John S. Allen
7 University Park
Waltham, MA 02453-1523
jsallen@bikexprt.com
(781) 891-9307 voice/fax

- Technical writing, translation
- Mechanical design, acoustics
- Consultant on bicycling
- Effective Cycling instructor

December 4, 2013

Mr. Frank DePaola
Administrator, Highway Division
MassDOT
10 Park Plaza
Boston, MA 02114

RE: Project File Number 606376, Proposal for Immediate, Near-Term, and Long-Term Improvements to Cambridge Street Bridge over I-90, Allston, Boston, Massachusetts

Dear Administrator DePaola:

I am submitting these comments about the Cambridge Street project following attendance at the November 19 public meeting.

Documents reviewed

I have reviewed the following documents:

Web page, "Improve the Cambridge Street Overpass."

http://cambridgestreetoverpass.blogspot.com/

Letter from Allston Village, Livable Streets, Walkboston and Massbike:

http://www.scribd.com/doc/183049370/MassDOT-Cambridge-Street-letter-11-8-13

Drawings from November 19 meeting:

http://gdurl.com/Vl1g/download

MassDOT presentation from November 19 meeting:

http://gdurl.com/U_ZP/download

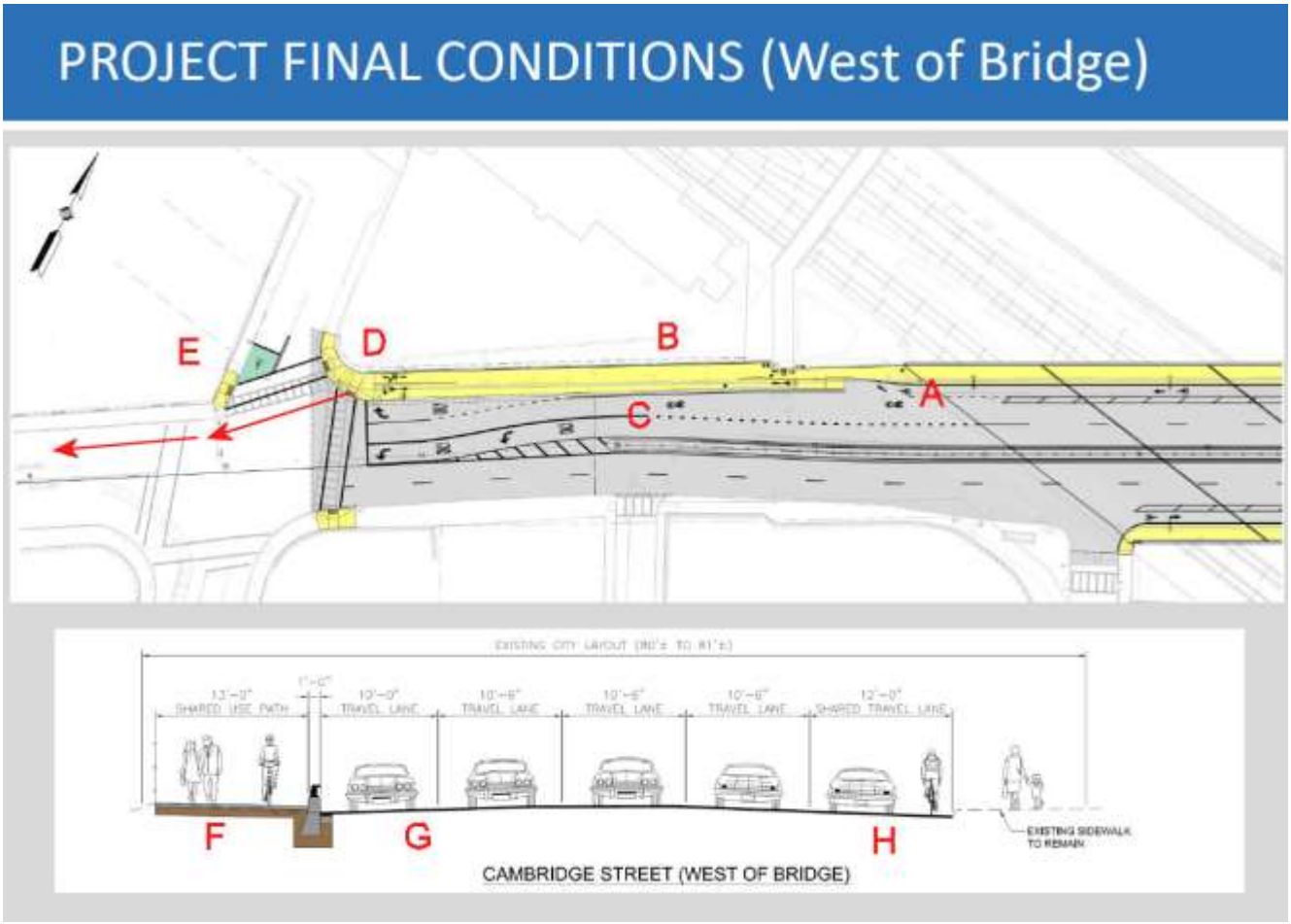
Credentials

I have worked at 40 Rugg Road, a few blocks west of the Cambridge Street Bridge, and lived at 68 Easton Street in North Allston. I have traveled over the Franklin Street overpass many times as a bicyclist on my way between those two addresses, and on Cambridge Street hundreds of times as a bicyclist and motorist. I am personally aware of the crime problem on the Franklin Street overpass, having managed to sprint away and foil an attack by four youths who were apparently attempting to steal my bicycle. I have been active in bicycling advocacy in the Boston area for 35 years. I am currently a member of the Bicycle Technical Committee of the National Committee on Uniform Traffic Control Devices, and a member-elect for the Board of Directors of the Charles River Wheelmen bicycle club. The opinions I express here are my own.

General comments

I am generally pleased with the prospects for improvements to Cambridge Street, and especially with the long-term plan for reconfiguration of the Massachusetts Turnpike/Cambridge Street/Soldiers Field Road interchange and elimination of the overpass over Turnpike ramps. I am less pleased with some of the details of temporary repairs and reconfiguration of the bridge over the Turnpike. I agree with some but not all of the recommendations from the other comments I have cited, and I have some alternate recommendations.

In connection with my further comments, please refer to keys (letters in red) which I have inserted into the image below which I copied from a drawing shown at the November 19 meeting.



Harvard Avenue-Linden Street westbound

The shared-lane markings in the through lane of Cambridge Street indicate a line of travel for bicyclists who wish to continue on Cambridge Street. The second shared-lane marking (at C in the drawing), is well-placed but the first one is oddly placed so as to suggest an abrupt merge out of the buffered bike lane on the bridge. The buffer for the bike lane should be replaced with dashes earlier so as to allow a safe merge. Shared-lane markings might also be placed in the left-turn lane. I also suggest doing away with the buffer and simply making a wider bike lane. Cyclists will still then be able to ride closer to the curb is they prefer, but will not be riding over bumpy diagonal stripes to overtake or in winter when the area near the curb is a mountain of plowed snow.

