TOWN OF LINCOLN
MASSACHUSETTS

16 LINCOLN ROAD, LINCOLN, MA 01773

June 24, 2021

To: Andrew Wilkins, Highway Design, Project Manager MassDOT
Brian Fallon, Project Engineer, MassDOT
Ray Stinson, District Utility/Constructability Engineer, MassDOT
Jose Rozo, Assistant Constructability Engineer, MassDOT
Paul Stedman, District 4 Highway Director

Thank you for the opportunity to meet with you and comment on the 75% design plan for the Route 2A resurfacing project. The Town's leadership team has appreciated the opportunity to partner with you on this important project. Our most recent meeting provided the opportunity to discuss potential design improvements. Our input is a compilation of feedback and suggestions from our key Boards including our Select Board, Planning Board, Roadside Traffic Committee, and the Bicycle & Pedestrian Advisory Committee. The Town of Lincoln feels that this project provides a unique opportunity to fundamentally change the character of this special road that runs through a Historic National Park and has been designated as an All American Road by the Federal Highway Administration. There is strong consensus among Town leadership boards and staff and the other stakeholders that have participated in the process, that the Route 2A/Battle Road repaving and pedestrian improvement plan will improve pedestrian and cycling safety and connectivity throughout the corridor. In response to the current use of the road by pedestrians and cyclists as well as the anticipated surge in vulnerable users who are expected to visit the National Park and the surrounding communities as part of the 250th Celebration festivities, we strongly urge that MassDOT consider the following improvements in Phase 1 of this project. We note that many of these improvements are mandated by MassDOT design standards for cyclists and pedestrians for resurfacing projects (see Attachment A) and the requirements set forth in the Bicycle Plan of 2019 (see Attachment B).

1. **Provide a consistent four foot shoulder throughout the corridor to enhance the safety of pedestrians and cyclists.**
    a. Utilize box widening at any pinch points and along the ¼ mile where the shoulder narrows from four feet.

We cannot emphasize enough the importance of pedestrian and bicyclist safety and connectivity. This corridor is already a popular cyclist route, and a consistent shoulder will allow safer access from residential areas and the Minuteman Park. The existing Route 2A cross section consists of two 12-foot travel lanes with a paved shoulder width that varies from approximately 1 to 3 feet. Understanding that the road width is limited, we suggest the use of box widening to accommodate the limited widening

with the use of stone retaining walls to modify side slopes that currently restrict shoulder width. This would allow a consistent 4' shoulder throughout the project limits which is a critical project component to assure compliance with project goals and MassDOT Design Standards for Bicycles.

2. **Include pedestrian flashing beacons at all crosswalks.**

As discussed, we ask that pedestrian flashing beacons be included at all crosswalks. These beacons are only activated when someone is crossing and have proved to enhance the safety of pedestrians and other users with minimal visual impact. Although we hope that the traffic calming measures will slow traffic speeds, the posted speed limit will remain at 40mph. Both the existing use of the road by vulnerable users and the expected crowds of visitors for the 250th Celebration, demonstrate the need for beacons to ensure the safe crossing of pedestrians and bicyclists.

3. **Add a crosswalk at Brooks Road with pedestrian refuge islands.**

As discussed in previous stakeholder's meetings, the Town would like an additional crosswalk at Brooks Road. This is a residential street with no way for pedestrians and bicyclists to safely cross 2A. A crosswalk will allow residents to safely access the National Park and Lexington Road.

   a. We request adding a splitter island to prepare eastbound traffic for the crosswalk at Brooks road to enhance safety.
   b. Add paint to narrow the exit width of the road.

4. **Bedford Lane Crosswalk.**

As discussed in our last meeting, explore shifting the crosswalk to align with Bedford Lane which is only used for emergency vehicles and is not a road for normal vehicle traffic.

5. **Reinstatement of Bedford Road Crosswalk**

With the reinstatement of the crosswalk with pedestrian refuge islands, consider narrowing the exit width with paint and add solid lines for vehicle direction.

