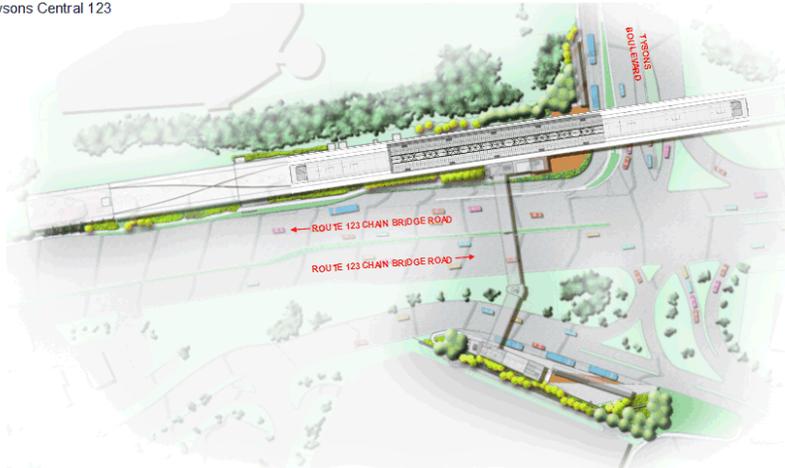
SILVER LINE STATIONS



Tysons West



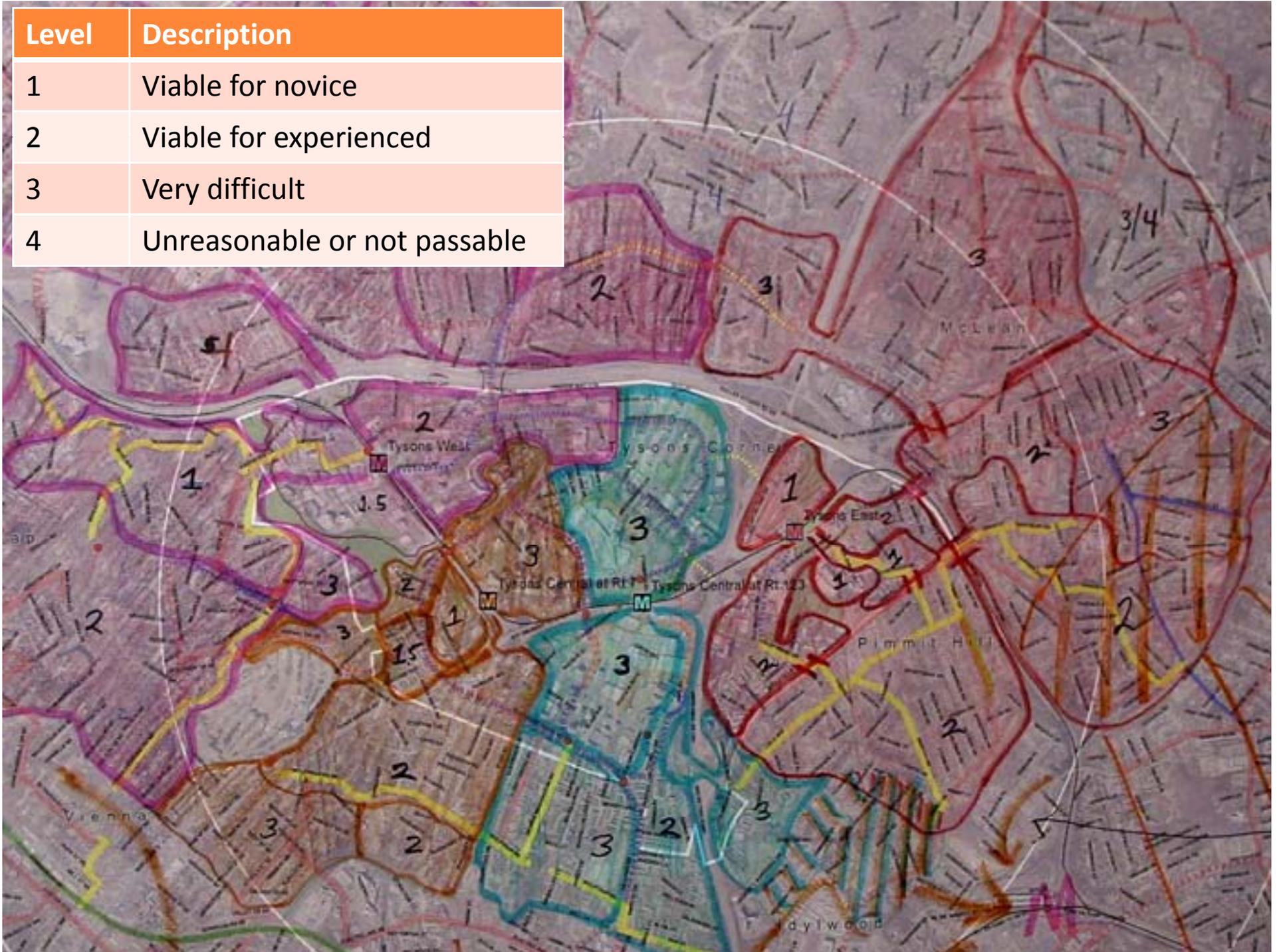
Tysons Central 123



Tysons East



Level	Description
1	Viable for novice
2	Viable for experienced
3	Very difficult
4	Unreasonable or not passable



POLICIES AND PROGRAMS



- Bike to lunch program
- Bike ambassadors program
- Tysons Corner bike commuter jersey/helmet/vest
- Education/awareness campaign for planned bike facilities
- Safe Routes to School programs



POLICIES AND PROGRAMS



- Bike plan recommendations included on the proffer list
- Marketing campaign built around the “time” concept
- Integration into the Capital BikeShare program



PHASING AND IMPLEMENTATION



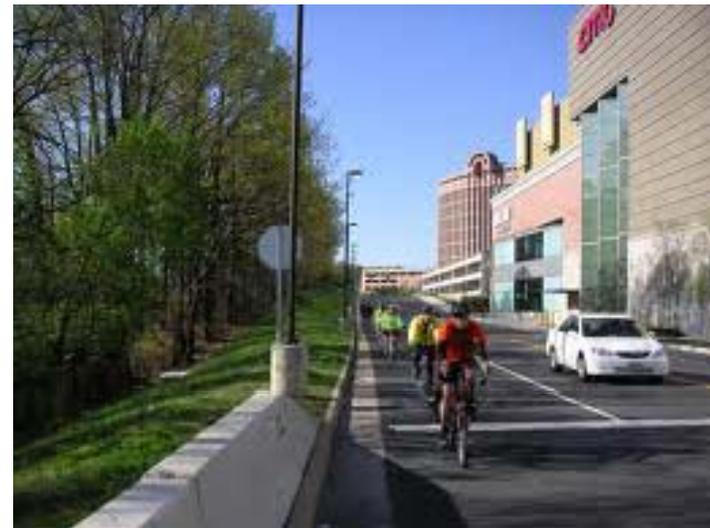
PHASING	TIMEFRAME
Underway	2011-2013
Near Term	2012-2016
Medium Term	2015-2020
Medium to Long-Term	2020-2030

Note: Vienna projects will be categorized separately

NEXT STEPS



- Analysis of *Community Walk* results (closes 11/12)
- TAC meeting (11/16)
- BAC meeting (11/17)
- Plan development (ongoing)
- Public meeting #2 (Jan. 2011)



COMMUNITY WALK



Tysons Corner Bicycle Master Plan - CommunityWalk - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.communitywalk.com/tysons_corner/va/tysons_corner_bicycle_master_plan/map/648167

Most Visited Google Transfer Balances Access to Metro Ques... Next

CommunityWalk

Build This Map Map Settings Share / Export My Maps About Contact Logout

Tools: Add Marker Start a Path Bulk Edit Save Default View Print

Tysons Corner Bicycle Master Plan Tysons Corner, VA

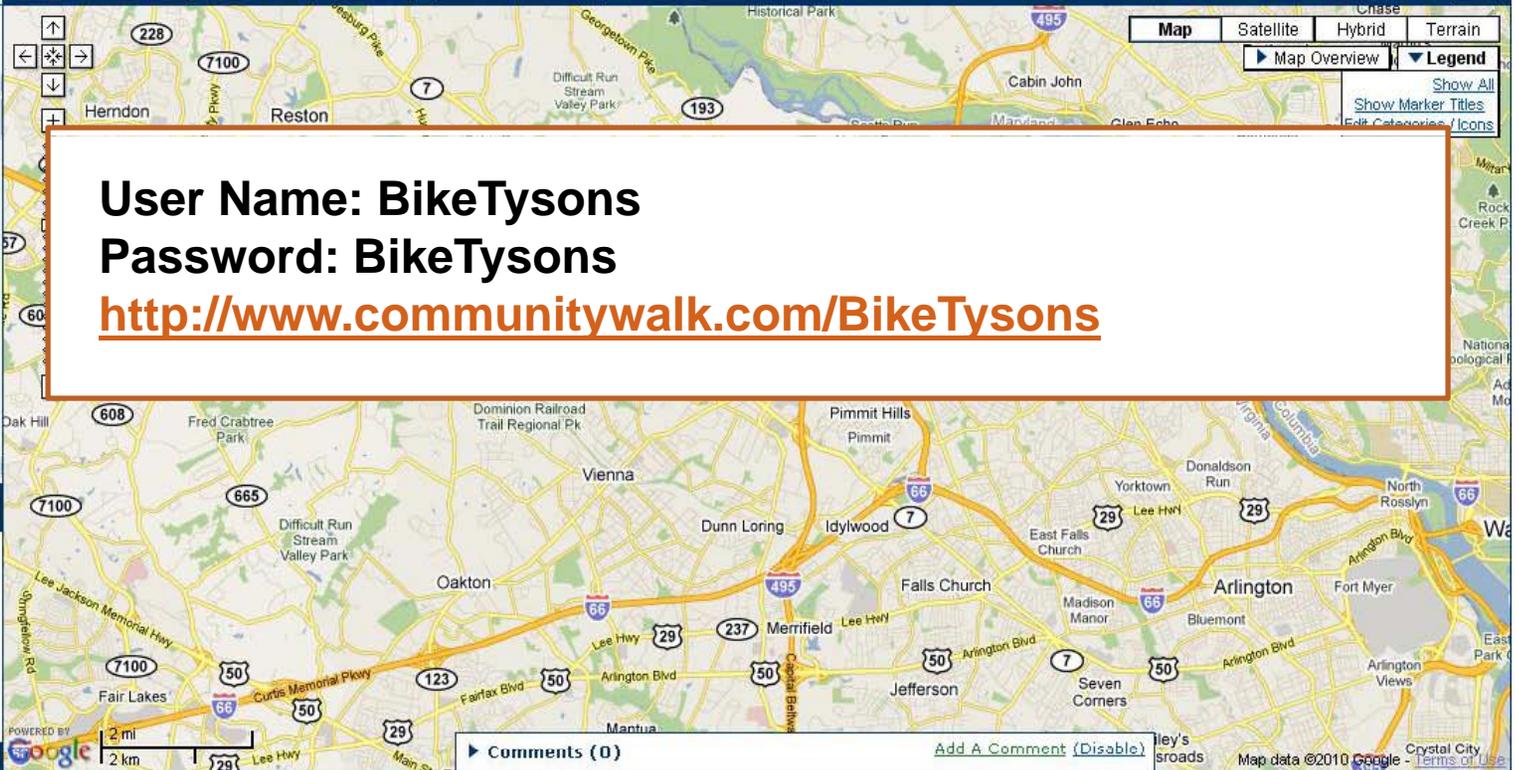
Welcome! This interactive map is provided by Fairfax County as a way to gather comments from the public about bicycling conditions in Tysons Corner. We are looking for information about streets and routes that you use, routes you believe are bicycle-friendly, or un-friendly, and areas where you think improvements are needed. The comments will be gathered and used in the planning process that is underway to develop a Bicycle Master Plan for Tysons Corner.

