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Matthew Beaton, Secretary of Energy & Environmental Affairs
Executive Office of Energy & Environmental Affairs
Attn: MEPA Office
Alex Strysky, EEA No. 15278
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Dear Secretary Beaton,

I appreciate the opportunity to comment on MassDOT's Draft Environmental Impact Report (DEIR) for the I-90 Allston Interchange project. This is an important project with regional and long-term impacts for the area, including Cambridge which is a nearby neighbor directly across the Charles River. Replacing the aging and unsightly Massachusetts Turnpike (Turnpike) viaduct and ramps with a state of the art highway interchange that has broad benefits is vital to community members and the City of Cambridge. That work, along with the array of work needed to accompany it, should lay the groundwork for a truly sustainable neighborhood. Including a comprehensive transportation network not only makes that possible, but encourages people to access the neighborhood via transit, biking and walking rather than single occupant vehicles (SOV). Cambridge has participated in the project Task Force for the past three years and is pleased to provide several comments on the DEIR and make some requests for analysis and information to be included in your project certificate.

Vision and Development

The street network, paths and other infrastructure that is proposed in the DEIR does not adequately create a sustainable transportation vision that meets the needs of current and future residents of this neighborhood and the region. Transportation is now the largest contributor to carbon dioxide in the Commonwealth. Additionally, roadways – both within the project area and in Cambridge - cannot accommodate large numbers of new trips. Therefore, short and long-term transit planning is a key component to service the project area. It is important to identify transit opportunities now so the framework for them can be determined during this design process. Transportation modeling projections for the area are based on an overly modest proposed buildout of the underlying property, when it is probable that future development densities will result in increased transportation impacts.

The on-street facilities supporting cyclists and pedestrians included in the current plans are relatively minimal in terms of design and level of comfort. This is especially evident when paired with relatively large roadways that are designed to accommodate projected vehicle traffic, which many would prefer did not materialize. Emphasizing vehicle capacity will make it harder to make sustainable modes the preferred mode of travel.

Requests:

- Create a sustainable transportation vision based on the City of Boston's, Go Boston plan which calls for an overall SOV rate of 19% in Boston by 2030. This would require substantial transit service combined with aggressive parking ratios and enhanced transportation demand management measures.
- Include a more conservative buildout analysis that might be closer to 10-15 million square feet for the project area south of Cambridge Street, or buildout based on current/contemplated zoning changes for the area will allow
- Update traffic modeling to show where trips will use Cambridge streets and identify areas where capacity to handle trips is exceeded (e.g. Western Avenue), and propose mitigation through improvements to sustainable modes.

Transit

During the planning for the project, MassDOT garnered agreement from key stakeholders to include and help fund West Station. The phasing included in the DEIR anticipates that the station will not be built until 2040 and risks that nearby development could begin without good transit service and too much available parking. This could begin a cycle of auto-oriented development. Transit should be an integral piece of the vision for this area with West Station as a transit hub, rather than just a commuter rail stop.

Requests:

- Complete a study of short and long-term transit improvements, including bus, shuttle, rail and future passenger service on both the Worcester line and on the Grand Junction line to Cambridge and beyond creating convenient connections to all nearby job centers including Kendall Square, Harvard Square and the Longwood Medical area. This should include a phasing plan for transit that details a reasonable timetable, thresholds for the state and its private partners to implement transit improvements, and be included in the FEIR certificate.
- Include a bus bridge to Malvern Street so bus connections in this north/south route can be made as soon as project construction is complete, either before West Station is built or as part of an interim West Station
- An option moving forward must include two rail tracks connecting to the Grand Junction line, as well as a reconstructed rail bridge over Soldiers Field Road (SFR). If not factored in at this stage, construction of these elements will be extremely difficult and unnecessarily expensive to undertake once the project is complete.
- Consider moving West Station north, to the inside curve of the Turnpike providing space for a buffer to the neighborhood and a potential bicycle/pedestrian path connection alongside the tracks.

