

December 12, 2019

*Via Email*

Michael O'Dowd, Acting Director of Bridge Project Management  
Massachusetts Department of Transportation  
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Boston, Massachusetts 02116  
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**Re: I-90 Allston Multimodal Project NEPA Scoping Report Comments**

Dear Mr. O'Dowd:

Charles River Watershed Association ("CRWA") submits the following comments on the I-90 Allston Multimodal Project National Environmental Policy Act ("NEPA") scoping report prepared by the Massachusetts Department of Public Transportation ("MassDOT") and the Federal Highway Administration ("FHWA"), dated November 6, 2019.

As one of the country's oldest watershed organizations, CRWA's mission is to protect, preserve, and enhance the Charles River and its watershed through science, advocacy, and the law. Our initiatives over the last five decades have dramatically improved the quality of water in the watershed, fundamentally changed approaches to water resource management, and protected the Charles River as a public resource for current and future generations.

CRWA has been intimately involved in the development of this project since its inception. CRWA submitted comments on the Environmental Notification Form ("ENF") on December 15, 2014 and on the Draft Environmental Impact Report ("DEIR") on February 9, 2018.<sup>1</sup> CRWA is also an active member of the project task force, regularly attending project meetings and providing input on project design. When Secretary Pollack selected the preferred design for the final project in January 2019, CRWA applauded the decision as one that would accomplish the project's ambitious transportation goals while simultaneously providing for improved stormwater management, enhanced climate change resilience, and river and riverbank restoration.<sup>2</sup>

Several months after the preferred final design was announced, MassDOT revealed publicly for the first time that during construction of the project, Soldiers Field Road ("SFR") and the Paul Dudley White path would be "temporarily" relocated *into* the Charles River – on fill, pilings, or both – for an estimated 8 to 10 years. MassDOT has subsequently indicated that it also plans to temporarily locate I-90 on additional fill and sheet pilings along the banks of the

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<sup>1</sup> CRWA's prior comment letters submitted during the Massachusetts Environmental Policy Act ("MEPA") process are incorporated herein by reference.

<sup>2</sup> See CRWA Applauds MassDOT Decision on I-90 Project Design (Jan. 10, 2019), <https://www.crwa.org/pr1.10.19>.

river. If MassDOT knew when it announced the widely praised preferred final design that such a project would necessitate construction of a road or roads in the Charles River for a decade or more, it never said so publicly. In fact, ***relocation of SFR into the Charles River during project construction was never contemplated during the state's lengthy DEIR process even though it would drastically increase the overall environmental impact of the project. As a result, the preferred design was evaluated and selected based upon egregiously incomplete information.***

These NEPA scoping comments are the first opportunity CRWA has had to formally weigh in on MassDOT's plan to relocate these roads into the Charles River during construction. MassDOT has released only limited information about this aspect of the overall project but has repeatedly asserted, without any actual documentation or evidence, that relocating SFR into the Charles River is the only way the preferred final design can be constructed. The scoping report does not contain any alternatives to this approach, despite the fact that a robust analysis of alternatives is required under NEPA. ***MassDOT and FHWA must fully vet alternative approaches to both construction phasing and final project design that would not harm the river.*** Several alternatives that would keep SFR out of the Charles are discussed below.

MassDOT and FHWA must also thoroughly evaluate the environmental impacts of relocating roads into the Charles River. The scoping report states that alternatives will be considered reasonable and explored further if they do not cause "excessive permanent environmental impacts to natural resources when compared to other alternatives."<sup>3</sup> While this would seem to disqualify any alternative that involves locating a roadway in the river during construction, the scoping report makes only passing reference to "the temporary relocation of SFR into the Charles River on a temporary trestle."<sup>4</sup> We are deeply concerned that MassDOT will attempt to characterize the environmental impacts associated with relocation of roads into the Charles River as temporary or something other than "permanent." The fact that such fill, pilings, and other materials may not exist in the river permanently does not mean that the environmental impacts associated with placing them in the river and then subsequently removing them will not be permanent. ***Disruption of the river's ecology and hydrology, especially for the duration currently estimated, would have lasting and permanent environmental impacts, and these impacts must be given the same weight and consideration in the NEPA process as any other impacts associated with the project.*** These environmental impacts are discussed in further detail below.

Compounding the problems with the lack of transparency around the impacts of and alternatives to relocating roads into the Charles River during construction is the fact that MassDOT is apparently planning to attempt to permit the "worst-case scenario" even though something less environmentally damaging may be possible. If the option with the greatest environmental impact were to be permitted, that is almost certainly what would be built. The permitting agencies, however, cannot issue permits based on conceptual designs and promises that environmental impacts may subsequently be lessened, if possible. ***Proposing to build the worst-case scenario and hoping something better is eventually constructed undermines the entire NEPA process is not an acceptable approach to this project.***

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<sup>3</sup> Scoping Report at 38.

<sup>4</sup> Scoping Report at 27, 29.

## **Summary of Environmental Impacts of Relocating Roads into the Charles River**

The environmental impacts associated with relocating roads onto bridges and/or fill *in* the Charles River for about decade (or more) would be significant, and since they have never been considered in connection with this project, it is important to emphasize them here. These impacts, as well as impacts relating to other aspects of the proposed project, are also discussed in greater detail below.

### Sediment Disruption

Construction of a bridge will likely require installing pilings, which would require either hammering pilings into the sediment or dredging sediment from the river bottom. Both hammering and dredging suspend silt into the water column, and sediments in historically industrial areas like Boston are frequently contaminated with heavy metals and toxic chemicals, which can be released into the river when disrupted, affecting aquatic habitat. We know that this part of the river is likely contaminated with PCBs. For this reason, any sediment removed from the river must be disposed of properly, which can be costly. Hammering pilings or mechanical dredging (using heavy machinery to physically remove sediment from the water) would have even greater impact than hydraulic dredging, which uses a hose to suck out sediment in targeted areas.

