



# Welcome!

Rourke Bridge Replacement Project  
Lowell, MA  
MassDOT #607887

## Working Group Meeting

### July 16, 2020

# Project Team

## **MassDOT's Highway Division**

Project Sponsor - Responsible for oversight of Project Permitting, Design, and Construction

**HNTB** Design Lead

**McMahon Associates** Traffic

**Urban Idea Lab** Bridge Architect & Urban Design

**Crosby Schlessinger Smallridge** Landscape Design

**Domingo Gonzalez Associates** Lighting Design

**Regina Villa Associates** Public Involvement

**Epsilon Associates** Environmental Services

**Welch Associates** Survey



# Agenda



**Welcoming Remarks**

**Meeting Agenda, Ground Rules, Introductions/Roll Call**

**Meeting Objective & Project Overview**

**Discussion on Select Issues for Alignment Alternatives**

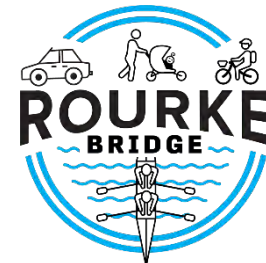
- **Safety & Traffic Operations**
- **Urban Design & Connectivity**
- **Environmental Considerations**
- **Cost & Schedule Considerations**
- **Evaluation Criteria Polling**

**Working Group Q&A using Raise Hand Feature**

**Public Q&A using Raise Hand Feature**

**Meeting Adjourn**

# Working Group Rules of Engagement



Microphones will be muted during presentations

Please be respectful of established timeframes

Please focus your comments on the agenda topic under discussion at the time.

Please use the Raise Hand feature for questions or comments.

Questions that are not answered due to meeting time constraints will be responded to in the meeting minutes that will be provided to participants

Participants are encouraged to provide additional feedback online using the project feedback links on the website: <https://www.mass.gov/rourke-bridge-replacement-project>

Time is reserved at the end of the working session for public comment.

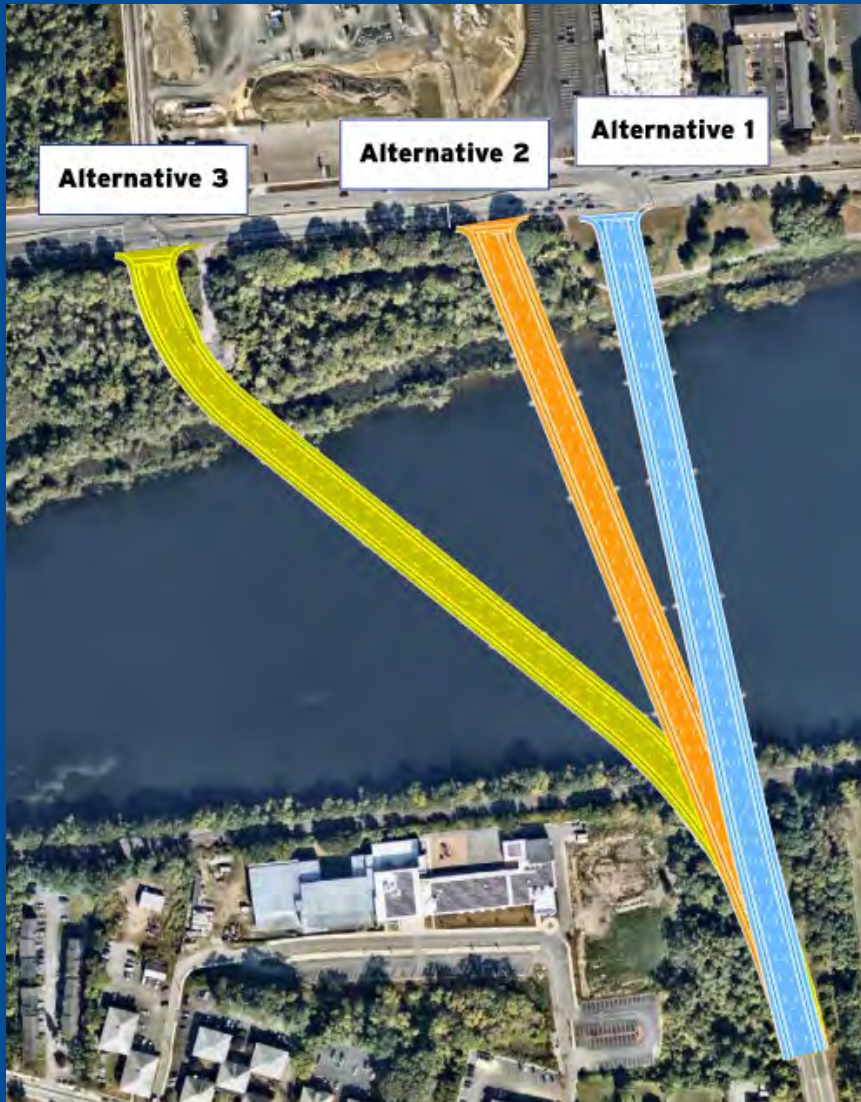


# Introductions (Roll Call)



First Name	Last Name	Title	Organization
Charles	Arnold	-	Lowell Bike Coalition
Adam	Baacke	Executive Director of Planning, Design and Construction	UMass Lowell
Rick	Barry	-	Trinity EMS
Stacey	Beuttell	Executive Director	Walk Boston
Paul	Cavanaugh	Resource Management Planner	MassDCR
Maria	Dickinson	Economic Development Officer	City of Lowell
Eileen	Donoghue	City Manager	City of Lowell
David	Ellingson	-	Commission on Disability
Gerard	Frechette	Planning Board	City of Lowell
Tom	Golden	State Rep	MA House of Representatives
John	Hamblet	Co-Chair	Pawtucketville Citizens Council
Chris	Hayes	Neighborhood Planner	City of Lowell
Justin	Howard	Transportation Program Manager	NMCOG
Kara	Keefe Mullin	Assistant City Manager	City of Lowell
Edward J.	Kennedy	State Senator	Massachusetts Senate
Jim	Lamp	Consultant, Primary Contact	Market Basket
John	Lindberg	Head Rowing Coach and Boathouse Manager	UMass Lowell Bellegarde Boathouse
Rady	Mom	State Rep	MA House of Representatives
David	Nangle	State Rep	MA House of Representatives
Kelly	Richardson	Superintendent	Lowell Police Department
Derek	Shooster	Regional Planning Coordinator	MassDOT OTP
Frank	Suszynski	Deputy District 4 Highway Director	MassDOT District 4
Diane	Tradd	Assistant City Manager/Director DPD	Lowell Dept. of Planning & Development
Natasha	Vance	Transportation Engineer	City of Lowell
Joseph	White	President and CEO	Lowell General Hospital
Jeffrey	Winward	Chief	Lowell Fire Department
Beverly	Woods	Executive Director	NMCOG

# Working Group Meeting #1 Objective



Get input from key community opinion leaders who represent stakeholder groups affected by the project, specifically pertaining to selection of a preferred bridge alignment.



# History of the Project

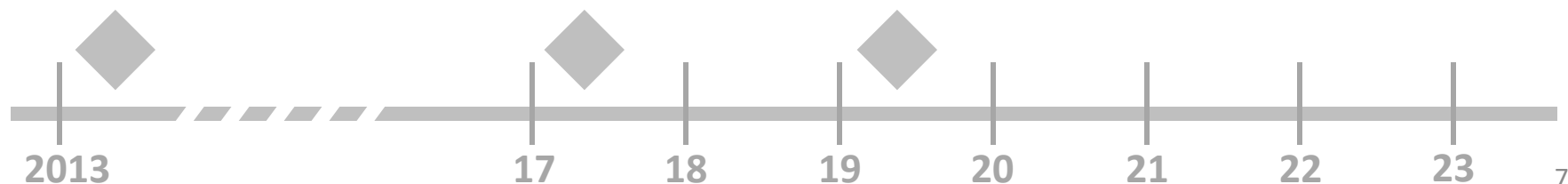
**2013 Corridor Study & Feasibility Analysis (NMCOG)**

**2017 Road Safety Audits (MassDOT)**

**Pawtucket Boulevard & Rourke Bridge**

**Wood Street from Middlesex Street to Princeton Boulevard**

**2019 Bridge Replacement Design Contract Awarded (MassDOT)**



# Project Scope



- **Identify Preferred Bridge Alignment**
- **Identify Preferred Bridge Type, Cross Section (bike/ped/emergency), Intersection Design**
- **25% Design & Bridge Sketch Plans**
- **Environmental Permitting**
- **Final Design or Design Build RFP**

# Completed Work



**Survey**

**Wetland Delineation**

**Geophysical Evaluation**

**Preliminary Hydraulic Analysis**

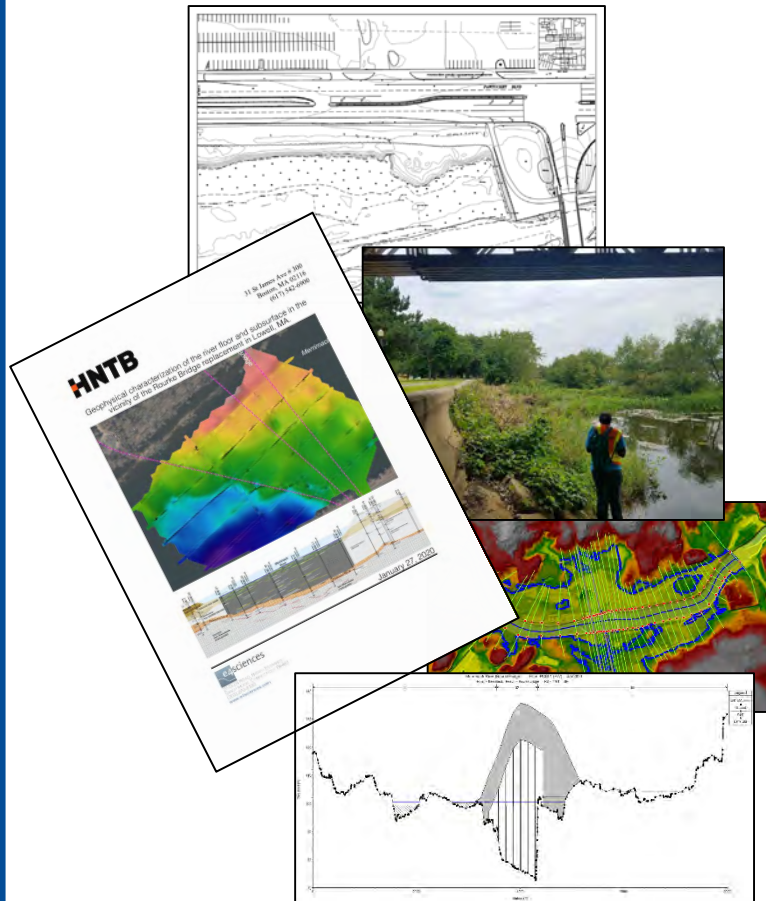
**Public Involvement & Outreach Plan**

**Urban/Landscape Concept Evaluation**

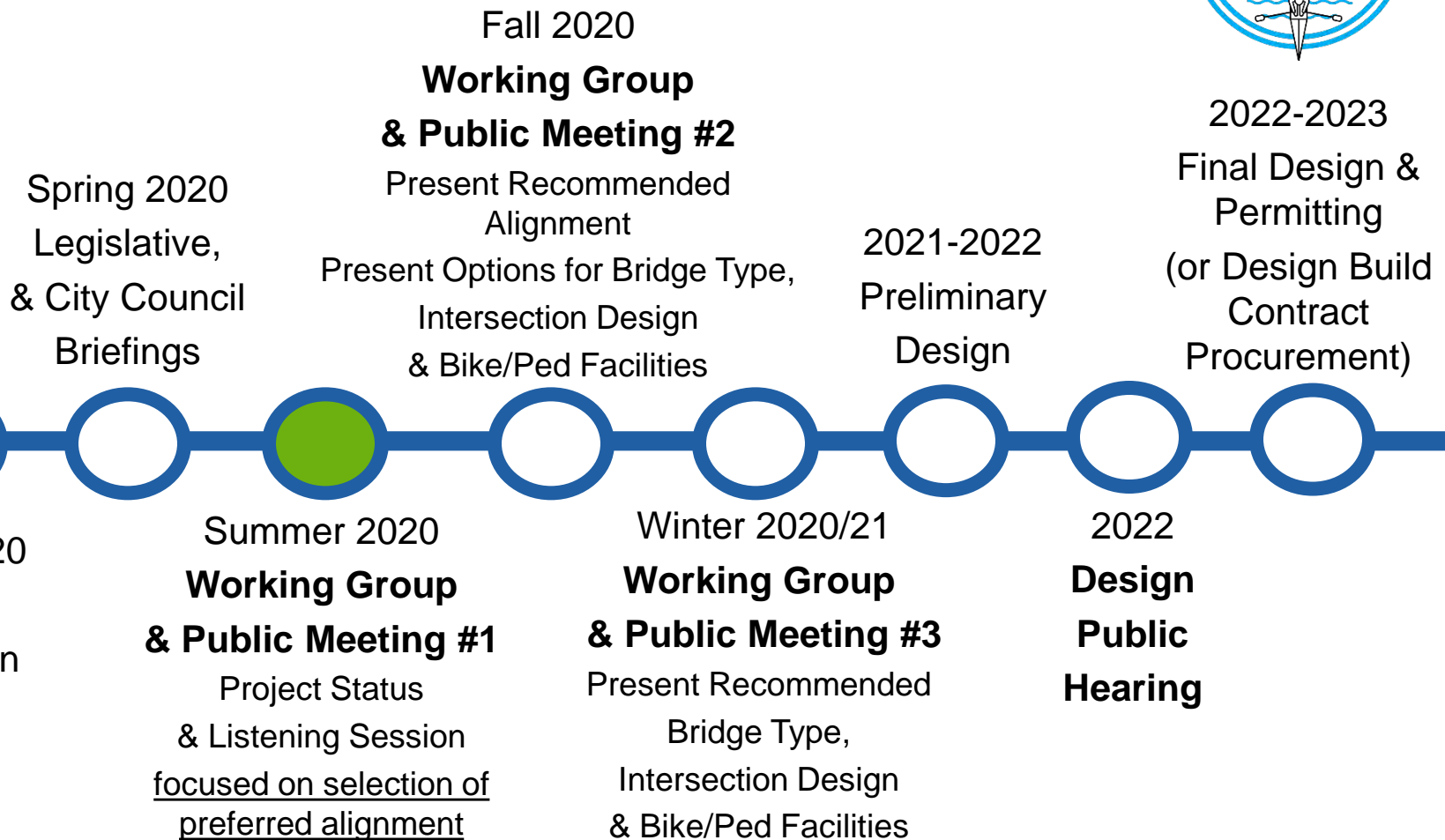
**Traffic Counts (veh/ped/bike/truck)**

**Safety Analysis**

**Traffic Modeling**

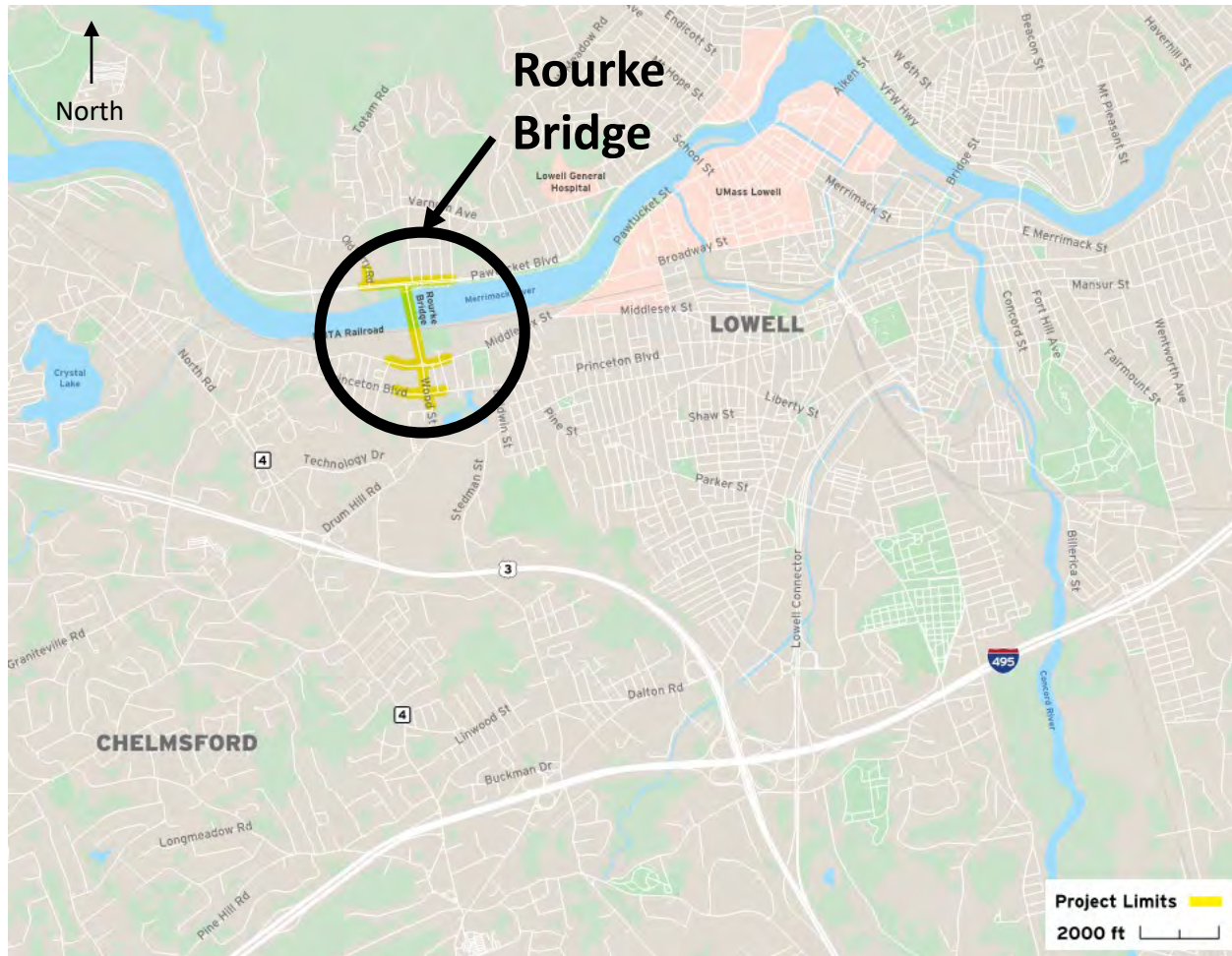


# Schedule





# Project Location



# Project Limits



North





# Project Purpose



**Bridge Replacement**

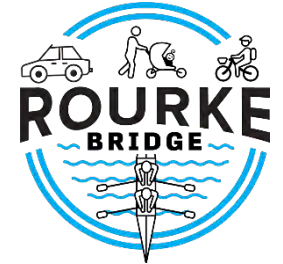


**Enhance safety and connectivity for Pedestrians, Bicycles, Emergency Vehicles and Watercraft**



**Improve Traffic Operations at the Wood Street intersections with Pawtucket Boulevard, Middlesex Street, and Princeton Boulevard**