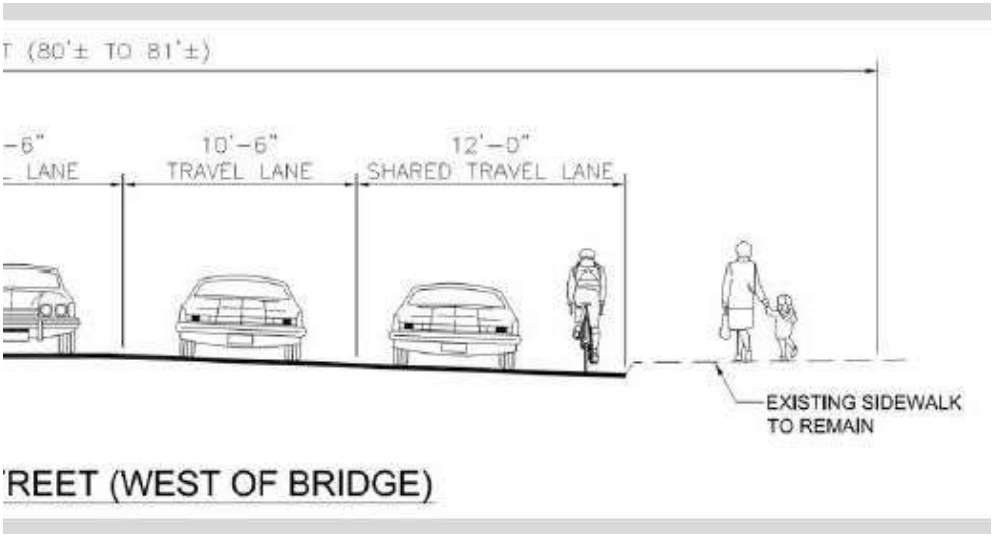
I agree with other commenters that routing westbound bicyclists onto the sidewalk is undesirable. Bicycle traffic for North Allston can more easily turn right at Lincoln Street, taking a shorter route and avoiding the climb over the Cambridge Street Bridge. Westbound bicycle traffic on Cambridge Street would be traveling fast coming down off the bridge, and would encounter multiple conflicts at the end of the Franklin Street overpass, with its entering and exiting traffic, then have to cross left to the right across oncoming bicycle and pedestrian traffic. (The drawing, at F, shows only a single bicyclist headed westbound on the left side of the path!) Taking bicycle traffic onto the sidewalk greatly increases the volume of traffic there, compared with the

light traffic to and from the Franklin Street overpass. If the excess traffic is avoided, the width of the sidewalk/shared-use path between Franklin street and Linden Street (B through D in the image) becomes excessive.

I suggest eliminating the ramp, and a narrower sidewalk, still capable of handling the two-way traffic to and from the overpass, allowing continuation of the bike lane on the street to the left of the right-turn lane – if a right-turn lane is really necessary. Narrowing the median also would allow more roadway width.