### Water Quality Degradation

During construction of a bridge, there is increased erosion and changes in the riverbed and bank stability due to machinery working in the area. This causes even more sediment to enter the water. Groundwater quality is also often negatively affected by oil spills, fuel leakage, and other construction materials. In addition, surface water and groundwater quality are degraded by vehicles utilizing the bridge due to increased potential for fuel and oil spills. Stormwater runoff from bridges also threatens water quality by bringing excess nutrients and bacteria into the water without a natural vegetated buffer. Road salt placed on bridges during icy conditions will also run off directly into the river. Filling in parts of the river will exacerbate these problems, as harmful chemicals will be distributed into a smaller volume of water.

### Aquatic and Human Health Risks

Sediment fill and pilings placed in the river reduce the amount of available habitat for aquatic life, threatening the riverine ecosystem. Sediment fill also reduces the flood storage capacity of the river. More flooding will occur as rainfall becomes more frequent and intense with climate change, and with less room for water in the river, flooding in neighboring lands will be exacerbated.

Silt production can be detrimental to the aquatic environment by blocking light from the river, raising water temperatures, and interfering with fish navigation. A small increase in salt levels in freshwater ecosystems inhibits the growth and reproduction of freshwater species. Heavy metals like mercury that are released into the water column from silt production can be incorporated into invertebrate and fish food sources. These metals build up over time and move

up the food chain to other aquatic species and humans who consume them, causing detrimental health effects to the nervous, digestive, and immune systems.

Once a bridge is constructed, the flow of water slows around it, which slows aeration and oxygenation. Lowered oxygen levels put aquatic life under stress. As oxygen concentrations decrease, stress levels increase, and fish kills occur. Siltation also causes lower water levels, resulting in higher temperatures. Fish metabolism and breathing rate speed up in warmer waters, requiring more oxygen; however, oxygen levels decrease as temperature increases. Slower water velocities also increase siltation, decreasing depth, which results in increased growth of invasive aquatic plants such as milfoil and fanwort. These invasive plants already grow densely in the river, threatening native species, decreasing biodiversity, and restricting boating activity. They also create a perfect mosquito breeding ground, which, with EEE outbreaks in the state, is a public health concern.

Increased direct stormwater runoff from bridges and eroded banks brings excess nutrients to the river. Nutrients feed the growth of invasive aquatic plants. Excess nutrients also lead to higher potential for toxic algae blooms, especially in areas with low depth and high temperature. Toxic algae blooms are fatal to dogs that swim in them and have been linked with neurological and liver diseases in humans.

### **Summary of Potential Alternatives to Relocating SFR into the Charles River**

MassDOT and FHWA must consider both construction and final design alternatives that avoid negative impacts to the Charles River. In addition to the harm to the river, the costs of building and then removing a temporary roadway would be exorbitant. It is also questionable, at best, whether such an intrusion into the river could even be permitted. The single “build” alternative included in the scoping report is wholly inadequate to comply with NEPA, which requires a robust analysis of alternatives that allows for comparisons of the impacts associated with each. The alternatives below focus on avoiding negative impacts to the river, but other commenters are putting forward alternatives involving different aspects of the project that should also be considered.

MassDOT and FHWA should consider an alternative that combines I-90 and SFR traffic onto one road or closes SFR during construction of the project instead of relocating SFR into the river. Diverting SFR traffic onto I-90 or closing it during construction would not only avoid negative impacts to the river, it would also avoid significant costs, allowing public funds to be put to better uses like improving public transit, restoring the riverbank, and enhancing public parkland along the river.

Alternatives should also be evaluated that include fewer travel lanes. For example, as other advocates have accurately pointed out, traffic data suggests that fewer than four lanes are actually needed on the westbound side of I-90. Future transportation trends, such as increased use of public transit, may further alleviate the need for the proposed number of travel lanes. Reducing travel lanes would have a significant effect on the overall project’s impacts, and might obviate the need for construction in the Charles River, increase opportunities for public transit improvements, allow for enhanced recreational opportunities and parkland along the river, and reduce overall taxpayer costs of the project.

As alternatives are developed and evaluated, it is important to consider that vehicle use of I-90, SFR, and other area roadways is likely to look quite different in coming years given the likely advent of driverless cars, improved public transit, and responses to climate change. In fact, the MBTA Board recently voted to pursue a Regional Rail Vision for the commuter rail system that will increase frequency and allow more people to rely on public transit. In December 2018, the governor's Commission on the Future of Transportation released a report that included recommendations to "[m]odernize existing state and municipal transit and transportation assets to more effectively and sustainably move more people throughout a growing Commonwealth" and "make transportation infrastructure resilient to a changing climate."<sup>5</sup> MassDOT and FHWA should ensure that any alternatives considered are forward-looking and account for these changes so that the project does not become obsolete as soon as it is built.

## **Detailed Comments on Environmental Impacts and Permitting**

### *Stormwater Management and Flooding*

Stormwater pollution is the major problem affecting the health of the Charles River today and the principal reason that the river fails to meet water quality standards and designated uses. Stormwater management presents both a challenge and an opportunity for this project. The project area is covered mostly by impervious surfaces, which have severely disrupted the natural hydrology. Today, stormwater drains to a series of outfalls before discharging into the Charles River. There are 36 sub-catchment areas routing to 25 outfalls that discharge to the river in the project area. Five entities (MassDOT, the Massachusetts Bay Transportation Authority ("MBTA"), the City of Boston, the Department of Conservation and Recreation ("DCR")), and Harvard University) are responsible for the stormwater management system throughout the project area.

### Concerns

CRWA is greatly concerned about the lack of coordination and comprehensive planning for stormwater management project-wide. Realistically, we fail to see how stormwater management goals will be attained project-wide without a clear understanding of how green infrastructure retrofits can be planned and engineered for each drainage area at a cumulative sub-watershed level.

Given the phosphorus-laden runoff generated from car exhaust on roadways and the phosphorus limits established in the nutrient Total Maximum Daily Load ("TMDL"), it is not clear how the project will comply with the TMDL requirement of 64% phosphorus reduction.