# Project Need



## Functionally Obsolete

Substandard Pedestrian Walkway

No Shoulders for Emergency Vehicles

No Bicycle Accommodations

Inadequate Approach Intersection Capacity



## Maintenance Issues

Deck Patching

Replacement Parts

# Project Need



## Safety & Operations

### Lack of Bike/Ped Accommodation

#### Wood Street & Pawtucket Boulevard



#### Wood Street & Middlesex Street

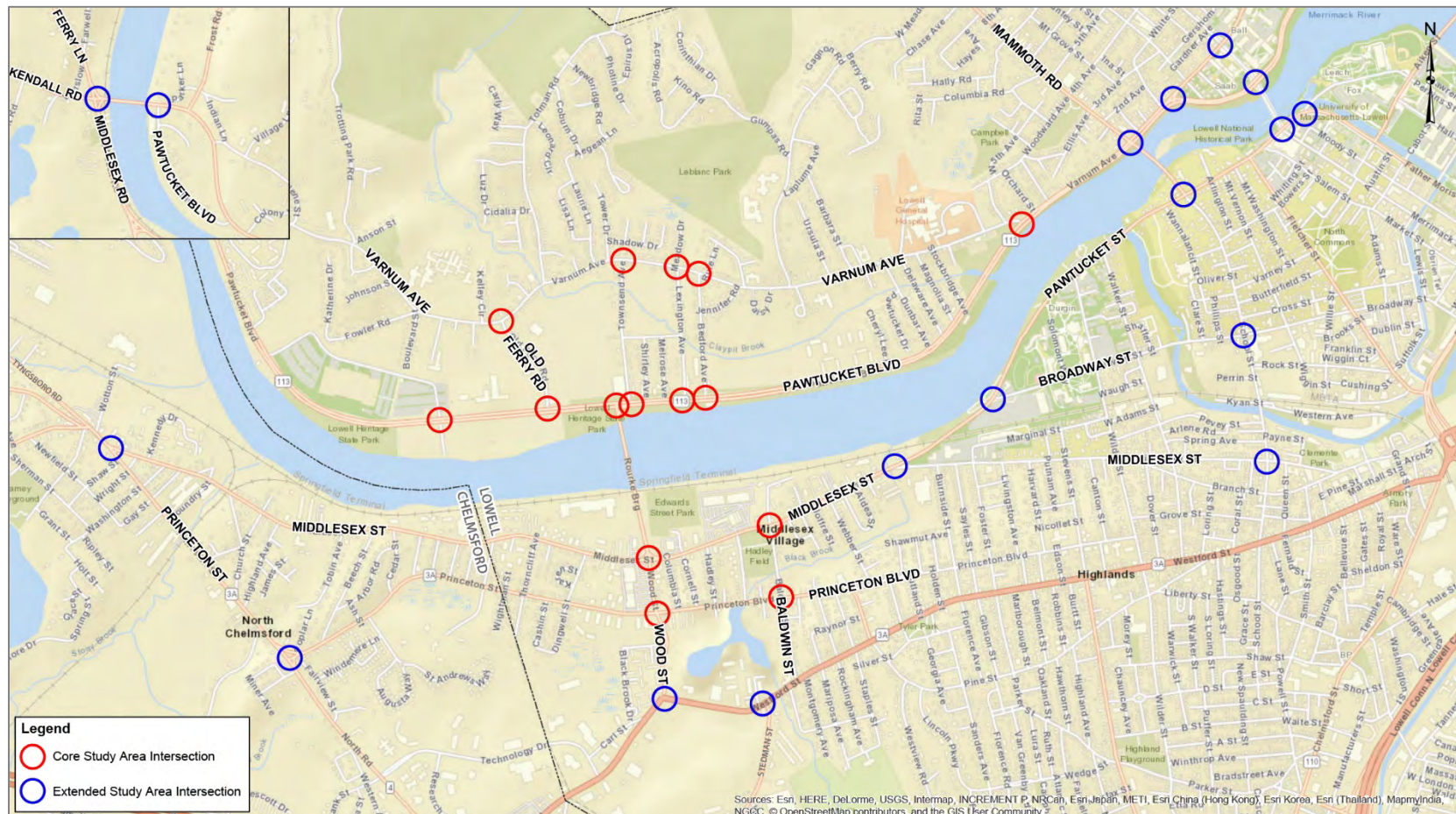


#### Wood Street & Princeton Boulevard





# Traffic Study Area

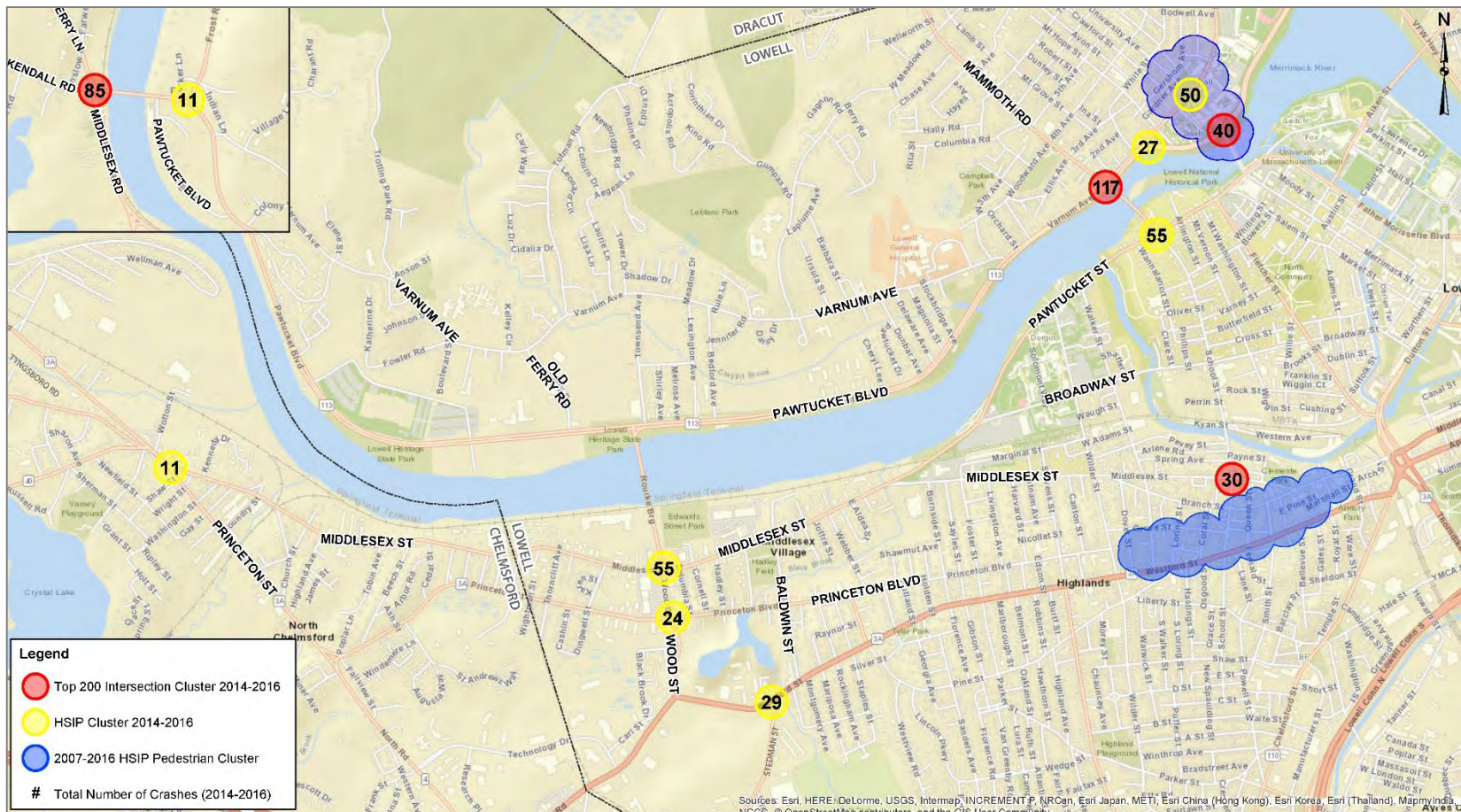