Here is how you can participate:
1) You can place a marker (point) on the map, assign it to a category, and

Categorized Markers

No markers yet.

 [Click here to add your first marker to the map!](#)



User Name: BikeTysons
Password: BikeTysons
<http://www.communitywalk.com/BikeTysons>

Done

start 2 Microsoft Offic... (0 unread) Yahoo! ... Tysons Corner Bicy... September 8 Document1 - Micro... Microsoft PowerPol... 4 Adobe Acrobat ... 10:31 AM

DISCUSSION QUESTIONS



Questions

Where should new overpasses be located? How can they be funded?

How to change intersection design and how to implement changes?

How can a bus circulator system enhance or supplement the potential for use of the bicycle as a major metro access mode? *

How can the approach to trail development be modified to ensure that paved trails serve both transportation and recreational needs?

* Note: Revised per feedback received at the meeting.

QUESTIONS



Contacts:

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David Jackson and Stacy Cook
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SCook@camsys.com



Cycle Tracks: Concept and Design Practices

February 17, 2010



Association of Pedestrian and Bicycle Professionals
Expertise for sustainable transportation



Today's webinar presenters

APBP Board Member Host

Brett Hondorp, Principal, Alta Planning + Design

Guest Moderator

Zach Vanderkooy, Bicycling Design Best Practices Project Coordinator,
Bikes Belong

Peter Furth, Professor of Civil Engineering, Northeastern University

Cara Seiderman, Transportation Program Manager, City of Cambridge, Mass.

Rob Burchfield, City Traffic Engineer, Portland (Ore.) Bureau of Transportation

Hayes Lord, Director, Bicycle Program, NYC Department of Transportation



Association of Pedestrian and Bicycle Professionals
Expertise for sustainable transportation



Cycle Tracks: Concept and Design Practices

Part 1: General Design, Intersection Safety Treatments, and Safety Studies



Peter Furth

Northeastern University

apbp webinar, Feb 17, 2010



Cycle track (n): “A bicycle path along a road, physically separated from motor traffic, and distinct from the sidewalk.”

- Not a shared use path – not used by pedestrians
- Other terms: sidepath, bike path, raised lane, separated lane
- One-way and two-way versions exist

Why Cycle Tracks?

#1 reason for not riding a bike = Traffic danger

Dutch Guide recommended treatments

- Multilane road with speed limit > 20 mph: Cycle Track

AASHTO *Guide for the Development of Bicycle Facilities* doesn't understand this desire for separation. Consider two options:

1. 55 mph multi-lane highway with 5-ft shoulder
2. Parallel route on local streets connected by bike paths

“most experienced and many casual adult riders will continue to use the shoulder for the sake of speed and convenience.”

Engineering Guidance

AASHTO Guide has no guidance on cycle tracks

It has 9 warnings about parallel shared use paths:

- Not relevant to one-way cycle tracks
- 2-way cycle tracks have intersection and endpoint concerns similar to shared use paths, which can be addressed
- Other 7 “concerns” about parallel paths are silly

Other sources of engineering guidance:

Dutch “Design Manual for Bicycle Traffic” (CROW)

- **Physical Separation from motor traffic:** Curb, raised median, parking lane, planting buffer, bollards, ...
- **Levels:** Street level, sidewalk level, in between



Separation from Pedestrians

- Painted line
- Change in level
 - full or partial
- Vertical elements
- Different surface



Width and Functionality

- About 3.75 ft/ “lane”
- Buffers at edges
- Provision for Passing?

One-way with passing:
7.5 ft

Two-way, 2 lane

- 7.5 ft
- Obvious space advantage of 2-way



Wider is better, but ...

Narrow can work, too

Safety: One-Way or Two-Way?

- Europe: Better safety record with one-way cycle tracks
- Reasons for 2-way
 - Space limitations
 - Wrong-way bicyclists
 - Difficult street crossings



Safety at Driveways & Minor Intersections:

Make it look like a bicycle crossing, not a parking lane or sidewalk



- Bike silhouettes (*Paris, Montreal*)
- Color (*Copenhagen*)

Raise sidewalk & cycle track



- Makes priority clear
- Speed bump effect

At signalized intersections

- Left turn on green arrow only (“Protected left”)
- Bicycle signal heads if bikes’ green period will differ from cars’



Leading “thru” arrow protects first flush of waiting bikes



Right-Turn Lanes Controlled by Green Arrows



Endpoints and Transitions

- Don't dump wrong-way traffic into street



Jughandles for Safer Crossovers



Corral for turning bikes to wait



Myth of the Danger of Separated Paths

“False Sense of Security”

- Origin: Vehicular cycling theory, not data
- Massive European “experiment” dismissed
- “I’ve heard that separated paths have 5 times greater crash risk.”
 - Moritz (TRR, 1997)
 - 12 crashes (4.1%) on “Other”: sidewalks, parking lots, ...?
 - Less than 1% of bicycling-miles on “Other” facilities
 - “Other” → “Sidewalk” → “Separated path” ???
 - Confused data, insufficient exposure

Comparative Studies of Bicycling, In-Street vs on-Path

- Wachtel & Lewiston (ITE Journal, 1994) compared sidewalk bikeways to streets :
 - “Relative crash risk on sidewalk is 1.8” – Intersection crashes only!
 - Accounting for mid-block crashes: relative risk is equal
 - Ride in same direction as closest travel lane: sidewalk risk is 50% of in-street risk
- Montreal cycle tracks (publication pending), 10 years’ data, hundreds of crashes
 - Crash risk in cycle track is 28% smaller than in-street risk
 - In spite of non-ideal cycle track designs
- Conclusion: “Perceived safety” and “Statistical safety” are *not* at odds

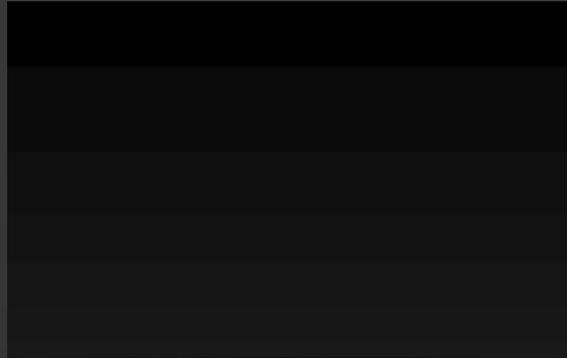
Cycle Tracks: Concept and Design Practices



APBP Webinar
February 17, 2010
Cara Seiderman
City of Cambridge, MA

Why Cycle Tracks?

- Improve Safety
- Eliminate Bike Lane/Shared Lane Obstructions
- Comfort, especially on High Speed/Volume Roadways
- Continuity of Pathway Experience
- Attract new riders
- Support Economic Development
- Enhance Pedestrian Environment/Urban Design
- Support Environmental/Climate Goals
- Support Transportation Goals
- Support Quality of Life Goals
- Support Public Health Goals, Especially for Children



