massDOT
Massachusetts Department of Transportation

acceler-8
I-90 BRIDGE REPLACEMENTS
8 Bridges 8 Weekends

Acceler-8 I-90 Bridge Replacements Project Stakeholder Briefing

massDOT
Massachusetts Department of Transportation

accelerate-8

I-90 BRIDGE REPLACEMENTS

8 Bridges 8 Weekends

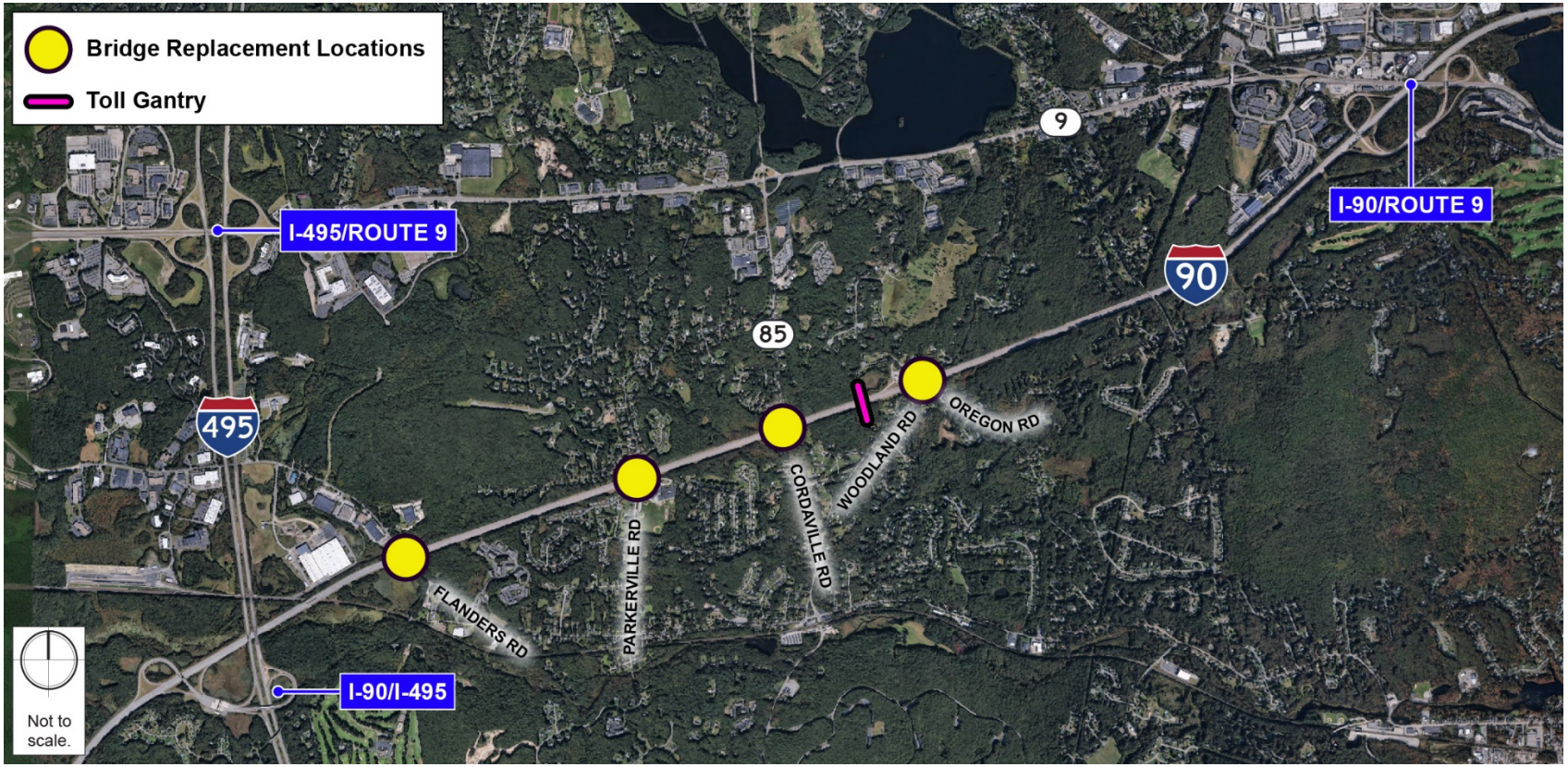
massDOT
Massachusetts Department of Transportation

Agenda

- Project Overview
- Proposed Work
- Proposed Construction Approach
- Proposed Traffic Management
- Comprehensive Public Outreach
- Next Steps

massDOT
Massachusetts Department of Transportation

Project Overview -Project Area



- Approximately 100,000 vehicles/ day travel this section of I-90*
- All four roads below I-90 are important local connections

massDOT Massachusetts Department of Transportation

**I-495/I-90 Interchange Improvement study*

Project Overview -Existing Conditions

massDOT
Massachusetts Department of Transportation

Bridge Deck Existing Conditions

massDOT
Massachusetts Department of Transportation

Superstructure Existing Conditions

massDOT
Massachusetts Department of Transportation

Proposed Work & Project Costs

- Replace superstructures and bridge decks:
  - Flanders Road, Parkerville Road &Woodland Road
- Complete bridge replacement:
  - Cordaville Road (Route 85)
- Project wide:
  - Replace median barrier and guardrail
  - Mill and structural overlay with Hot Mix Asphalt
- Project Costs & Funding
  - Estimated Construction Cost $48 million

massDOT Massachusetts Department of Transportation

Regional Coordination & Sequencing

- I-495/I-90 Interchange Project - anticipated construction 2022-2027
- To avoid overlapping construction zones and minimize delays in the area the work should occur before of after I-495/I-90
- Costs & risks to defer project until after 2027

Conclusion – Bridge replacements should occur before I-495/I-90 reconstruction

massDOT Massachusetts Department of Transportation

Conventional Phased Construction

X

Framingham – I-90 over the MDC Reservoir

Completed in 2019, 3-years of construction

massDOT
Massachusetts Department of Transportation

Accelerated Bridge Construction

I-93 – Fast 14 Completed in 2011

massDOT
Massachusetts Department of Transportation

Proposed Construction Approach

- Design-Build Best Value procurement to:
  - Short-list best qualified teams
  - Shorten project duration
  - Promote innovation by teaming the engineer and general contractor
- Accelerated Bridge Construction (ABC) to:
  - Shorten construction duration
  - Reduce traffic impacts on I-90 and local roads
- Incentives/Disincentives:
  - Ensures compliance with contract timelines

massDOT
Massachusetts Department of Transportation

Benefit of Design-Build & ABC

Design-Build & ABC

- Shorter overall construction duration – 1 season
- Shorter duration of traffic impact – 8 weekends
- No loss of breakdown lanes during off-work periods
- No concurrent traffic impact on I-90 due to weekend work times
- 35% cost premium

Phased Construction

- Longer overall construction duration – 3 seasons
- Longer duration of traffic impact – 3 seasons
- Loss of breakdown lanes during work periods
- Continuous traffic through active work zones with lane shifts
- Higher user costs

massDOT
Massachusetts Department of Transportation

Proposed Construction

- Summer 2021 - Eight bridges in eight weekends
  - *No work allowed on holiday weekends*
  - Only one bridge to be closed per weekend to limit local roadway impacts

massDOT
Massachusetts Department of Transportation

Potential Work Periods

MAY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					30	1
2	3	4	5	6	7	8
9	10 *Mothers Day*	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31 *Memorial Day*					

JUNE 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

JULY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4 *4th of July*	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

massDOT Massachusetts Department of Transportation

Average hourly volumes during weekends stay below 4000 vehicles per hour (with exceptions of a few hours in the EB direction)

Ideal Work Weekends

Factors & data considered:

- Traffic volumes - heavier traffic on holiday weekends, peak periods, etc.
- Other agency work – such as planned work on the Worcester Mainline Commuter Rail
- Regional events such as college/university move-in periods, sporting events, private sector events
- Local events/needs/work on surface streets

massDOT Massachusetts Department of Transportation

Proposed Construction (Cont.)