# Safety Analysis



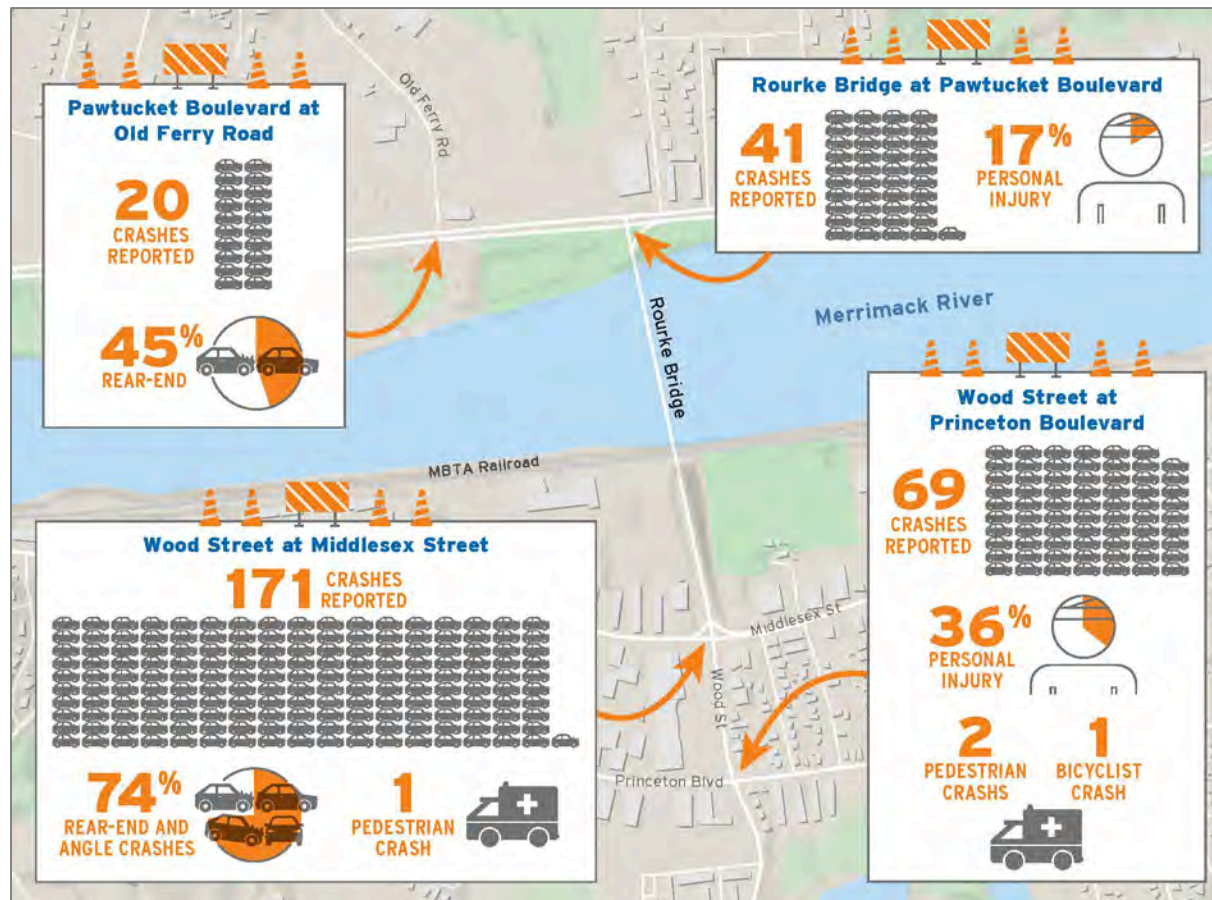
## Highway Safety Improvement Data



# Safety Analysis



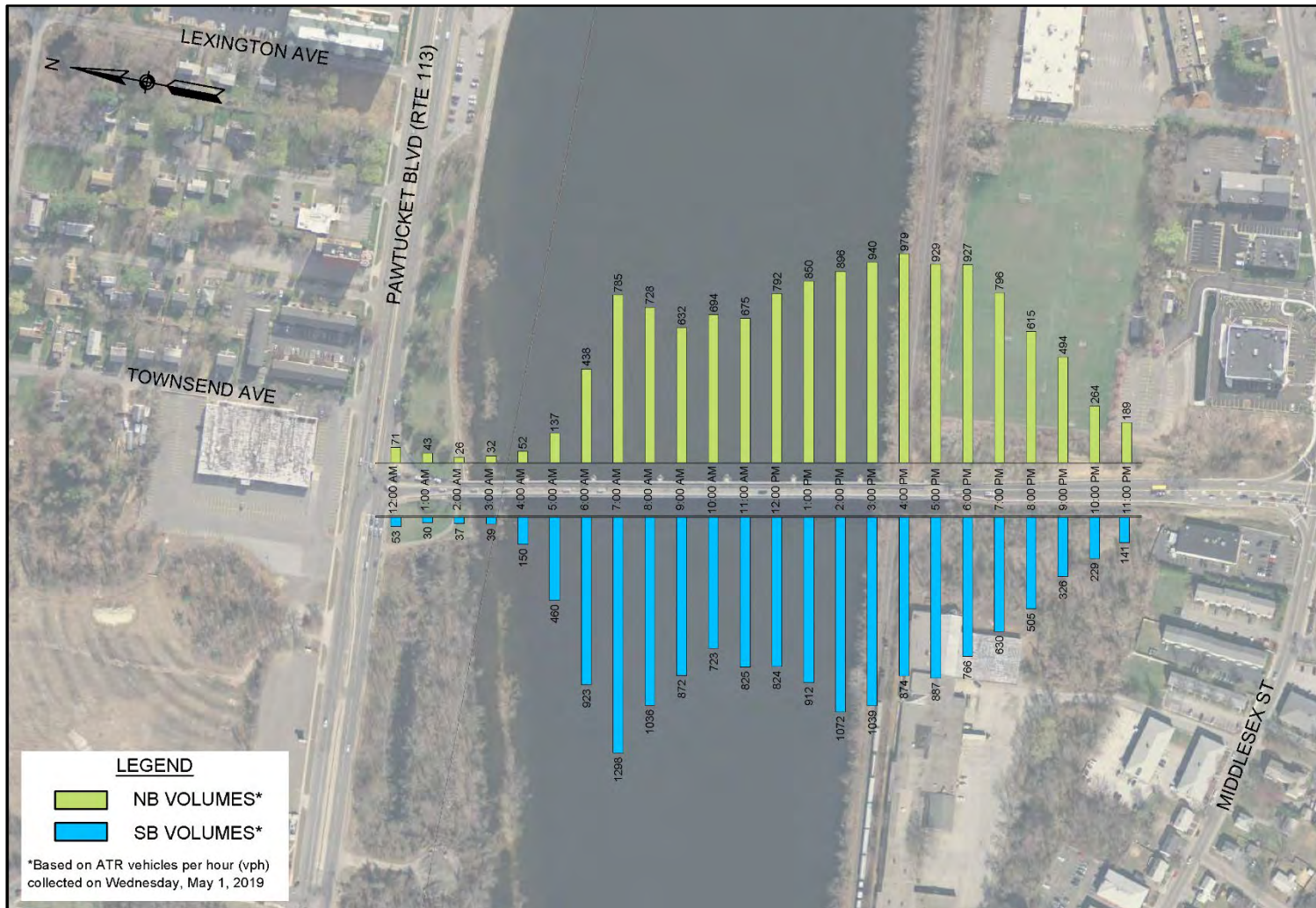
## Crash summary for key intersections







# Traffic Volumes

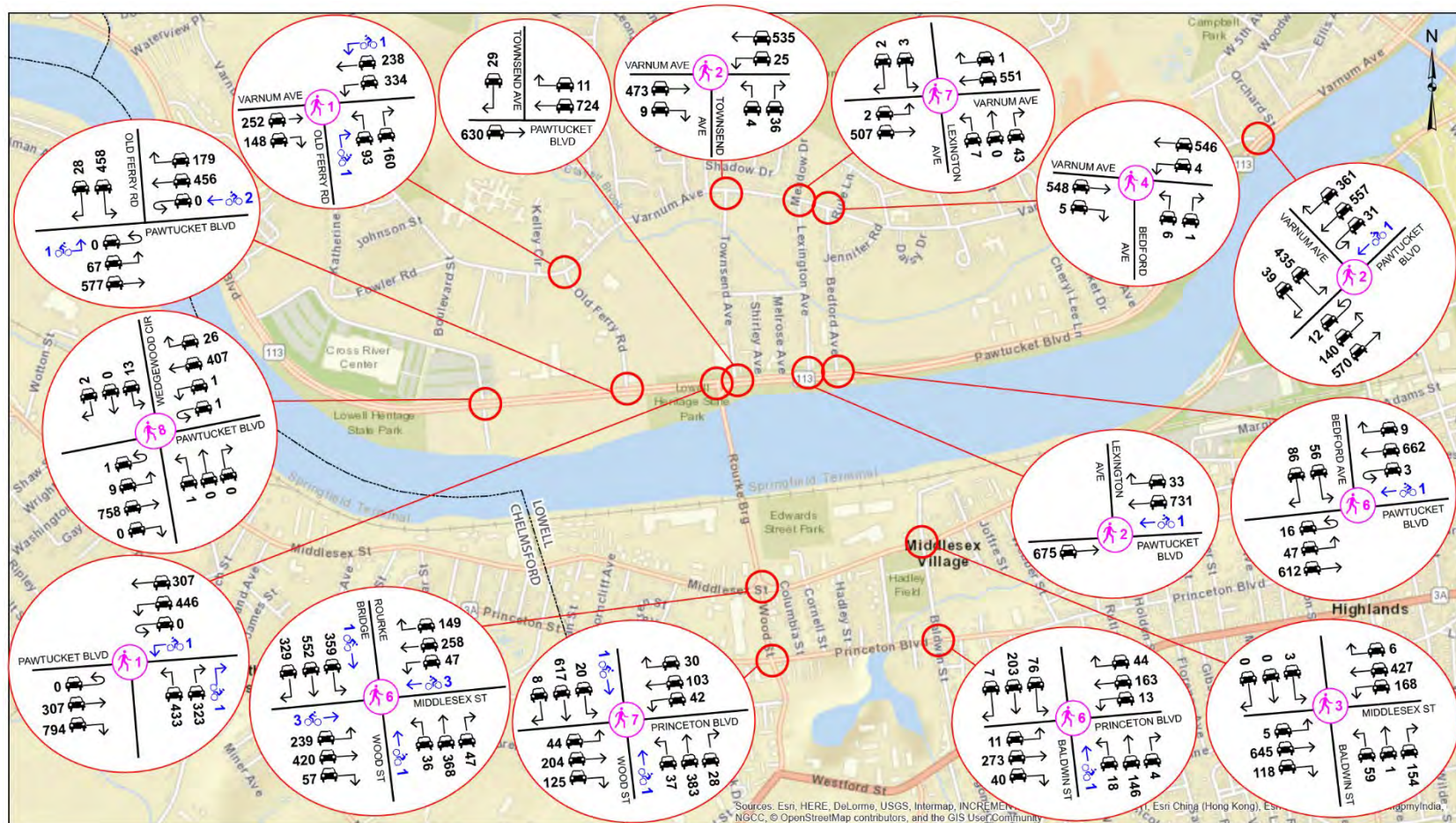






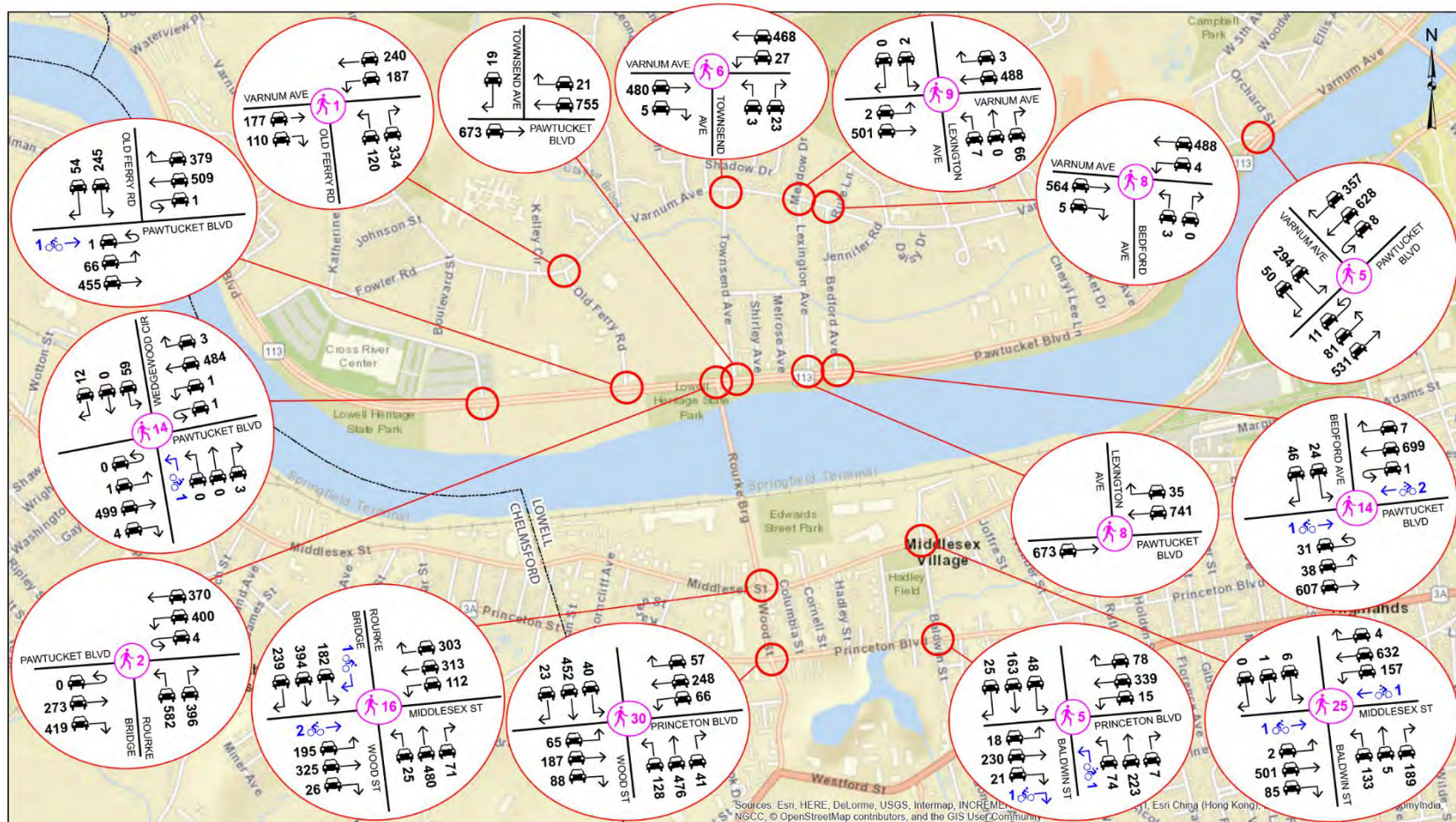
# Traffic Volumes

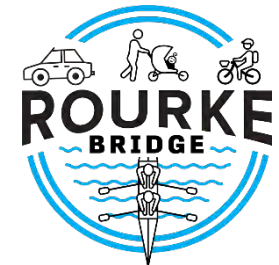
## AM Volume Map for core intersections





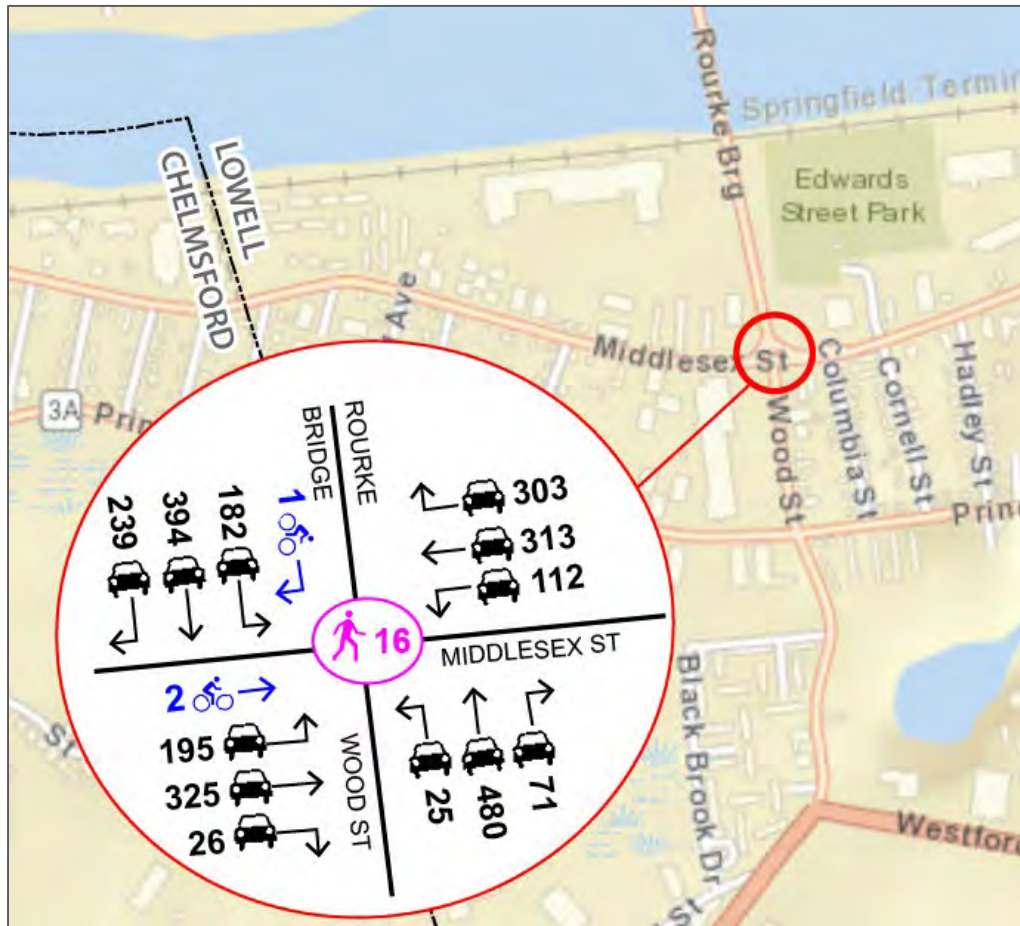
## PM Volume Map for core intersections





# Traffic Volumes

## PM Volume Map for core intersections

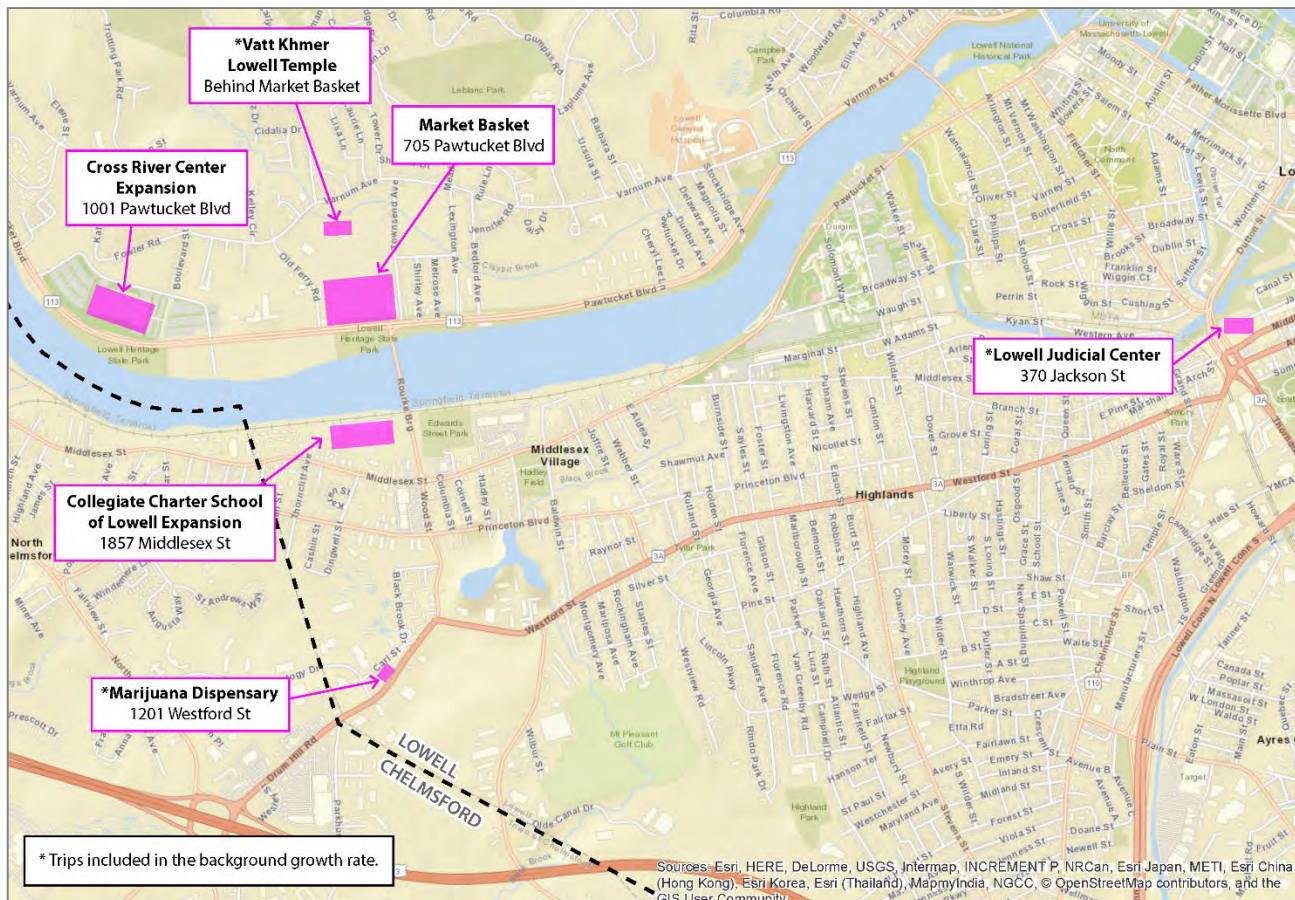