Harvard Avenue-Linden Street eastbound

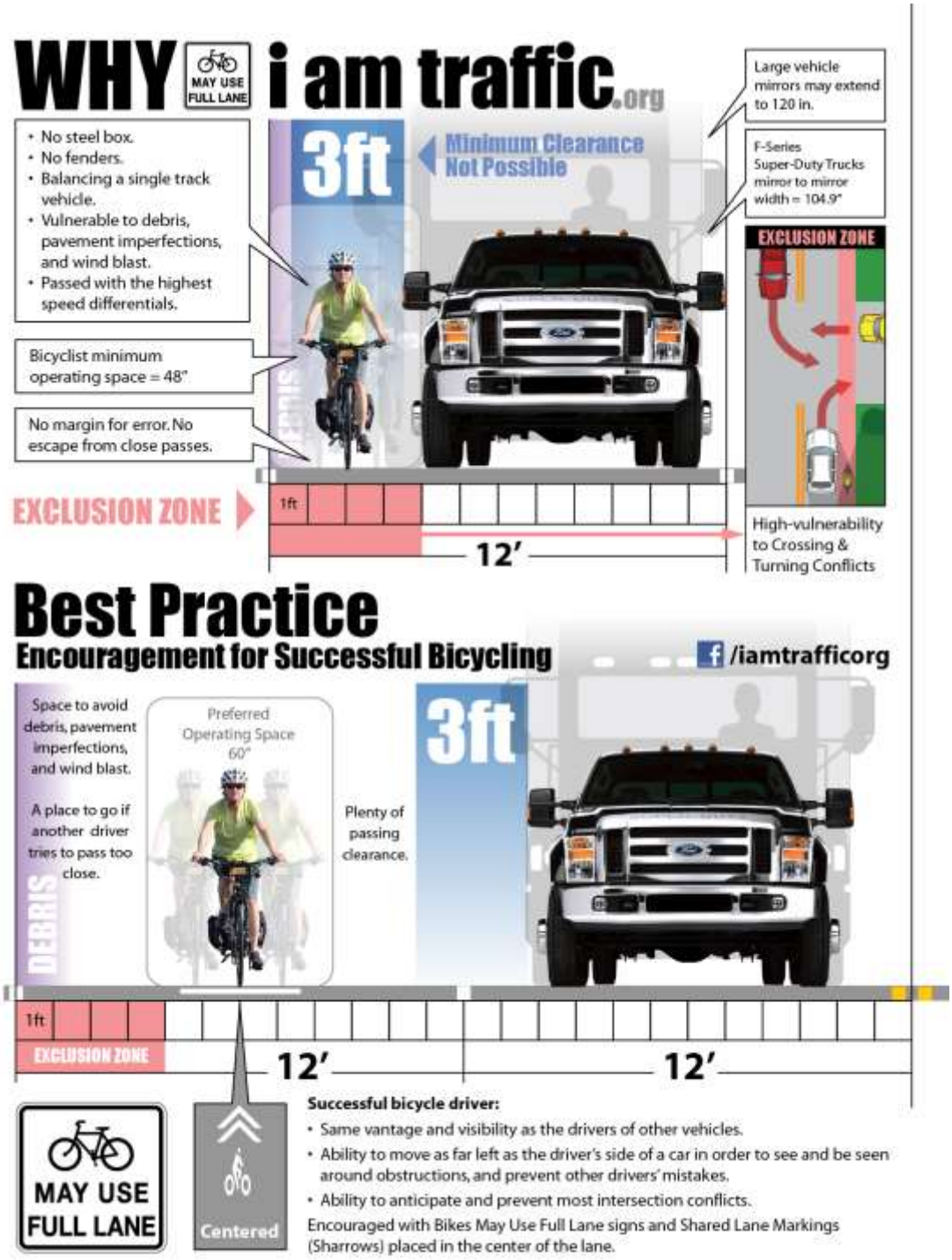
On this issue, I note point #2 on the Web page, "Improve the Cambridge Street Overpass", complaining of "No bike lane between Harvard Ave & Linden St when travelling towards the river." But there is no room for a bike lane in the proposed street layout, shown in the drawing below!



The drawing above, an enlargement from the previous drawing, shows a 10 ½-foot travel lane adjacent to the median, and a 12-foot right-hand travel lane. The right-hand eastbound lane is shown with a bicyclist and motor vehicle side by side, but **12 feet is entirely inadequate and substandard for side-by-side lane sharing of bicycles and motor vehicles, with or without a bike lane**, and especially when the next lane is narrow. The specified width for a bike lane is given as 5 feet in the Massachusetts Project Development and Design Guide, Chapter 16, http://www.massdot.state.ma.us/Portals/8/docs/designGuide/CH_16.pdf .

The cars shown in the drawing scale accurately to the width of a medium-sized sedan such as a Ford Taurus, 6 feet. However, the travel lane will also be used by larger vehicles including large trucks with overhanging rear-view mirrors – up to 10 feet wide mirror to mirror. Bicyclists will be traveling uphill, slowly. A 5-foot bike lane would leave only a 7- foot adjacent travel lane.

The drawing below from http://iamtraffic.org/resources/infographics/, shows, to scale, the overtaking clearances for a Ford F-150 pickup and a large semitrailer truck adjacent to a bicyclist in a 12-foot lane. The clearance next to a large truck (shown as the gray shading) is *less than zero* with the left mirror directly over the lane line to the left of the truck – not reasonable if another 10-foot-wide truck is overtaking in a 10 ½-foot lane.



As the lower panel of the drawing shows, the bicyclist can only avoid this problem by riding in the center of the travel lane so that the truck must merge to the next lane to overtake.