- Built prior to or after the eight weekends:
  - Prior:
    - Median crossover lanes
    - Foundation repairs – Flanders, Parkerville, Woodland Roads
    - Foundations for new bridges over Cordaville Road
  - After:
    - Milling, paving, guardrail, and other associated work

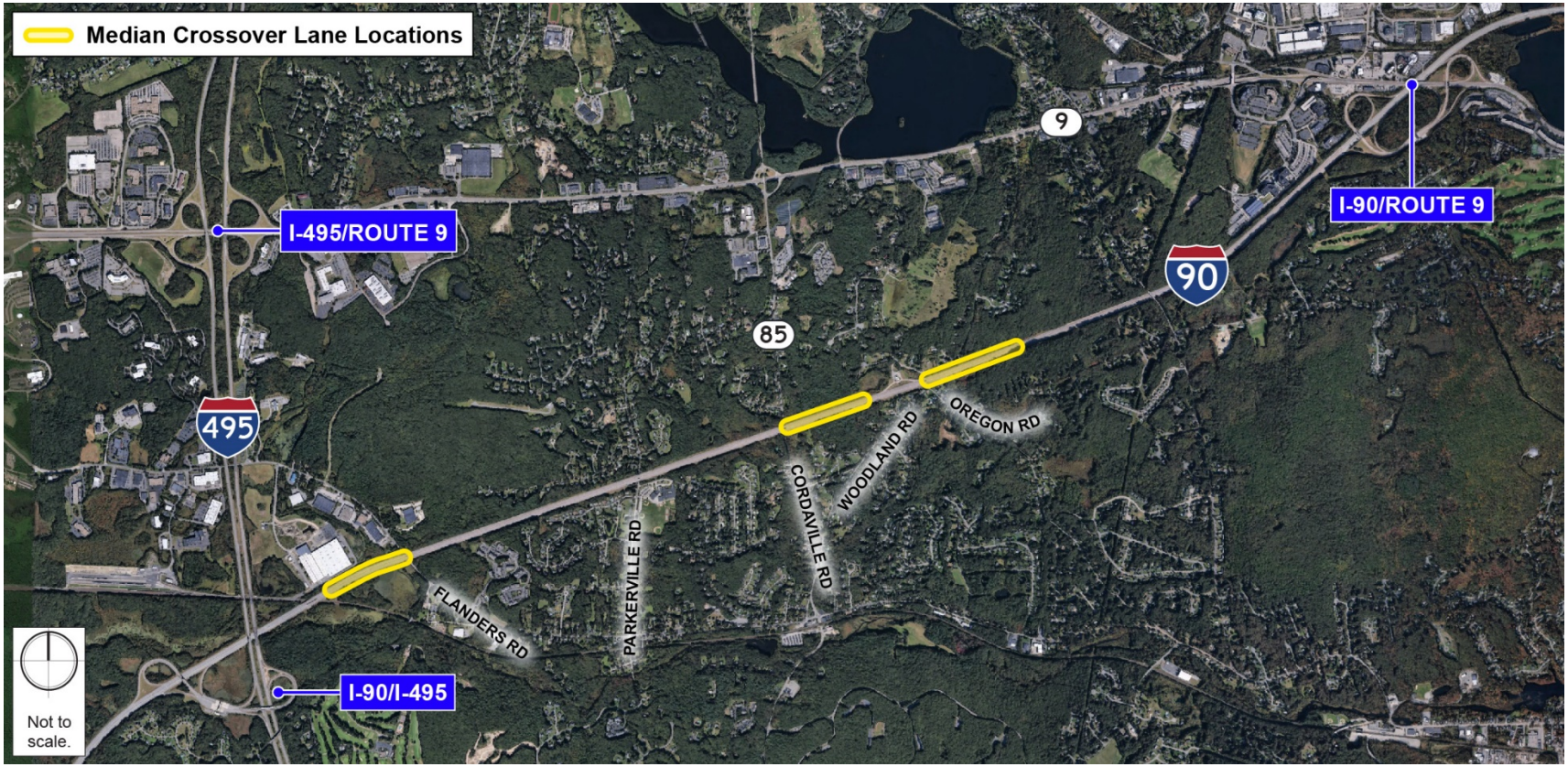
massDOT
Massachusetts Department of Transportation

Proposed Weekend Construction Schedule

- By 9 PM Friday night:
  - One direction of I-90 will close within the limits of work
  - Two-way traffic will be maintained by:
    - Median crossover lanes
    - Reducing I-90 to two lanes in each direction on the open portion of the highway, separated by temporary barrier
  - Work on one bridge within the closed portion will run continuously until completed
- By 5 AM Monday morning:
  - I-90 will be restored to three lanes in each direction

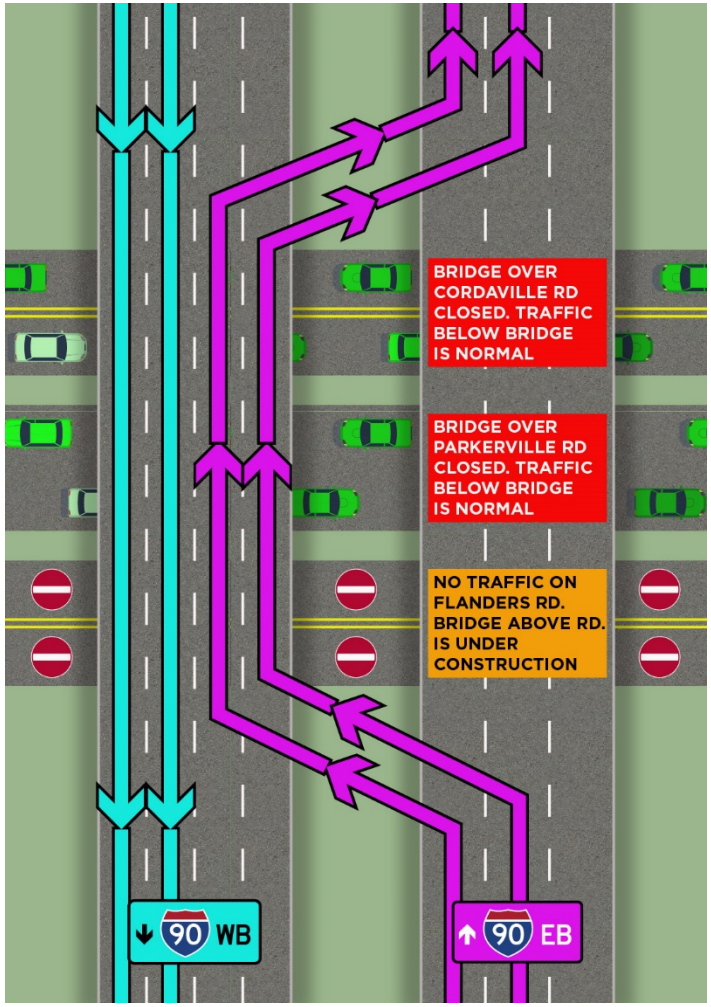
massDOT Massachusetts Department of Transportation