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<sup>5</sup> *Choices for Stewardship: Recommendations to Meet the Transportation Future*, <https://www.mass.gov/doc/choices-for-stewardship-recommendations-to-meet-the-transportation-future-executive-summary/download>.

Even full compliance with the state Stormwater Standards does not insure that the project will meet the TMDL reduction requirements. Methods for achieving the TMDL must be considered as part of the NEPA process.

Based on the stormwater management plan filed as part of the DEIR, a large part of the project area – including the proposed bridge in the Charles – will apparently not receive any treatment to reduce phosphorus loading. The proposed project contains various infiltration BMPs that supposedly will provide pollutant removal efficiencies, but we have not seen any documentation of soil tests and ground water levels at the locations where these BMPs are proposed.

Additionally, MassDOT claims that discharge volume will not increase and plans to eliminate three discharge pipes and combine them into one new outfall. However, it remains to be seen how MassDEP would view this, and whether the new outfall proposed can meet Stormwater Management Standard 1, which states that “[n]o new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.”

### Opportunities

Source control is a very important component of stormwater management for the project area. The NEPA review should detail the permitting process for the proposed stormwater outfall(s), identify the responsible party(ies) and all potential impacts to wetland resources, and state whether a NPDES permit would be required from EPA or whether (and how) this would be covered by the City of Boston’s Phase I stormwater permit.

Because this project site is at the downstream end of an extremely polluted drainage area to the south that includes parts of Brookline and Boston University, MassDOT has an opportunity to leverage resources from those entities to work with the Boston Water and Sewer Commission (“BWSC”) to clean up the current (and any increased) discharge through a constructed wetland, rather than a new outfall.

Underground infiltration strategies, which are currently envisioned for the project, may or may not work with the existing urban soils and high groundwater levels in the area. Above-ground vegetative features provide additional benefits such as flood storage capacity, stormwater filtration, and air cooling and filtration. Wherever feasible, these above-ground solutions should be considered in the NEPA alternatives analysis.

While MassDOT has stated that it will construct the complete stormwater system for the project area in conformance with applicable design requirements, it is crucial that the entire subwatershed contributing to discharge in the project area be considered and managed as a single “stormwater management district.” This would enable design and engineering of a larger subwatershed green infrastructure plan for this largely impervious urban area. This green infrastructure plan would not only help the five responsible parties to comply with their respective stormwater permits and Charles River TMDLs, but also create a much more resilient urban neighborhood with an ability to better manage current and future flooding. CRWA

therefore requests that the project be scoped to include a stormwater management district plan for the larger drainage area.

### *Water Quality*

The Charles River is impaired for, among other impairments, chlorophyll-a, escherichia coli, nutrient/eutrophication biological indicators, dissolved oxygen, and phosphorus (total). Polluted stormwater runoff is the leading cause of water quality impairments in the Charles River. All impervious surfaces in the urban environment carry high volumes of stormwater runoff and generate significant loads of major stormwater-related pollutants, including phosphorus. TMDLs for nutrients and pathogens in the Lower Charles River Basin have been established and the NEPA process must analyze whether and how the project will comply with these TMDLs.

During construction of a bridge, there is increased erosion and changes in the riverbed and bank stability due to construction machinery working in the area, causing more sediment to enter the water. Construction of a bridge also usually requires the installation of pilings, which would require hammering pilings into the sediment or dredging sediment from the river bottom. Both hammering and dredging suspend silt into the water column. Sediments in historically industrial areas like Boston are frequently contaminated with heavy metals and toxic chemicals, which can be released into the river. For this reason, any sediment removed from the river must be disposed of properly, which can be costly. Mechanical dredging or hammering pilings would have even greater potential impact than hydraulic dredging.

Surface water and groundwater quality are also degraded by construction vehicles and materials, as well as by vehicles utilizing the bridge. The potential for fuel and oil spills increases, and stormwater runoff brings excess nutrients and bacteria, as well as road salt during icy conditions, into the water without a natural vegetated buffer. If parts of the river are filled, harmful chemicals will be distributed into a smaller volume of water, exacerbating water quality issues. The project's impacts on water quality in and around the Charles River must be fully documented and considered, and alternatives that would reduce or eliminate adverse impacts to water quality must be analyzed.

### *Climate Change and Resiliency*

Massachusetts law requires permitting agencies to consider climate change impacts when examining whether all feasible measures have been taken to avoid or minimize environmental impacts.<sup>6</sup> Climate change will result in increased precipitation and overbank flooding in the project area. Climate change-induced hotter temperatures combined with heat-absorbing surfaces (pavement and roadways)<sup>7</sup> will also intensify urban heat island effect.

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<sup>6</sup> G.L. c. 30, § 61 (“In considering and issuing permits, licenses and other administrative approvals and decisions, the respective agency, department, board, commission or authority shall also consider reasonably foreseeable climate change impacts . . .”).

<sup>7</sup> The project area consists of almost 66 acres of roadways, 3 acres of sidewalks, and 5.5 acres of parking lots. DEIR at 4.19.3.

This is already an extremely flood-prone area,<sup>8</sup> and MassDOT’s preliminary results in the DEIR suggested that areas adjacent to the river between the Western Avenue and River Street bridges are at a high risk of flooding, especially after 2030.<sup>9</sup> By 2070, MassDOT’s model predicts that “storm surge induced flanking and overtopping of the [New Charles River] dam [will] far exceed[ ] the capacity of the pumps and [will] cause[ ] water to flow upstream behind the dam throughout the Charles River system.”<sup>10</sup> MassDOT acknowledged that the water surface would be above SFR by 2070 and that upstream flooding “may occur prior to 2070.”<sup>11</sup> MassDOT’s proposal to relocate SFR into the river during construction currently envisions adding significant fill to the river in the throat section. Doing so would reduce the flood storage capacity of the river. As rainfall becomes more frequent and intense with climate change, less room for water in the river will further exacerbate flooding in neighboring lands.

If done correctly, this project presents an opportunity to build climate resilience and address heat island impacts and flood risks by planning in accordance with the impacts that will occur over the next fifty years. Green infrastructure can play a key role in both flood mitigation and reduction of heat island effect while reducing polluted stormwater runoff to the Charles. The NEPA process should identify all green infrastructure opportunities and prioritize their implementation.