6. **Reinstatement of Mill Street Crosswalk**
   a. With the reinstatement of the crosswalk to the west of the intersection with pedestrian refuge islands, consider connecting the crosswalk to the gravel trail and the Paul Revere parking lot.

   b. Narrow the exit width with paint and coordinate exit width paint with Lincoln DPW.

7. **Old Mass Ave Eastbound:**
   a. Include a left turn lane, perhaps by moving the centerline, narrowing travel lane and protect the shoulder with flex posts /tubular delineations.

8. **Guardrails**:
   Continue the use of steel backed timber guardrails throughout the corridor to be sensitive to and enhance the aesthetic of the National Park and the historic Battle Road Byway All American Road.

9. **Island Details:**

All refuge islands should be a minimum six foot width to better accommodate bicycles. Island Designs should be consistent with the existing island at the Hanscom Drive intersection. The designs of the

splitter and pedestrian refuge islands should be consistent with parkway design standards rather than higher speed highway design standards.

10. **Vegetative Clearing**:

As was discussed in our meeting, modify the tree trimming guidelines contained in the 75% plans which document a 30 foot clearing. The revision should reinforce the goal of a lower speed parkway character while meeting safety standards for visibility of traffic control and informational signage.

Again, we thank MassDOT for the inclusive process and we look forward to working together to create a project that highlights the goals of Complete Streets by enhancing safety and connectivity for pedestrians and bicyclists and works towards creating a parkway aesthetic to promote the historic nature of the Park and the Battle Road Byway. We believe that the design will benefit tremendously from the changes we have put forward, as they represent an appropriate balancing of interests among key stakeholders.

Sincerely,

Jonathan Dwyer, Chair of the Select Board
Member of the Roadside Traffic Committee
Member of the Bicycle and Pedestrian Advisory Committee
Select Board Representative to the Battle Road Byway Committee

Margaret Olson, Chair of the Planning Board
Member of the Roadside Traffic Committee
Member of Bicycle and Pedestrian Advisory Committee

Kenneth Bassett, Chair of the Roadside Traffic Committee

Robert Wolf, Co-Chair of the Bicycle and Pedestrian Advisory Committee

Ginger Reiner, Co-Chair of the Bicycle and Pedestrian Advisory Committee

ATTACHMENT A

massDOT
Massachusetts Department of Transportation
Highway Division

Number: E-14-006
Date: 12/19/14

ENGINEERING DIRECTIVE

Patricia A. Leavenworth, P.E. (signature on original)

CHIEF ENGINEER

Design Criteria for MassDOT Highway Division Projects

The purpose of this Engineering Directive is to clarify the design criteria that shall be applied to MassDOT Highway Division projects, as listed below. This Directive introduces new controlling criteria for pedestrian and bicycle accommodation that will be used together with FHWA's 13 controlling criteria for roadways and bridges. This Directive updates and supersedes Engineering Directive E-14-001, dated 2/4/14, and supports MassDOT Healthy Transportation Policy Directive P-13-0001, dated 9/9/13.

This Directive applies to all projects not yet advertised for construction. Projects that have received 25% Project Approval as of 2/4/14 are exempt from meeting the pedestrian and bicycle accommodation requirements of this Directive, unless directed otherwise by MassDOT on a case-by-case basis. However, designers are encouraged to apply all elements of this Directive, where practical, to every project regardless of design status.

As stated in the *MassHighway Project Development and Design Guide* (Guide), the design criteria and processes contained herein apply when:

1. MassDOT Highway Division is the project proponent, or
2. MassDOT Highway Division is responsible for project funding (state or federal aid), or
3. MassDOT Highway Division controls the affected infrastructure (State Highway).