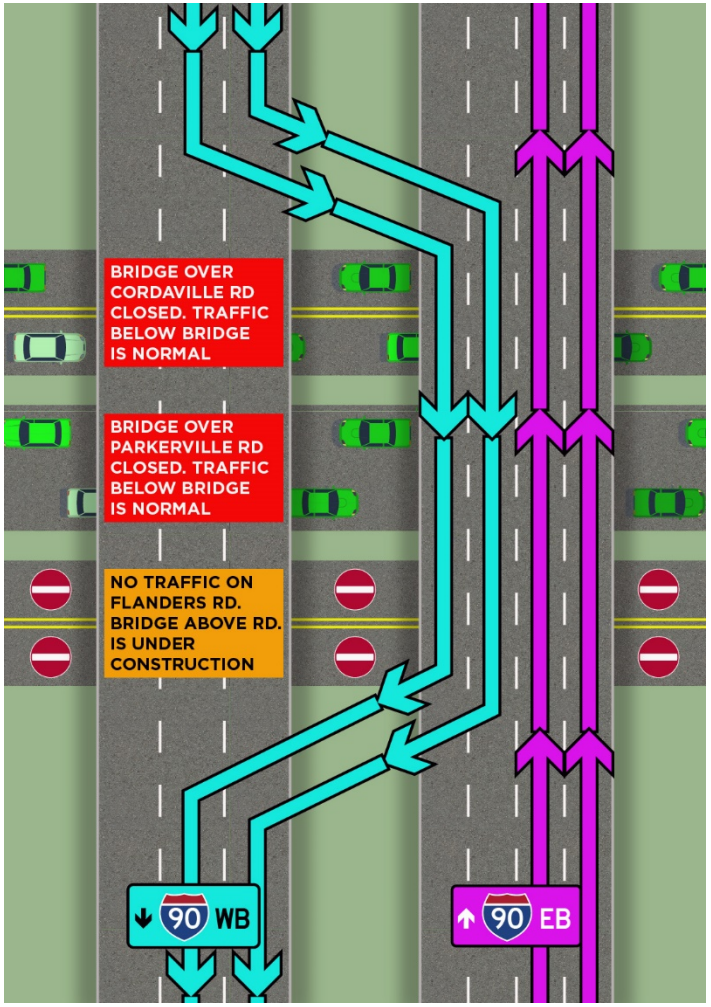
Median Crossovers



massDOT
Massachusetts Department of Transportation

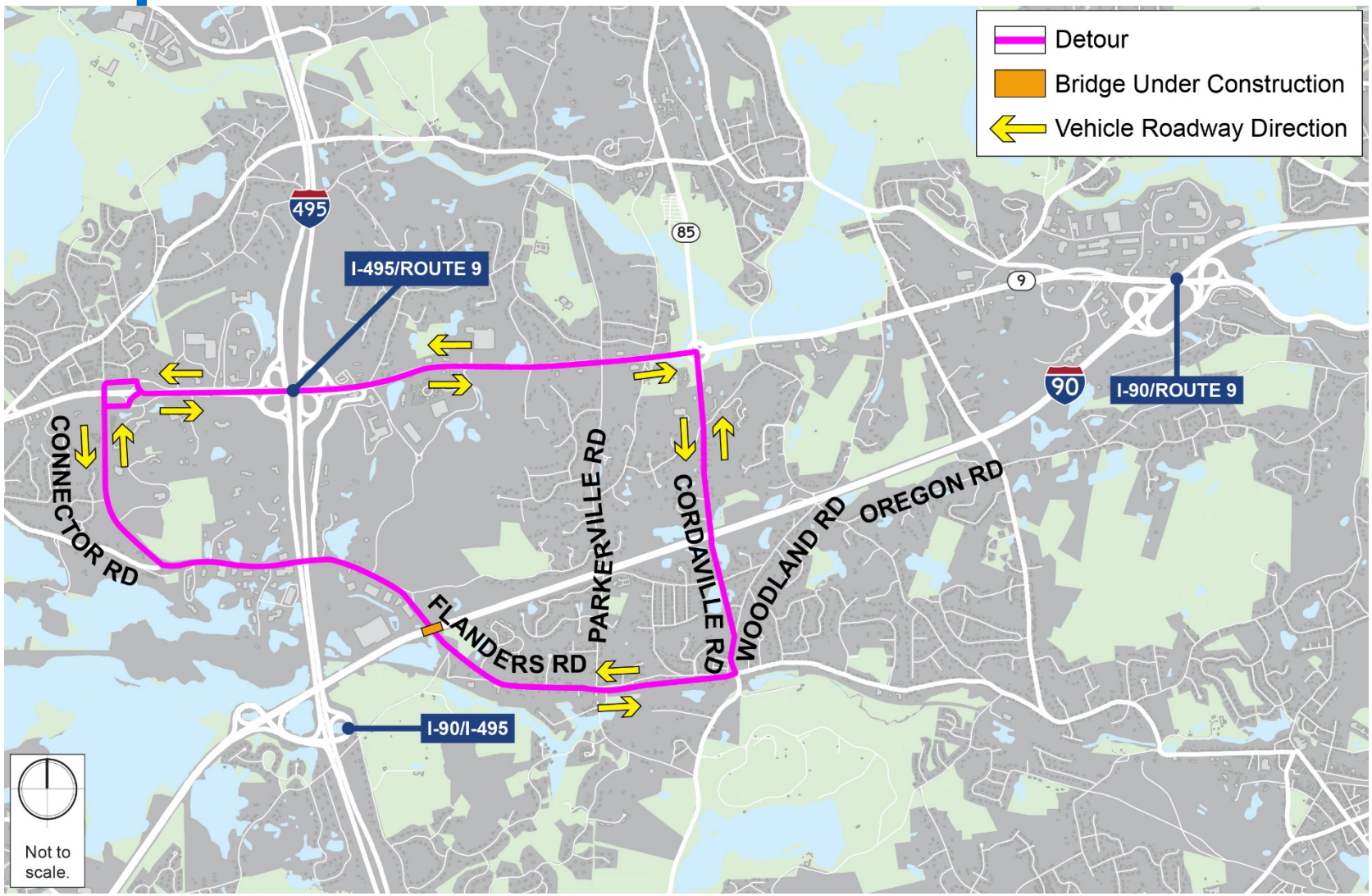
Median Crossovers I-90 over Flanders Road





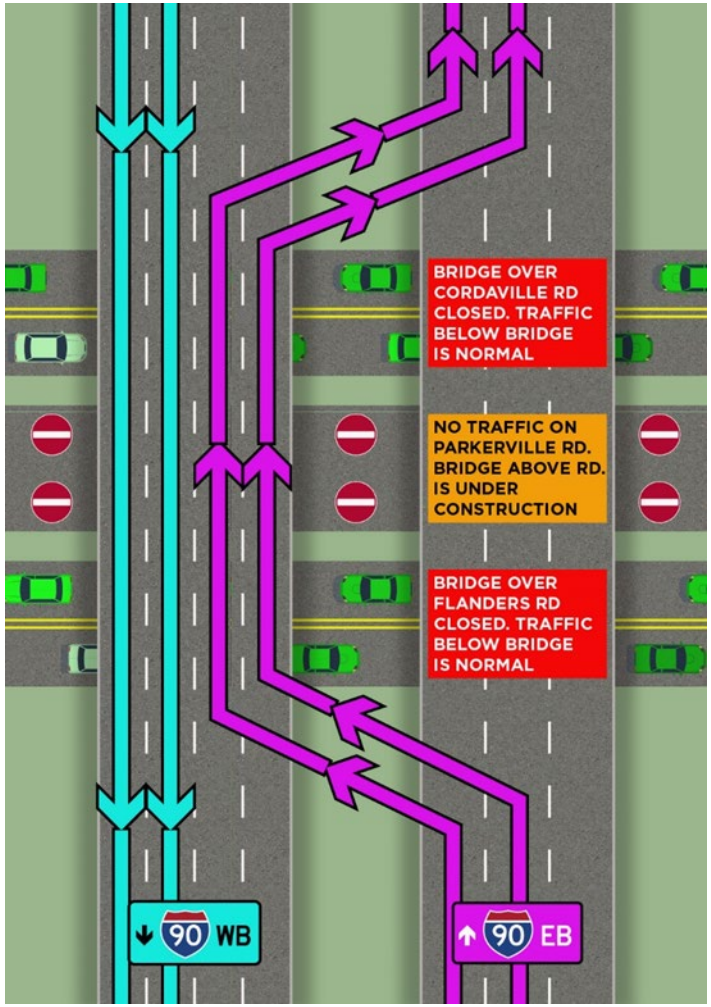
massDOT
Massachusetts Department of Transportation