Design Users

The Real World



People prefer cycle tracks



You Choose





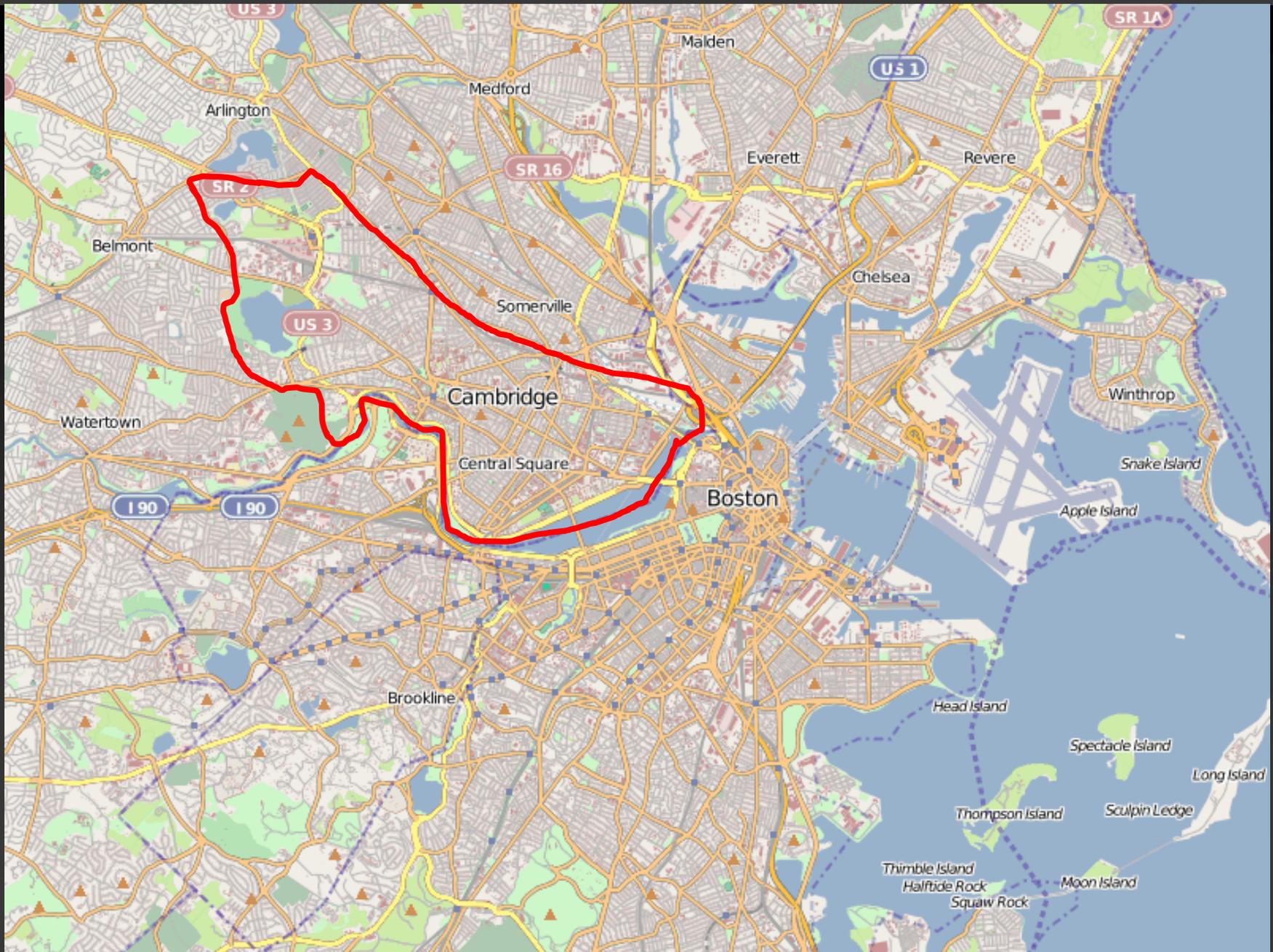
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CANADA

Cambridge, MA

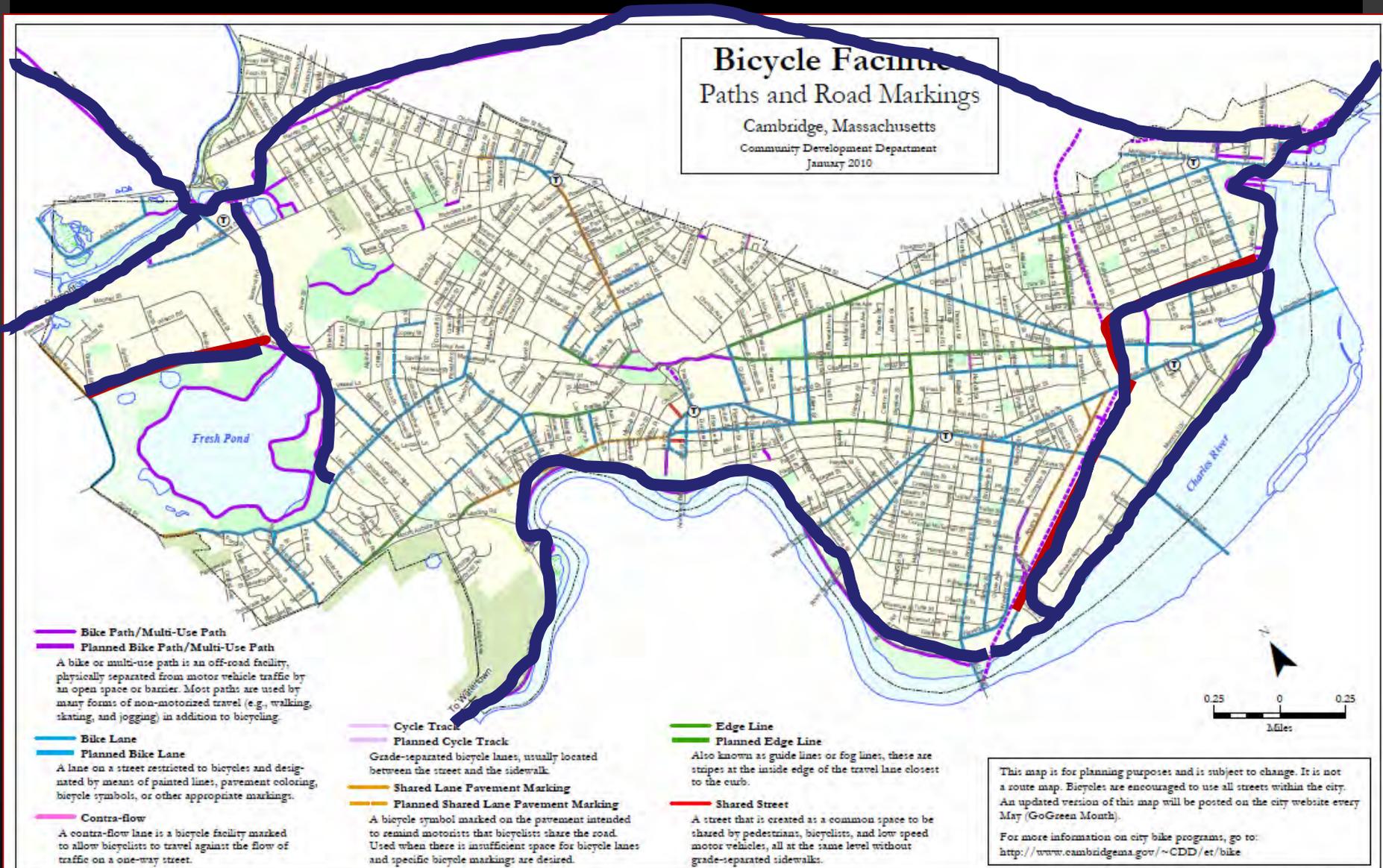
Our Fair City

MEXICO



Bicycle Facilities Paths and Road Markings

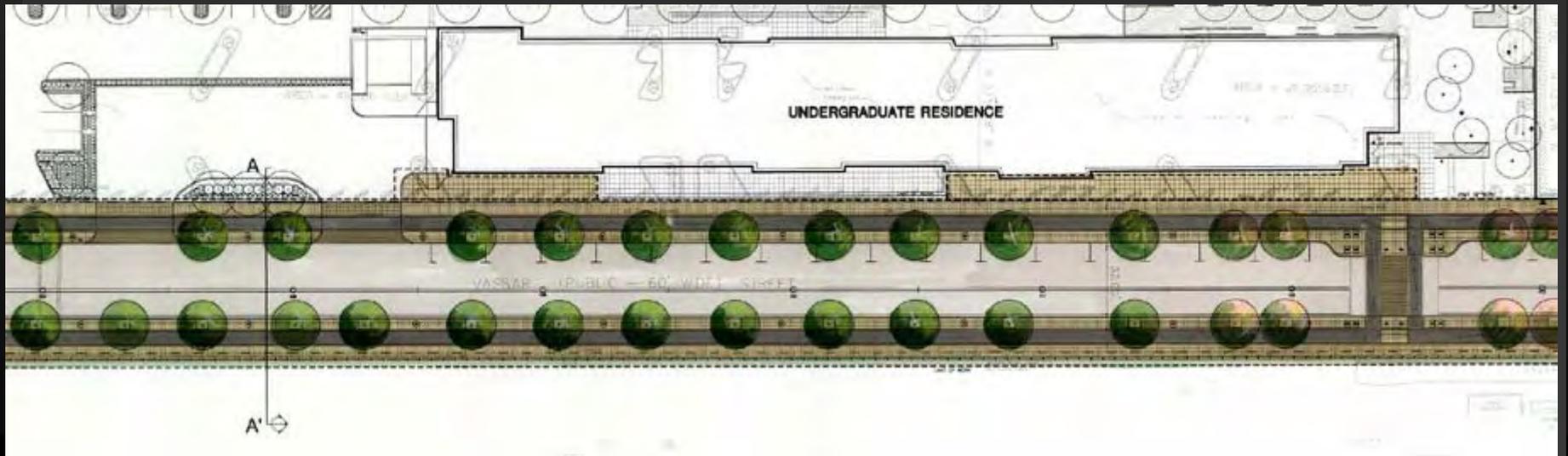
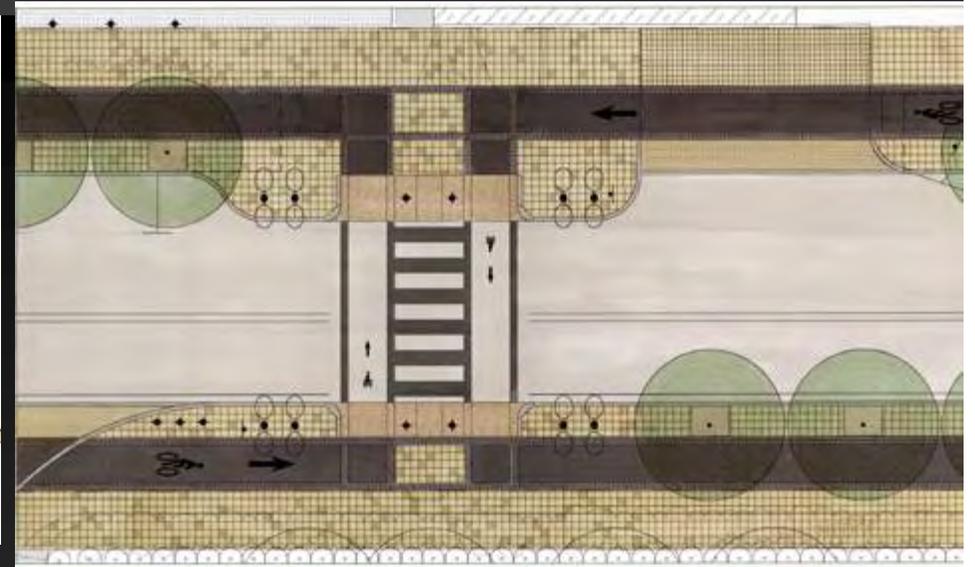
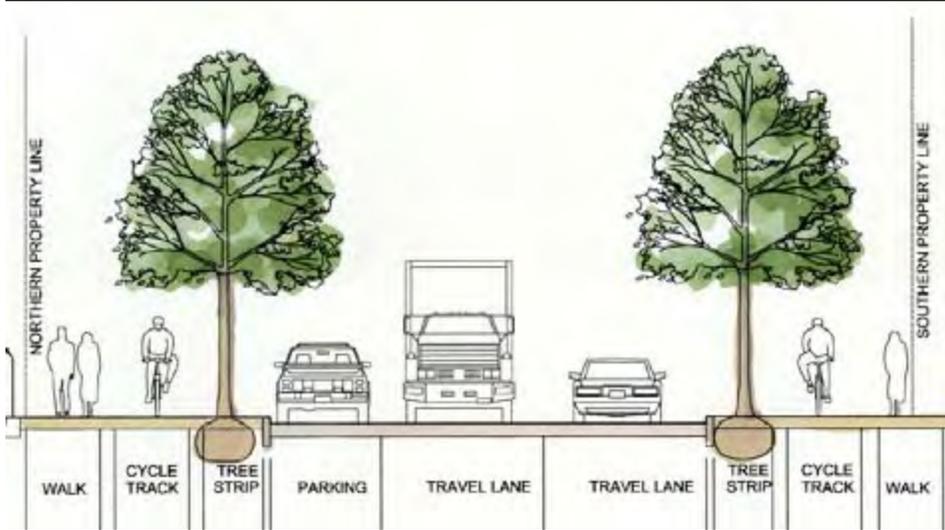
Cambridge, Massachusetts
Community Development Department
January 2010