# Traffic Volumes

## Identified site traffic generators

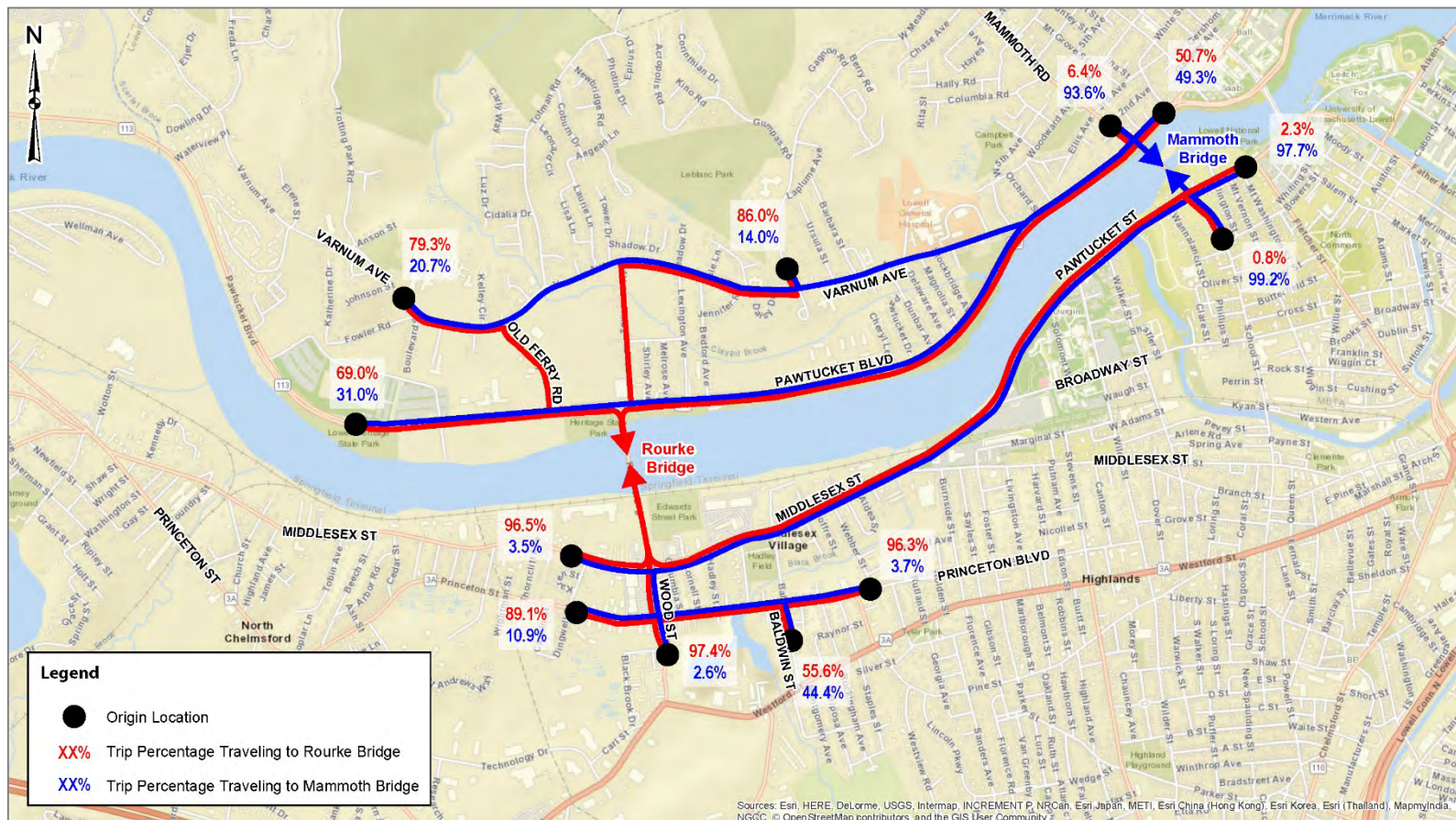




# Origin/Destination Study



## AM Origin-Destination map

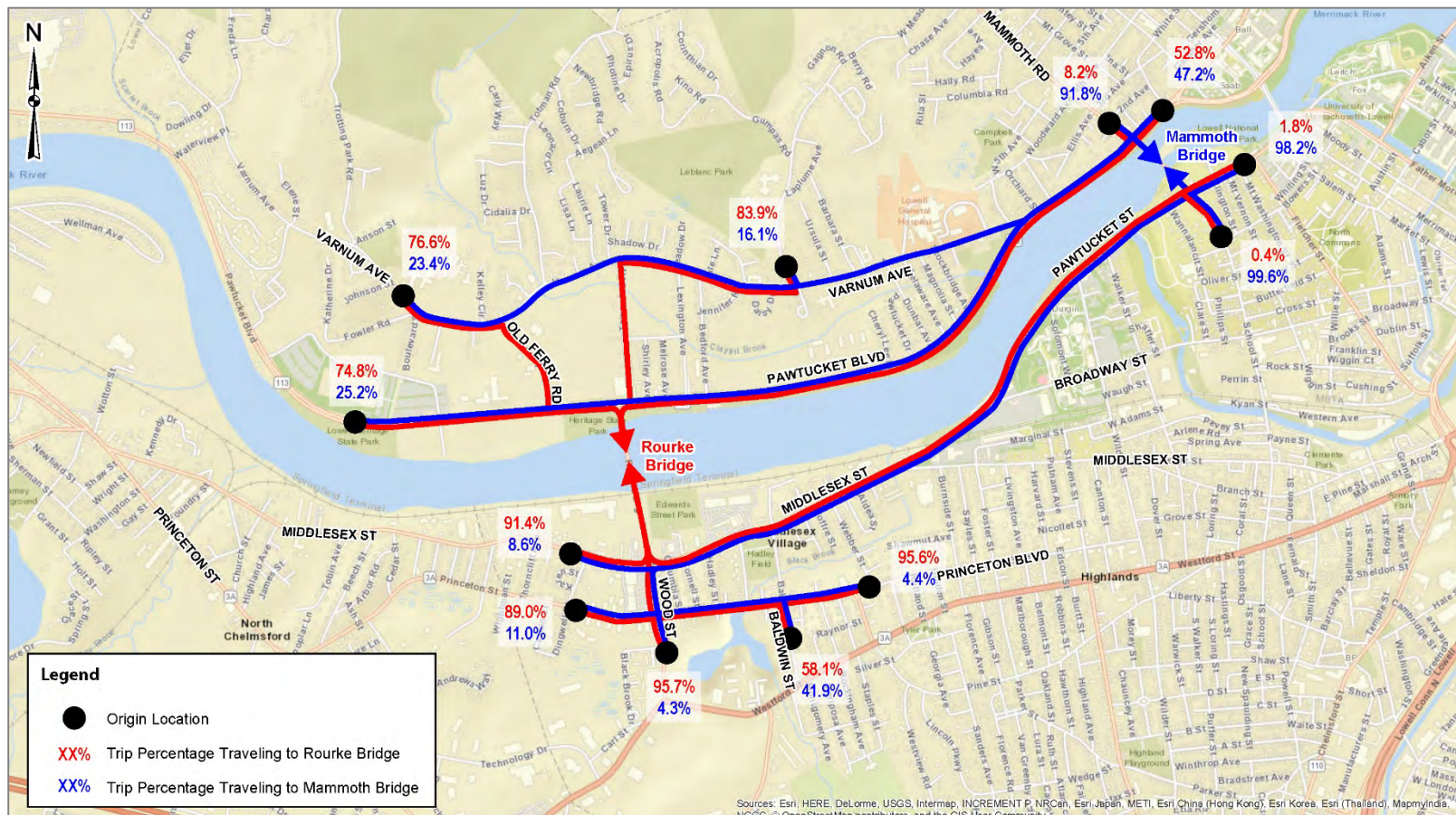




# Origin/Destination Study



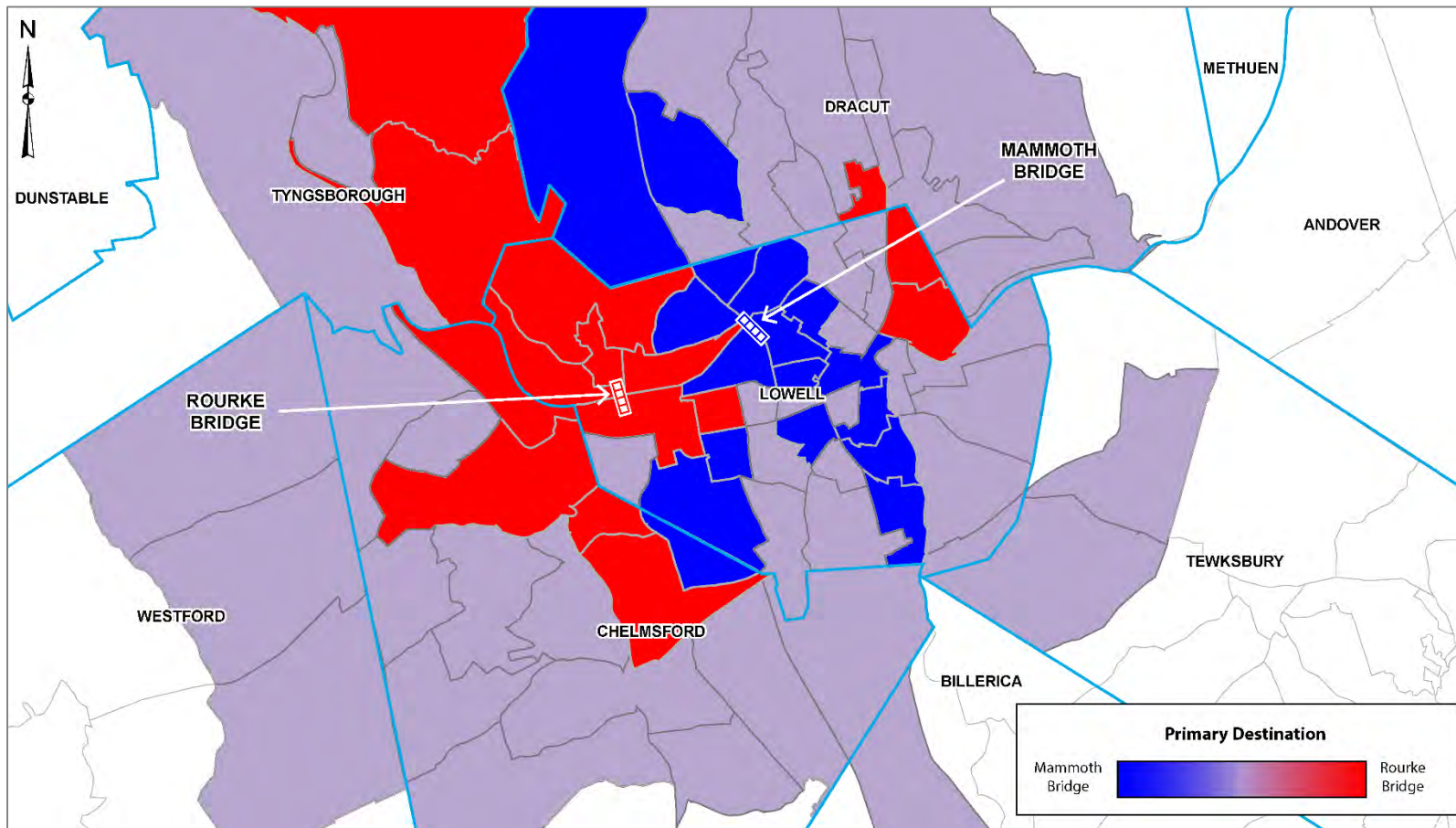
## PM Origin-Destination map



# Origin/Destination Study



## AM Bridge Traffic Zones

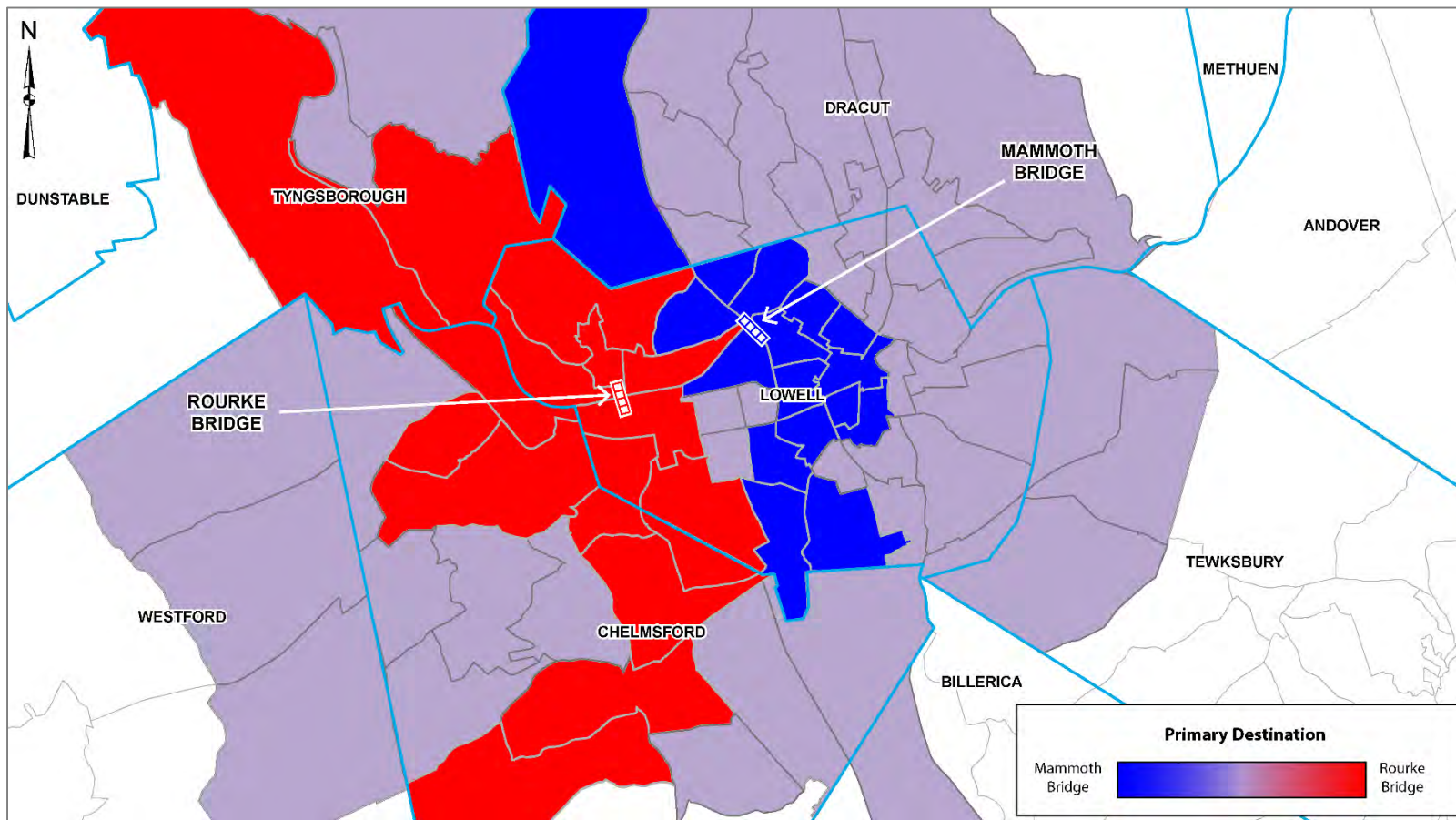




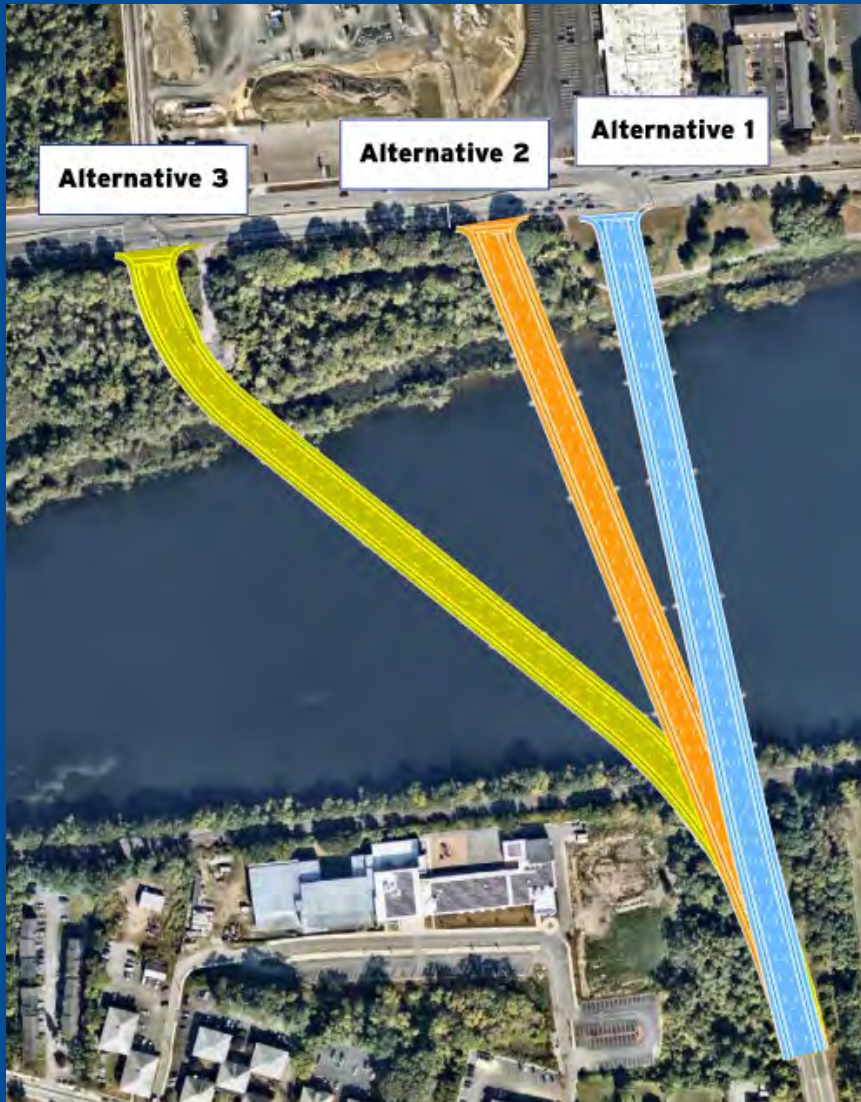
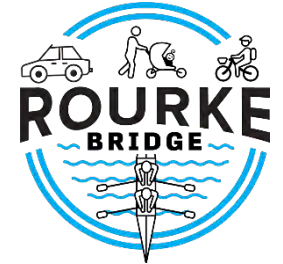
# Origin/Destination Study