Noise

The current Turnpike traffic generates a great deal of consistent traffic noise that is a detriment to quality of life for the Cambridgeport neighborhood and users of the Department of Conservation and Recreation's (DCR) Magazine Beach, the city's second largest open space. Cambridge asks that all available means are used to decrease future noise over current levels and that project changes do not lead to new noise being deflected to Cambridge. MassDOT should look beyond noise reduction standards of MassDOT and FHWA to reduce noise from the project in any way possible. Requests:

- Further evaluate alternatives and include mitigation of noise to Magazine Beach and Cambridgeport with strategies including attractive noise walls along the Turnpike throat area, such as transparent ones being widely used now on other highway projects.
- Move SFR away from the river as far as practical.
- Raise SFR, if needed, in combination with a parapet wall (with a combined height of at least 8') and densely planted vegetation to block and reduce noise from users of the Paul Dudley White Path (PDW) and Magazine Beach. The DEIR shows that height and solid nature of such barrier at will reduce noise and create a much more pleasant experience for path users who are now discouraged from using this section of PDW path.
- Place absorptive material on any noise walls on the Allston neighborhood side of the project so that noise is not reflected back to Cambridge.

Access to and from Cambridge

Access to and from the Turnpike and Soldiers Field Road could change substantially under the proposed preferred alternative for those in Cambridge. Residents and workers in Cambridge who access the Turnpike and Soldiers Field Road need to know that in the future, streets will not be overwhelmed with traffic and that reasonable access is provided. Traveling through a minimum of four additional intersections will be required to access River Street from SFR with the proposed removal of the right turn. The same number of intersections will also be added to access the Turnpike to and from Cambridge. Given the proposed development that has been modeled, and the potential for much more, it is not clear how many more vehicles will be traveling those roads and whether travel times will be reasonable. The timing of construction and availability of East Drive, Cattle Drive and Stadium Way will affect these trips. If access on all these streets is not reasonably provided, an unacceptable shift of many trips to Memorial Drive would likely occur, negatively impacting not just drivers but, of greater concern, the high numbers of pedestrians and cyclists traveling along Memorial Drive.

<u>Requests:</u>

- Calculate proposed travels times going to River Street from SFR, and to and from Cambridge to the Turnpike in both directions, with additional possible development included. Analysis should look at both peak and non-peak travel times and compare with travel times on Memorial Drive from the start of Land Boulevard and Massachusetts Avenue as both detour routes are likely.
- Traffic modeling shows that there are more trips than can be accommodated on Cambridge streets. Propose changes for optimizing intersection performance at Memorial Drive and Soldiers Field Road intersections that gives the best performance for all modes of travel, including path users.
- Conduct further traffic modeling including a review of existing evening peak Simtraffic analysis where field observations indicate that queues from Western Ave at Storrow Dr. will spill back across Memorial

Drive and will require mitigation. Also, level of service E in the existing conditions model for this intersection is overly optimistic based on field observations due to queue interactions.

- Review and consider retaining the right turn from SFR to River Street, particularly if analysis reveals that reasonable access does not exist to River Street and trips will be diverted to Memorial Drive.

Throat Alternative

In this narrowest section of the project area, the three alternatives shown in the DEIR (3K-HV, ABC, and AMP) try to fit the same uses and functions into the area using different configurations. None of the throat alternatives by themselves adequately meet the uses, function, noise, open space, and aesthetics needed in this narrow area adjacent to Boston University and directly across from Cambridge and Magazine Beach. A combination of elements from various alternatives should be integrated to create a better and more aesthetically pleasing design for this area. The design should create less noise in Cambridge than the current design and more rather than less parkland with better connections to and from the river. It should also include all rail improvements possible during construction of the I-90 Interchange, rather than waiting to construct them later when construction would be considerably more difficult or expensive. f a viaduct is ultimately built, it should be as small or smaller than it is today, be visually attractive and not intrude onto DCR parkland.

3K-HV Alternative

Pros

- The noise analysis projects the least amount of noise reaching Cambridge in this alternative because SFR is further from the river and the 40' height of the viaduct. But, given the receptors used in Cambridge, it's not clear if all noise from this option is accounted for in the analysis.
- The DEIR states that this alternative has the most flexibility for future transit and the least interruption of the Grand Junction during construction which is important. However, it is not clear that this analysis is accurate as it may be difficult to physically fit in two tracks between the Mainline tracks and the SFR bridge, given the required curvature.
- A modest widening of the Paul Dudley White path is possible in this scenario, but not separated paths as envisioned in the DCR's Basin Master Plan.
- Parkland space is saved by stacking uses.

