Bicycle Accommodation During Construction Guidelines

Applicability

These guidelines shall apply to all construction projects in the City of Cambridge, whether the work is being undertaken by the City, private developers, contractors, utility companies or state agencies. The types of projects include:

- Street reconstruction and new street construction
- Sewer, storm drainage and water projects
- Private site development, involving work within a City street (e.g., utility connections, temporary occupancy of parking or traffic lanes)
- Utility construction

General

Bicycles are legal vehicles on all the streets of Cambridge. Through bicycle movement must be maintained during construction and other projects that disrupt travel (e.g., special events). Bicyclists are particularly susceptible to disruptions in their normal travel routes because of their slower speeds and exposure to noise, dirt and fumes. Temporary lane restrictions, detours and other traffic control measures instituted during construction or other travel disruptions should be designed to accommodate non-motorized travelers.

Pavement Surface Quality and Structure

Cyclists, particularly those riding on narrow, high-pressure tires, need to have pavement as free of defects and debris as possible to ensure control of their bicycles. As most road bikes do not have a suspension system, high-pressure tires transmit every bump to the rider. Cyclists are also susceptible to loss of control on deteriorated pavement with loose aggregates, potholes, litter, etc. Pavement seams parallel to the roadway should not be located on the portion of the road where bicycling is expected. Utility covers and drainage grates should be flush with the pavement surface and should be adjusted with pavement overlays. Approaches to railroad crossings should be improved as necessary to provide for safe bicycle crossings.

Pavement surfaces should be smooth, and the edge of the pavement should be uniform. Narrow slots in the surface that could catch a bicycle wheel, such as a gap in the longitudinal joint between two concrete slabs, should not be more than 1/2 inch wide. Ridges in the pavement that could cause cyclists to lose control should not be more than 3/8 inch high when parallel to travel or 3/4 inch high when perpendicular to travel.

When pavement is overlaid, the edge of the overlay should be matched to the height of the adjacent pavement or smooth transitions should be provided.

Wherever bicyclists are sharing a motor vehicle lane and the space through the restricted area is narrower than the rest of the roadway, temporary “Share the Road” signs should be included.

Bicycle Travel through Construction Zones:

- Where construction is occurring on a street that already has a bicycle lane, the area through which the construction is occurring should maintain that space.
- Every effort should be made to avoid using bike lanes for staging of site construction work.
- Minimize the time that construction work occupies bike lanes. For example, if the added work space is only needed for operation of a crane for a limited number of days, that will be the only time that occupancy of the bike lane is permitted.
- Where bicycle lanes are not present, provide a shared vehicle lane as wide as physically feasible.
- If the disruption occurs in a bicycle lane over a short distance (approximately 500 feet or less), bicyclists may be routed to share a motor vehicle lane (as wide as possible).
- Where bicycles must share lane with motor vehicles, post the W11-1/W16-1 combination (Bicycle warning with SHARE THE ROAD) plaque as shown at right.
- If the disruption occurs over a longer distance (more than 500 feet), and on busy roadways, a temporary bicycle lane should be provided. In the event that it is not possible to provide a temporary bicycle lane, provide a wide outside lane (at least 14 feet wide). If neither of these is possible, provide ramps to allow bicycles to access the sidewalk within the construction zone (provided the site is not within one of the zones where sidewalk bicycle riding is prohibited).
- Bicyclists should not be specifically directed onto sidewalks with pedestrians unless there is no reasonable alternative.

Considerations for Street Disruptions and Construction:

- **Metal plates** create a slick and dangerous surface for cyclists, and are not easily visible at night or in the rain.
  - Advance warning signs (Caution – Metal Plates Ahead) shall be posted.
  - It is preferable that the plates be recessed so that the top of the plate is level with the adjacent pavement.
  - Where this is not possible, provide a temporary bituminous concrete lip painted reflective orange all around the plate to provide a smooth transition between the plate and adjacent pavement.
  - All metal plate edges should be painted with high visibility (reflective orange) paint.

  - Type II or II Barricades (see MUTCD for description) with flashers should be placed at least 20 feet in advance.
  - Steel plates should have a non-slippery textured surface; this is required within an intersection or a crosswalk.

- **Construction excavations or depressions** should never be left without physical barriers preventing cyclists from falling in.
  - The preferred treatment is the provisions of temporary fill and a temporary bituminous concrete patch.
  - Where the excavation is outside the motor vehicle and bicycle lanes, provide traffic barriers (concrete barriers, barricades, or where the depression is less than 18 inches cones or barrels may be used)
  - If the excavation must be maintained for more than two days and it is located within lanes to be used by bicyclists, temporary steel plates may be used. See guidelines for the use of metal plates above.

- **Narrow cuts** that are parallel with the direction of travel create an extreme hazard for cyclists, whose tires could get caught. These should never be made and left in an area where bicyclists will be traveling. If necessary, they should be blocked off and cyclists routed around the hazard.
  - When performing advance pavement cutting for trenching or other roadway excavation, use only saw cutting (approximately 1/4 inch or narrower).

- **Site access and ramps**. Temporary (usually asphalt) ramps are sometimes proposed to access a site from a sidewalk where no driveway or other vehicle access exists. The creation of ramps in the roadway is not permitted unless being created in an area that is otherwise used by on-street parking.

- **Raised castings**: After cold planing of pavement is performed, utility castings (e.g., manhole covers, valve box covers, catch basin grates) will be 1 to 2 inches higher than the surrounding pavement. This presents a hazard for bicyclists and motor vehicles alike. This condition will also occur during roadway construction just before the next lift of pavement is to be placed. Wherever raised casting are present, the following should be provided:
  - Provide advance warning signs saying: “Caution – Raised Castings Ahead.”
  - Spray paint reflective orange the raised portions of the castings.

- **Cold planing and pavement installation**: After cold planing, there is a vertical lip at the limits of pavement removal. A smooth bituminous transition slope should be provided to eliminate the jarring hazard of hitting the vertical lip. In roadway construction, there may be

a similar vertical lip between the different lifts of pavement installed. In these conditions, a similar transition is also needed.

- Provide advance warning signs saying: “Bump” at these transitions.
- Paint the transition sloped area in reflective orange.

- **Pavement Sweeping and Debris Removal:** Road surfaces in construction zones may experience a greater build-up of debris than other roadway segments. Special attention must be given to keeping roadways surfaces free of debris, including sand, gravel, stones, trash, and miscellaneous construction debris. Pavement in construction zones should be swept to maintain a reasonably clear riding surface in bicycle lanes and in the outer 5 or 6 feet of roadway.

- **Pot holes:** Pot holes are more likely to be found in construction zones due to the impact of construction equipment and due to temporary pavement patching. Special attention must be given to monitoring for the development of pot holes and for promptly filling in and patching pot holes.

- **Temporary Traffic Sign Placement:** The placement of advance construction signs must not obstruct bicyclists’ path. In particular, temporary signs shall not be placed in bicycle lanes.

- **Restoration of Pavement Markings:** As soon as reasonably possible after paving, install pavement markings, particularly bike lanes markings and other markings associated with bike facilities.

Bicycle Accommodation in Traffic Management Plans:

When preparing Traffic Management Plans for any project, bicycle accommodation must be indicated. Bicycle accommodation must meet these guidelines