## PM Bridge Traffic Zones



# Traffic Analysis Future 2039



## Regional Travel Times

### Safety & Operations:

- **Vehicles**
- **Pedestrians**
- **Bicyclists**
- **Intersections**

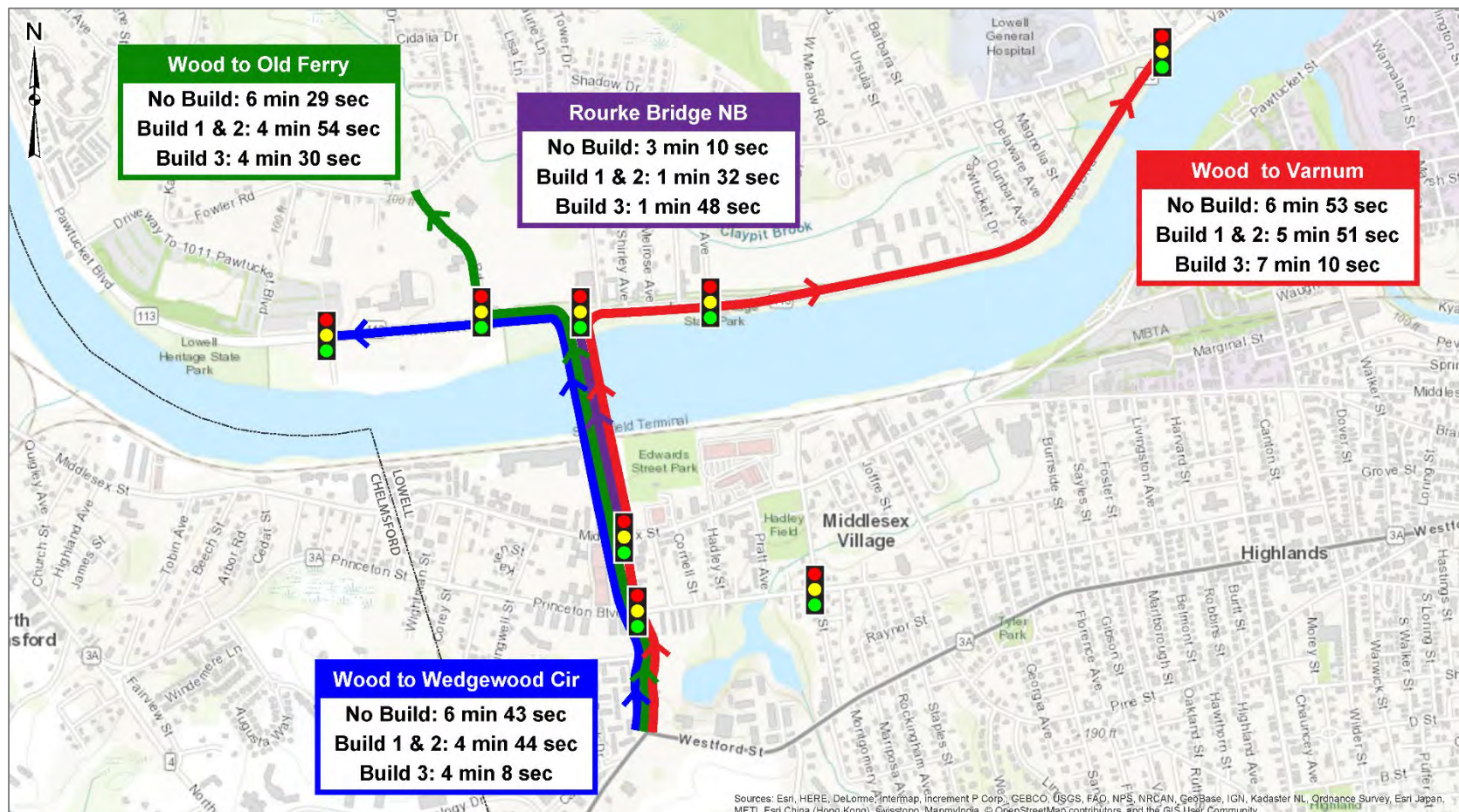
### Emergency vehicle access





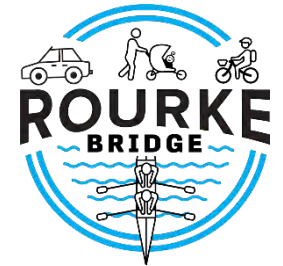
# Travel Times

## AM Peak Hour Travel Times

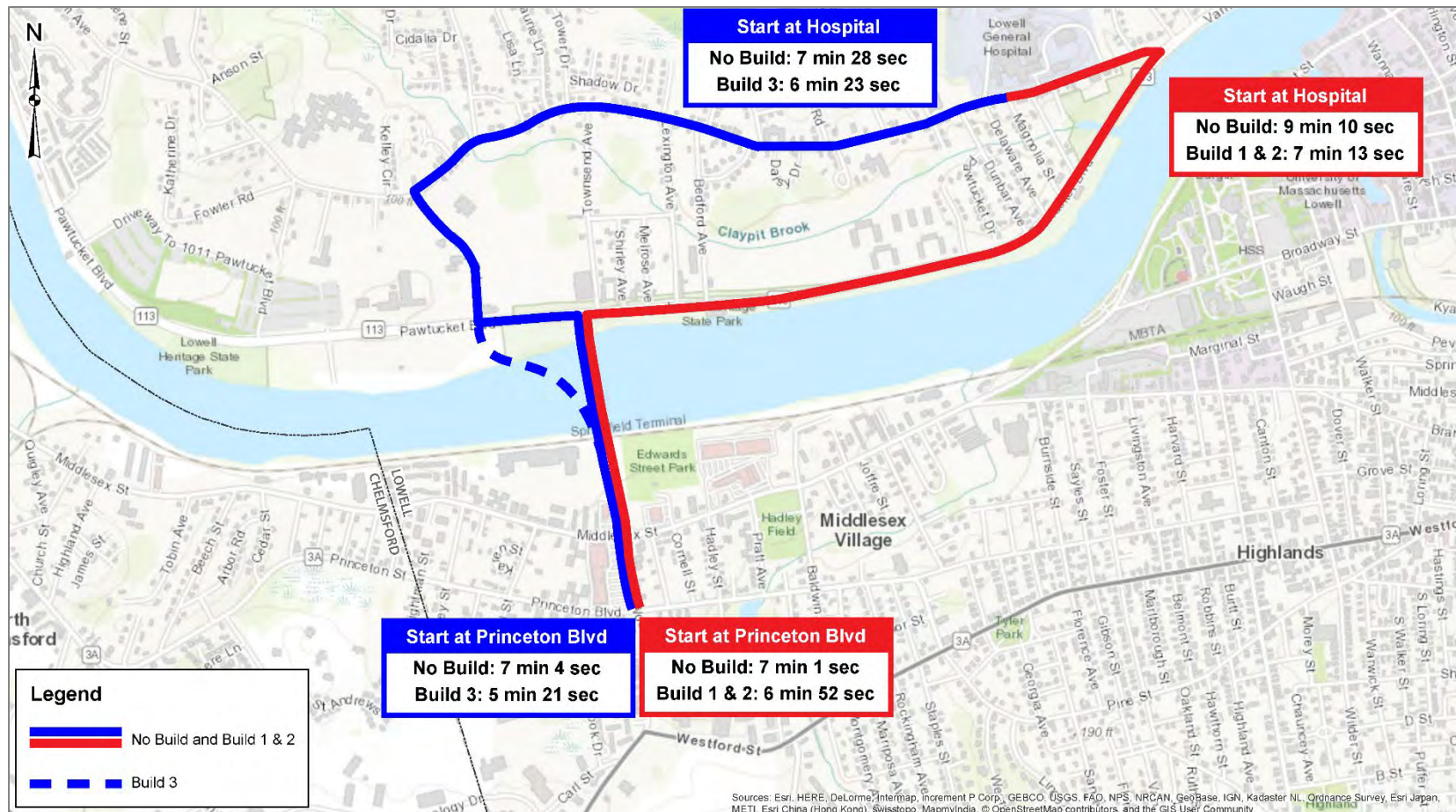




# Travel Times

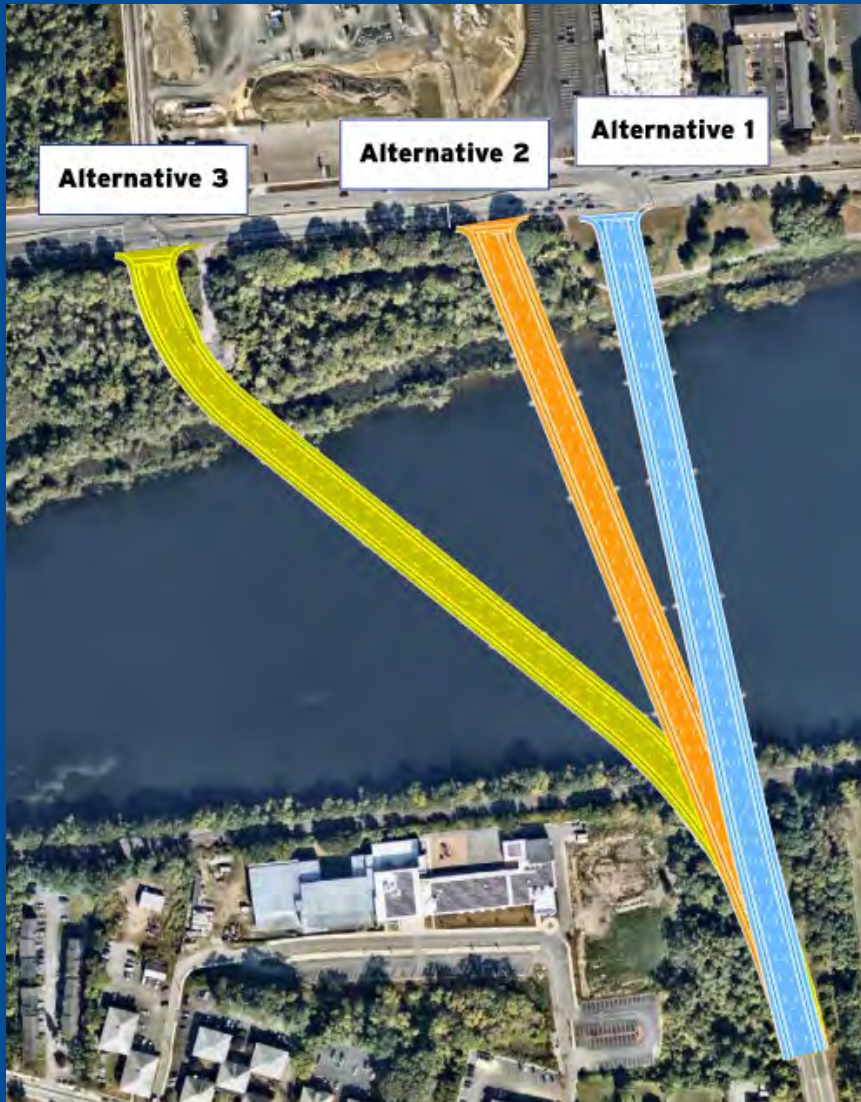


## Hospital Travel Times (Non-Emergency Vehicle)





# Traffic Operations & Safety Discussion



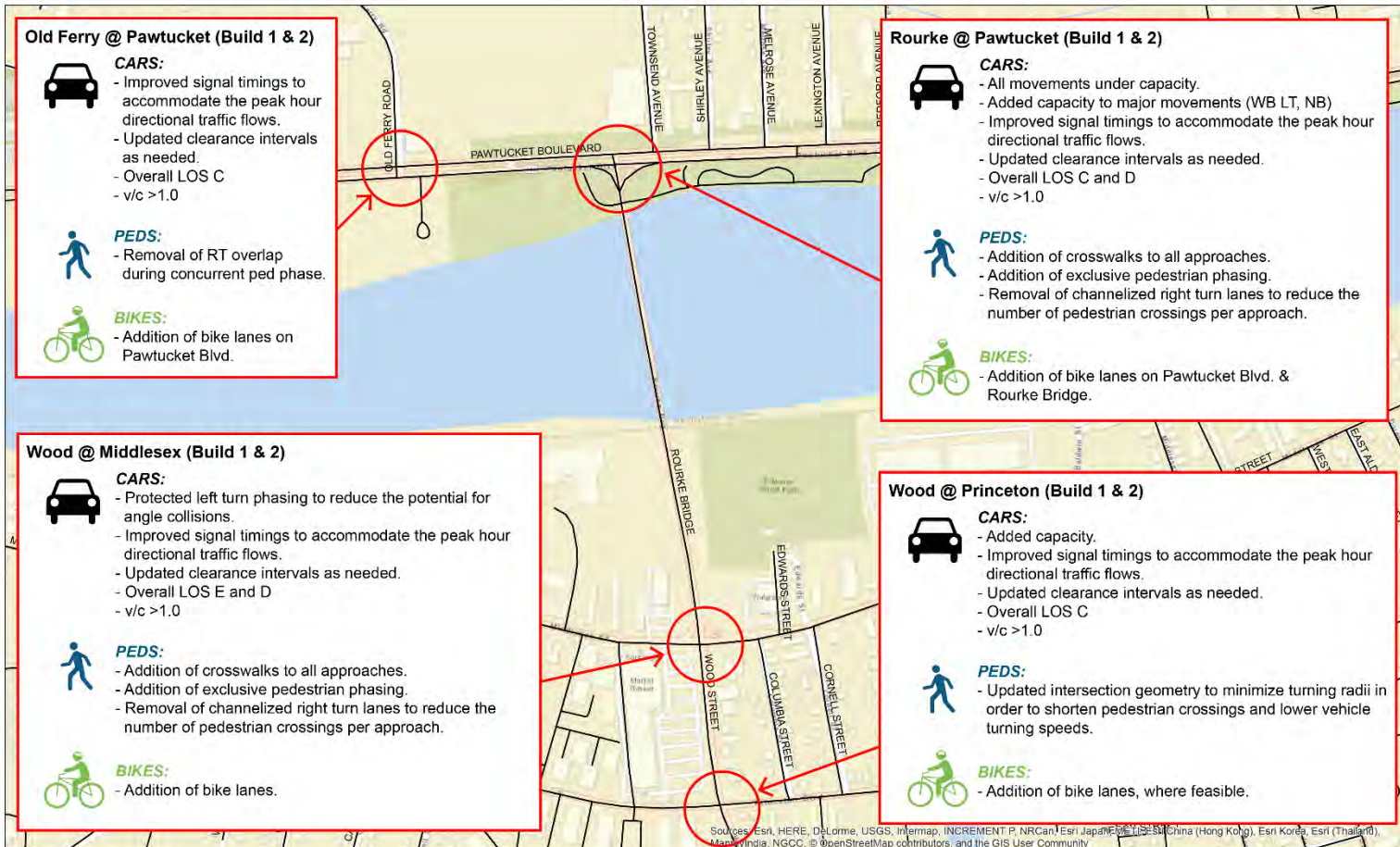
**What path do emergency vehicles typically take to Lowell General Hospital from the bridge?**



# Safety & Operations



## Improvements by Intersection – Build 1&2



# Safety & Operations



## Improvements at Rourke Bridge @ Pawtucket Blvd – Build 1&2



### Rourke @ Pawtucket (Build 1 & 2)



#### CARS:

- All movements under capacity.
- Added capacity to major movements (WB LT, NB)
- Improved signal timings to accommodate the peak hour directional traffic flows.
- Updated clearance intervals as needed.
- Overall LOS C and D
- $v/c > 1.0$



#### PEDS:

- Addition of crosswalks to all approaches.
- Addition of exclusive pedestrian phasing.
- Removal of channelized right turn lanes to reduce the number of pedestrian crossings per approach.



#### BIKES:

- Addition of bike lanes on Pawtucket Blvd. & Rourke Bridge.

