Cycle Track
Lessons Learned
Presentation Overview

- Cycling Culture—Copenhagen/Amsterdam
- What is a “Cycle track”?
- Essential design elements of cycle tracks
  - Separation
  - Width
  - Crossing driveways & low-volume streets
  - Signalized intersections
People riding bicycles
Cycle Culture “wet”
Cycle Culture “transport”
Cycling Culture “family friendly”
What is a cycle track?

- Combines the user experience of a separated path with the on-street infrastructure of a bike lane
- Provides space exclusively for bicycles
- Separated from vehicle travel lanes, parking lanes and sidewalks

Cycle tracks are located on the outside of on-street parking
Cycle Track—Amsterdam
Cycle Track Copenhagen
Cycle tracks in Portland

NE 44th & Hancock
- Contra-flow cycle track
- Bike symbol painted on sidewalk

Airport Way
- Two-way cycle track
- Long, busy road with few cross-streets
Cycle Track—Bend, OR
Cycle tracks in the U.S. - New York

9th Avenue, New York

Photo courtesy of houze
Cycle Tracks in the U.S. - Cambridge, MA

Vasser Street, on MIT Campus
European Bike Fleet

- Utilitarian bikes
- Many cruisers
- Fat tires - less danger of getting caught in tracks
- Slower speeds
Cargo Bikes

- Require more room for maneuvering
Separation - from motorists and pedestrians

Channelized cycle track, Amsterdam

Mountable curb, Copenhagen

Pavement markings and bollards, Sweden
Width

- Min. 7 ft., 2 foot buffer desirable from doors or traffic

Section with on-street parking

Section without on-street parking
Cycle Track Widths

- Typical—2.2 meters
- Minimum—2.0 meters
- Desirable—2.5 meters
- Special cases—up to 3 meters
- Cycle lanes at intersections—1.5 meters
From CPH to PDX
PDX Cycle Track Design—NE 7th Ave

- Bike
- Parking/Buffer
- Streetcar Stop
- Streetcar
PDX Cycle Track/Green Street
NE Cully Blvd at Alberta
Green Street Design Challenges

Swale

Typical x-section w/o Swale
Driveway Crossings

- Continue the cycle track through the crossing
- Use pavement markings and grade separation to indicate that the cycle track has the right-of-way
Increasing Visibility at Signalized Intersections

- Drop the cycle track to a bike lane ~16’ before intersection
- Move vehicle stop-bar back ~16’
- Stripe the cycle track as it becomes a bike lane, potentially through the intersection, as a “crossbike”
- Remove parking directly before the intersection
Shared Right/Bike Lane Treatment
Cycle Tracks don’t solve Right Hook Crashes
Right Turn Yield--Amsterdam
Crossbike

- Parallel to crosswalk
- Uses pavement markings to separate pedestrians and bicyclists
Protected Signal Phases

- Prohibit right-turn on red by cars and left turns by bicycles
- Provide an advance or separate green signal for bicycles
- Use bicycle-differentiated signal heads
  - Bicycle icon
  - Smaller signal
  - Located on near-side
  - Countdown to red/green
  - Longer signal phase
Right turning movements

- Can separate automobile right-turn phase from straight-ahead bicycle movements
- Right-turn-past-red: slip lane enables cyclists to pass red signals
- “Expanded cycle stacking lane” for right turn option
The ‘Copenhagen Left’

- Cycle track drops to street-level before the intersection
- Bicyclists turn right into intersecting street
- Position bicycle in front of cars
- Cyclists can go straight on next signal phase
Cycle Track Left Turns

intersection: left turn
Alternative Left Turns

Bike-only signal, Switzerland

Jug-handle left, Sweden
CPH Style Left-Turn--PDX
Use Yield control rather than STOP

Yield markings at facility transition, Copenhagen

Yield sign at ‘Copenhagen Left,’ Amsterdam
Two-Way Cycle Tracks

Bike markings, Frankfurt

Two-way cycle track, Stockholm

Divided two-way cycle track, Amsterdam
The ‘Green Wave’

- Green progression at 20 km/hr (12 mph)
Green Wave Cycle Lane
Transit Conflicts

Cycle track crossing street car tracks with yield markings

- Cross at as close to 90 degree angle as possible
- Yield signage or pavement markings
- Minimize conflicts between disembarking transit passengers and cyclists in the cycle track

Cycle track passing between bus stop and sidewalk
Green Bicycle Route
Transition to Neighborhood Street

- Rumble-Strip pavement markings and curve
- Pavement change and yield markings
- Bicycle speed bump
- Regulatory signage
Bicycle Escalator & Wheel Gutters

Access to bike parking, Amsterdam

Detail of wheel gutter, Amsterdam

Wheel gutter, Frankfurt
Bike Bridge
Other Innovations

Angled bicycle refuge

Retractable bollards

Cycle track sweeper

“Watch for blind spots”
Cycle Track Lessons Learned

- One-way each side of a street
- Minimum 2.0 m. clear; 3 m. in higher-demand situations
- Cycle track located between sidewalk & on-street parking
- Driveways and low volume side streets yield to cycle track
  - European standard is to use yield control pavement markings, not stop signs at low volume intersections
  - Driveways and low volume side street crossings can be marked, colored, textured
  - Motorists must mount curb to cross
Cycle Tracks Lessons Learned 2

- Cycle tracks at intersections
  - Separate signal cycles for right-turning motorist versus through bike traffic
  - Stop line for motorists pulled back 16’ (can use bike box or pulled back stop line)
  - Can drop cycle track to bike lane 16’ back
  - Use color in bike lane starting 16’ back can use color through intersection
  - Advance green
  - Use of yellow warning before green (2 secs)
  - No right turn on red for any movements
  - No parking at intersections (16’ back)
  - Twp-step left turn in many situations

- Buses stop outside cycle track and can be separated - cyclists in cycle track yield to disembarking passengers

- Wayfinding/naming signage should accompany the system
Key Design Issues for Portland

- Adequate width (2.2 Meters) for cycle track
- Cycle lane treatment at intersections
- Retrofit drainage for raised cycle track.
- Develop cycle track designs that are compatible with green streets.
- ADA compliant crossings and transit stops
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