This map is for planning purposes and is subject to change. It is not a route map. Bicycles are encouraged to use all streets within the city. An updated version of this map will be posted on the city website every May (GoGreen Month).
For more information on city bike programs, go to:
<http://www.cambridgema.gov/~CDD/et/bike>

Vassar Street













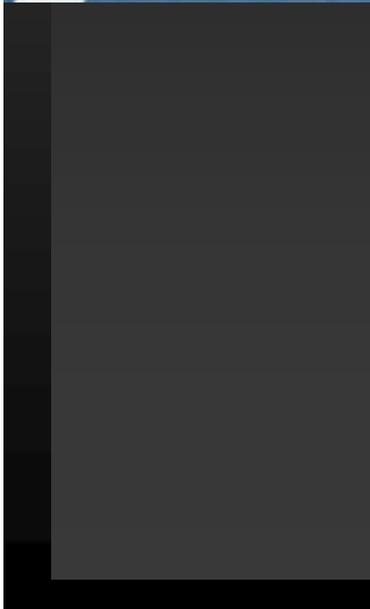
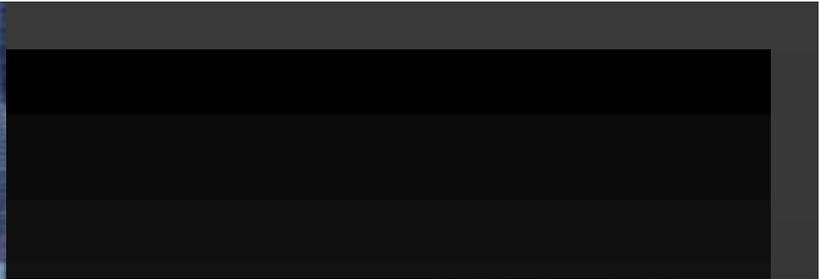


