The problem can be solved or at least mitigated by avoiding profligate use of street width. The wide north-side sidewalk, right-turn lane, median and striped gore take a heavy toll on the width available for eastbound travel. As I've suggested above, the north sidewalk can be narrower. I also suggest that the median be reduced to a Jersey barrier, and the striped gore to a centerline. The only other safe alternative is for bicyclists to ride in the middle of the right lane while climbing onto the bridge. Many will do this and many others will not.

I agree with the proposal's blocking the left turn at Highgate Street, in disagreement with the "Improving the Cambridge Street Overpass" point #3. Vehicles waiting to turn left onto Highgate Street block traffic which would otherwise be able to continue straight ahead on Cambridge Street or turn left onto Harvard Avenue. In addition, the turning vehicles put bicyclists headed eastbound on Cambridge Street at risk, as illustrated in the inset drawing above. I also suggest that Highgate Street be made one-way northbound, avoiding the risk of right-hook collisions. Motorists entering from Highgate Street would have an unobstructed view of approaching bicyclists.

Cambridge Street and Harvard Avenue

At Harvard Avenue, westbound through bicycle traffic would have to merge back into the stream of traffic at the intersection. (See red arrows in drawing above.) The intersection of Cambridge Street and Harvard Avenue is the major choke point in the area. Reducing the number of traffic movements at this intersection would relieve some of the problems.

A proposed "bike box" is shown on Franklin Street is desirable to serve bicycle traffic entering the intersection from the Franklin Street overpass and turning left onto Harvard Avenue. However, **the bike box shown in the illustration is incorrectly placed.** To avoid conflicts with pedestrians, it should be configured as a two-step left-turn area *after* the crosswalk, not before the crosswalk,

May I suggest in addition that Franklin Street might be made one-way, with a contraflow bicycle lane? From the point of view of traffic safety, it would best be made one-way southbound, avoiding conflicts between turning motor traffic and through bicyclists. However, there is one destination, the Regina Pizzeria, for which the most convenient public access by motor vehicle is important. If Franklin Street is made one-way northbound, then it would be easy enough for placards inside the restaurant to give directions to return to Cambridge Street via Braintree Street and connecting streets – a detour of only a few hundred feet.