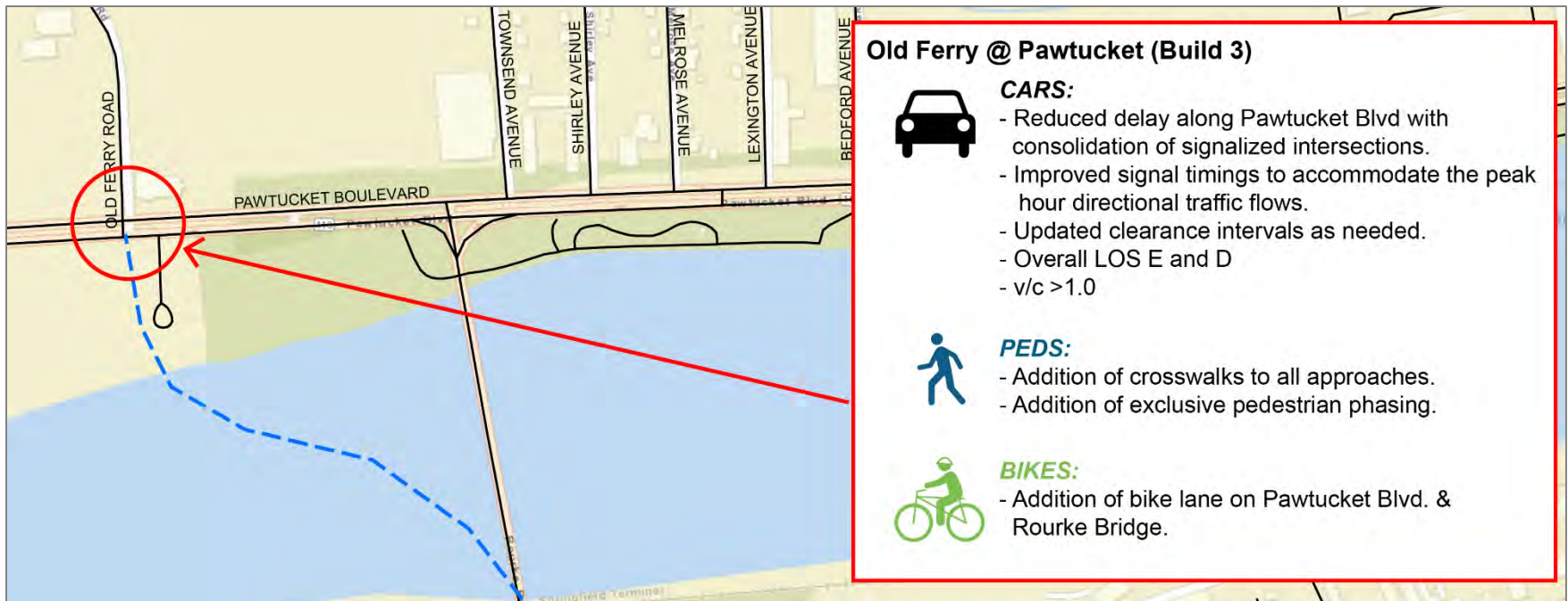




# Safety & Operations



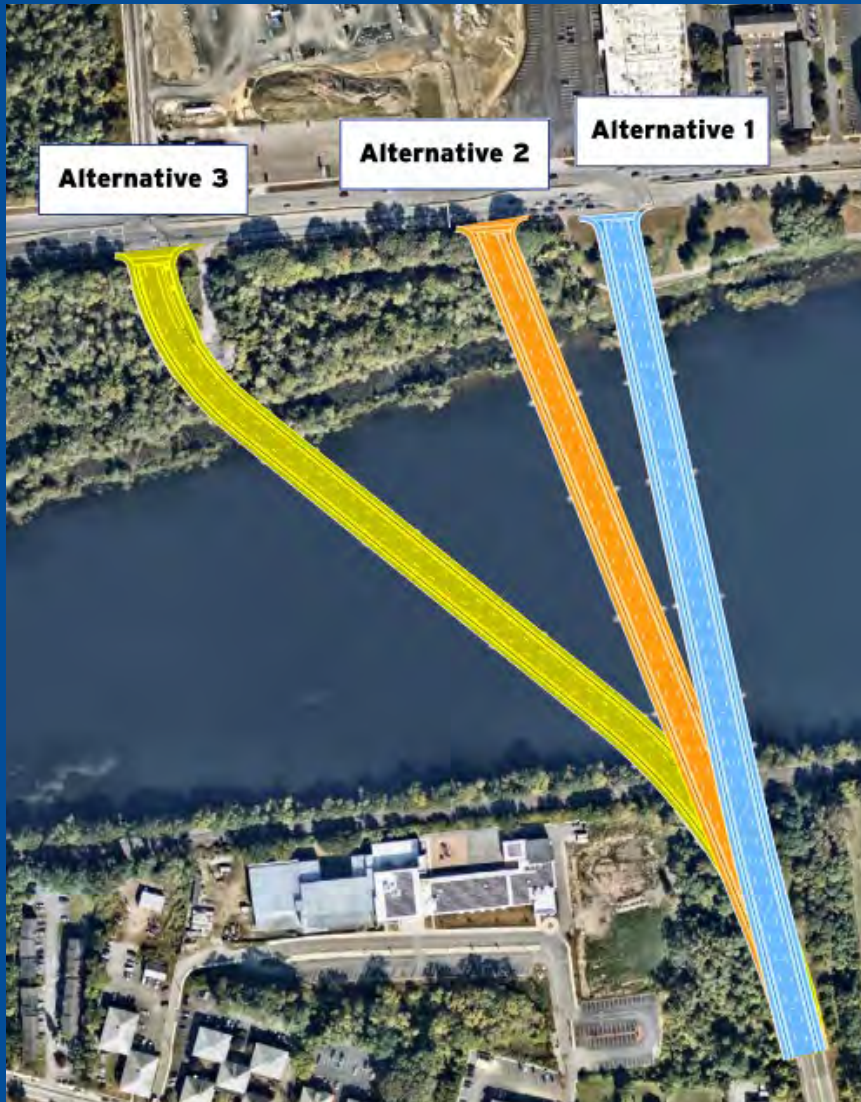
- Improvements at Rourke Bridge @ Pawtucket Blvd/Old Ferry Rd – Build 3**







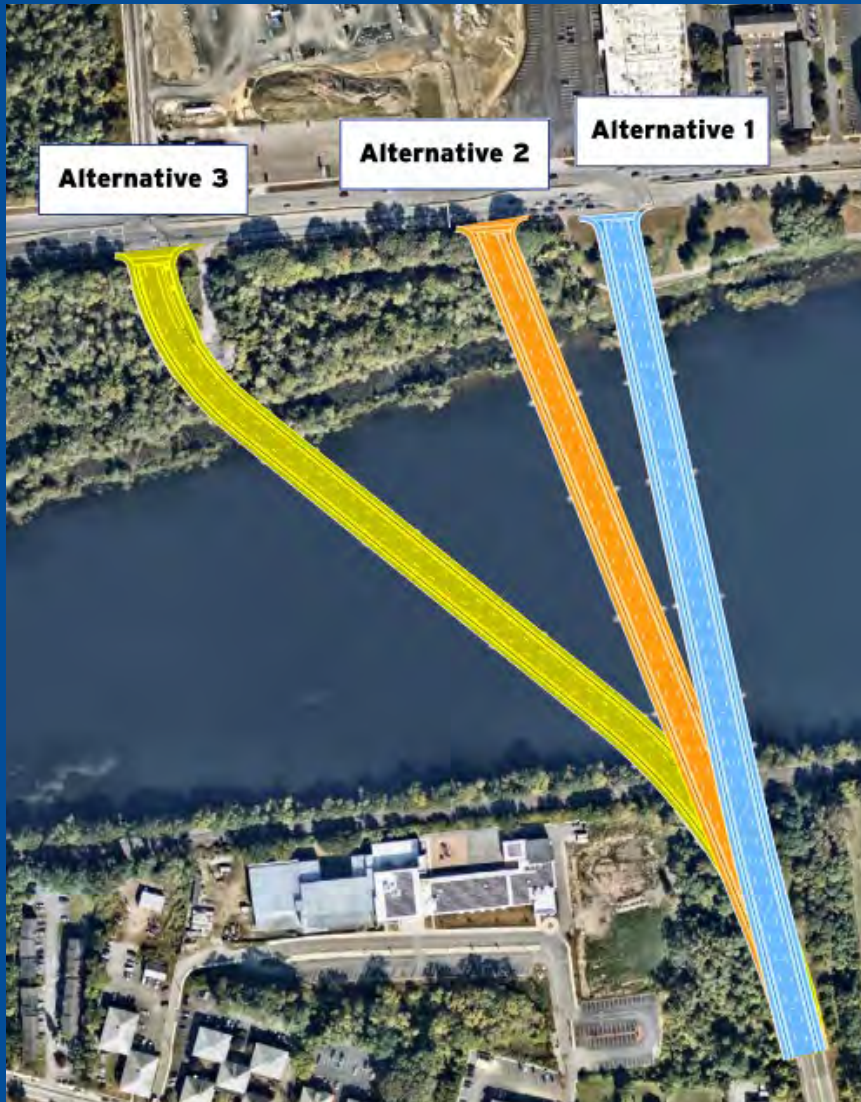
# Traffic Operations & Safety Discussion



**Other than what was presented today, are there other factors that should be considered for the traffic analysis?**

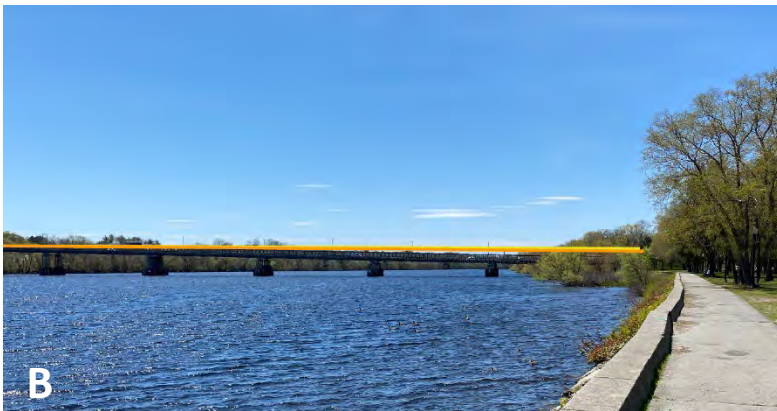
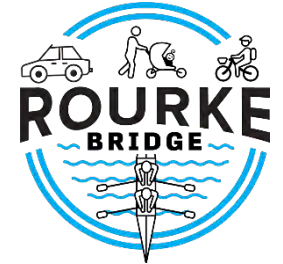


# Urban Design Principles



- **Contribute to City and Neighborhood Character and Image**
- **Contribute to Safe and Effective Connections for All Modes**
- **Contribute to Open Space and Open Space Connections (Green Space and River)**
- **Contribute to City Vitality**

# Ground Level Views of Alternative Alignments





# Landing Overlooks



Current North Bank Landing



Alignment 3 North Bank Landing



Precedents for Bank Landings



# Nearby Recreational Amenities



Vandenberg Esplanade



Bellegarde Boathouse



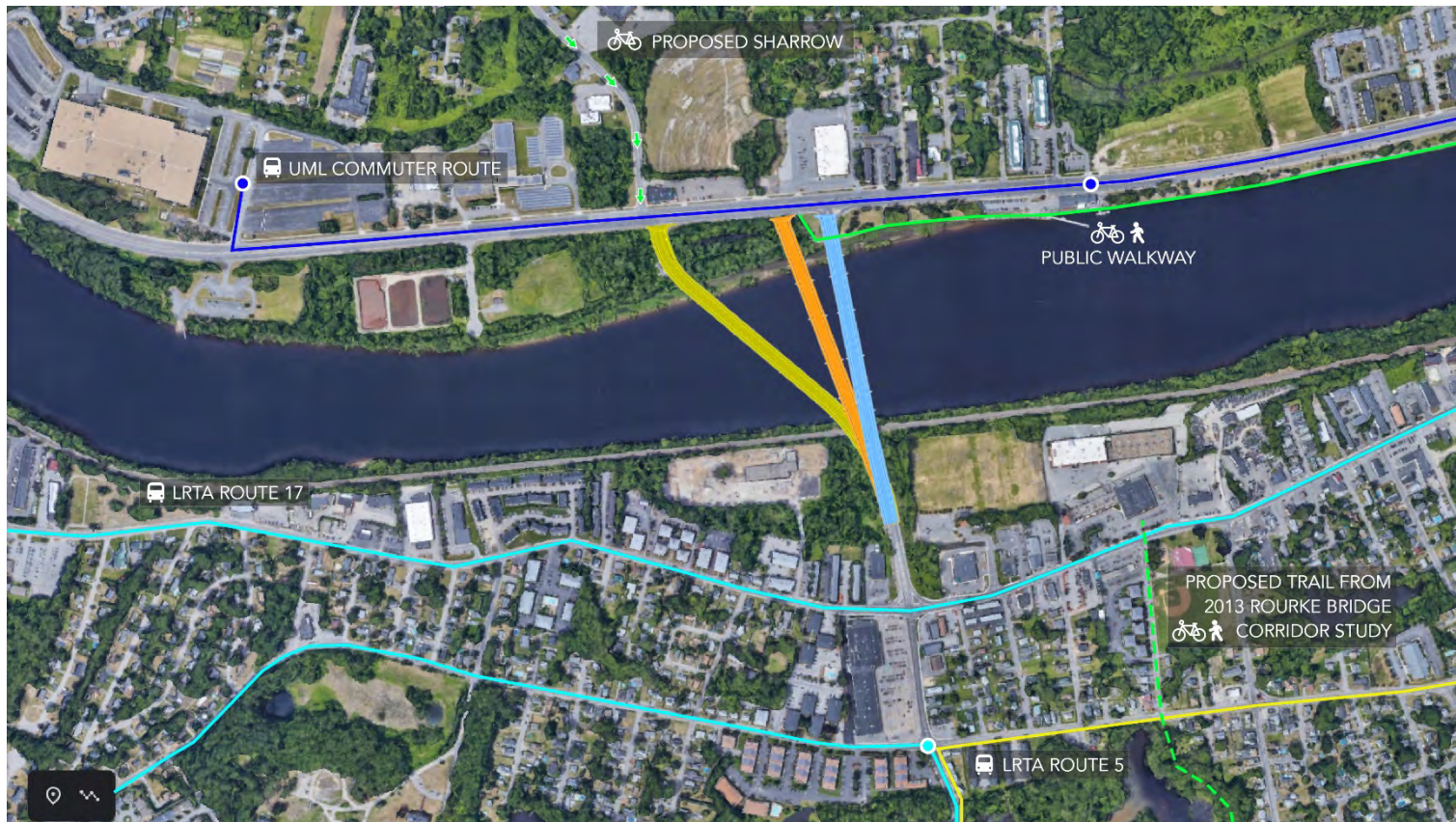
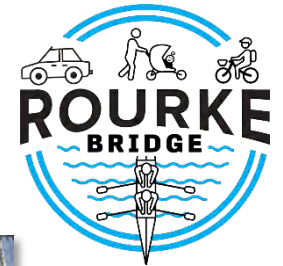
National Park Service Boat Launch



Edwards Street Park

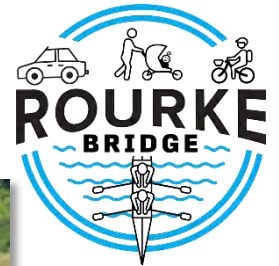


# Multi-Modal Connections



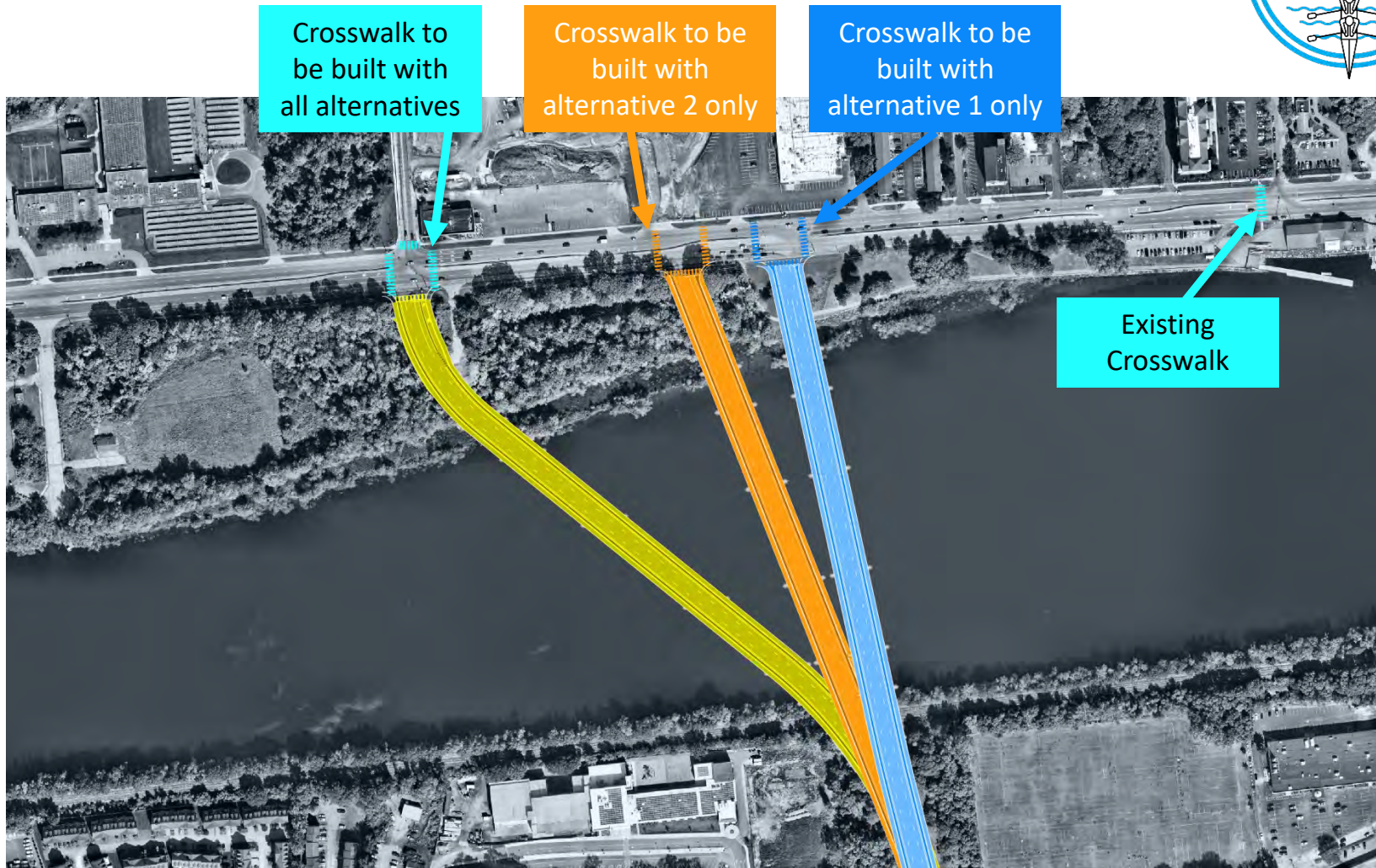


# Walking Times





# Crosswalks





# Watercraft Considerations



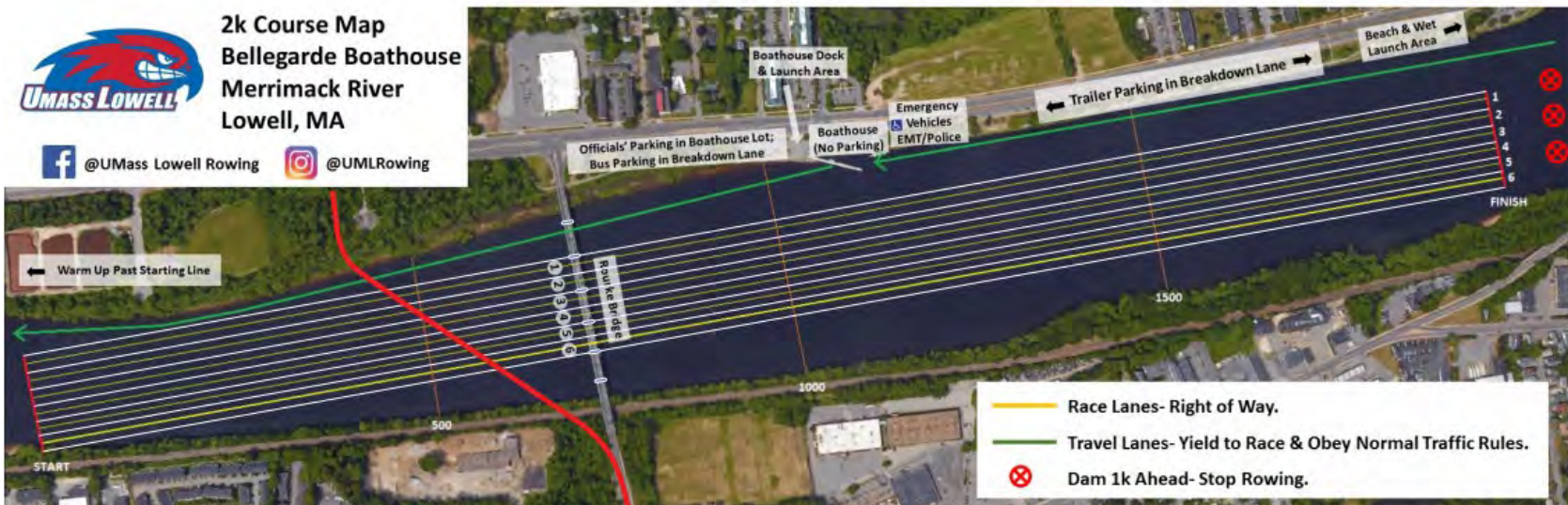
**2k Course Map  
Bellegarde Boathouse  
Merrimack River  
Lowell, MA**