Cons

- This alternative does not include two tracks connecting to the Grand Junction and reconstruction of the rail bridge over SFR. This should have been included to make each alternative comparable.
- A simple concrete and steel raised viaduct would be unattractive to people looking at it from the Paul Dudley White path and Magazine Beach and additional effort should be made to make this alternative more attractive and sustainable.
- A raised viaduct will block future connections to Commonwealth Avenue between BU, Brookline and nearby residents to the river.
- Life-cycle costs of this alternative could presumably be higher but this was not studied in the document.
- The persistent drone of highway noise from a raised viaduct reaching into Cambridgeport is difficult to quantify in the noise model and is a constant detriment to quality of life of residents in lower Cambridgeport and at Magazine Beach.
- This does not make the most efficient use of space in that space under the viaduct is under-utilized.
- The highway foot print is widest with the 3K-HV alternative.

ABC Alternative

Pros

- This alternative does not include a raised, unattractive structure
- Future bicycle/pedestrian connections to Commonwealth Avenue are not precluded
- A path connection from the Paul Dudley White path to a future Grand Junction path may be more feasible, and could be included with a reconstruction rail bridge over SFR
- This is less expensive to construct and presumably to maintain into the future given life cycle costs.

Cons

- This alternative uses all available space between BU and the river, including parkland, and creates a hard edge at the river bank
- The Paul Dudley White Path is left at its current width and not separated as envisioned in the DCR Basin Master Plan
- Without additional noise mitigation, this alternative could generate the most noise for Cambridge.

AMP Alternative

Pros

- This alternative includes an additional bicycle/pedestrian connection from the neighborhood and Commonwealth Avenue to the river
- The rail bridge over SFR is rebuilt and two tracks are shown connecting to the Grand Junction
- Parkland space is saved by stacking uses.

Cons

- Roadway noise could reflect off the bottom of the raised rail structure
- Trains raised on the viaduct could create new noise as seen in other areas of the country where this has been done
- A raised viaduct blocks some future possible bicycle/pedestrian connections to Commonwealth Avenue.

Requests:

- MassDOT should reassess the need for breakdown lanes and wide travel lanes, and research design alternatives and design exceptions that have been used on other highway projects nationally where space is very constrained. The Turnpike should be located as far away from the river as possible.
- If pursued, a new viaduct/bridge should be architect-designed to be a visual addition to the area and one that is also sustainable and keeps noise contained at the source through attractive, preferably transparent noise walls.
- Re-assess and prioritize making use of the under-utilized barrel shown in the HV-3 alternative for a portion of SFR to create more parkland and move roadways away from the river.
- Newly created parkland such as outlined in the Sasaki study of adding a soft edge to the river should be studied and seriously considered. This will allow more for more planting and introduction of storm water features, in addition to allowing more path space and some noise attenuation.
- Further study is needed for all alternatives to minimize construction impacts on the Grand Junction line including strategies for rebuilding the SFR bridge using design and construction techniques aimed at shortening the construction period as much as possible.

Park Lands and Paths

The addition of three acres of parkland in the project by moving Soldiers Field Road will be a valuable open space, recreation and ecological asset to the area. It also provides opportunities for an improved path system to access new development by walking and biking, and better connections to Cambridge. The basin parks and paths are heavily used and will be increasingly used as new residents and workers move to the area. Better connections for cyclists and pedestrians across the River and Western bridges would be improved once these bridges are reconstructed, using the designs finalized as part of the Accelerated Bridge Program designs.

Requests:

- Connections from the Paul Dudley White path system to the future Grand Junction Path that Cambridge is currently designing should be included
- Opportunities to provide additional and preferably separate, off-road biking and walking connections to and through the site should be explored further and implemented to increase the likelihood of making trips by walking and biking
- Study the possibility of adding a soft edge to the river to increase parkland and planted area including new, separate paths for cyclists and pedestrians
- Proposed new noise should be fully mitigated at Magazine Beach by containing the noise at its source immediately adjacent to the Turnpike

Construction Impacts

The construction of the project will be a long, noisy and difficult process for residents on both sides of the river. At this point, without a final project determined, it is difficult to assess all construction impacts at this time.

