Potential Safety Improvements to Bicycle Lanes on Concord Avenue

Community Path Advisory Committe (CPAC)

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Abstract:

There is interest in providing Community Path connections and segments along Concord Avenue in eastern Belmont. There is also interest in creating a network of paths in Belmont which could utilize Concord Avenue. To meet these desires, this document discusses potential safety improvements to the Concord Avenue roadway to make it more conducive to cycling for a wider range of abilities. These design modifications suggest some near-term safety improvements for the bicycle lanes on Concord Avenue in eastern Belmont.

Concord Avenue in eastern Belmont is currently configured with adjacent parking lanes, bicycle lanes, and travel lanes. This design works well in most cases. However, this current arrangement exhibits safety problems that commonly occur. These safety problems should be addressed to accommodate a wider range of cyclists using that roadway. These recurring safety problems are as follows:

1) Motorists commonly park or stop in the bicycle lanes. This problem forces cyclists into the travel lane and increases the risk of dooring, both of which are safety hazards that discourage wider use of the bicycle infrastructure. Similar obstructions to the bicycle lanes occurs in winter when snow mounds encroach on the roadway shoulders.

The bicycle lanes are immediately adjacent to the parking spaces. These conditions therefore put cyclists at risk of colliding with opening car doors (called "dooring") a well known cause of serious bicycle accidents.

2) During rush hours, motorists illegally drive in the bicycle lanes to pass around cars turning left at driveways and intersections. Generally this type of illegal behavior is not ticketed by the Belmont Police Department. It creates a safety hazard for people using the bike lanes and also a safety hazard for other drivers.

3) At roadway intersections like Bright Road, Goden Street, Underwood Street, etc., it is common for motorists to perform the “right-hook” maneuver on cyclists. This aggressive driving behavior occurs when motorists quickly accelerate to get in front of a cyclist in the bike lane, and then proceed to cut

off the cyclist in the bicycle lane to make a rapid right turn. This is a common cause for bicycle-motorist crashes.

There are low-cost, near-term safety improvements that could directly address these three safety problems. These suggestions are described at a high-level below:

A) Parking in Bike Lanes and Dooring Hazards: Implement a 2-foot wide solid marked buffer with hash-marks as a buffer zone between the car parking and bike lane. To create this space, eliminate inner fog lines adjacent to the center median, and narrow the travel lane from 12 feet to 11 feet. For example, see Illustration 1 below.

B) Driving in Bike Lanes, Parking in Bike Lanes, and "Right Hook" Dangers: Install plastic bollards at each right-turn and left-turn roadway/driveway intersection to keep motorists in travel lanes. Would reduce unsafe driving in bicycle lanes near intersections and mitigate "right-hooking" dangers at intersections. For example, see image below in Illustration 2. These bollards would need to be removed in winter to allow for snow plowing of full road surface. Their anchors to the roadway would be designed to be sub-flush with the roadway surface. They would be capped in winter in a manner to avoid plows from catching on them.

These bollards would be plastic and deformable, and generally will not damage cars. However, they would need to be replaced at some interval since cars will damage them.

C) Driving in Bike Lanes and "Right Hook" Dangers: In addition to bollards, an additional method to mitigate these two problems is to clearly mark the bike lane right-of-way using bright paint through the intersections. This bright coloring clearly marks the bike lane as separate from the motor-vehicle travel lane, discouraging use of the lane by cars. An example of this approach is shown in Illustration 3. These are often called "Green Bicycle Lanes".