#### *Invasive Species and Toxic Algae Blooms*

Bridges cause slower water velocities, which increase siltation, in turn decreasing depth and resulting in increased growth of invasive aquatic plants such as milfoil and fanwort. These invasive plants already grow densely in the river, threatening native species, decreasing biodiversity, and restricting boating activity. They also create a perfect mosquito breeding ground, which, with EEE outbreaks in the state, is a public health concern.

Increased direct stormwater runoff from bridges and eroded banks brings excess nutrients to the river, and these nutrients feed the growth of invasive aquatic plants. Excess nutrients increase potential for toxic algae blooms, especially in areas with low depth and high temperature. Toxic algae blooms are fatal to dogs that swim in them and have been linked with neurological and liver diseases in humans. The project’s potential to exacerbate existing invasive species and toxic algae bloom issues must be fully evaluated and alternatives that avoid and/or minimize these impacts must be considered.

#### *Fish and Wildlife Habitat*

The Charles is home to an important anadromous fish run for both blueback herring and alewife. Catadromous fish – American Eel – also migrate in the Charles. Additionally, the U.S. Fish & Wildlife Service, in partnership with the Division of Marine Fisheries and in

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<sup>8</sup> Flood maps from City of Cambridge of the Mean High High Water +5 feet projected to occur by mid- to late-century (*equivalent to flooding from Hurricane Sandy if it hit Boston during high tide*).

<sup>9</sup> DEIR Section 4.19.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*



collaboration with CRWA, began an American shad restoration project in 2006 to bring back these once-native fish.

Sediment fill and pilings placed in the river reduce the amount of available habitat for aquatic life, causing competition and threatening the ecosystem. Silt production can also be detrimental to the aquatic environment by blocking light from the river, raising water temperatures, and interfering with fish navigation. A small increase in salt levels in freshwater ecosystems inhibits the growth and reproduction of freshwater species. Heavy metals like mercury that are released into the water column from silt production can be incorporated into invertebrate and fish food sources, building up over time and moving up the food chain to other aquatic species and humans who consume them. This can cause detrimental health effects to the nervous, digestive, and immune systems.

Once a bridge is constructed, water slows around it, slowing aeration and oxygenation. Lowered oxygen levels put aquatic life under stress, and as oxygen concentrations decrease, stress levels increase, and fish kills occur. Siltation also causes lower water levels, resulting in higher temperatures. Fish metabolism and breathing rate speed up in warmer waters, requiring more oxygen; however, oxygen levels decrease as temperature increases.

Finally, bank habitat is important to fish for cover, shade, and feeding areas. Existing bank habitat in this section of the river is poor, and mitigation for the project should include bank restoration. All of these factors must be evaluated during the NEPA process, and alternatives that would avoid and/or minimize impacts must be considered.

#### *Wetlands, Tidelands, and Waterways*

All impacts to wetlands, tidelands, riverfront area, land under water, bank, bordering land subject to flooding, and other resource areas must be documented and evaluated during the NEPA process. Impacts to these areas will be extensive – certainly a significant increase over what was described in the DEIR – if MassDOT continues to advance a design proposal that includes relocating SFR into the Charles River and I-90 over the bank of the river on fill and sheet pilings. Moreover, these impacts should only be described as temporary if they are in fact so; impacts to these resource areas for significant lengths of time – for example, 10 years – will have lasting, and in some cases permanent, effects that must be evaluated in the NEPA process.

With regard to wetlands, the project must comply with the Wetlands Protection Act and the City of Boston Wetlands Ordinance. This project will also require authorization from MassDEP under the Public Waterfront Act because it will be located in and on filled tidelands, flowed tidelands, and the Charles River.

The purposes of the Public Waterfront Act and its implementing waterways regulations include protecting and promoting the public's interest in tidelands and non-tidal rivers and streams by ensuring that the tidelands are utilized only for water-dependent uses or otherwise serve a proper public purpose; protecting the public health, safety, and general welfare as it may be affected by any project in tidelands and non-tidal rivers and streams; and fostering the right of the people to clean air and water, freedom from excessive and unnecessary noise, and the natural,

scenic, historic, and esthetic qualities of their environment.<sup>12</sup> Thus, in addition to protecting the public's rights to access and use tidelands and waterfront areas, the Act and the waterways regulations protect the public's interests in the attainment of water quality goals, the reduction of flood and erosion-related hazards on land subject to the 100-year storm event, especially those in damage-prone or natural buffer areas, and the preservation of historic sites and districts near waterways. Any project authorized pursuant to the Act and the waterways regulations must be consistent with these underlying purposes.

Under the waterways regulations, new fill or structures are generally prohibited and are only allowed in tidelands in certain defined, limited circumstances – none of which apply here.<sup>13</sup> MassDOT has indicated that it intends to seek a variance from the waterways regulations, a process reserved for the “*rare and unusual circumstance*” where the public interest in a proposed project overrides the public interest in waterways and the project cannot be implemented in a way that fully complies with the waterways regulations.<sup>14</sup>

The MassDEP Commissioner may only waive the otherwise-applicable restrictions of the waterways regulations and grant a variance upon a finding that: a) there are *no reasonable conditions or alternatives* that would allow the project to proceed in compliance with the waterways regulations; (b) the project includes *mitigation measures to minimize interference* with the public interests in waterways and that the project incorporates measures designed to *compensate the public* for any remaining detriment to such interests; and (c) the variance is necessary to accommodate an overriding municipal, regional, state or federal interest.<sup>15</sup>

At a minimum, a request for a variance must include, in addition to an identification of the regulation(s) from which the variance is sought: a description of alternative designs, locations, or construction methods which would achieve the purpose of the project without the need for the variance; an explanation of why each of the alternatives is unreasonable; an analysis of any detriments to the public's interests in waterways due to the proposed project and an explanation of how the detriments have been minimized; a description of the measures that will be provided to compensate for any remaining detriment to the public's interests in waterways; and a description and supporting documentation of the overriding public interest served by the project.<sup>16</sup> Whenever the need for a variance is reasonably foreseeable, as it is here, this information should be included in the EIR for the project.<sup>17</sup> Because a variance is only intended to be granted in rare and unusual circumstances, the standard for obtaining one is intentionally difficult to meet. MassDOT has not provided any information that would justify a waiver by MassDEP of the categorical prohibition on new fill and structures.