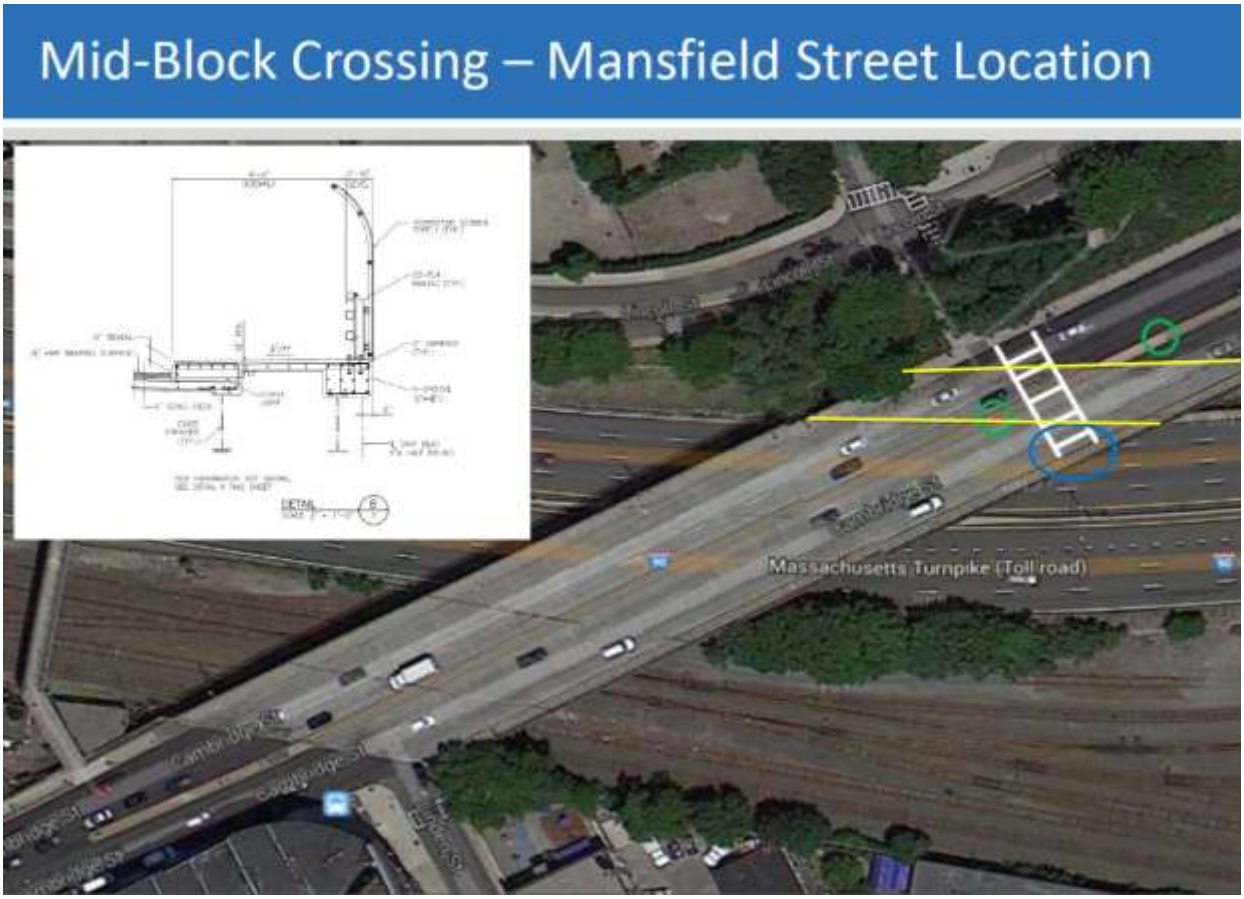
I have also questioned the need for a right-turn lane on Cambridge Street. Without the right-turn lane, roadway width eastbound becomes ample. The main reason for a right-turn lane would be to avoid conflicts with bicyclists and pedestrians crossing Franklin Street in the crosswalk. Traffic volume for this right turn is very low. Might this issue possibly be addressed instead with traffic-signal timing? I cannot comment further in detail about this intersection, as much depends on traffic signal timing, and there is no traffic signal timing plan yet.

The Bridge Itself

The bridge itself raises the simplest issues for bicycle travel. I agree with the proposal for striped bike lanes on the bridge, and so I disagree with the letter from Allston Village, Livable Streets, Walkboston and Massbike suggestion #1, for a physical barrier. A barrier would reduce available travel with for bicyclists, motorists or both, and would render the bike lanes unsweepable in summer and unplowable in winter. In addition, as already mentioned, it would prevent a timely merge when continuing on Cambridge Street or turning left onto Harvard Avenue. Flex-post barriers are not durable; barriers consisting of curbing of one kind or another, even so-called mountable curbs, can steer the wheels out from under a bicyclist.

Mansfield Street Crosswalk

The proposed crosswalk at the Mansfield Street stairs (see image below, from the November 19 presentation) could shorten some walking trips between North Allston and Allston Village. An additional set of traffic lights here would delay traffic on Cambridge Street, so the signals should be actuated as well as timed, and to reduce traffic volume at the crosswalk, pedestrian and bicycle traffic might also be accommodated with shared-use paths under the bridge, alongside the Turnpike – see suggestions below. Access to a crosswalk would require extensive reconstruction of the Mansfield Street stairs to meet ADA requirements.



Bike Boxes

I have already commented on the proposed bike box at Franklin Street. This could serve well if reconfigured appropriately as a two-step left-turn waiting area.

The proposed bike box at Lincoln Street directs bicyclists to overtake motor traffic in a bike lane all the way to the right – exposing themselves to the risk of right-hook collisions with large trucks turning right into the rail yard. Motorists must hope to see bicyclists approaching at speed down the grade to their right, before turning right, in order to yield to those bicyclists.