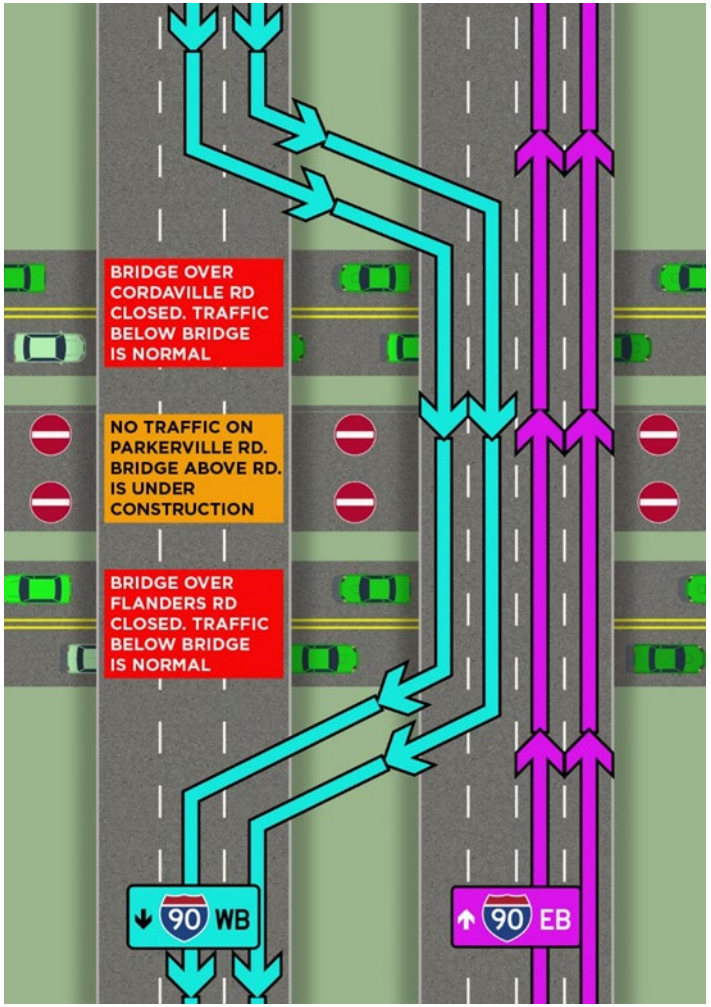
Proposed Detour for Flanders Road



massDOT
Massachusetts Department of Transportation

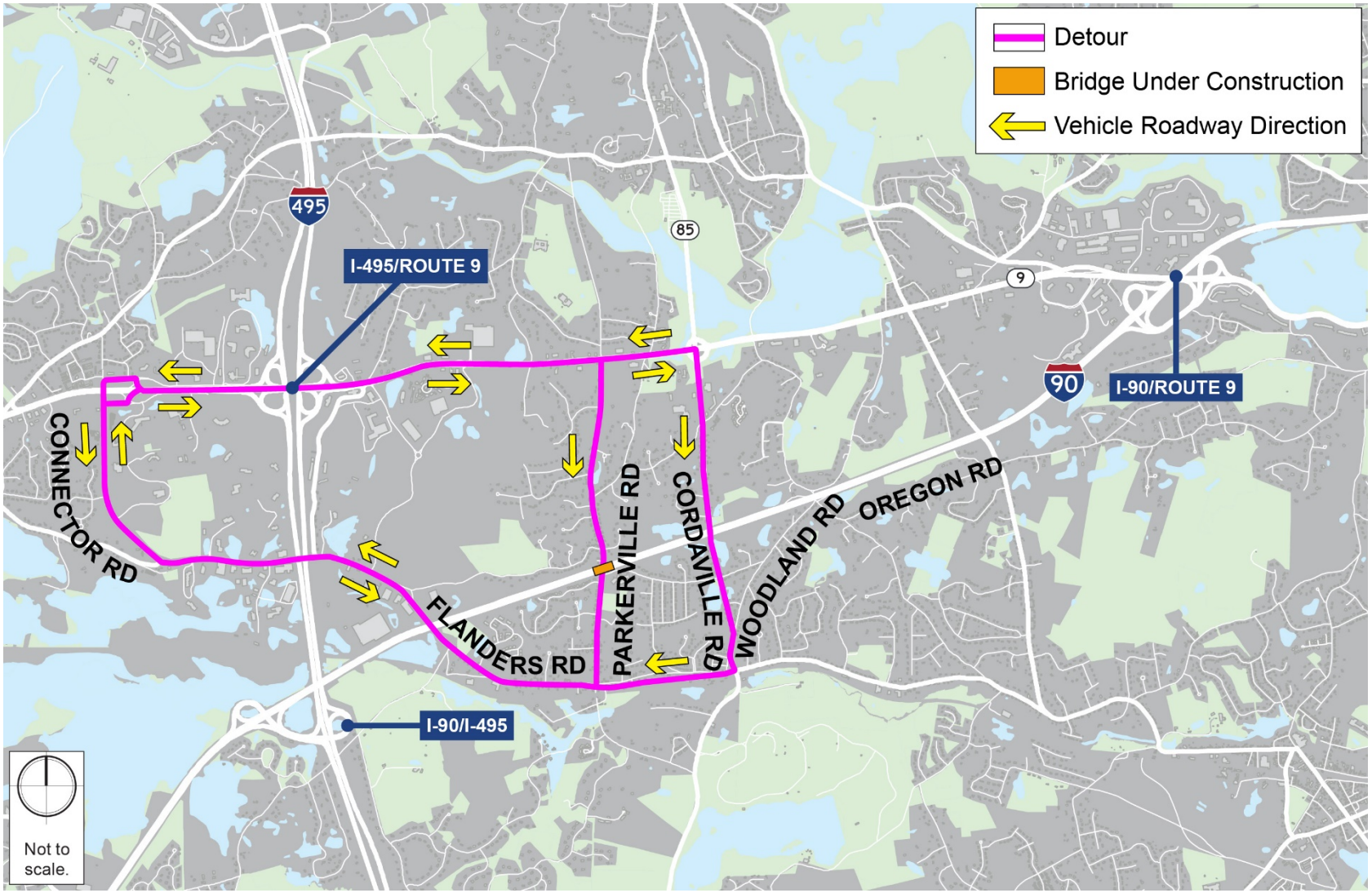
Median Crossovers I-90 over Parkerville Road





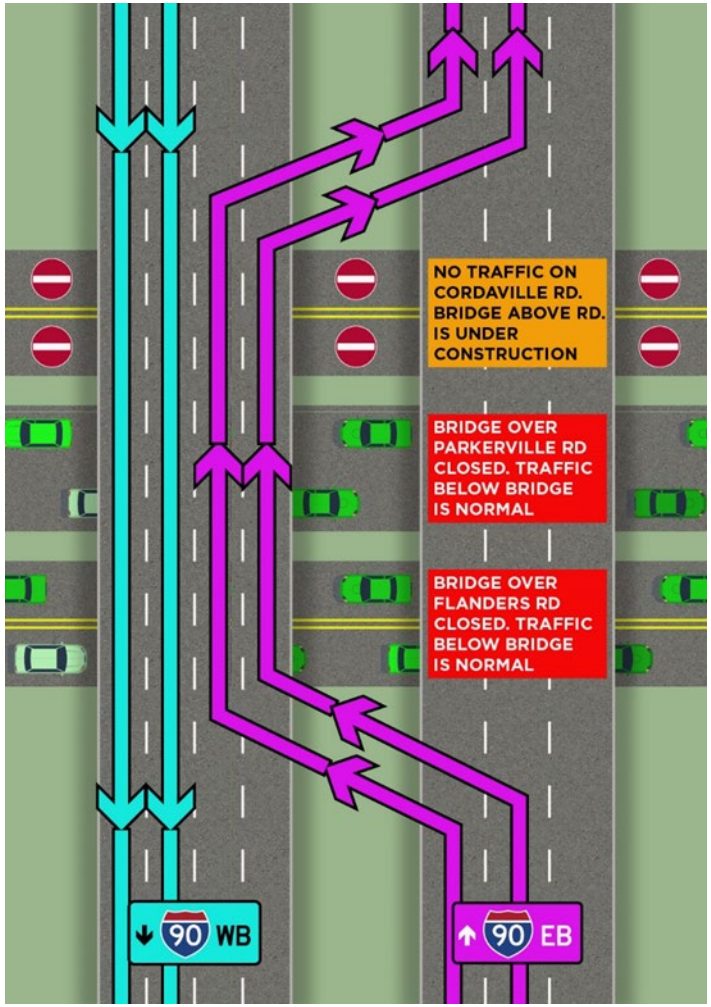
massDOT
Massachusetts Department of Transportation