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<sup>12</sup> 310 CMR 9.01(2).

<sup>13</sup> 310 CMR 9.32.

<sup>14</sup> 310 CMR 9.21(3) (emphasis added). It is notable that the drafters of the waterways regulations included this “commentary” to the variance provision, as it is the only such “commentary” provided in the entirety of the waterways regulations. 310 CMR 9.00.

<sup>15</sup> 310 CMR 9.21(1) (emphases added).

<sup>16</sup> 310 CMR 9.21(2)(a).

<sup>17</sup> 310 CMR 9.21(2)(c).

Even if MassDOT *were* able to obtain such a variance, it would still have to comply with all other applicable provisions of the waterways regulations, such as the standards for nonwater-dependent infrastructure facilities.<sup>18</sup> Those standards require “mitigation and/or compensation measures as deemed appropriate by MassDEP to ensure that all feasible measures are taken to avoid or minimize detriments to the water-related interests of the public.”<sup>19</sup> They also require “reasonable measures to provide open spaces for active or passive recreation at or near the water’s edge, wherever appropriate . . . by any means consistent with the need to avoid undue interference with the infrastructure facilities in question, and to protect public health, safety, or the environment.”<sup>20</sup> In addition to a thorough evaluation of alternatives and impacts, the NEPA process must fully document the project’s ability to comply with all applicable requirements of the waterways regulations.

This project will also require a 404 permit from the Army Corps of Engineers and a 401 Certification from MassDEP. To obtain these approvals, MassDOT and FHWA must demonstrate that there are no practicable alternatives that would have less adverse impacts on the aquatic ecosystem. The scoping report contains no information about how this standard will be met.

### *Parkland*

Because parkland and historic resources are located within the project area and will be impacted by the project, a Section 4(f) evaluation is required. Section 4(f) requires that there be no prudent and feasible alternative and “all possible planning to minimize harm.”<sup>21</sup> The project “will adversely affect the activities, features, and attributes of the park . . . eligible for protection under [49 U.S.C. § 303 (d)(3)(A)],” and the impacts will not be *de minimis* – they will result in direct alteration of parkland features. MassDOT has previously claimed that visual and noise impacts are not direct impacts for parkland uses, but we disagree with this characterization. There will also be an adverse effect on historic resources and conversion of Article 97 land.

In the required section 4(f) evaluation, MassDOT and FHWA must discuss and analyze alternatives, including smaller I-90 lane widths and shoulders in the throat area, that would avoid and/or minimize impacts to parkland and historic resources. MassDOT and FHWA should also identify and quantify clearly each of the direct, indirect, and temporary parkland and historic resource impacts, as well as the mitigation proposed. Impacts with specific locations identified should also be presented in tabular format.

### **Environmental Justice Considerations**

We appreciate MassDOT’s investment in a relatively robust public process – particularly though the project task force – for the past five years; however, the task force members mostly represent well-resourced institutions and organizations. This project will impact a more diverse and less-resourced population. Under federal law, MassDOT and FHWA must identify and

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<sup>18</sup> 310 CMR 9.55.

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> 49 U.S.C. § 303(c)(1)-(2).

address disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations.<sup>22</sup> At the state level, Executive Order 552 requires enhanced outreach to environmental justice populations.<sup>23</sup> To achieve environmental justice with the project area, FHWA and MassDOT must commit to obtaining public input on park and other mitigation designs before the designs are finalized in contract form and implemented through a design-build process.

### **Additional Alternatives, Phasing, and Mitigation**

In addition to the alternatives discussed above, CRWA has developed a plan to capture and manage a minimum of a 2-inch storm, and where opportunities exist for accommodating additional (temporary) flood storage, a 5-inch storm. These blue greenway designs will provide increased public open space, reduce flooding, and mitigate the urban heat island effect. CRWA's blue green infrastructure planning strategies start with an understanding of historic hydrologic conditions in this area and aim to replicate the natural hydrology. Attachment A contains more details on CRWA's approach, which connects this project to Harvard's Enterprise Research Center. This plan should be considered as part of the NEPA alternatives analysis.

Substantial mitigation will be required for this project. For some major project elements like the proposed relocation of SFR into the Charles River, MassDOT has not yet provided enough information to determine what the extent of impacts to the river would be and whether they could be adequately mitigated. For other impacts associated with the project, CRWA's blue greenway designs would provide several opportunities for mitigation, including:

- Construction of a system of blue greenways and wetlands for stormwater management, flood resiliency, and reduction of heat island effect in the project area;
- Charles River bank restoration from at least the throat area to the River Street Bridge with vegetation to provide fish habitat;
- A larger "Allston Esplanade" park for the public with bioswales and wetland features for stormwater management; and
- Pervious pavement for bicycle-pedestrian lanes and the Paul Dudley White path.

Public transit should also be prioritized throughout the project's construction in order to mitigate effects on commuters and others traveling through the project area. If done right, public transit could help to alleviate some of the anticipated traffic issues during construction by moving a greater volume of people more efficiently and utilizing fewer traffic lanes.

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<sup>22</sup> Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, EO 12898, Sec. 1-101.

<sup>23</sup> According to the Massachusetts Environmental Justice Viewer, there are affected residential communities that meet the definition of environmental justice populations for low-income and people of color criteria: [http://maps.massgis.state.ma.us/map\\_ol/ej.php](http://maps.massgis.state.ma.us/map_ol/ej.php).

Project phasing and staging for all project elements should be clearly presented so that the public can fully understand what the impacts of each phase will be and when they will occur. In general, mitigation measures should align closely with project impacts and be performed as early as feasible. CRWA would be interested in participating in a subcommittee of the task force or other group tasked with providing input on a comprehensive mitigation plan addressing issues such as riverbank remediation, flood plain management, and stormwater planning.