Downhill bike boxes have been linked to a doubling in crash rates in Portland, Oregon, see

http://bikeportland.org/wp-content/uploads/2012/10/Mark-Kehrli-Progress-Report-copy.pdf.

Fatal collisions when large trucks turn right across the path of bicyclists have become an epidemic in Boston and across the USA with the increasing prevalence of bike lanes, and the expectation that motorists will look into their right rear blindspots for bicyclists, see

http://streetsmarts.bostonbiker.org/2013/05/28/you-too-can-prevent-fatal-truck-bicycle-collisions/

Bicyclists turning left are directed to swerve across three lanes of motor traffic, which may start up at any time when the traffic signal changes. The bike box presently installed at Charlesgate East, eastbound in Boston, provides an example of how poorly the concept works. Observation shows that bicyclists do not merge left into the bike box. A video at http://vimeo.com/81022106 illustrates these issues. (The video is incomplete as of posting of this letter on December 4, 2013 but will be available within a couple of days.)

Bicyclists might safely make left turns from Cambridge Street to Lincoln Street in either of two ways: as operators of vehicles, in the left-turn lane, with merging made easier by their speed coming off the bridge; or

in two steps, preferably on a path which diverges away from the street before crossing the Lincoln Street extension, so that bicyclists crossing the extension are in the forward view of motorists turning right from Cambridge street; otherwise, a separate signal phase is needed for right turns.

Gateways Across the Turnpike

As I stated at the November 19, nothing in this project or future projects should compromise the underpass under the Turnpike on the extension of Lincoln Street. When the railroad-yard area is developed, this becomes a very important gateway. Further potential exists for a bicycle and pedestrian connection via an overpass or underpass of the remaining railroad tracks into the residential area and Boston University campus south of the tracks. Existing connections are at the Boston University Bridge and Linden Street, more than a mile apart. Other possible routes connecting north to south across the railroad yard area may suggest themselves as development plans proceed.

Alternate Bicycle/Pedestrian Routes

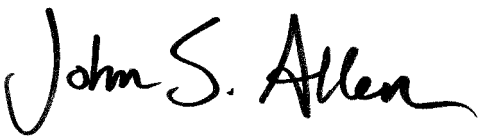
Additional bikeways/walkways underneath the bridge on one or both sides of the Turnpike which I've suggested should be pursued as additional crossings of Cambridge Street. When the railroad yard is developed, a bikeway/walkway on the north side of the Turnpike will provide a direct route between this area and North Allston. The yellow lines in the image above show the excess width in the Turnpike corridor – the former location of a railroad track. This could easily become a pathway. A road connection is not needed here, as Lincoln Street and the underpass under the Turnpike make a similar connection. A connection can be made on the south side of the Turnpike once the railroad is reduced from four two tracks. This might even become a road connection like the one under the Alewife Brook Parkway bridge over the Fitchburg Line tracks in Cambridge. There might be plaza between the tracks and the Pizzeria Regina, extending under the Cambridge Street Bridge and connecting with Linden Street and Pratt Street.

I welcome the suggestion for a Marathon memorial as a replacement for the Franklin Street bicycle/pedestrian overpass, but the long run, if this overpass is to be replaced, then its south end should terminate at Franklin Street rather than Cambridge Street, avoiding bicycle travel on the sidewalk of Cambridge Street and also avoiding awkward transitions for bicyclists continuing from the Franklin Street overpass to Harvard Avenue.

Crime

I recognize the crime issue, having, as I said, experienced it myself. In my opinion, it is best avoided by enforcement, and by open and direct bicycle and pedestrian connections when they are away from roads. This goal could be served by a better replacement for the Franklin Street overpass, by wide and open pathways either side of the Turnpike connecting with peopled areas, and by the installation of lighting and surveillance cameras.

Very truly yours,



John S. Allen

Member, Waltham Bicycle Committee
Board member-elect, Charles River Wheelmen
Member, National Committee on Uniform Traffic Control Devices Bicycle Technical Committee
but speaking for myself.