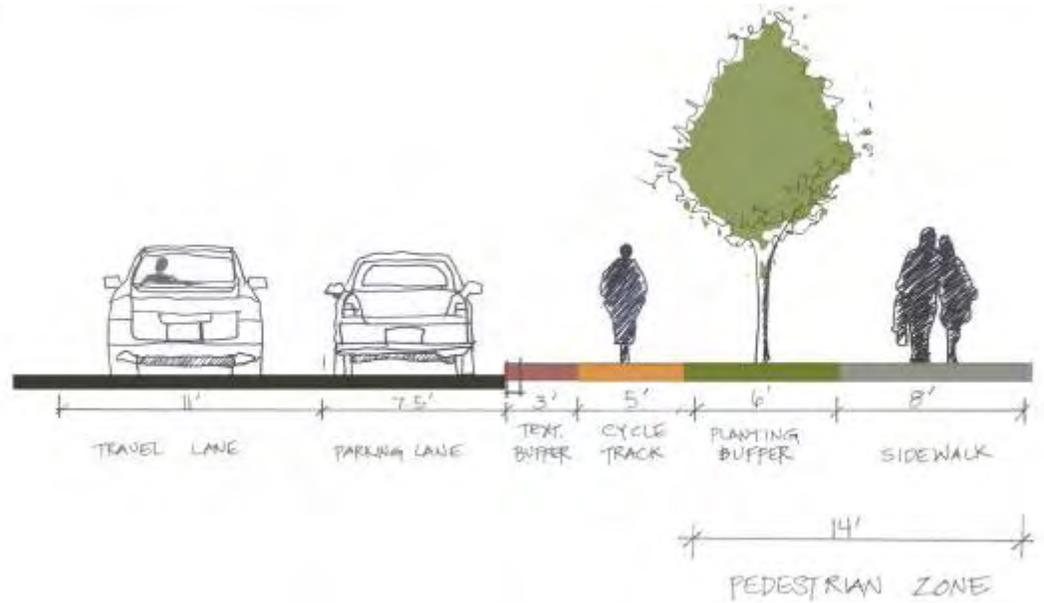


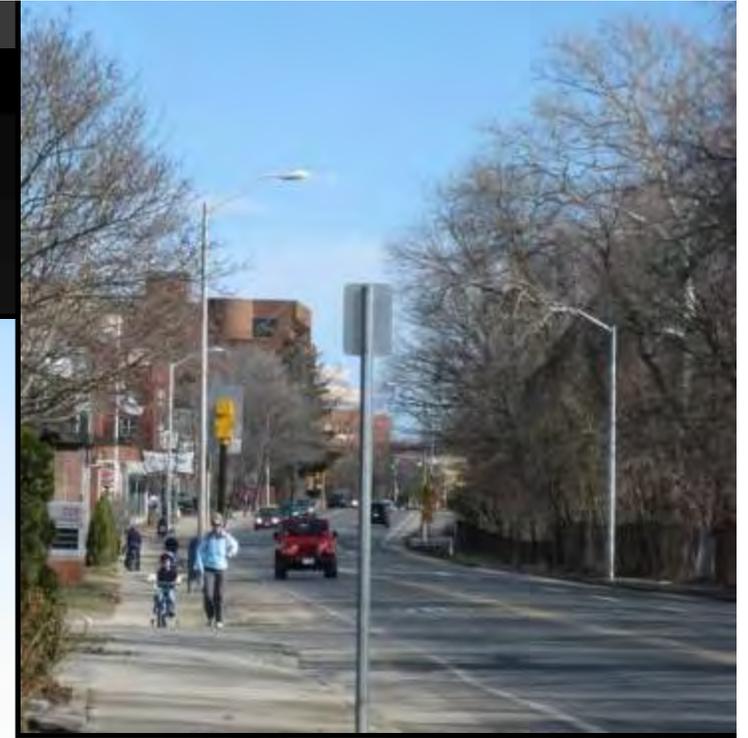




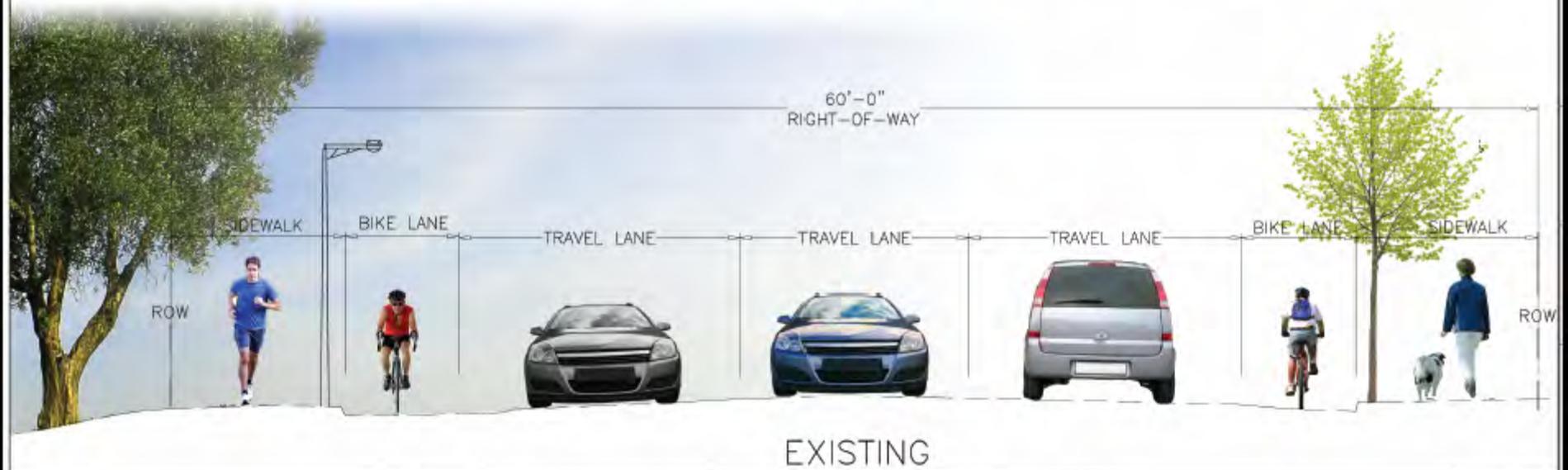
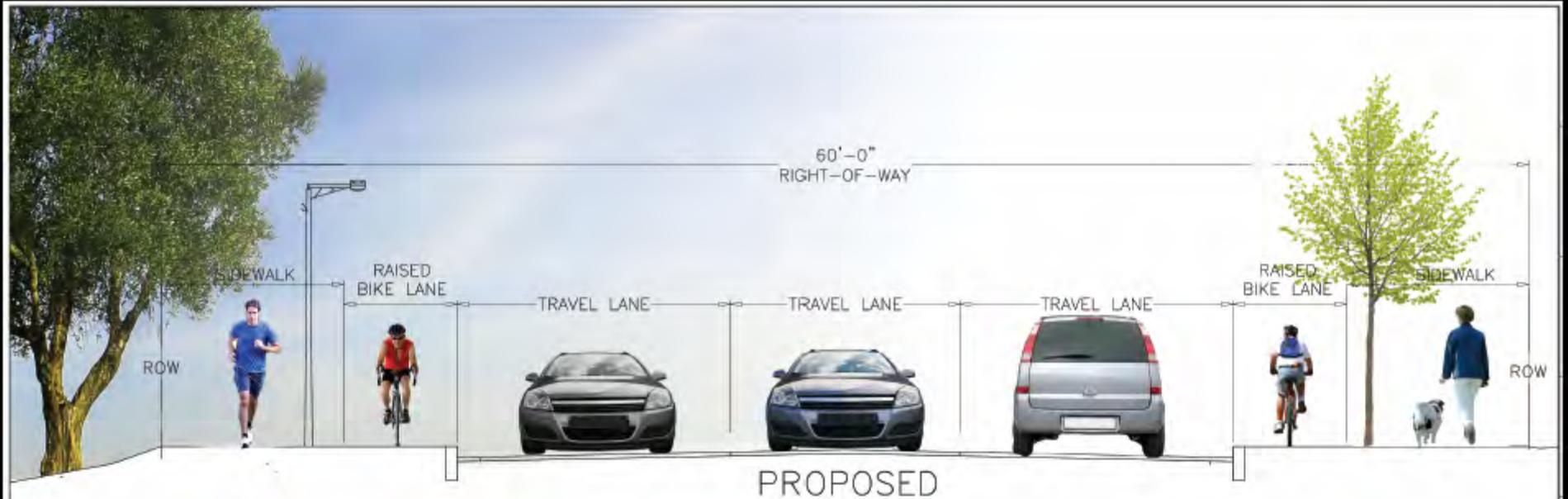
Binney Street

Binney Street

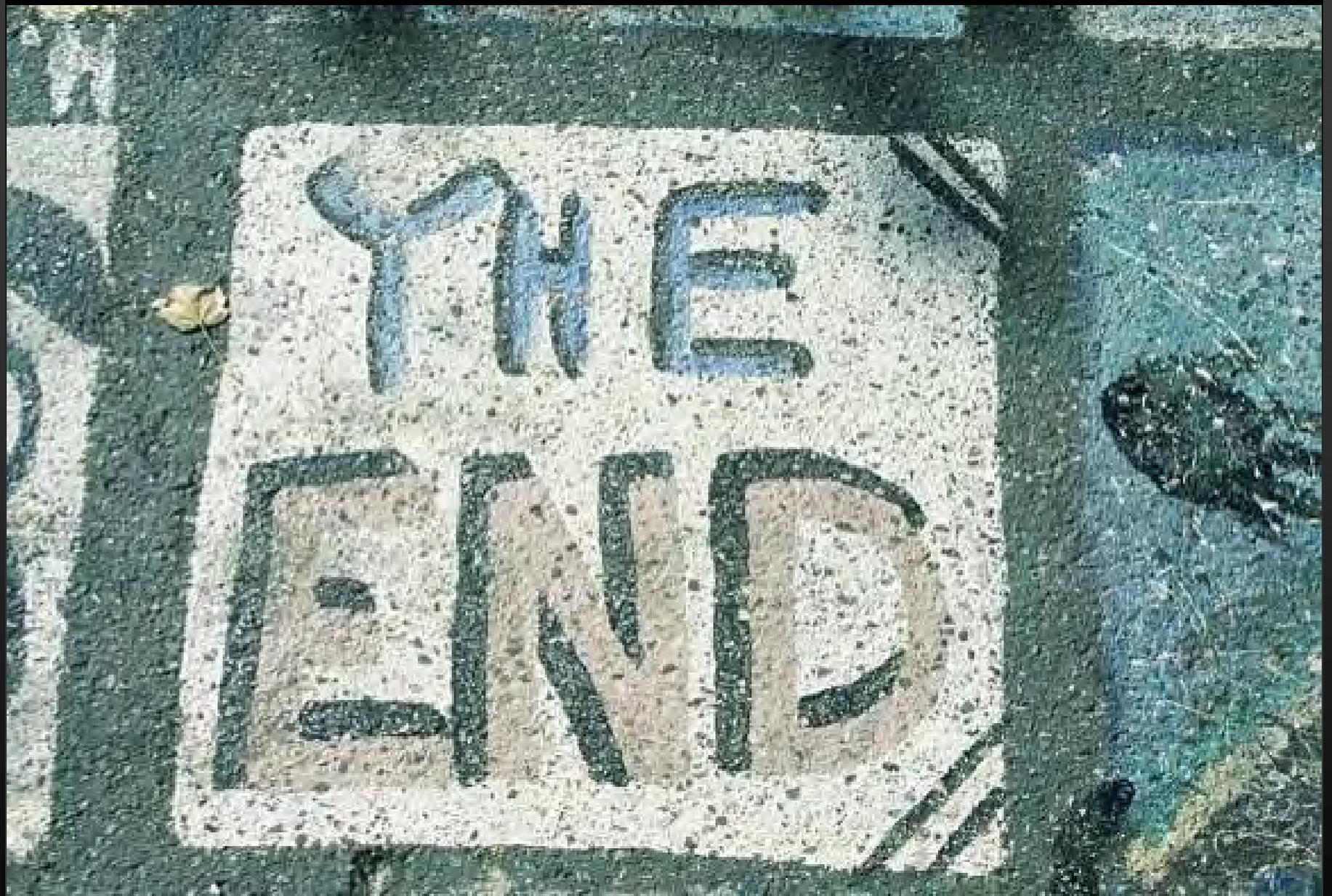




Concord Avenue



REV.	DATE	BY	CHKD	REMARKS	DRAWN BY: _____ CHECKED BY: _____ DESIGNED BY: _____ DATE: FEBRUARY 2007	CAMBRIDGE, MASSACHUSETTS CONCORD AVENUE	TYPICAL SECTION	PROJECT NO. 8178-0880 FILE NAME: 070207 SHEET NO. -
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Portland's CYCLE TRACK

SW Broadway (SW Clay to SW Jackson)

By

Robert Burchfield, PE

Portland Bureau of Transportation

Cycle Tracks: Concept and Design Practices

The Association of Pedestrian and Bicycle Professionals

FEBRUARY 17, 2010

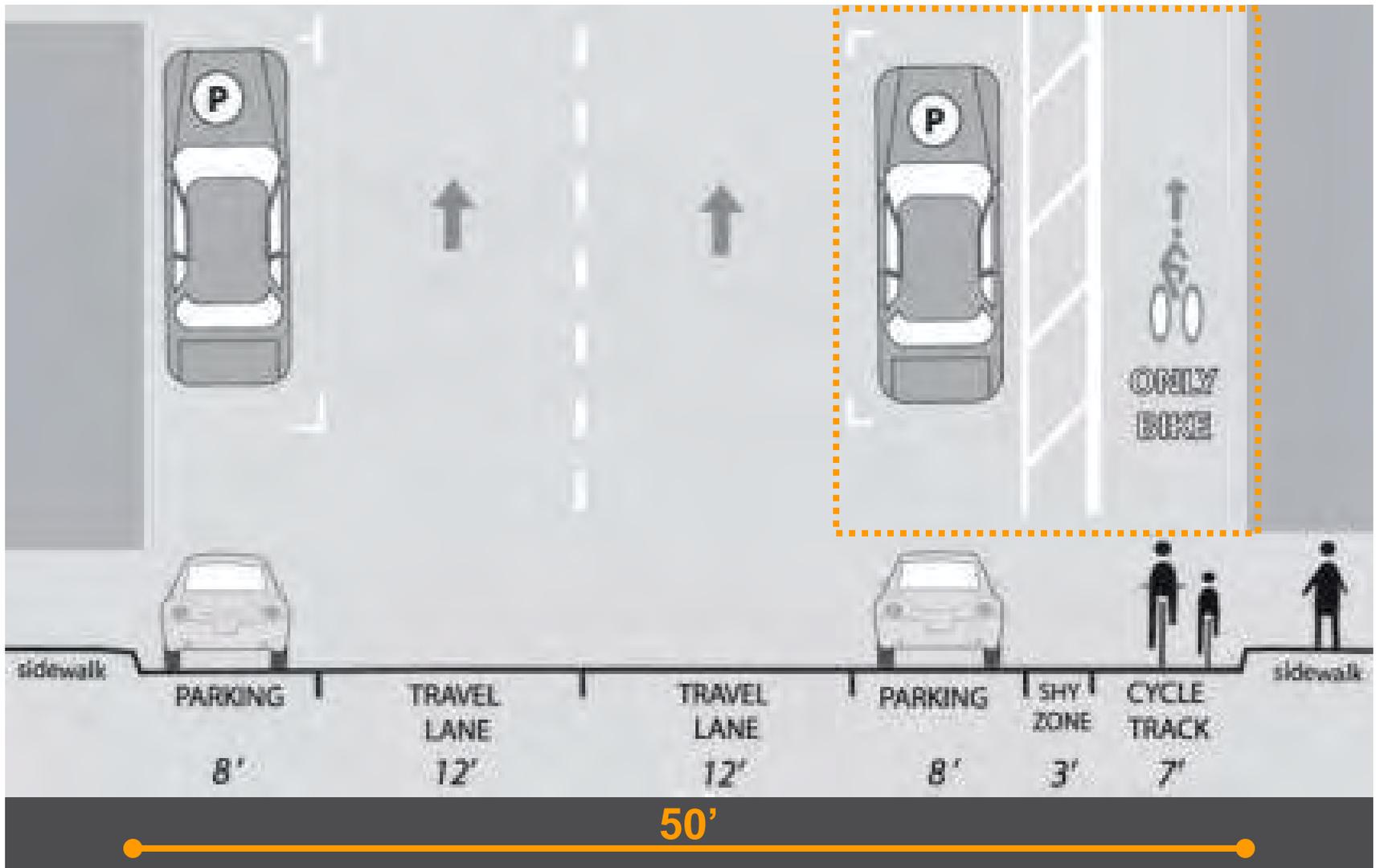
Project **OVERVIEW**

- Cycle track project stretches **seven blocks** along SW Broadway on the PSU campus
- Originally 3 lanes one-way southbound
- **Outside southbound lane** converted to on-street parking
- **Seven foot wide bike** lane at curbside
- **Three foot shy zones** separate cycle track from parking stalls



Broadway Cycle Track CROSS SECTION

SW Broadway Cycle Track – Portland, Oregon



Broadway Cycle Track PUBLIC OUTREACH

Portland Loves Cycling

CYCLE TRACK

Do the ride thing



Portland Loves Cycling This way to our cycling future.