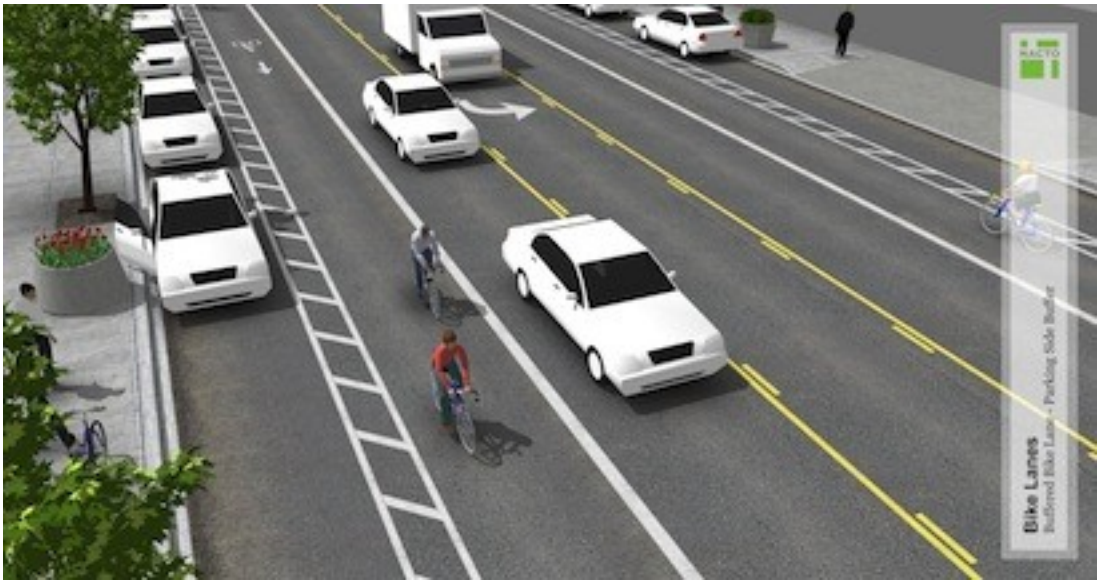

Illustration 1: Two-foot buffer zone between parked cars andBicycle Lanes.

Illustration 2: Bollards placed between travel lane and bicyclelane to provide increased protection in bicycle lanes. Bollardswould be designed for easy removal in winter to allow snowplowing.

Illustration 3: “Green Bicycle Lane” painted around intersections and driveways.

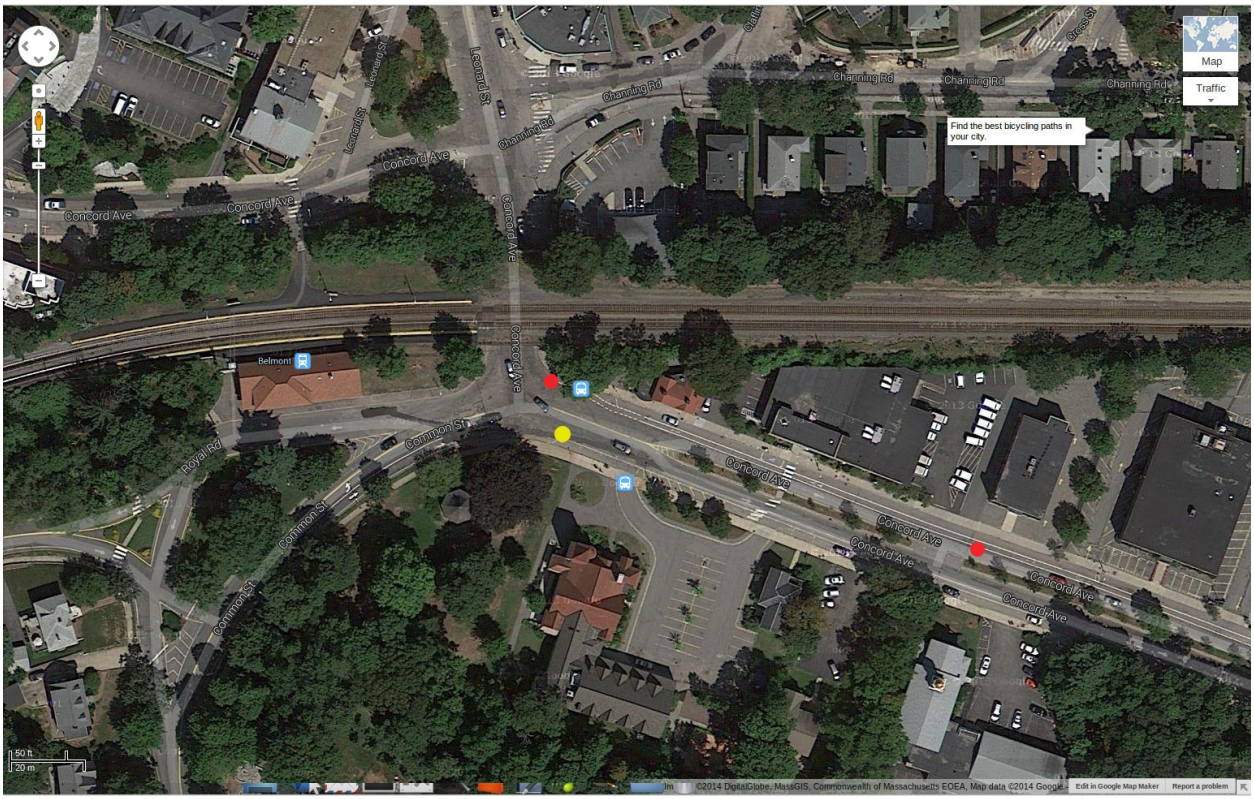

Illustration 4: Dots show proposed Concord Ave. locations for safety bollards near Belmont Center. Red are in west-bound lane. Yellow are in east-bound lane.

Illustration 5: Dots show proposed Concord Ave. locations for safety bollards east of Belmont Center. Red are in west-bound lane. Yellow are in east-bound lane.