Requests:

- Construction impacts in Cambridge including additional traffic to Memorial Drive and the Paul Dudley While Paths (and all detour routes), noise at Magazine Beach and in the neighborhood, and alternatives to avoid closure of Riverbend Park on Sundays should be evaluated, detailed and mitigation proposed in the FEIR
- If the Paul Dudley White path is closed during construction on the Allston side of the river, a significant upgrade to the paths on the Cambridge side and at Magazine Beach should be completed in advance of the PDW closure. This priority order is important given the path's very poor condition from the BU Bridge to River St, as the paths in Cambridge will likely see significant use while parts of the path in Boston are closed.
- While it appears that peak capacity along I-90 and SFR is maintained throughout the project, construction impacts may still have unforeseen impacts to commuter routes. To monitor possible changes and address as needed, MassDOT should modify the traffic signals for Memorial Drive at Western Avenue, and Memorial Drive at River Street to install video detection equipment to monitor all three approaches to each intersection and provide cloud based traffic volume monitoring accessible by MassDOT and City of Cambridge staff.

Climate Change Resilience

The proposed project faces a range of climate change vulnerabilities related to increasing temperatures, increasing precipitation, and rising sea levels. The analysis provided in the DEIR needs clarification on some points and is deficient in some areas.

Framing Climate Risks:

- The DEIR defines climate as "typical or average weather" and climate change as "a change in typical or average weather". This definition is not inaccurate, but it doesn't convey the need to address both changes in averages as well as in extreme events. While climate patterns are shifting to a warmer and wetter regime in our region on average, we also know that extreme events are becoming more severe. Heat waves will become more frequent, more intense, and longer in duration. With precipitation, we are already seeing the most extreme events become more severe compared to the historical baseline. And sea level rise will introduce a new risk to the project area which we don't have to contend with under current circumstances. These trends and projections all indicate that projects must be designed for a different set of future parameters.
- Establishing the expected design life of the project is important to properly assess the climate risks. On page 5-103, the DEIR appears to suggest the project's risk tolerance in regard to storm surge flooding for this project is an annual 1 percent probability. This level of risk seems too high for a major public infrastructure project. Highway, railroad, commuter transportation, and bicycle and pedestrian infrastructure are all critical assets and disruption of these services would have major consequences to a large population and the economy. An annual 1% risk is usually considered appropriate for residential properties. MassDOT should consider the climate risks in the context of a more conservative level of risk and propose actions that are commensurate with that risk.
- Risks are presented in annual terms, which is not the best way for public infrastructure. Cumulative risks should be analyzed. Assuming the design life is 50 years, a 1 percent annual risk would translate into a 39 percent cumulative risk.

Heat vulnerability: The DEIR only addresses the urban heat island effect. This is important, but MassDOT should also assess the potential vulnerabilities of the infrastructure itself to higher temperatures in the future. The heat tolerance of materials used in the project should take into consideration the temperature ranges that are being projected within the design life of the project. The construction specifications for the project should reflect this analysis.

The DEIR indicates the area of paved surface will be reduced modestly compared to existing conditions for all three alternatives. This is a positive impact. The reduction of the urban heat island may be underestimated as it appears that potential tree canopy and other shading are not considered. It would be useful to estimate the reduction of urban heat island more comprehensively. The design, particularly of the commuter rail station and the Allston Landing area, should also consider the projected ambient air and heat index temperatures that will be experienced in the future. While the amplifying effect of paved surfaces may be reduced, it may not be enough to mitigate the projected increase in ambient temperatures. Opportunities to further mitigate ambient air and heat index temperatures should be further explored. For example, is it possible to establish greater tree canopy cover and physical shading? Could materials be chosen with higher albedo values to reduce heat absorption? It would be useful to understand what the future air temperature conditions will be given the final design of the project and the associated Allston Landing development in the context of a warming climate.