ROUNDING THE TRACK

Enter and leave the cycle track at street intersections and stay within the lane as you ride. Obey all traffic signals, yield to pedestrians using crosswalks, and stay clear of the safety medians where people exit their vehicles.

MAKING LEFT TURNS

As you approach the street you wish to turn on, cross through the intersection and stop in the bike space during travel for cyclists turning left. It's positioned next to the crosswalk. When the signal indicates it's safe to go, complete your turn and ride onward.



PEDESTRIAN SAFETY ZONE

This buffer zone is a narrow median between parked vehicles and the cycle track. It allows space for people to exit and assess their vehicles safely. Bikes are not allowed in the pedestrian safety zone. Beware of pedestrians crossing the cycle track from you.

GETTING OFF TRACK

To avoid collisions with vehicles or pedestrians, cyclists should leave the cycle track only at street intersections. Please do not exit at mid-block or cross through the pedestrian zone and parking space. At an intersection, you may leave the cycle track and merge with traffic in the direction you wish to go.

TRIMET BUS INTERACTIONS

During morning peak hours, TriMet will continue bus service at two stops along the cycle track. That means buses will still pull to the curb, across the cycle track, during these times. If a bus is stopped in front of you, give around carefully or wait behind for the bus to drive on.

YES, YOU MAY OFF-ROAD

Since this is a demonstration project, cyclists on SW Broadway are not required to use the cycle track. However, it will provide greater mobility and safety than riding in the traffic lanes. It's also likely you will experience less congestion and quicker travel via the cycle track. In short, it's the way to go when cycling downtown.



Broadway Cycle Track MARKINGS



Typical mid-block marking



Looking south from SW
Montgomery



Looking north from SW Clay

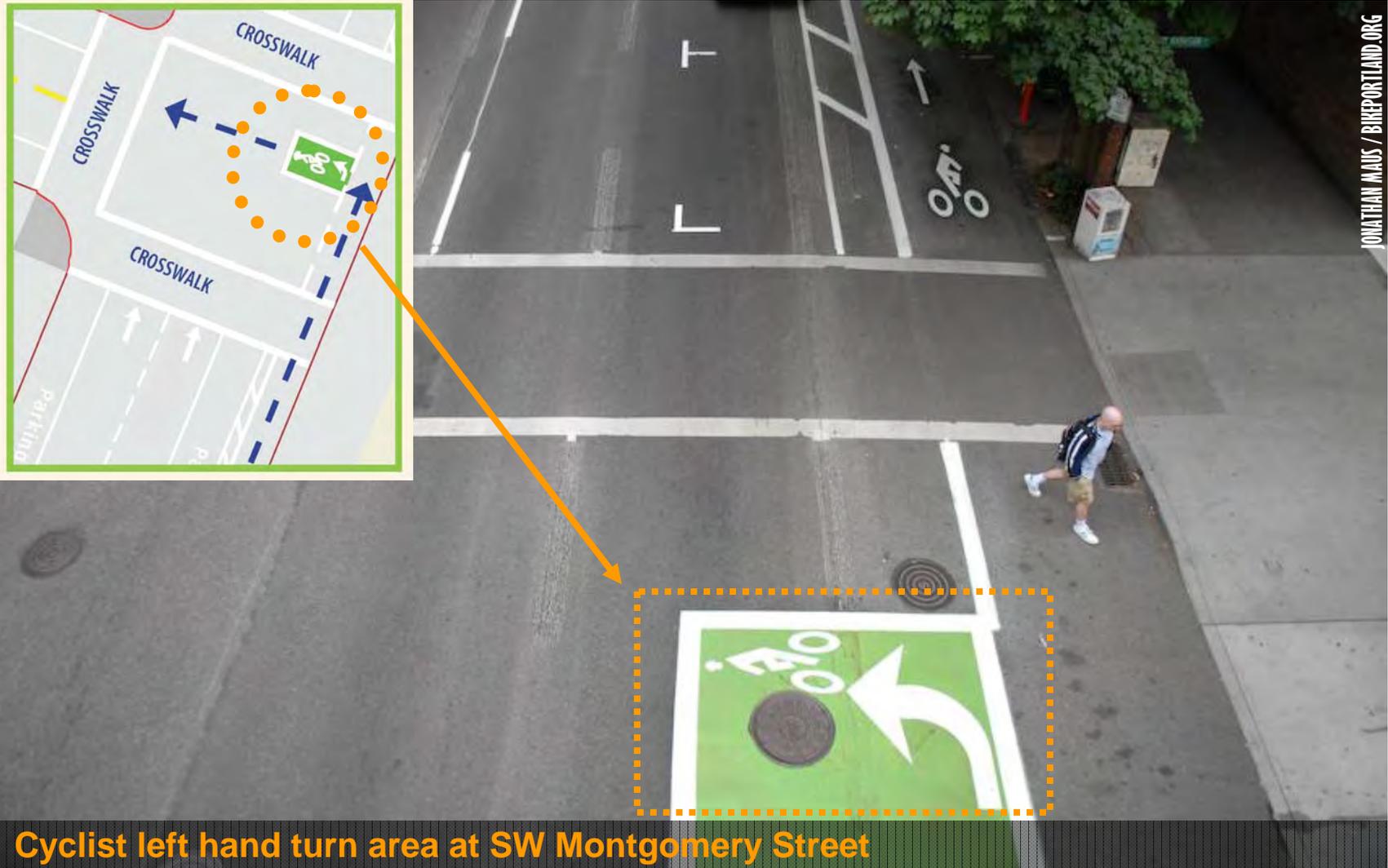
BUS STOP Treatment



- *During morning peak hours, buses service at two stops along the cycle track.*
- *Buses will still pull to the curb*

LEFT HAND TURN Treatment

Two Stage, with Bike Box



Cyclist left hand turn area at SW Montgomery Street

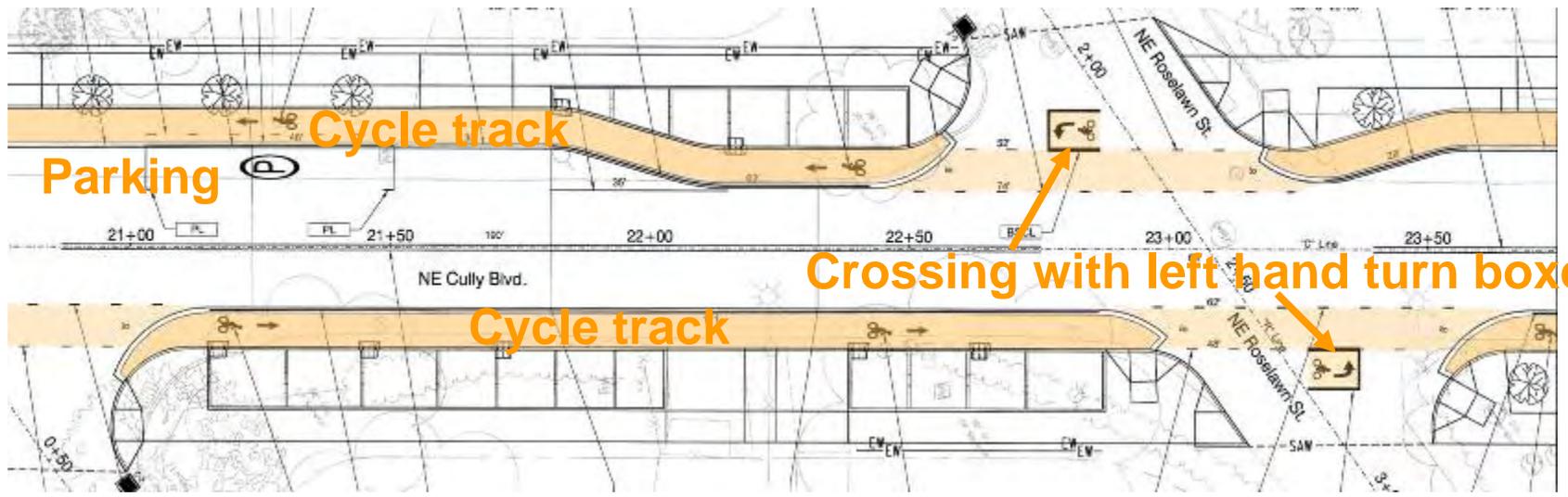
Broadway Cycle Track CHALLENGES

- Parking Enforcement
 - Pay Stations
 - Enforcement Officers use buffer area when placing citation
 - Temporary parking removal using magnetic base flexible posts
- Street Cleaning
 - Cycle Track plus buffer is wide enough to accommodate a street sweeper
 - Leaf fall is heavy in autumn- extra cleaning needed
- Wheel Chair User Access
 - Concerns from users regarding wheelchair van loading
 - Cycle Track may be used by wheelchairs



Future **CYCLE TRACK** project

NE Cully Boulevard



Thank You.