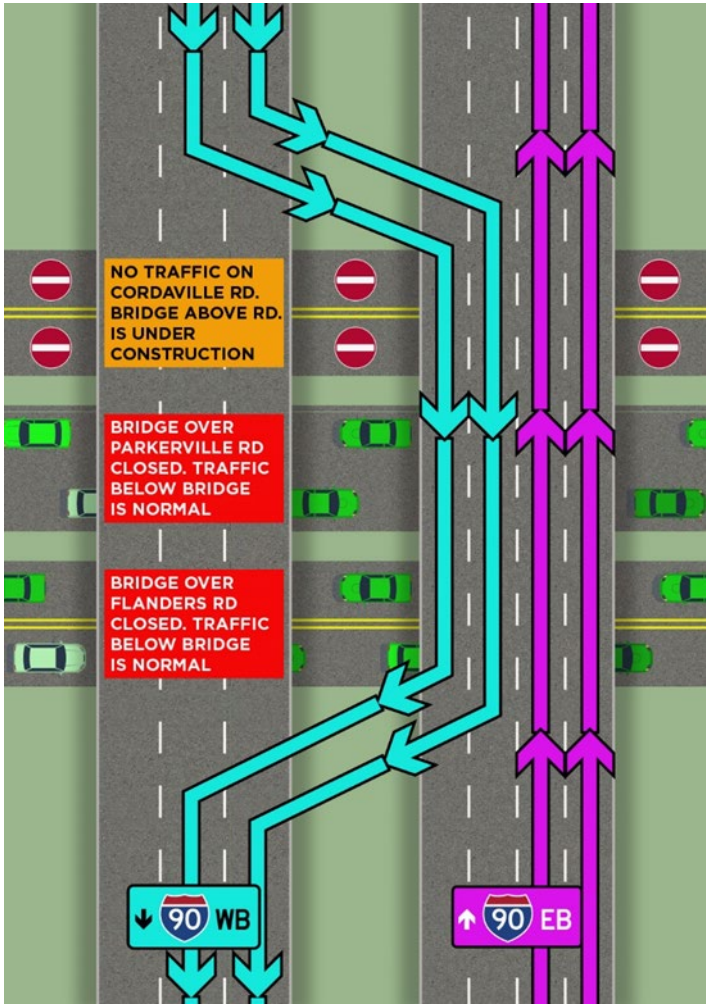
Parkerville Road Detour



massDOT
Massachusetts Department of Transportation

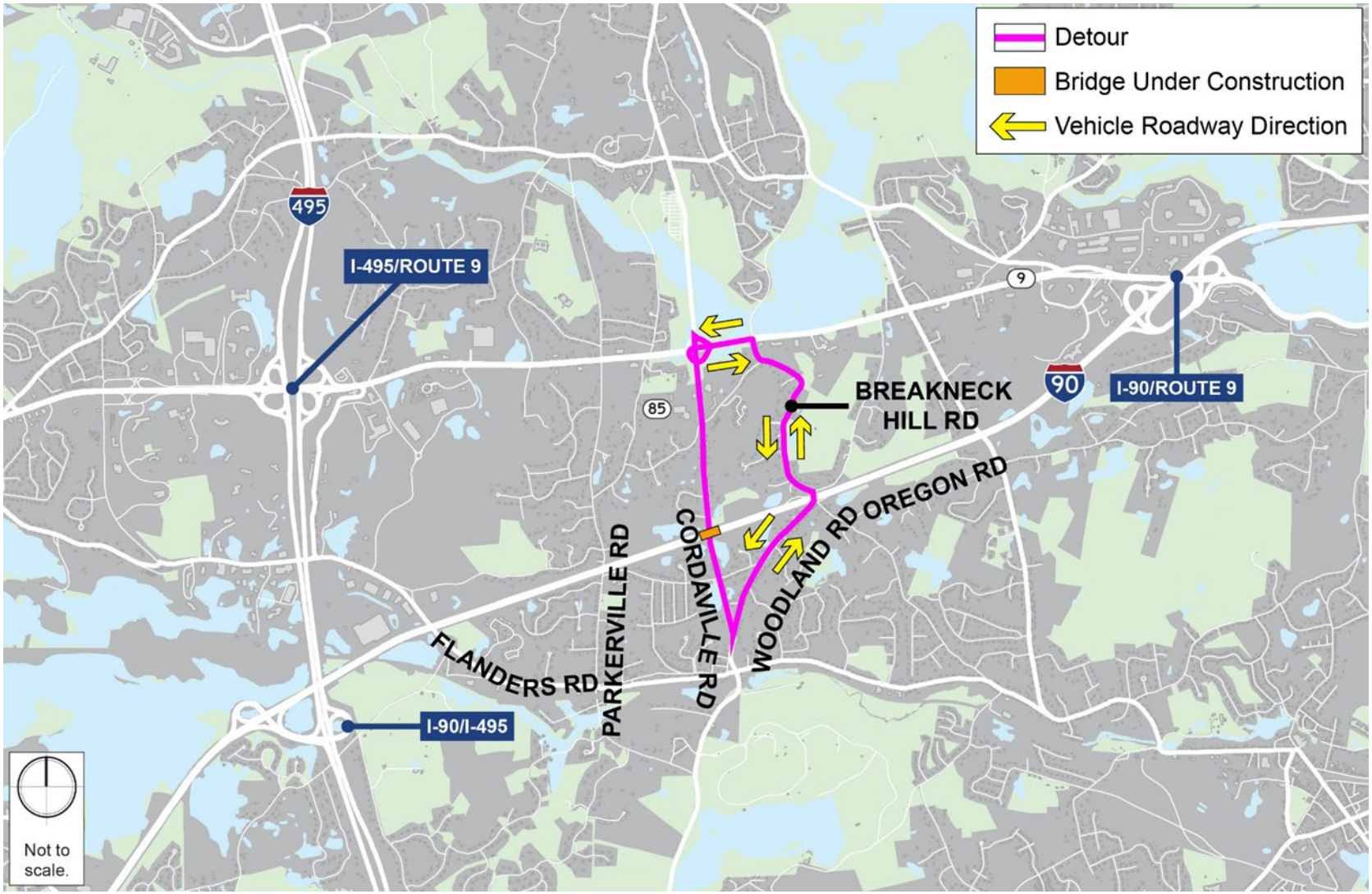
Median Crossovers I-90 over Cordaville Road