We appreciate your consideration of these comments.

Sincerely,



Heather Miller, Esq.  
General Counsel and Policy Director



Pallavi Kalia Mande  
Director of Watershed Resilience

cc: I-90 Task Force  
Secretary Stephanie Pollack, MassDOT  
Commissioner Martin Suuberg, MassDEP  
Senator William Brownsberger  
Representative Michael Moran  
Representative Kevin Honan  
Councilor Julia Mejia  
Brian Golden, Boston Planning and Development Agency  
Jeff McEwen, Federal Highway Administration  
Ken Miller, Federal Highway Administration  
Kate Kerrigan, MassDEP  
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# Attachment A



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Saving the Charles River since 1965

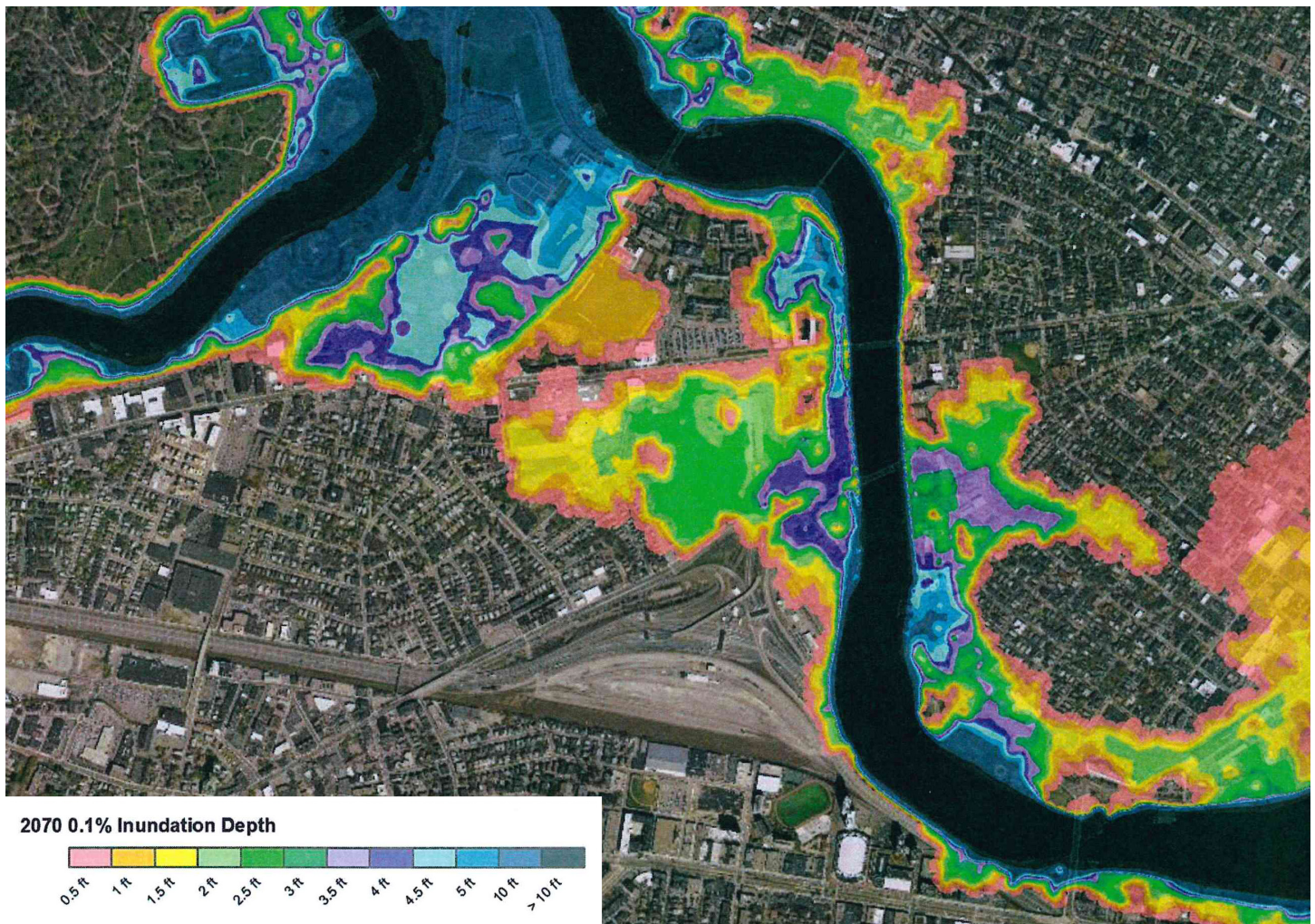
## Blue Green Infrastructure Planning Strategies

Harvard Enterprise Research Center & I-90 Interchange Project

### INFRASTRUCTURE NEEDS AND APPROACH FOR RESILIENCE

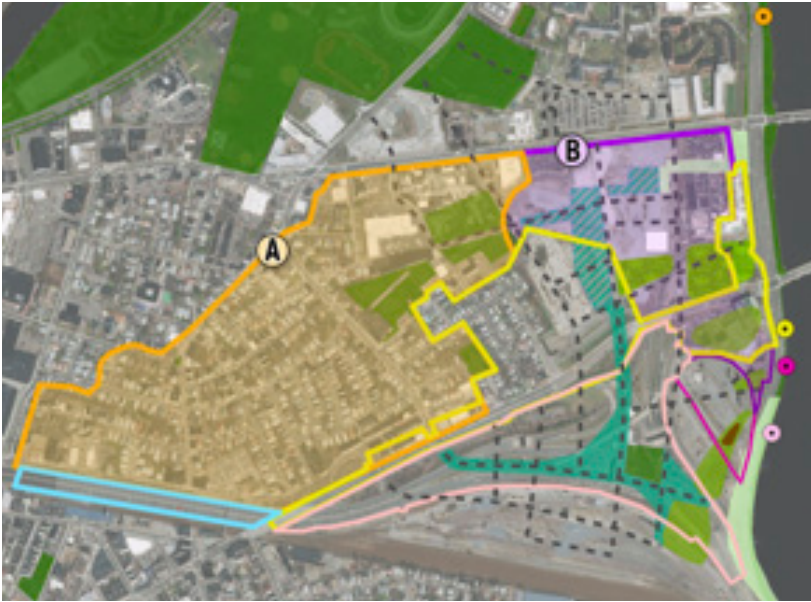
Climate change is predicted to result in increased precipitation and higher flood inundation levels, as well as higher temperatures due to the Urban Heat Island effect. Designing and implementing Green Infrastructure (GI) in urban neighborhoods such as North Allston-Brighton will play a key role in mitigating flooding and heat island effect while improving water quality in the Charles River. Stormwater parks and blue-greenways will also serve as public open space for the local community, providing much needed passive recreational opportunities and connections to the Charles River.