Robert Burchfield, PE

City Traffic Engineer

Portland Bureau of
Transportation

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Portland, OR 97204

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www.portlandtransportation.org



Cycle Tracks: Concept and Design Practices.

The New York City Experience

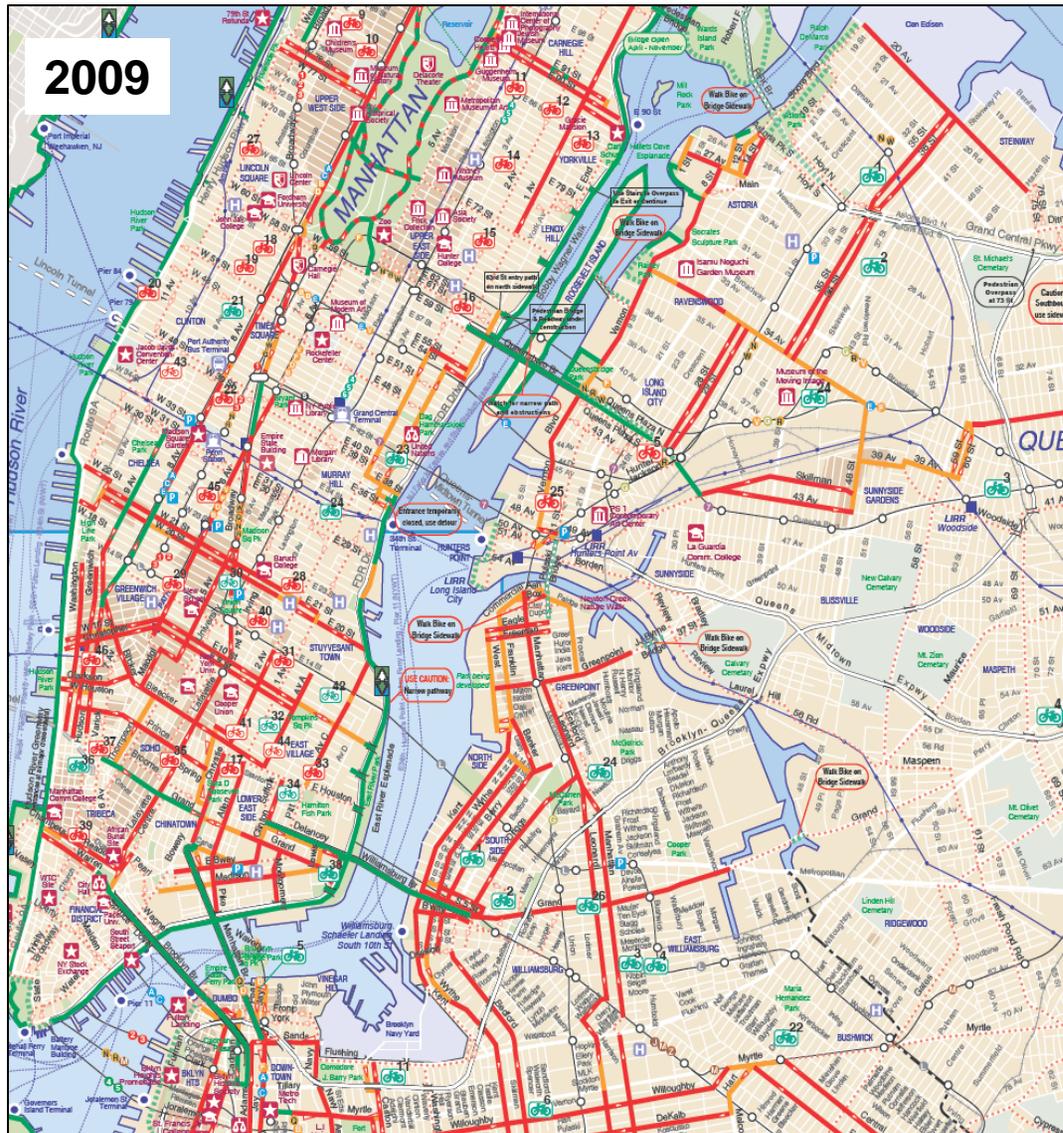


Hayes A. Lord
Director, Bicycle Program
NYC Department of Transportation

February 17, 2010



3 years – 200 miles



- **2006**
 - 8,650 commuter cyclists
 - 420 lane miles
 - 0.8 miles of on-street protected paths
- **2009**
 - 15,495 commuter cyclists
 - Over 645 lane miles
 - Over 10 miles of on-street protected paths

NYC's Toolbox of Design Treatments



Signal Protected Path



2-Way Protected Path



Separated Path with Mixing Zone



Cycle Track

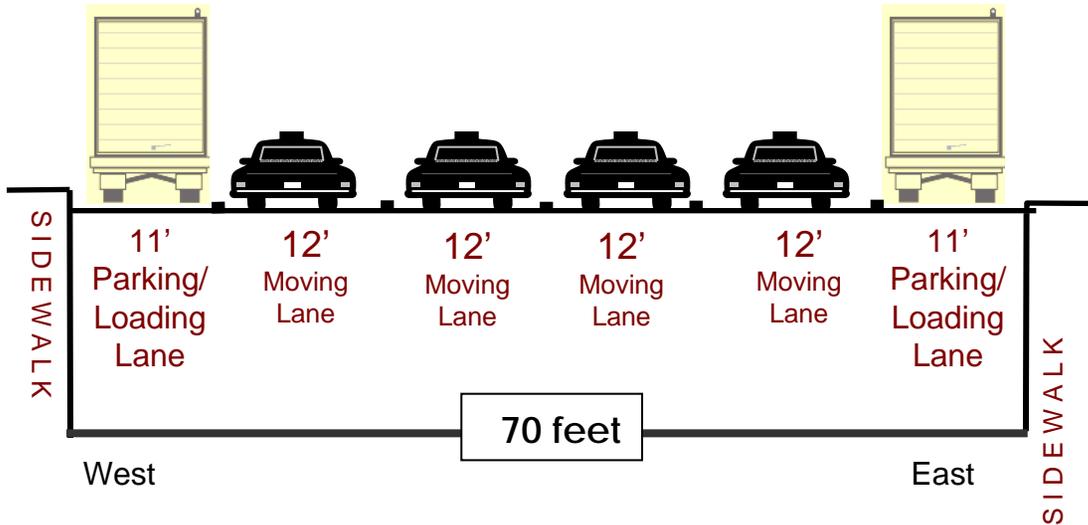
9th Avenue — Existing Conditions



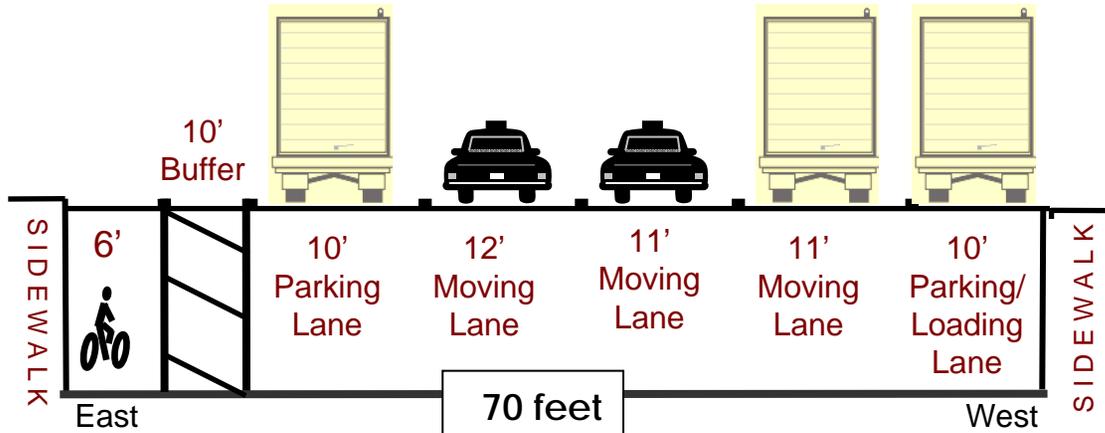
2006

9th Avenue

Existing Conditions (2006):



New Design (2009):



- Peak Hour traffic volume: 1,700 vph
- 4 Travel Lanes
- High Collision Rates
- High Vehicle Speeds
- 780 Cyclists (12-hour period: 2007)
- Primary land use: Multi-family residential

9th Avenue — Signal Protected Bike Path



9th Avenue — Signal Protected Bike Path



**50% increase in
cyclists**

2009

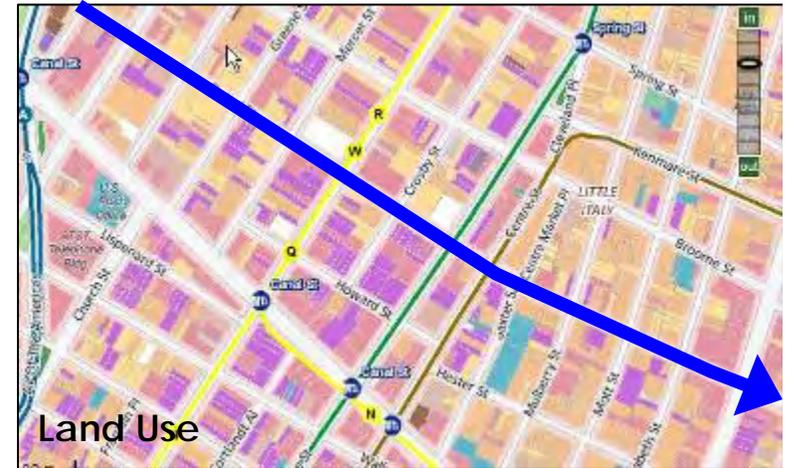
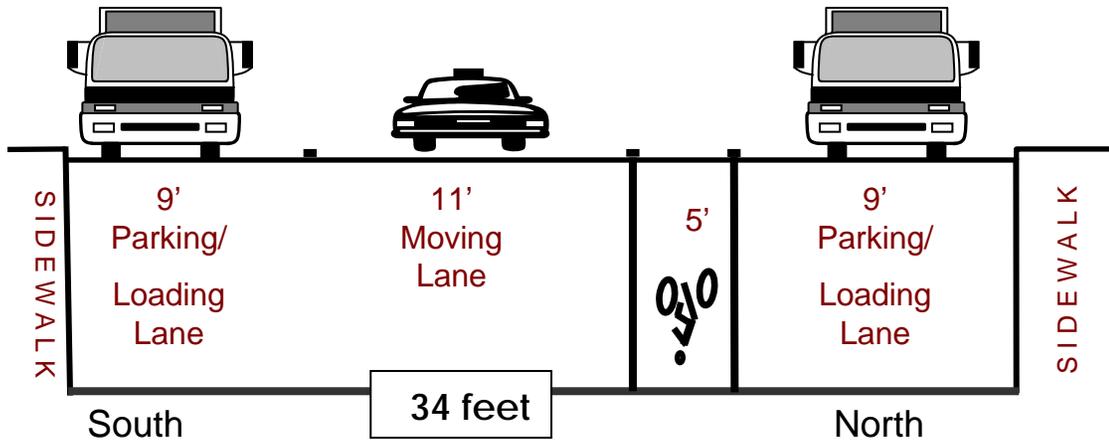
Grand Street — Existing Conditions



