Bike Facilities in DC
and Signalized Intersection Treatment

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Why is DC Installing Bike Lanes?

- Increasing bike ridership
Why is DC Installing Bike Lanes?

• 2005 Bicycle Master Plan Goals
  – 2000: 1% of commute trips by bike
  – 2010: 3% of commute trips by bike
  – 2015: 5% of commute trips by bike

• Sustainable DC goals (2032)
  – 75% of all trips by walk, bike, or transit by 2032
  – 200 more bike share stations

• moveDC to set next generation of network (www.wemoveDC.org)
• 1,000 new residents per month
What is a Protected Bike Lane?

- A protected bike lane is a physically separated space designated for bicycle use.
- US cities just beginning to install these; Popular in Europe
- Separation mid-block by vertical posts or curb
- No separation at intersections
  - Conflicts minimized through:
    - Signalization
    - Traffic control (yielding)
Why Protected Lanes?

- Research has shown that protected bike lanes can triple ridership
- Higher degree of user comfort
- Attracts “interested” riders
- Provides greater clarity to cyclists and motorists
- Can eliminate conflicts between bicycles and parking cars
- Provide adequate space and removes the danger of “car dooring”
- NYC commuter cycling increased **26%** in 2009 following 2008 installation of cycle tracks on central roadways.
Context—D.C.’s Downtown Bike Network

- 15th St NW
- L St, NW
- M St, NW
- Pennsylvania Ave, NW

**Legend:**
- Green/Painted Lane
- Bike Share Station
- Existing Bike Lanes
- Proposed Bike Lanes
- Existing Protected Lanes
- Proposed Protected Lanes
15th Street, NW “Cycle-Track”

- The first physically separated bike lanes in the City
- Two-way cycle track
- Protected by Parking Lane
Typical Section (Northern) for Cycle Track
15th NW Design Plan
Signalization Challenges of Separated Cycle Tracks

15th St has 46 Intersections
- 21 signal control
- 6 uncontrolled minor streets
- 4 parking garage drives
- 1 hotel driveway
- 11 alleys
- 3 residential driveways

Same direction bicyclist crashes with left turning vehicles is the primary danger where utilizing two way roadway and cycle track designs...
• Separate phasing
  – Left arrow/lane
  – Leading bike/ped phase
• Parking restriction
  – Bike SSD 50 feet
• Chicane bike approach designed for 10 mph
  – Shifts cyclist to line of sight of approaching motorists
  – Flex post keep cars in lane
• No color in bike xwalk
• Separate phasing
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15th and R St, NW – Signal Phasing
• Fully protect left turns
• Left turn prohibitions at 3 locations (to reduce traffic delay)
• Parking restrictions to create right turn lanes for 100 feet
• RTOR prohibited
• Separate bike crosswalk
• Leading Bike/Ped Interval of 3 seconds
- Parking restriction on approach
- Chicane cycle track approaching conflict
- Flex posts up to crosswalk
- Bike symbols within conflict zone
- Signs

Replace parking to minimize complaints
15TH ST AND LOWER E ST, NW
15th and Lower E – Intersection Design

NOTE:
1. SEE DETAIL SHEET 3, 4 AND 5 FOR INTERSECTION APPROACH TREATMENT.
2. REFER TO DETAIL SHEET FOR LOCATIONS OF NEW PARKING SIGN POSTS.
3. NOT ALL EXISTING SIGNS ARE SHOWN ON EVERY POST. WHEN RELOCATING TO A NEW POST LOCATION, RELOCATE EVERY SIGN ON POST UNLESS OTHERWISE NOTED.
15th and Lower E Bike Signal
15th and Lower E – Signal Phasing
L Street NW
L Street NW – No Left Turn

- Bike lane on north side
- Separated with flexible posts
- Bike box for cyclists making right turns
- Peak hours to feature 3 thru lanes PLUS shared turning lane (mixing zone)
- Off Peak Hours to feature 2 thru lanes, 1 parking lane and shared turning lane (mixing zone)
L Street NW – Left Turn Typical

- Car/bike merge area – cars must yield to through bikes
- Left-turn lane and storage
- Green through bike lane
16TH ST AND L ST, NW

NB on L St
16TH ST AND L ST, NW
SB on L St
Green Paint
L Street Parking and Loading Impacts

- North Side Parking Removed
- South Side Parking during non rush-hours
- Loading zones on south side and side streets
- Reduction in redundant signs/clutter
16TH ST AND U ST, NW

Before
After
16TH ST AND U ST, NW
Summary of Facilities – 16th/U/New Hampshire

- **Goal:** Facilitate bicycling along New Hampshire Ave. through large, complex intersection

- **Treatments in Use:**
  - Bicycle signals
  - Bicycle loop detectors
  - Bike boxes
  - Contraflow bike lane
  - Sharrows
EXISTING

Pennsylvania Ave Typical Cross Section
Between 7th Street, NW & 9th Street, NW

8 Travel Lanes, Left Turn Lane
Restricted and Full Time Parking
7TH ST AND PENN AVE, NW

• Before
7TH ST AND PENN AVE, NW

- After
Pennsylvania Avenue, NW

- Center median bike lanes with buffers
- Turn lane and signals for cars turning left across the bike path
7th and Pennsylvania, NW—Signal Phasing
14th St to Connecticut Ave

EXISTING 40' CROSS SECTION
(East of Connecticut Ave)

PROPOSED 40' CROSS SECTION
(East of Connecticut Ave)

Connecticut Ave to 28th St

EXISTING 56' CROSS SECTION
(West of Connecticut Ave)

PROPOSED 56' CROSS SECTION
(West of Connecticut Ave)
M Street NW – Right Turn Typical Section
M Street NW – No Right Turn
M Street Parking and Loading Impacts

- Most Loading Zones will remain on both sides of streets
- North Side Parking and Loading moved to outer edge of cycle track
- South Side Parking will remain mostly the same
- Installation of missing parking meters and removal of unnecessary diplomatic spaces between New Hampshire & 21st
- Reduction in redundant signs/clutter
M Street NW at Connecticut & Rhode Island
22ND ST AND M ST, NW
M St and 22nd St NW