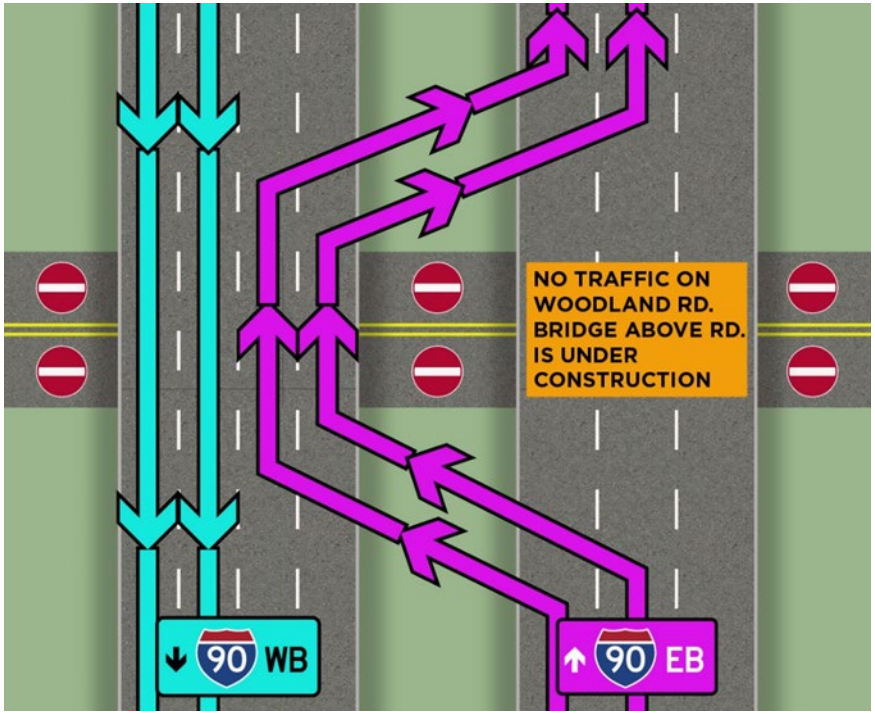
massDOT
Massachusetts Department of Transportation

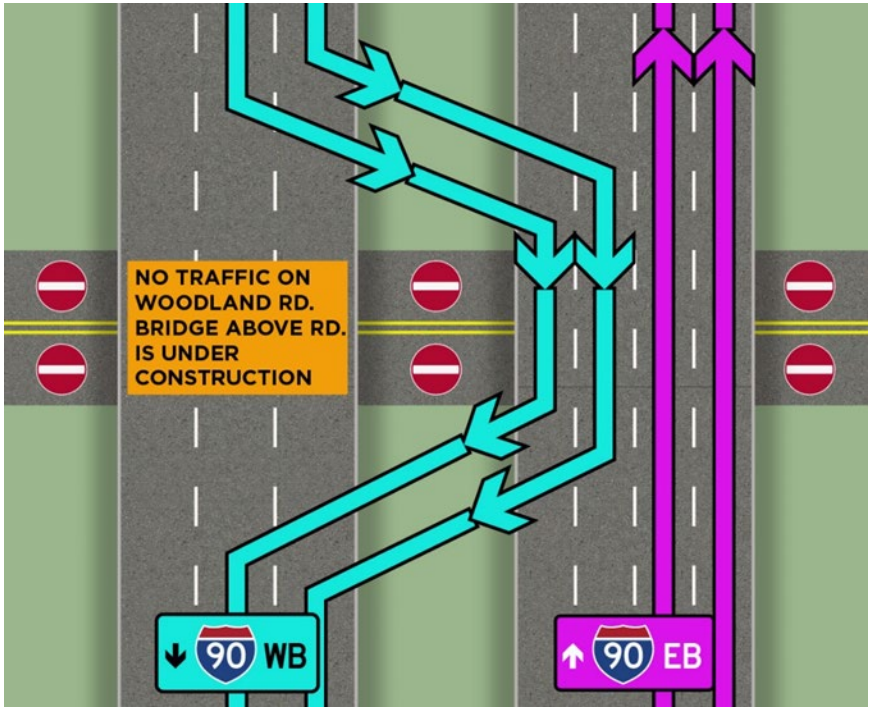
Cordaville Road Detour



massDOT
Massachusetts Department of Transportation

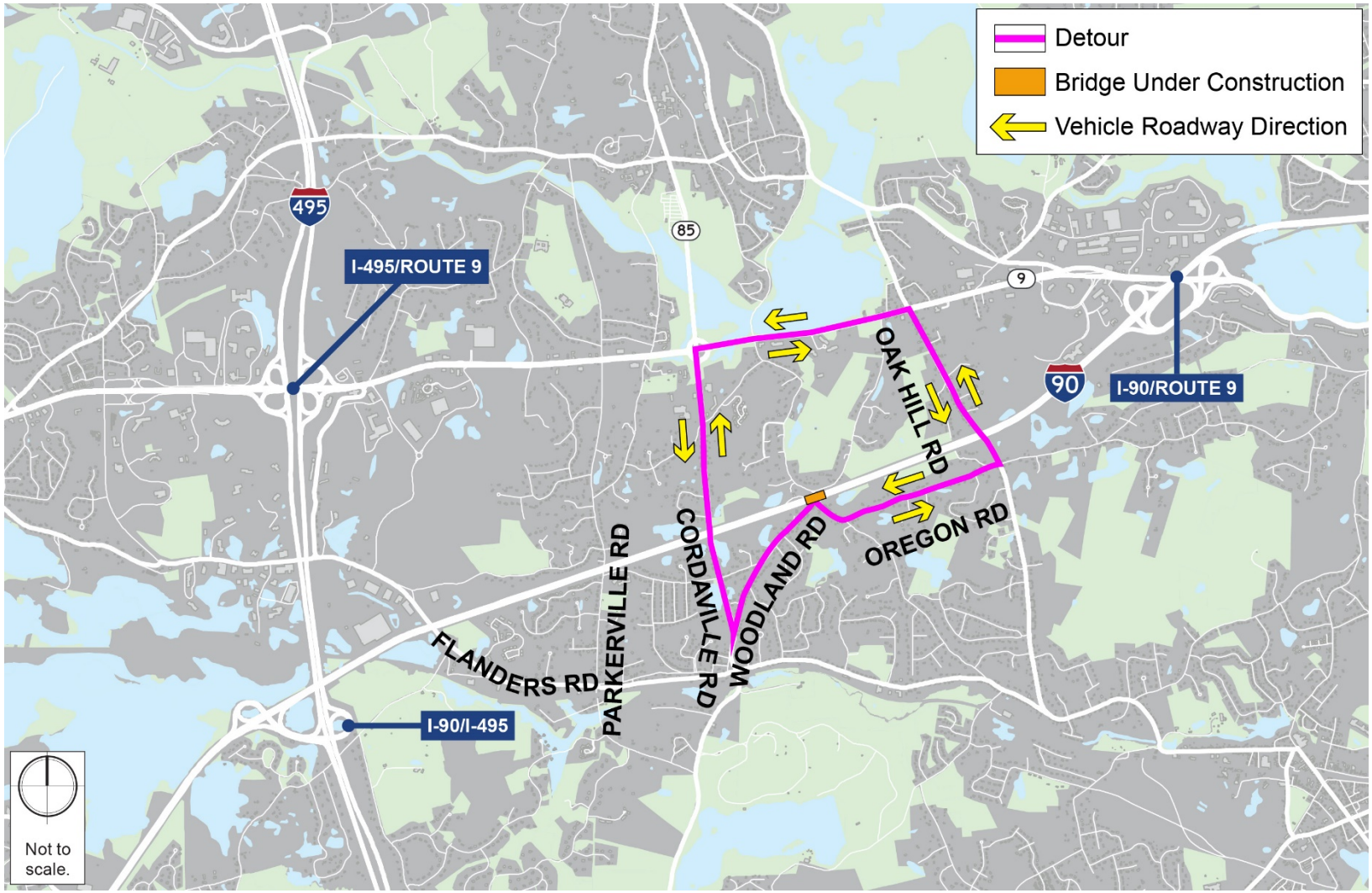
Median Crossovers I-90 over Woodland Road