Design Criteria for Roadways and Bridges (FHWA's 13 Controlling Criteria)

1. For projects not on the NHS, the design criteria shall be in accordance with the Guide.

2. For projects on the NHS, the design criteria shall be as follows:
    a. For projects on NHS Interstate Highways:
        i. For Interstate non-3R* projects, the design criteria shall be in accordance with the latest edition of the *AASHTO, A Policy on Design Standards, Interstate System* (AASHTO Interstate).
        ii. For Interstate 3R* projects, the minimum design criteria for horizontal alignment, vertical alignment and widths of median, traveled way and shoulders remain the standards that were in effect at the time of original construction or inclusion into the Interstate System.

b. For projects on other NHS freeways (other than Interstate) the design criteria shall be in accordance with the latest edition of the *AASHTO, A Policy on Geometric Design of Highways and Streets* (Green Book). 3R* allowances for NHS freeways are included in the Green Book.

c. For projects on non-freeway NHS roadways:

   i. For non-freeway non-3R* projects, the design criteria shall be in accordance with the Green Book.
   ii. For non-freeway 3R* projects, the design criteria shall be in accordance with the Guide.

** 3R projects are projects that are primarily resurfacing, restoration or rehabilitation projects that extend the service life of highways, bridges and related appurtenances; and/or restore safe, efficient travel on an existing facility. Normally, 3R projects include most of MassDOT's resurfacing projects and most bridge preservation and rehabilitation projects. They also include roadway projects where box widening is proposed to widen shoulders for improved bicycle accommodation and safety. 3R projects generally have no significant geometric changes to horizontal or vertical alignment and generally have no significant widening such as widening for additional capacity. Projects that include minor lane and/or shoulder widening may be considered to be 3R projects. Projects that are beyond the 3R definition are normally defined as reconstruction projects and new construction projects which are subject to the respective standards identified above and their established design exception approval process.*

DESIGN CRITERIA for ARTERIAL TRAVEL LANES AND SHOULDERS

ROADWAY TYPE	PROJECT TYPE	BOOK	EXHIBIT NUMBER	ARTERIAL MINIMUM WIDTHS[1,3]		
				TRAVEL LANE	LEFT SHOULDER	RIGHT SHOULDER[2]
Interstate	Non 3R[4]	Interstate	2005 Page 3	12'	4' (to 12')[2]	10' (to 12')
Interstate	3R[4]	Interstate	1956 or later	12'	3.5' offset	10' (to 12')
NHS Freeway	All	Green	7-3	12'	4'[2]	10'
NHS Non-Freeway	Non 3R[4]	Green	7-3	12'	2' offset	8'
NHS Non-Freeway	3R[4] Only	Guide	5-12 5-14	11'	2' offset	4'
Non NHS	All	Guide	5-12 5-14	11'	2' offset	4'

1. These are the minimum widths below which a Design Exception is normally required.
2. These dimensions are for usable shoulder. Add a 2' offset for objects over 6" high, such as guardrail.
3. These criteria apply regardless of project funding.
4. "3R" stands for resurfacing, restoration or rehabilitation.

Design Criteria for Pedestrian and Bicycle Accommodation

Pedestrian Accommodation

- Pedestrian accommodation shall be in accordance with Chapter 5 of the Guide and the *AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities.*
- Wherever adjacent land uses include commercial or residential development greater than 5 units per acre, a sidewalk shall be provided along the roadway adjacent to the use. (See P-13-0001, Section 2C.)
- For projects in urbanized areas on roadways where pedestrians are legally allowed, sidewalks shall be provided on both sides of the roadway. (See P-13-0001, Section 2E. Refer to MassDOT's Road Inventory Maps for urbanized area boundaries.)
- For bridge projects, sidewalks shall be provided on both sides of the roadway if pedestrians are legally allowed. (See P-13-0001, Section 2E.)
- For projects on roadways that pass under bridges and where pedestrians are legally allowed, sidewalks shall be provided on both sides of the roadway beneath each bridge. (See P-13-0001, Section 2E.)
- The minimum sidewalk width below which a design exception is required is 5', exclusive of curb.