The project should include goals for expanding tree canopy and increasing surface albedo. The commuter rail station, which is planned as an open platform, should be designed in a manner that makes it ready for enclosure in the future. High temperatures and heat waves in the future may make an outdoor platform inhospitable. Being able to enclose the platform and add air conditioning should not be inadvertently precluded by the design.

Sea level rise/Storm surge flooding: The project site doesn't currently face significant risks from coastal storm surges given the protection afforded by the Charles River Dam. But as sea level rises, the barrier protection provided by the dam will be compromised by flanking and overtopping. The DEIR reflects the current assessment that this could happen by mid-century. While it is unclear what the design life is of the proposed infrastructure, there will be development in the Allston Landing area that will certainly have been built out by then. The project should not assume that increased barrier protection will be implemented since none is currently planned.

The DEIR relies on the Boston Harbor Flood Risk Model (BHFRM) for its analysis. The BHFRM is certainly the best analysis available to understand storm surge risks. However, it only depicts risks through 2070. The DEIR reports that storm surge flood risks are less than one percent annually. However, sea level rise will not stop in 2070 and planning should assume it will continue. Therefore, storm surge flood risks will increase in the project area. It is our understanding that the BHFRM is being updated to reflect the latest sea level rise projections from NOAA and that the modeling is being extended to 2100. It would be useful to use the updated modeling if possible in assessing the project risks.

The BHFRM uses assumptions about river flow, but does not account for flood risks from increased river flow or a higher river. A higher river due to increased flow that is not managed by the pumps at the Charles River Dam or is raised by storm surge flows may result in flooding that propagates through storm drains onto streets and developed areas. In the Cambridge Climate Change Vulnerability Assessment, this risk was modeled for 2070. Due to the flat gradient of many storm drains in the eastern Cambridge area, it is likely that a higher river will cause significant street flooding. There are many outfalls identified in the DEIR. The risk of propagated flooding in the DEIR project area should be assessed as it may affect the rail system and possibly roadways, as well as buildings that are developed in new areas. If propagated flooding is identified as a problem, measures should be proposed to reduce this risk.

The DEIR does suggest the possibility of deploying strategically located berms and raising certain roadways to reduce future storm surge flood risk. It would be useful to have identified specific locations for these actions and incorporate these measures into the proposed project. The design for the berms should be analyzed to understand the potential to further raise their elevation after 2070 so that sufficient space is reserved for a flexible adaptation response. A 0.1 percent probability in 2070 may become a higher probability in later years.

Precipitation-driven flooding: The DEIR does not assess the risk of precipitation-driven flooding. Current FEMA floodplains are considered, but those maps do not take climate change into account and only show riverine flooding. The project site is likely to face increased risks from greater precipitation that will increase river flows and overtax street drainage systems. Increased precipitation-driven flood risk will be a problem for the site before storm surge flooding. UMass Boston is studying the Charles River in terms of climate change and precipitation and may be an information source. Street drainage would need to be modeled with projected precipitation rates. MassDOT should analyze the risks from increasing precipitation for both street flooding and increased riverine flooding. The project design, including the Allston Landing area, should reflect these increased risks in the sizing of gray infrastructure and the deployment of green infrastructure.

It should also be noted that riverine and street flooding is probably highly dependent on the Charles River Dam. Most modeling efforts have assumed that all six pumps at the dam will operate. Scenarios for pump failure should be considered when assessing flood risk.

Also, there is the possibility of the project site experiencing storm surge flooding with heavy precipitation. Most studies have modeled these events separately and it is difficult to model the joint probability. The scenario of a joint storm surge/heavy precipitation event should be considered in assessing risks.

Conclusion

The complexity of this project, the need for comprehensive short and long-term transit access, and the many pros and cons of the alternatives in the throat are going to require substantial additional study by MassDOT. This is needed to develop a final concept that can achieve the many goals of this project as outlined in the project's public process. It is also of critical importance to use this unique opportunity to add additional parkland and greenery along the river's edge in the throat area considering the very tight constraints faced in this area. These additional steps could contribute significantly to the quality of life in both Boston and Cambridge and the ecological benefits that they could produce. Thank you again for the opportunity to comment on this important project for Boston and Cambridge.

Sincerely,

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