massDOT
Massachusetts Department of Transportation

Woodland Road Detour



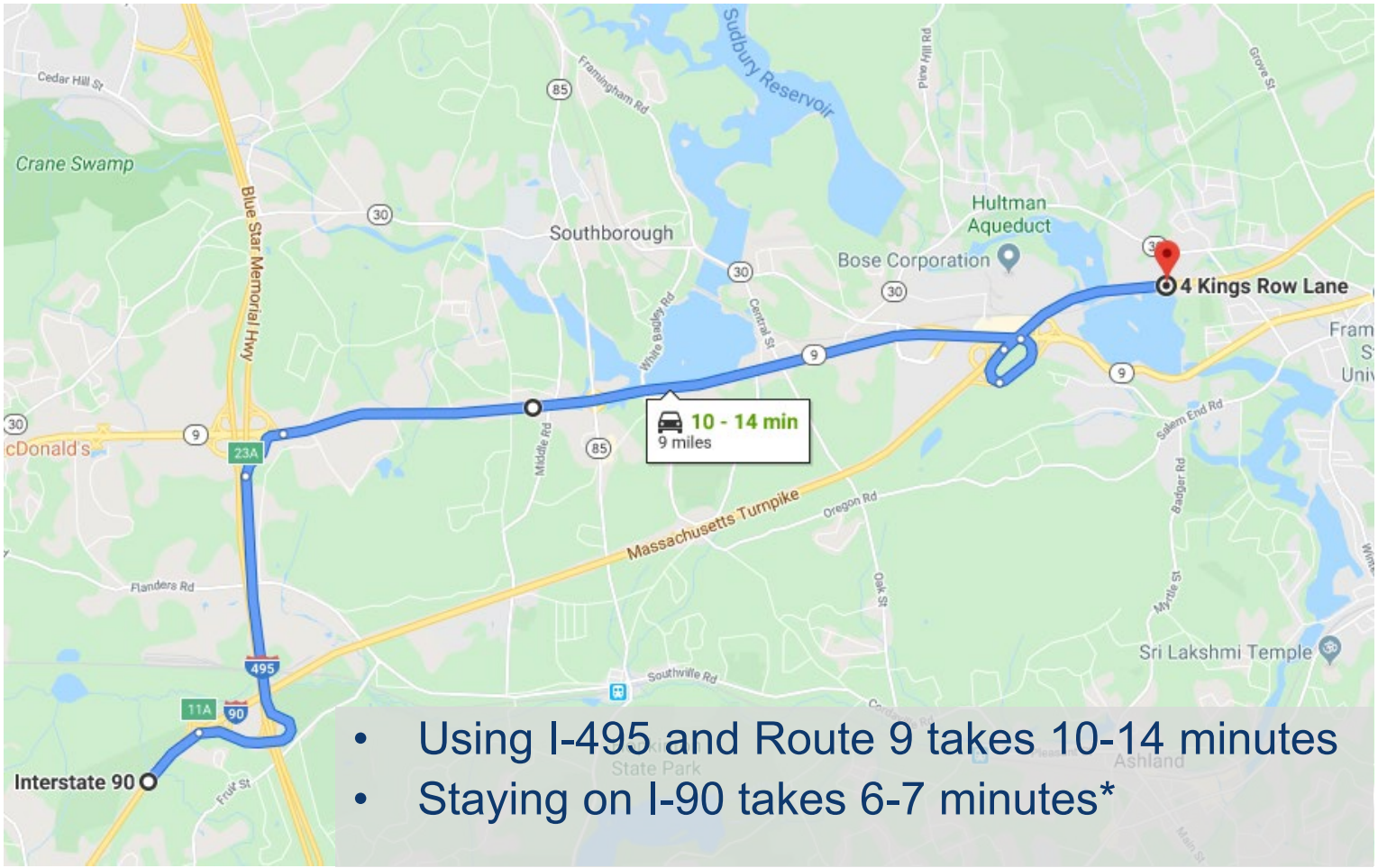
massDOT
Massachusetts Department of Transportation

Regional Diversions

- Assuming normal weekend traffic volumes, I-90 through the work zone will see significant queueing
- If 15% of this volume can be diverted from the project area, queues will be eliminated
- Achieving diversion:
  - Outreach
    - Direct through E-Zpass/project emails
    - Key stakeholder briefings
    - Target large employers and freight
    - Press releases
    - Project website
  - Electronic message boards

massDOT Massachusetts Department of Transportation

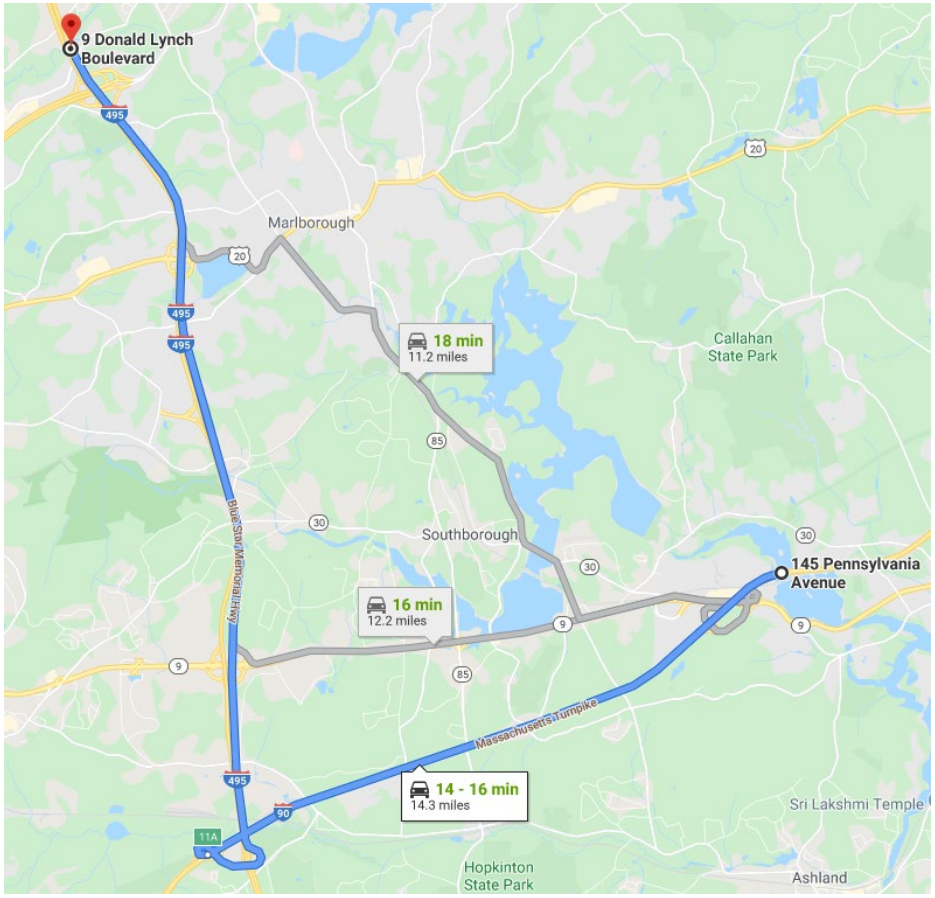
Possible Diversions for I-90 Through Traffic



- Using I-495 and Route 9 takes 10-14 minutes
- Staying on I-90 takes 6-7 minutes*