Bicycle Accommodation

- Bicycle accommodation shall be in accordance with Chapter 5 of the Guide and the *AASHTO Guide for the Development of Bicycle Facilities.*
- For all freeways, arterials and collectors where bicycles are legally allowed, a paved outside shoulder or designated bicycle lane shall be provided on both sides of the roadway.
- The minimum paved outside shoulder or designated bicycle lane width below which a design exception is required is 5', exclusive of any parking lane.
- In lieu of paved outside shoulders or designated bicycle lanes, protected bicycle facilities (i.e. cycle tracks, side paths, shared-use paths, bicycle paths, etc.) may provide accommodation for bicycles. However, the presence of such facilities does not relieve the designer of the need to properly consider applicable design criteria for outside (right) shoulder width.
- Refer to the *AASHTO Guide for the Development of Bicycle Facilities* and other current guidance documents for design criteria for off-road paths and cycle tracks.

Design Exceptions

- Criteria proposed below minimum values may be considered after providing sufficient justification and documentation while following the Design Exception process outlined in Chapter 2 of the Guide.
- In determining the standards for horizontal alignment, the minimum length of curve criteria need not be met on 3R projects.
- Refer to the guidance in the previous sections of this Directive to determine design criteria for lane and shoulder widths. When using the Guide, the values in Exhibits 5-12 and 5-14 shall apply. When using the Green Book, the values in Exhibit 7-3 shall apply. Additional language in the Green Book, particularly for constraints associated with Urban Arterials, may be used to support justification for a Design Exception.
- In using the AASHTO Interstate standards, the shoulder width criteria, regardless of the terminology used, such as "shall", "should be considered", etc., by virtue of their adoption by

FHWA, are the minimum values for each condition described. Design Exceptions are therefore required for projects that do not provide applicable widths.

- In some cases, the minimum shoulder width criterion for bicycle accommodation exceeds the minimum right shoulder width criterion for roadways. Regardless, the designer must consider each element independently, and must document any necessary design exceptions accordingly. In cases where design exceptions are required for both elements, the discussion and justification of these exceptions may be combined in the Design Exception Report.
- The designer shall prepare and submit any necessary Design Exception Reports as part of the 25% design submission, or for permit projects, as part of the permit application.
- Upon receipt of a Design Exception Report, the Project Manager shall provide by email a copy of the Report to the Chair of the Design Exception Review Committee. The Committee shall discuss project elements and offer advice or endorsements to the Project Manager and the project reviewers for each issue. The Committee is responsible for tracking and reporting on all Design Exception issues, and for ensuring consistency in the application of design standards and in the documentation of Design Exceptions.
- The primary project reviewer, typically the District office, shall review the Design Exception Report. In addition, the Complete Streets Engineer shall review the 25% design submission, including the Design Exception Report, for all projects on roadways where pedestrians and bicyclists are allowed, including projects to be completed under a permit.
- If all reviewers recommend approval of the Design Exception Report, the Project Manager shall forward the signed Design Exception Report to the Chief Engineer for approval. If the Design Exception Report includes exceptions to the design criteria for Pedestrian and Bicycle Accommodation, the Project Manager shall subsequently request project sign off by the Secretary and CEO of Transportation, or their designee, in accordance with P-13-0001. The approved Design Exception Report shall be used as justification for the Secretary's sign off. If the project is subject to FHWA oversight, the Project Manager shall subsequently forward the approved Design Exception Report to FHWA for final approval.
- Projects should not be advanced beyond the 25% design stage until all necessary Design Exception approvals and project sign offs are secured. Highway Access Permits should not be approved by District Highway Directors until all necessary Design Exception approvals and project sign offs are secured.
- For maintenance projects that are not categorically exempt from design criteria for pedestrian and bicycle accommodation and for which design plans and normal design review submissions are not applicable, the project proponent shall ensure that the proposed typical section(s) are reviewed by appropriate District Projects staff and the Complete Streets Engineer, improvements to pedestrian and bicycle accommodation are considered, and reasons for not making pedestrian and bicycle accommodation improvements are documented and retained in the project file.