CRWA's approach for the Harvard ERC site and the I-90 project area is to design GI systems, including blue greenways (bioretention / wet-weather corridors) and constructed wetlands to manage stormwater runoff from 1"-5" rain storms. The minimum target will be to capture and manage a 2" storm, and where opportunities exist for accommodating additional (temporary) flood storage, a 5" storm. These designs will provide increased public open space, reduce flooding, and mitigate the Urban Heat Island effect.



Source: MassDOT





Source: CRWA

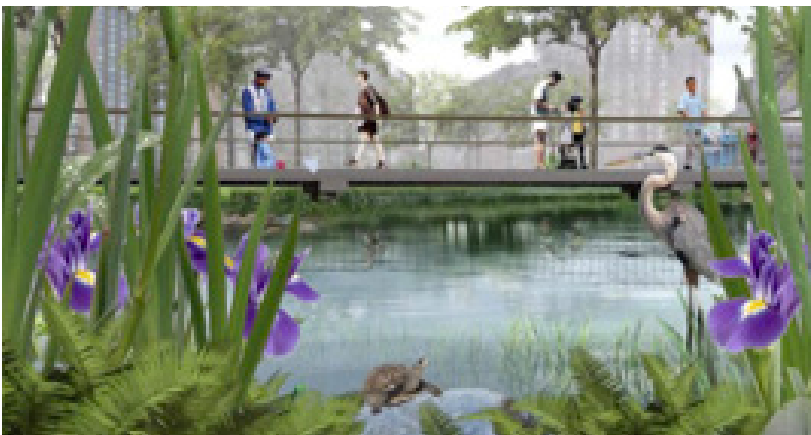
The proposed concept design aims to capture, store, and treat stormwater runoff from the following drainage areas within the Harvard ERC project site.

#### Drainage Area (A)

- Located west of the District Energy Facility (DEF)
- Drains to an outfall north of Western Ave, indicated in orange

#### Drainage Area (B)

- Located between Western Ave and River Street encompassing the DEF
- Currently has no drainage outfall in place



Source: Connect Kendall Square Framework Plan 2015

CRWA has also identified opportunities for additional bioretention systems and parkland north of the Genzyme building extending from East Drive to Soldiers Field Road (SFR).

#### **Constructed Wetlands**

- Two wetlands totaling 5.4 acres
- Designed to be connected by piping
- Located south and southeast of the DEF



Source: Connect Kendall Square Framework Plan 2015

#### **Blue Greenway**

- A 6-acre bioretention system designed as a blue greenway (network of open space corridors), running parallel to Cattle Drive and Science Drive
- This design, when coupled with the constructed wetlands, is able to capture a 2" storm

Sizing Note: Constructed wetland and bio-retention systems were sized to be able to treat/manage/store 1"-5" of precipitation based on location and probability of flooding/inundation suggested by MassDOT's 2070 projections of a 1% chance storm.



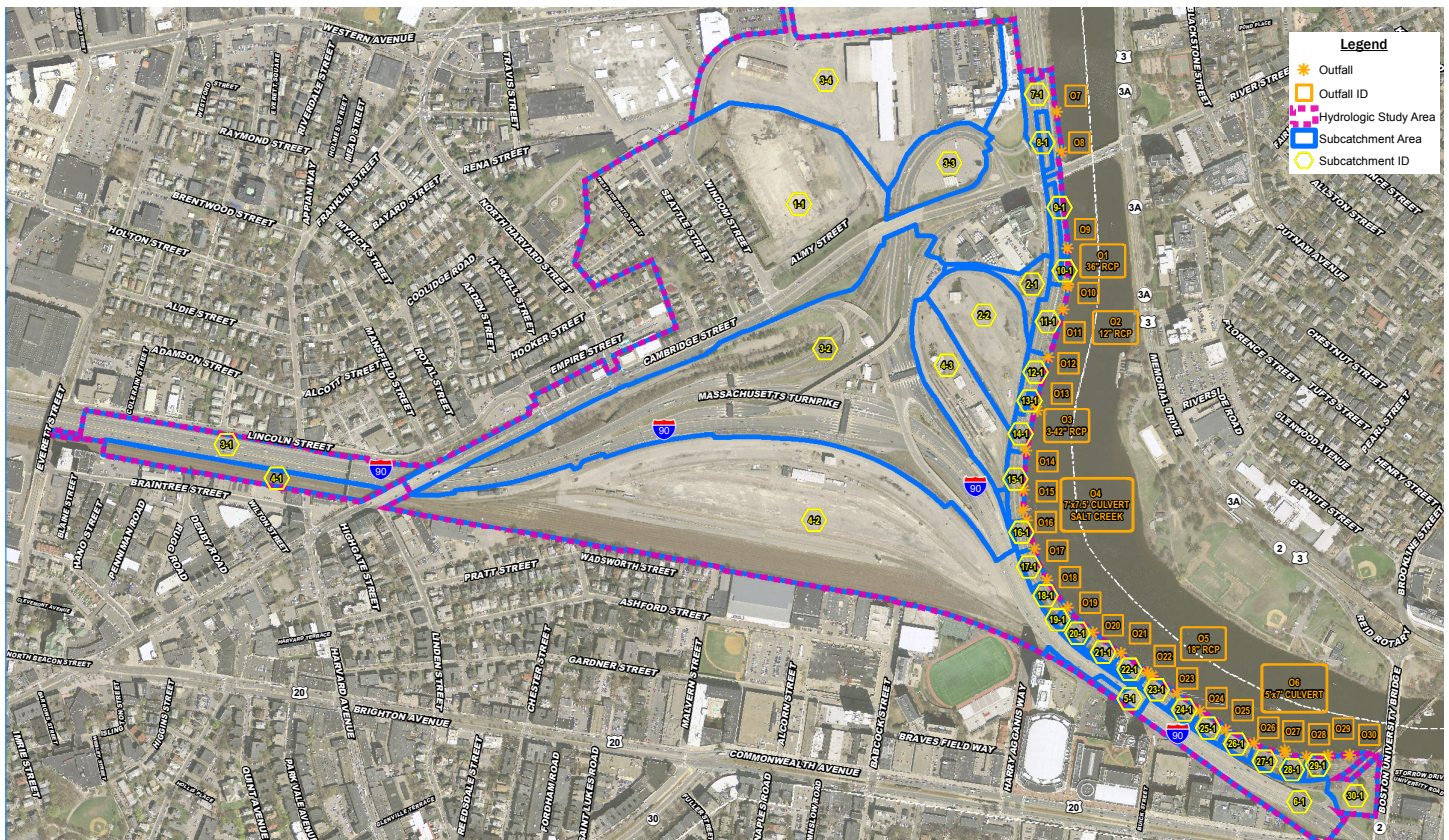
## I-90 Allston Interchange Project Area Drainage Areas