@UMass Lowell Rowing

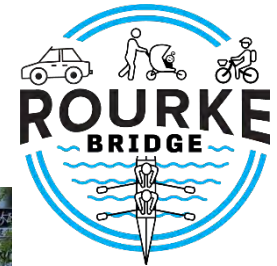


@UMLRowing





# River Events

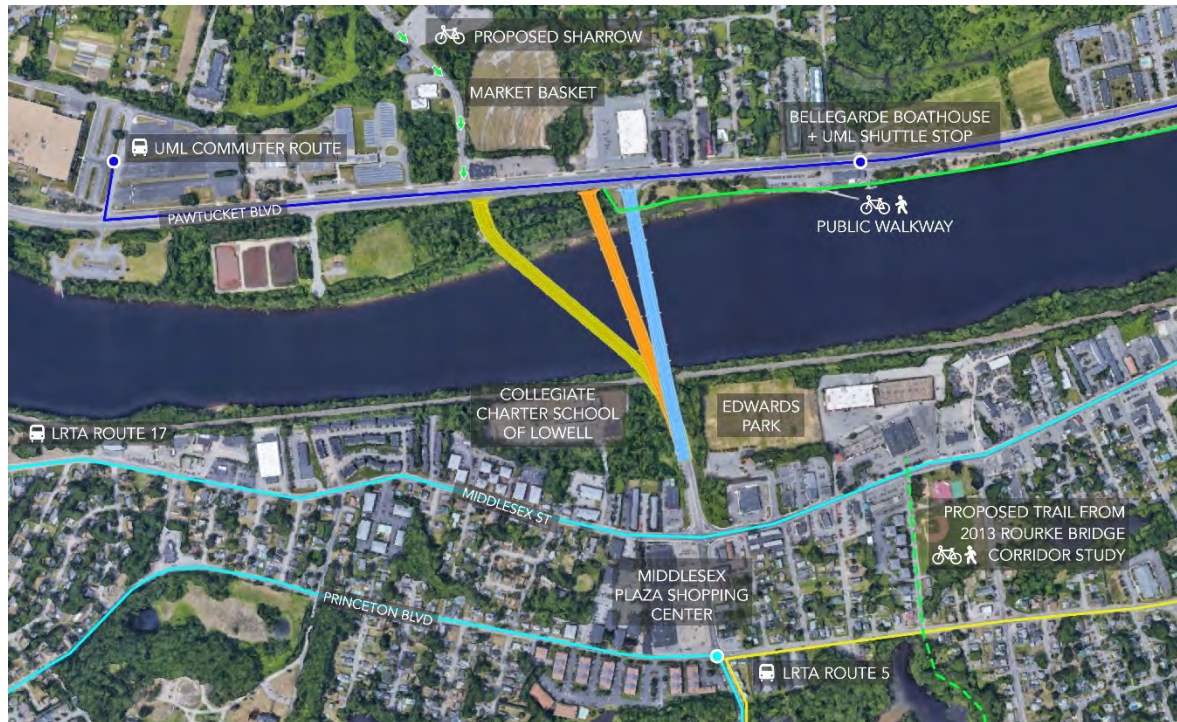
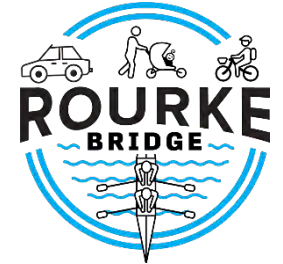


Baystate Marathon



Dragon Boat Races at the Lowell Southeast Asian Water Festival

# Urban Design Discussion

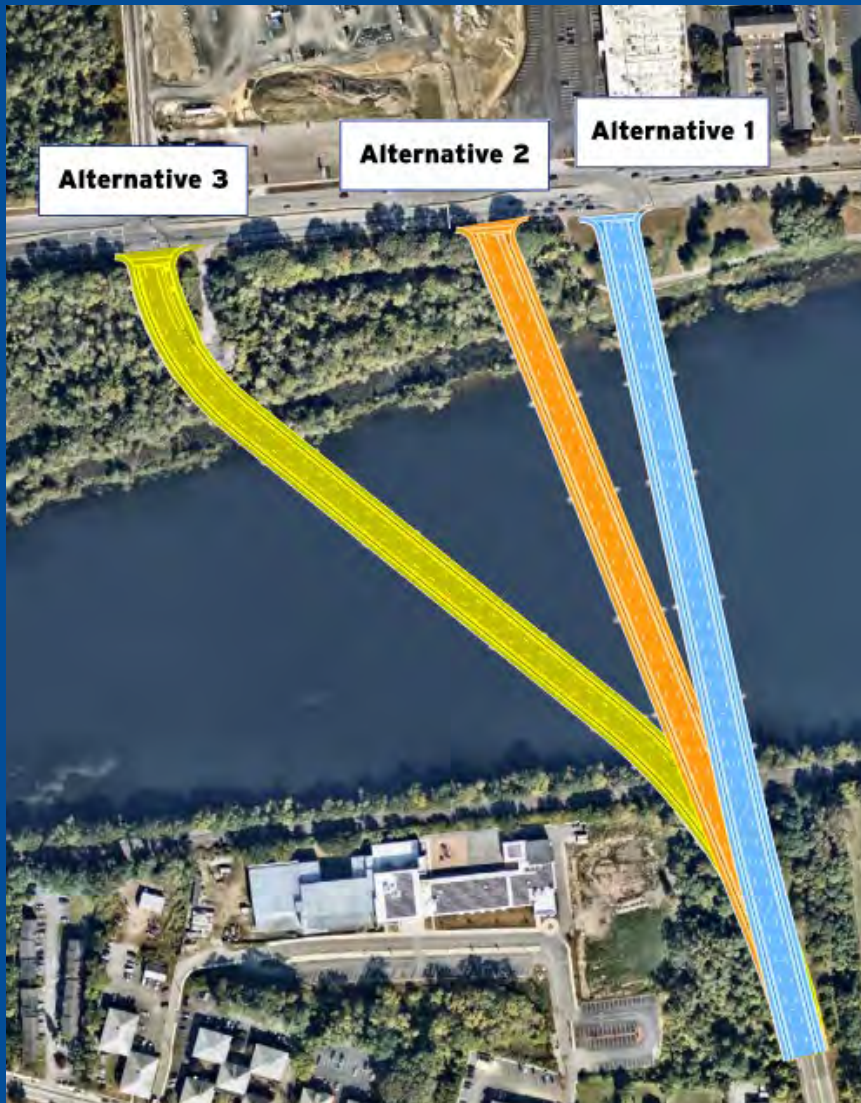
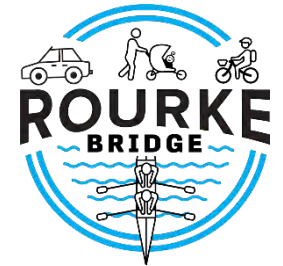


**Do you walk or bike across the bridge now? Where are you coming from/going to?**

**Are there additional destinations, recreational facilities, open spaces, or trails to which there should be pedestrian and/or bicycle connections?**



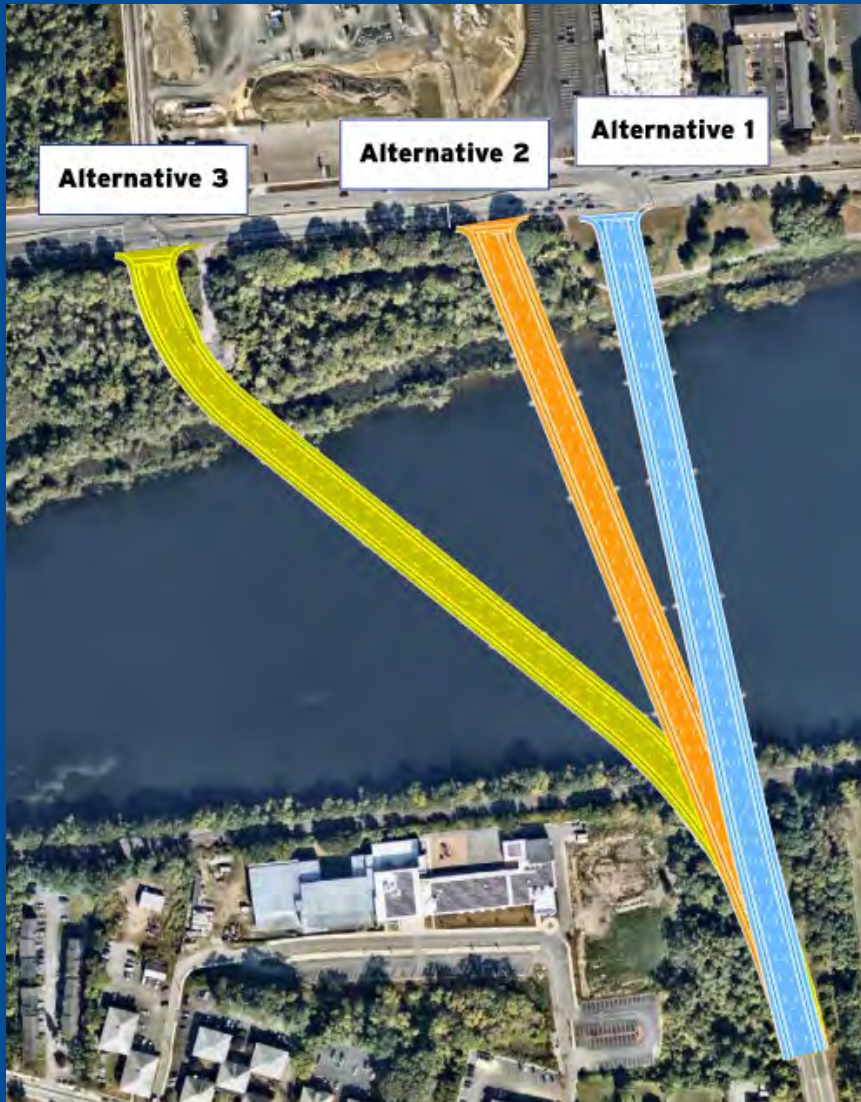
## Urban Design Discussion



**Is there an alignment that will work better for viewing or participating in river events?**



## Urban Design Discussion



**There is public property on the north riverbank west of the bridge, have there been any plans or interest to date for open space development for public use?**



# Environmental Considerations



- **Overview of applicable environmental laws and regulations**
- **Compare the environmental impacts and regulatory implications of alignment alternatives**



# Federal, State, and Local Compliance



- **Federal**

- **National Environmental Policy Act (NEPA)**
- **Section 404 of the Clean Water Act - USACE**
- **Section 106 of the National Historic Preservation Act**
- **Section 9 US Coast Guard Coordination**
- **Section 4(f) of the U.S. Department of Transportation Act**
- **Section 6(f) of the Land and Water Conservation Fund Act**
- **Section 7 of the Endangered Species Act (ESA)**
- **National Pollutant Discharge Elimination System (NPDES) Program of the Clean Water Act**
- **Construction General Permit (GP) – United States Environmental Protection Agency (EPA)**
- **National Flood Insurance Program (NFIP) – Federal Emergency Management Agency (FEMA)**



## **Federal, State, and Local Compliance**



- **State/Local**

- **Massachusetts Environmental Policy Act (MEPA)**
- **Massachusetts Endangered Species Act (MESA)**
- **Article 97 of the Massachusetts State Constitution**
- **MA Wetlands Protection Act – Lowell Conservation Commission, MassDEP**
- **Chapter 91 of the Massachusetts Public Waterfront Act– MassDEP**
- **Clean Water Act Section 401: State Certification of Water Quality – MassDEP**
- **Construction Access Permit - Massachusetts Department of Conservation and Recreation (DCR)**

# **“Bridge Exemption”**



- **Provides relief from certain permitting requirements for MassDOT bridge repairs and replacement projects or “Footprint Bridge Projects”**
- **Applicable to:**
  - **Massachusetts Environmental Policy Act (MEPA)**
  - **Chapter 91 of the Massachusetts Public Waterfront Act**
  - **Massachusetts Wetlands Protection Act (WPA)**
- **Determination based upon similar alignment and “functional equivalence”**



## Wetland and River Impacts: Existing Conditions



- **Merrimack River is the predominant wetland feature**
- **Water level in the river is controlled by the Pawtucket Dam (located approximately 1.5 miles downstream)**
- **Vegetated wetlands are present on north side of river**
- **No vegetated wetlands on south side of river (likely due to former development of MBTA railroad)**







# Wetland and River Impacts: Alternative 1



# Wetland and River Impacts: Alternative 2





# Wetland and River Impacts: Alternative 3



# Wetland and River Impacts: Vegetated Wetland Impacts



Alternative	Temp Impacts (sf)	Perm Impacts (sf)	Total (sf)
Alternative 1	0	0	<b>0</b>
Alternative 2*	1816	5641	<b>7457</b>
Alternative 3	710	1826	<b>2536</b>

Alignment Alternative 2 does not comply with WPA performance standard limiting BVW impacts to less than 5000 sf

- May require Variance under WPA, mandatory MEPA Environmental Impact Report (EIR)
- Significant impacts to permitting schedule (18-24 months)



## Wetland and River Impacts: Floodplains



- **Alternative 1 would impact 1.2 acres of BLSF**
- **Alternative 2 would impact 1.3 acres of BLSF**
- **Alternative 3 would impact 1.7 acres of BLSF**

Alternative 1 - Inline



Alternative 2 - Pawtucket - T



Alternative 3 - Old Ferry



**Any impacts to flood storage will be mitigated by providing equivalent compensation areas**

# Open Space and Recreation





## Open Space and Recreation Level of Protection



- **Designated open space and recreation areas may be protected under:**
  - **Section 4(f) of the Department of Transportation Act**
  - **Section 6(f) of the Land and Conservation Act**
  - **Article 97 of the State Constitution**

Site Name	Owner	Section 4(f)	Section 6(f)	Article 97
Lowell Heritage State Park	DCR	Yes	<u><b>Yes</b></u>	Yes
Wang Soccer Field	City of Lowell	Yes	No	Yes
Edwards Street Park	City of Lowell	Yes	No	Yes