Exemptions from Controlling Criteria

Design Criteria for Roadways and Bridges (FHWA's 13 Controlling Criteria)

The following types of projects are exempt from the need to comply with FHWA's 13 controlling criteria. When design criteria for these types of projects are not in compliance, a formal Design Exception Report is not required; however, geometric deficiencies should be identified in a Functional Design Report or other documentation:

- 3R projects within the existing roadway footprint where the project Purpose and Need is solely to maintain the roadway surface or bridge structure and the crash history does not indicate any apparent geometric deficiency.
- Interstate 3R projects (if the roadway meets the standards used for horizontal alignment, vertical alignment and widths of median, traveled way and shoulders that were in effect at the time of original construction or inclusion into the Interstate System, and the crash history does not indicate any apparent geometric deficiency).
- Non-NHS Footprint Bridge projects in accordance with the Footprint Bridge Policy.
- Isolated single intersection safety improvement projects (with minimal work on approach roadways).
- Routine roadway maintenance projects such as crack sealing, joint repair, micro surfacing, chip seals, etc.
- Non-roadway maintenance projects such as catch basin cleaning, street sweeping, grass mowing, etc.
- Bridge maintenance projects such as joint repair, deck repair, superstructure repair, substructure repair, etc.
- Sidewalk and curb ramp only projects.
- Drainage only projects.
- Noise barrier only projects (provided sight distance and horizontal clearance met).
- Guardrail only projects (provided sight distance and horizontal clearance met).
- Landscape only projects (provided sight distance, vertical clearance and horizontal clearance met).
- Highway lighting only projects (provided sight distance, vertical clearance and horizontal clearance met).
- Signing only projects (provided sight distance, vertical clearance and horizontal clearance met).
- Pavement marking only projects.
- Traffic signal equipment only projects (provided horizontal and vertical clearance met).
- Vertical construction and other non-roadway/bridge projects.
- Projects done under Minor Vehicle Access Permits or Non-Vehicular Access Permits.

Design Criteria for Pedestrian and Bicycle Accommodation

The following types of projects are exempt from the need to comply with Pedestrian and Bicycle Accommodation design criteria:

- All projects on facilities where bicyclists and pedestrians are prohibited, such as Interstates and freeways.
- Routine roadway maintenance projects that don't involve application of new pavement markings, such as crack sealing, pothole patching and joint repair.
- Bridge maintenance projects such as joint repair, deck repair, superstructure repair, substructure repair, etc. In addition, any bridge deck resurfacing work to be done as part of a roadway resurfacing project shall have the same design criteria and exemptions as the full roadway resurfacing project.
- "Footprint" Bridge projects on Rural Collector Roads and Rural Local Roads where no sidewalks currently exist on the approach roadways, and that are also exempt from the 13 Controlling Criteria in accordance with the "Footprint" Bridge Policy.
- Drainage only projects.

- Noise barrier only projects.
- Guardrail only projects.
- Lighting only projects.
- Traffic Signal Equipment only projects.
- Signing only projects.
- Landscape only projects.
- Vertical construction and other non-roadway/bridge projects.
- Projects done under Minor Vehicle Access Permits or Non-Vehicular Access Permits.

EXEMPTIONS FROM CONTROLLING CRITERIA SUMMARY TABLE		
Project Type[1]	**Exemption Type**	
	FHWA's 13 Controlling Criteria	**Pedestrian and Bicycle Accommodation Criteria**
3R Roadway (Non-Interstate)[1]	✓	
3R Interstate[1]	✓	✓
Non-NHS Footprint Bridge[1]	✓	
"Footprint" Bridge on Rural Collector Road or Rural Local Road[1]	✓	✓
Isolated Intersection[1]	✓	
Routine Roadway Maintenance[1]	✓	
Routine Roadway Maintenance – No New Pavement Markings[1]	✓	✓
Non-Roadway Maintenance[1]	✓	✓
Bridge Maintenance[1]	✓	✓
Sidewalk and/or Curb Ramp Only[2]	✓	
Pavement Marking Only[3]	✓	
Drainage Only	✓	✓
Noise Barrier Only[1]	✓	✓
Guardrail Only[1]	✓	✓
Lighting Only[1]	✓	✓
Traffic Signal Equipment Only[1]	✓	✓
Signing Only[1]	✓	✓
Landscape Only[1]	✓	✓
Non-Vehicular or Minor Vehicle Access Permit	✓	✓
Vertical Construction and other Non-Roadway/Bridge	✓	✓
On Facilities where Bicycles and Pedestrians are Prohibited		✓

Notes
[1] See expanded Project Type descriptions above.
[2] These projects are also exempt from Bicycle Accommodation Criteria.
[3] These projects are also exempt from Pedestrian Accommodation Criteria.