U.S. Coast Survey A.D. Bache Supt.- Roxbury Cambridge and Medford Massachusetts Surveyed in 1847 by H.L. Whitting Assist. Copied by E. F. Sommer December 1877.  
Source : I-90 Project DEIR; MassDOT

The area of North Allston has seen dramatic changes in development since the turn of the 16th century, especially along the banks of the Charles River. Prior to 1908, the Charles River existed as a true estuary open to the Boston Harbor. In what is now the I-90 project area, salt marshes and freshwater meadows buffered the estuary, providing natural flood control by storing excess water volume and filtering out nutrients and pollutants.

Today, the I-90 project area is covered mostly by impervious surfaces. Stormwater drains to a series of outfalls where it discharges into the Charles River, carrying pollution from the land into the river. Understanding the historic conditions of the project site helps guide the design of Green Infrastructure that will successfully restore the function of natural hydrology on the site.

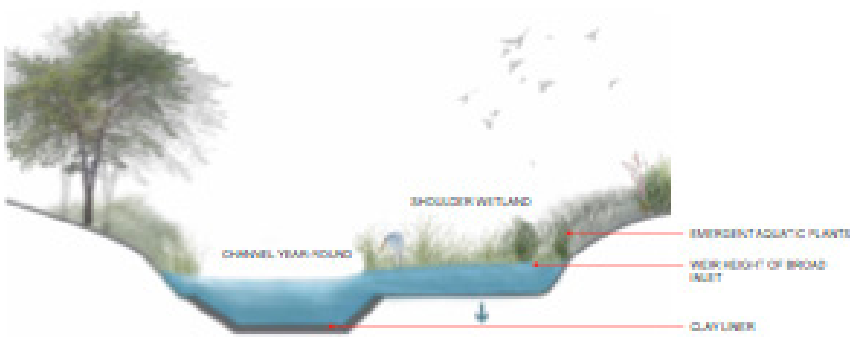


Source : I-90 Project DEIR; MassDOT

The concept design proposed by CRWA aims to capture, store, and treat stormwater runoff from the three major drainage areas within the I-90 project area. These areas as delineated based on the drainage flowing to the MassDOT and BWSC owned outfalls in the Charles shown above.



## I-90 Allston Interchange Project Area Proposed Green Infrastructure Strategies



Source: Connect Kendall Square Framework Plan 2015

### Constructed Wetlands

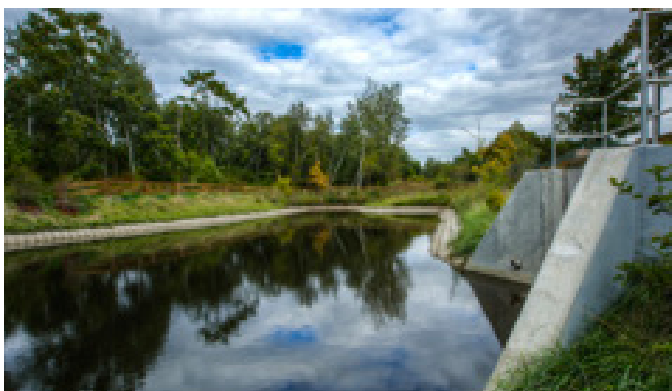
- In order to capture a 1" storm from the area draining to MassDOT outfall #2, a wetland, 0.5 acre in size, was sited south of River Street. To capture a 2" storm, 0.5 acres of bioretention is needed
- To capture a 1" storm from the area draining to the MassDOT outfall #1, a 2.5-acre wetland was sited south of River Street. This area has a high probability of inundation suggested by MassDOT's 2070 projections of a 01% chance storm



Source: Connect Kendall Square Framework Plan 2015

### Bioretention Systems

- A 10 acre bioretention system designed as a blue greenway (network of open space corridors)
- Connects from the Harvard ERC project area to a 4-acre constructed wetland sited between East Drive and SFR
- Located adjacent to the proposed parkland along the Charles River in the I-90 project area



Source: MWH Global Alewife Reservation Stormwater Wetland



Source: MWH Global Alewife Reservation Stormwater Wetland

Sizing Note: The wetland alone was sized to capture a 1" storm. Together with the bioretention systems in the blue greenway, these green infrastructure designs capture over a 5" storm. To capture a 2" storm, 4 acres of bioretention are required in addition to the 4-acre wetland.