**Assuming uncongested conditions*

Possible Diversions to/from the North on I-495 to/from the East on I-90

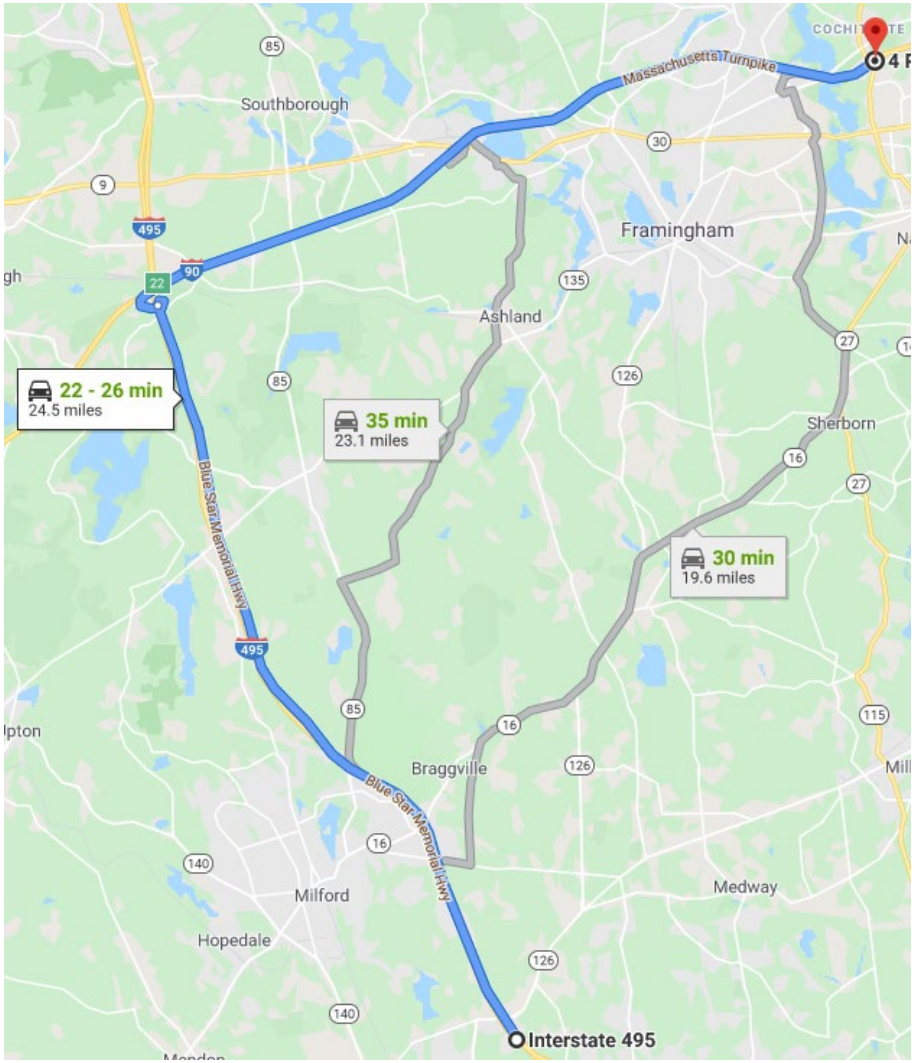


Assuming uncongested conditions:

- Using Routes 20, 85, and 30, as well as local streets, through Southborough takes about 18 minutes.
- Using the I-495/Route 9 interchange takes about 16 minutes.
- Using the I-495/I-90 interchange takes 14-16 minutes.

massDOT Massachusetts Department of Transportation

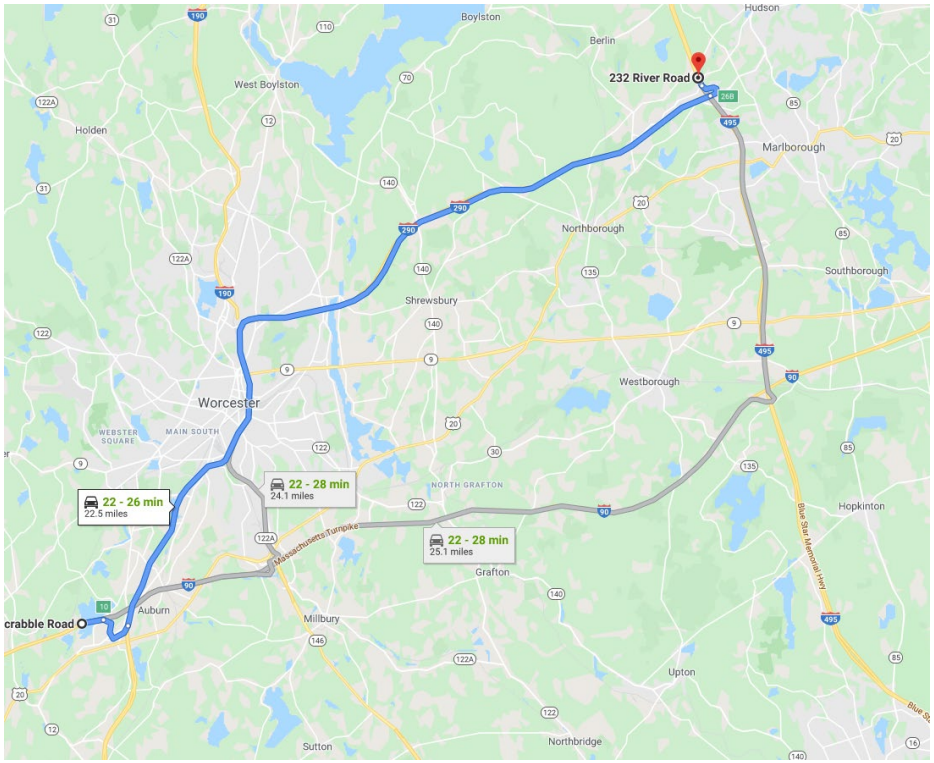
Possible Diversions to/from the South on I-495 to/from the East on I-90



Assuming uncongested conditions:

- Using Route 16 through Holliston and Sherborn and Speen Street in Natick takes about 30 minutes
- Using Routes 85 and 135, as well as local roads, through Hopkinton and Ashland takes about 35 minutes
- Using the I-495/I-90 interchange takes 22-26 minutes

Possible Diversions to/from the North on I-495 to/from the West on I-90



Assuming uncongested conditions:

Using I-290 has a similar travel time as using the I-90/I-495 interchange.

Advance PCMS signs will be provided to encourage the use of I-290 to achieve as much diversion away from the project area as possible

massDOT Massachusetts Department of Transportation

Next Steps – Comprehensive Public Outreach I

- ✓ Legislative briefing – 2/13/20
- ✓ Municipal Briefings – 2/20/20 and 2/24/20
  - ✓ Municipal staff for Ashland, Framingham, Southborough & Westborough
  - ✓ Town executives, fire, police, EMS, and DPW
- ✓ Stakeholder Briefings – 2/26/20 and 3/4/20
  - ✓ Hospitals and educational institutions
  - ✓ Business organizations
  - ✓ Transportation providers
  - ✓ Other state agencies

massDOT Massachusetts Department of Transportation

Next Steps – Comprehensive Public Outreach II

- ✓ Placement of flyers in I-90 rest stops – week of 2/17
- ✓ Local visibilities to boost public awareness – week of 2/24
  - ✓ Stop & Shop, 32 Lyman Street Westborough
- ✓ Launch digital resources – week of 2/24
  - ✓ Project website
  - ✓ Email address
  - ✓ Gov-Delivery topic
- ✓ Conduct 25% design public hearing – 2/27/20

massDOT Massachusetts Department of Transportation

Next Steps – Design-Builder Public Outreach

- Communicate project information using:
  - Websites, social media, project email
  - Fliers, fact sheets, signs
- 75% Design Public Hearing
- Community briefings prior to lane closures
- Design-Builder will communicate with affected communities to share upcoming work, potential impacts, and mitigation
- Design-Builder will coordinate with adjacent projects
  - I-90/I-495 Interchange Project in Westborough
  - Fruit Street Bridge Replacement in Hopkinton

massDOT Massachusetts Department of Transportation

Next Steps – The Project

- Issue RFP to shortlisted Design-Builders: 3/3/20
- Technical and price proposals due: 4/29/20
- Public Price Proposal Opening Date: 5/28/20
- Anticipated NTP: 7/27/20

massDOT
Massachusetts Department of Transportation

Contact Information

Project Specific Email

A8@dot.state.ma.us

Michael Splaine – MassDOT District 3

michael.splaine@state.ma.us

Nathaniel Cabral-Curtis – Public Involvement

ncabral-curtis@hshassoc.com

Project No. 608335
Bridge No.s:S-20-022, S-20-023, S-20-024, W-24-032
Acceler-8 I-90 Bridge Replacements Project

massDOT Massachusetts Department of Transportation