ATTACHMENT B

EXCERTPS FROM BICYCLE PLAN 2019

Investment Strategy for Implementation

One of MassDOT's key roles is to develop and implement the Commonwealth's transportation investment strategy—the **Capital Investment Plan** (CIP)—in coordination with the federal government, the state legislature, municipalities, regional planning authorities (RPAs), other state agencies, and the public. The CIP includes projects that vary significantly in scale and purpose, from small-scale maintenance projects to large-scale multimodal modernization projects. Updated annually, the CIP identifies and includes long-term investments and funding obligations to maintain, modernize, and expand the Commonwealth's transportation system. Projects in the CIP are subject to the **MassDOT Healthy Transportation Policy Directive**, which requires the incorporation of walking, biking, and transit infrastructure in all projects. All projects are scored based on their anticipated benefits in order to determine investment priorities.

The 2019-2023 CIP has 67 programs that guide specific types of investment. One new program allots $60 million to fund the implementation of the Bike Plan and the **Massachusetts Pedestrian Transportation Plan**.

Safety

The number of people killed while biking is on the rise **nationally**, and is at its highest level since 1991. In Massachusetts, fatalities of people biking over the past decade have varied, but on average there are approximately nine fatal crashes each year. The number of non-fatal bicycle crashes increased 7% between 2010 and 2015, from 969 to 1,038.

People biking are vulnerable road users because, unlike vehicle occupants, they have little protection in a collision. Compared to people in a motor vehicle, people biking are four times likelier to suffer a fatal or serious injury in the event of a crash. While only 1% of all bike crashes in Massachusetts involve heavy trucks, 20% of all bicyclist fatalities

involved such vehicles, and 92% of bike crashes involving heavy trucks resulted in a bicyclist injury.

An incomplete bike network with inconsistent bicycle facilities and accommodations contributes to perceptions of unsafe conditions. Incomplete bike networks can include roadways where bicyclists are exposed to high-speed, high volume vehicle traffic, bike lanes with frequent encroachment from motor vehicles, discontinuous bikeways, poor pavement quality, multi-lane intersections and rotaries, a lack of adequate lighting, or a combination of these factors.

Gaps in High-Comfort Bike Networks

A key piece of baseline data for this analysis is MassDOT's Bicycle Facility Inventory. **The map to the right** shows where bike lanes, separated bike lanes, shared use paths, and bicycle priority streets are located in the Commonwealth. Together with roadway information such as speed limit, traffic volumes, and number of lanes, MassDOT developed a "high-comfort bike network" using the Bicycle Facility Inventory. **The map to the right** shows this network, which is limited to those bikeways suitable for riders of all ages and abilities (please refer to "Designing Connected Bike Networks" within the Resource Guide for more information on high-comfort criteria). While municipalities and state agencies have made great strides implementing new bikeways, many are disconnected from other high-comfort bikeways and unlikely to appeal to the potential everyday bicyclist. In response, MassDOT developed a method to identify where targeted investments would be the most effective to close network gaps and encourage everyday biking.

This Map shows an off road bike path through Minuteman National Historical Park but no way to cross 2A from the south and no bike lane in the shoulder of 2A.

Potential for Everyday Biking on MassDOT-Owned Roads

MassDOT is applying the results of this analysis to its own roadways to identify the highest priority corridors within each of the Commonwealth's 13 federally recognized transportation planning regions (**see the map to the right**). From a review of the corridors—alongside the high-comfort bike network and results of the public feedback—MassDOT will identify and prioritize individual projects that will advance the Bike Plan's Vision and Goals. A list of projects can be found in the annual Capital Investment Plan.

Further detail on the selection and design of high-comfort bikeways can be found in the **Municipal Resource Guide for Bikeability**.

This Map Shows Route 2A as scoring 87.5 Potential for Everyday Biking Road.