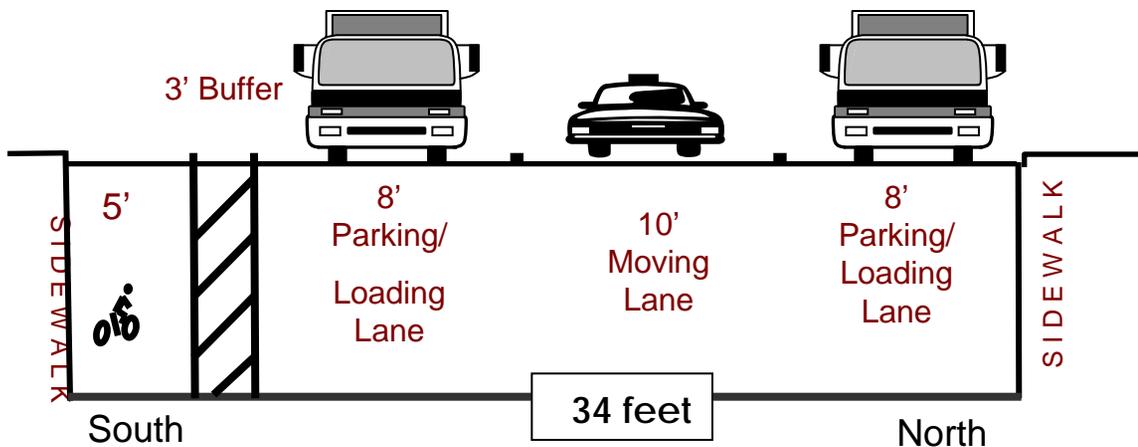
2007

Grand Street

Existing Conditions (2007):



New Design (2008):



- Popular cross-town bicycle route
- Link to Manhattan Bridge and Williamsburg Bridge
- Existing bike lane
- Disorderly traffic
- 647 Cyclists (12-hour period: 2008)
- Primary land use: Mixed commercial/residential

Grand Street — Protected Bicycle Path with Mixing Zone



Grand Street — Protected Bicycle Path with Mixing Zone



2008

Grand Street — Protected Path with Mixing Zones



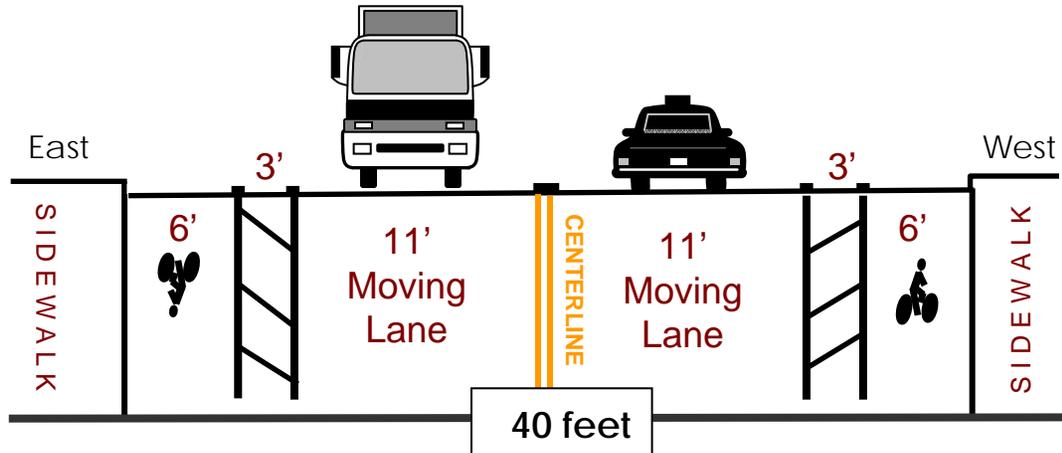
Kent Avenue – Existing Conditions



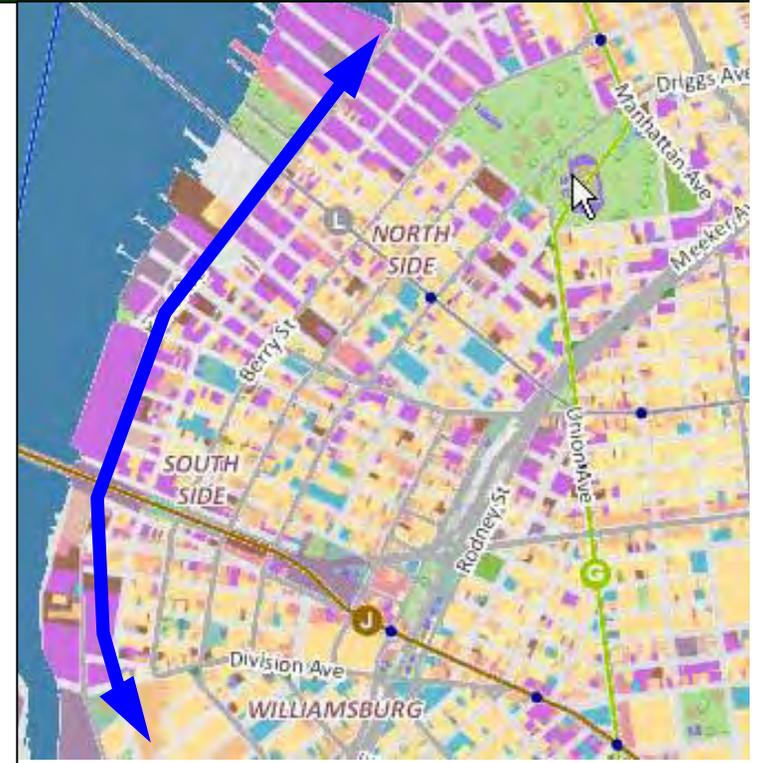
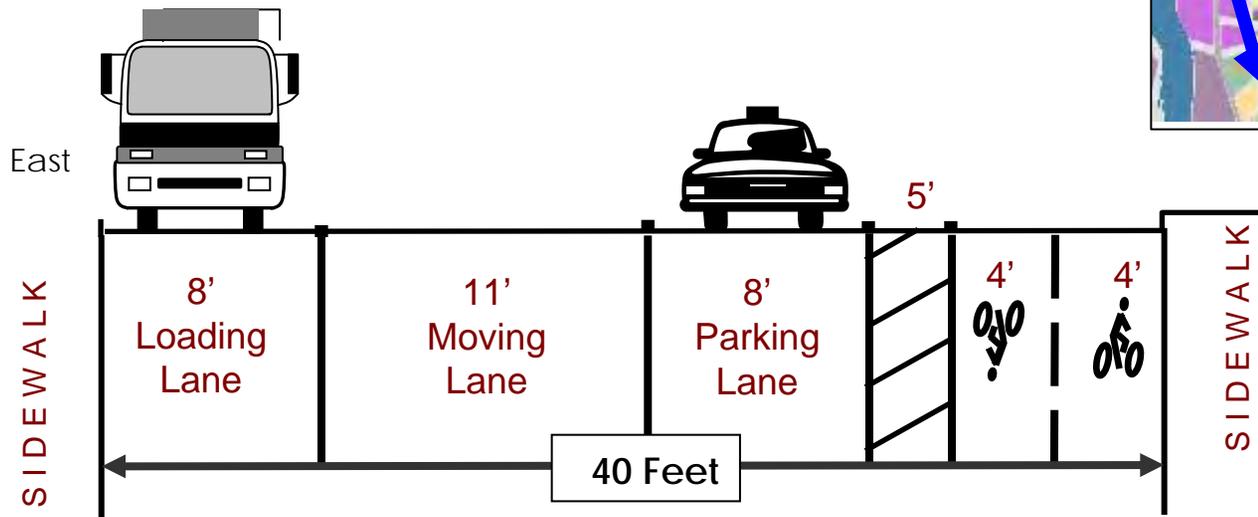
2007

Kent Avenue

Existing Conditions:



New Design (2009):



- Two-way Traffic
- No Curbside access
- Existing Curbside Bike Lanes
- Peak Hour SB traffic volume: 429
- Primary land use: industrial

Kent Avenue — Two-way Bike Path



2009

Kent Avenue — Two-way Bike Path



Sands Street — Cycle Track



Safety Statistics

9th Avenue:

- Injuries to all street users **down 56%**
- Reportable crashes **down 48%**
- Injuries to pedestrians **down 29%**
- Injuries to cyclists **down 57%**

Broadway:

- Injuries to all street users **down 50%**
- Reportable crashes **down 49%**
- Injuries to pedestrians **down 40%**
- Injuries to cyclists **down 50%**

Grand Street:

- Injuries to all street users **down 27%**
- Injuries to pedestrians **down 28%**



Comparative Costs Estimates



Signal Protected Bike Path

- \$1.5 million per mile (approx)



Separated Path with Mixing Zone

- \$139,000 per mile (approx)



Cycle Track

- \$13 million per mile (approx)

Contact Information

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