Alternative 1 - Inline



Alternative 2 - Pawtucket - T



Alternative 3 - Old Ferry

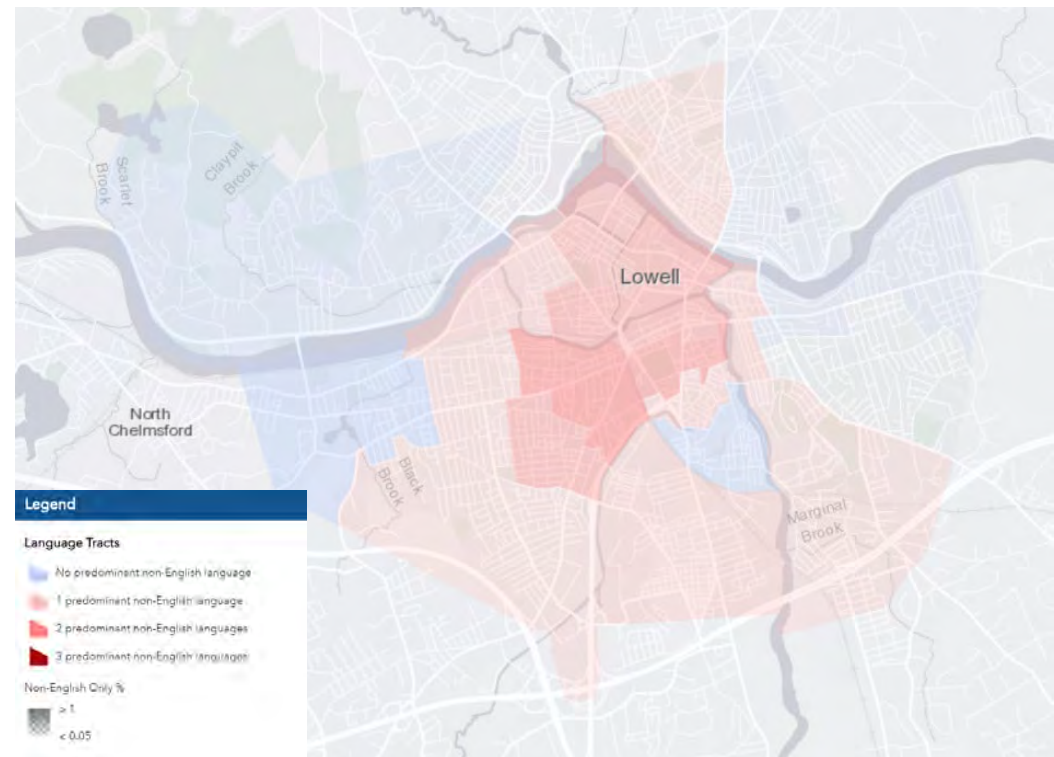




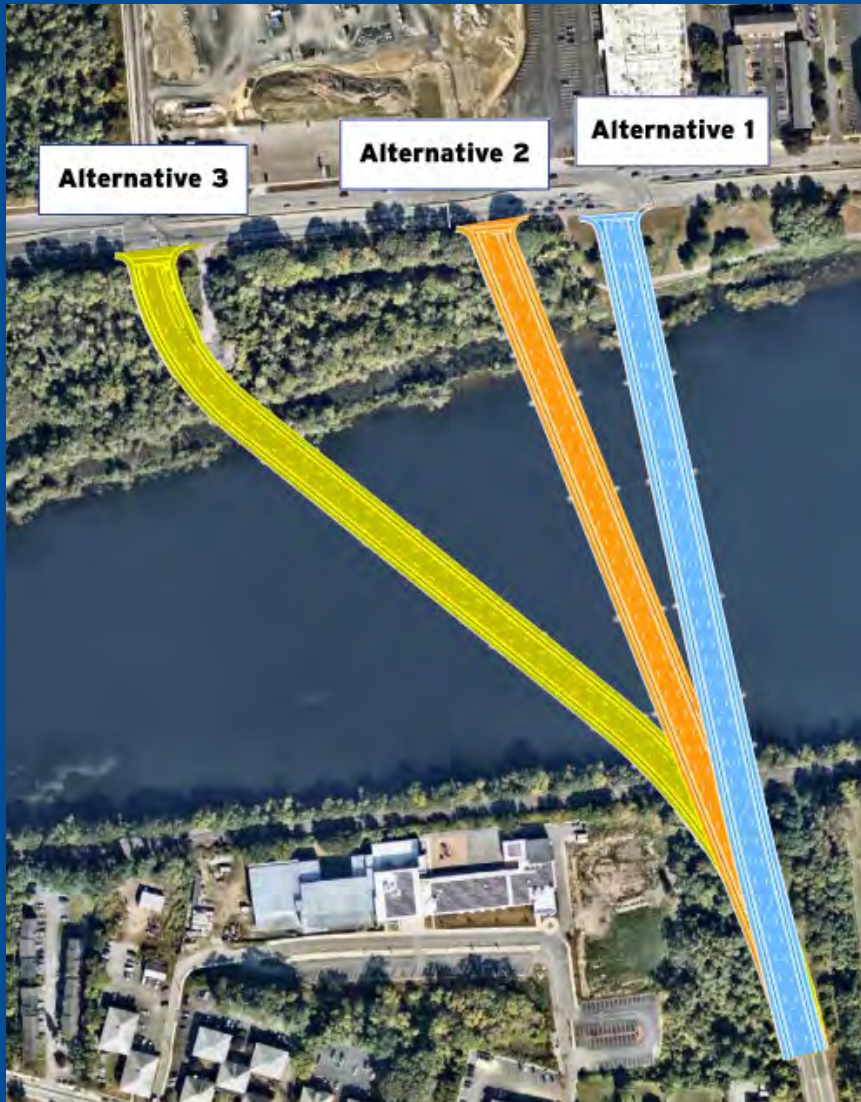
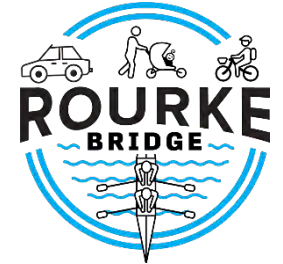
# Environmental Justice



- **Lowell has a diverse population with a large concentration of EJ communities**
- **Will comply with state and federal EJ policy**
- **The Project not anticipated to result in disparate impacts to EJ populations**



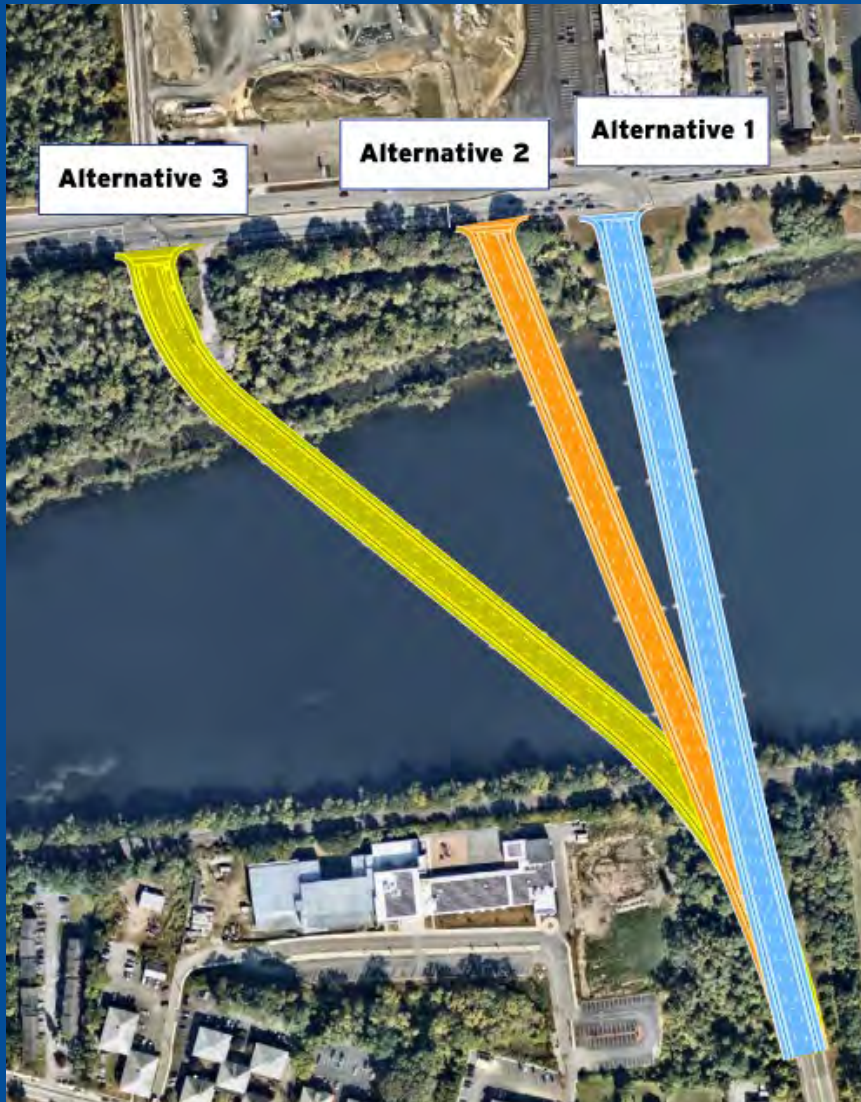
# Environmental Considerations Discussion



**Are there any additional specific environmental issues that should be considered?**



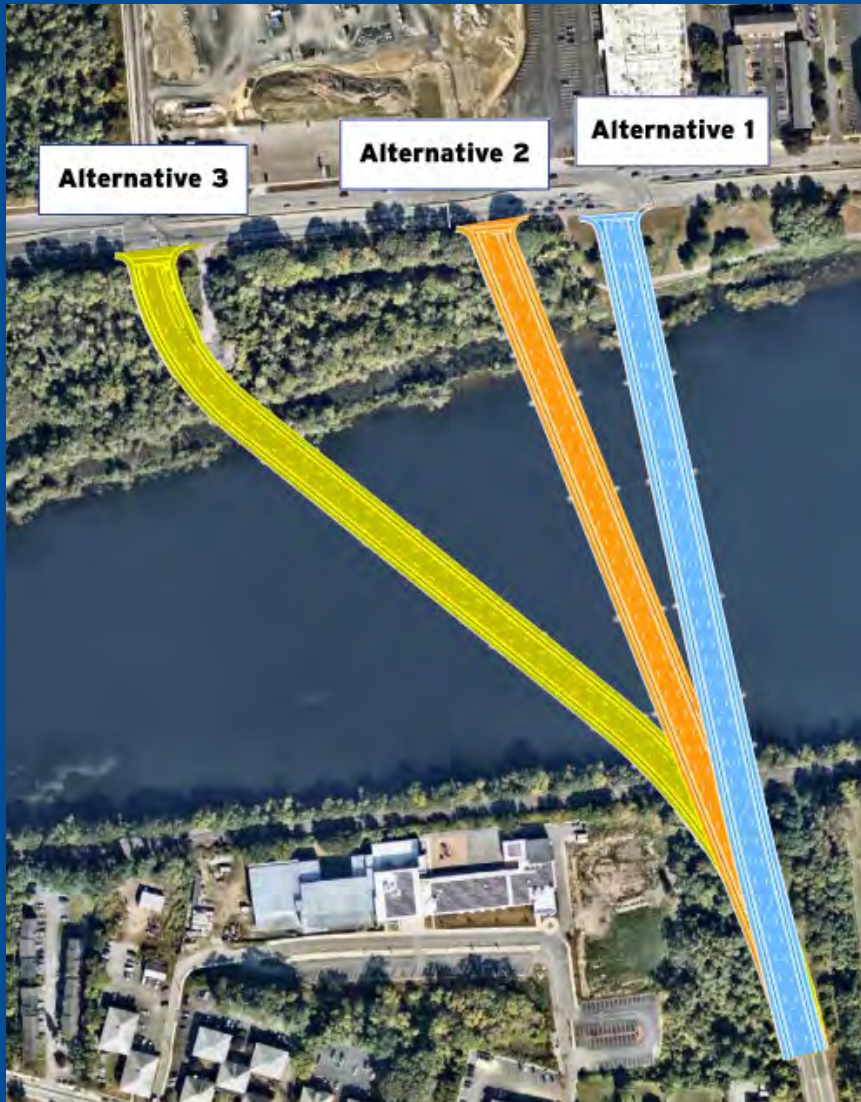
# Environmental Considerations Discussion



**Are there additional stakeholders who have an interest in the environmental components of the project that should be engaged?**



# Cost & Schedule



**There are many factors that will influence the project cost as the design is developed. Examples include structure type and width, number of piers, construction means and methods, etc. For the purposes of providing an “apples-to-apples” comparison of the three alignments the current costs are based on:**

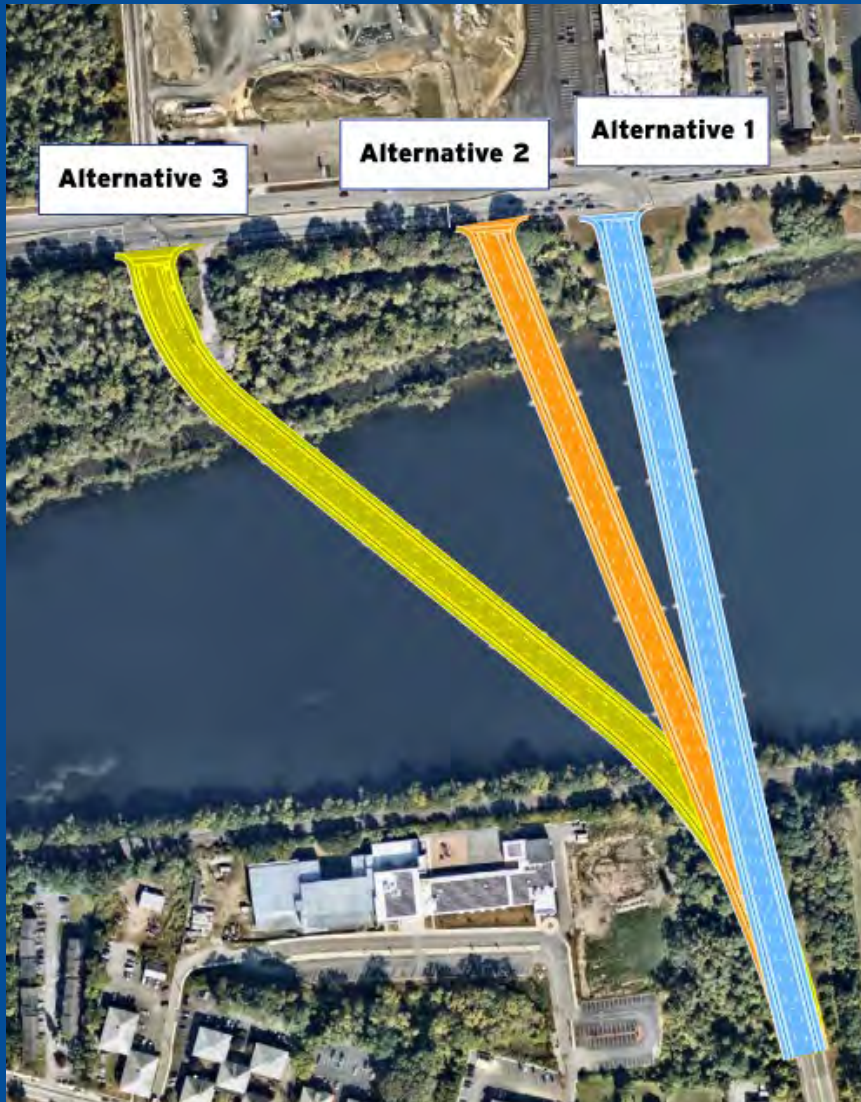
- **84' wide**
- **Steel stringer structure type**
- **Consistent # of piers (6 in-water)**

**Costs are presented in 2020 dollars and exclude escalation, which is typically 4% annually per FHWA guidance but may differ based on current/future economic conditions.**





# Cost & Schedule



## Construction Costs in 2020 Dollars

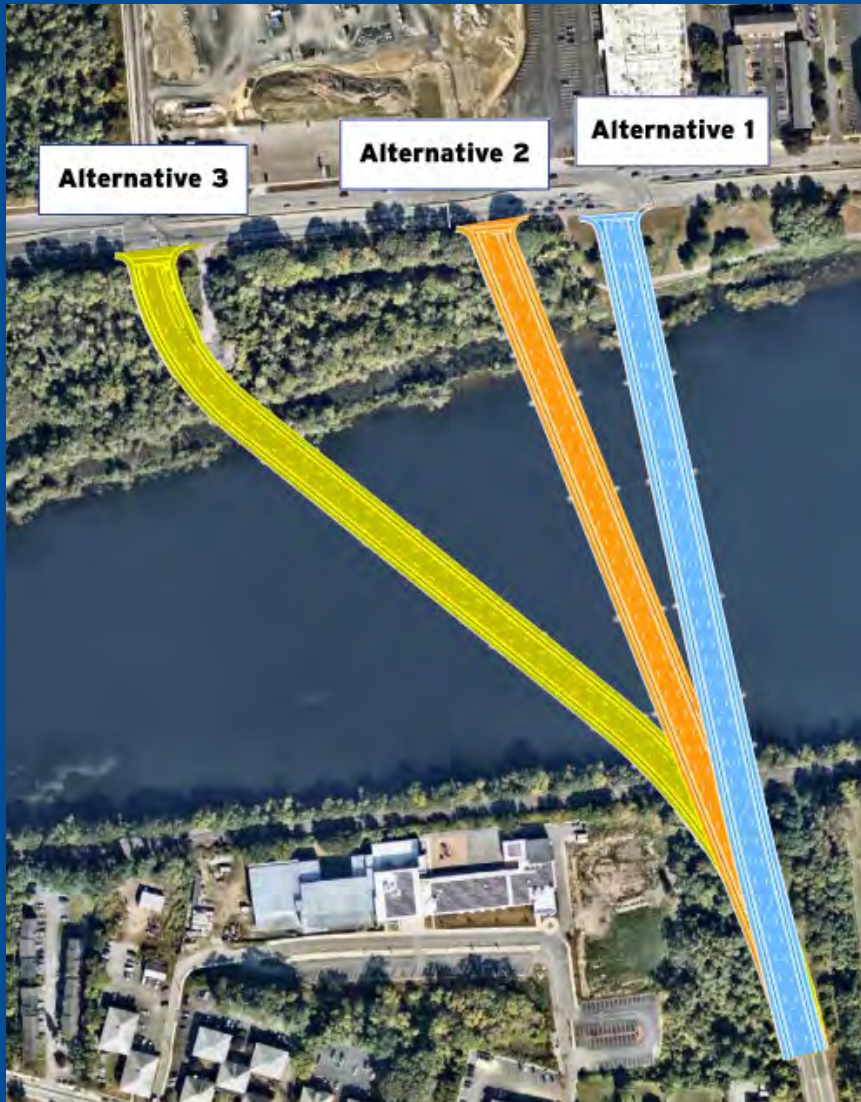
**Alignment 1: \$107M**  
(two stage construction)

**Alignment 2: \$100M**  
(single stage construction)

**Alignment 3: \$114M**  
(single stage construction, longer)



# Cost & Schedule



## CONSTRUCTION DURATION

**Alignment 1: Add 1 year**  
(two stage construction)

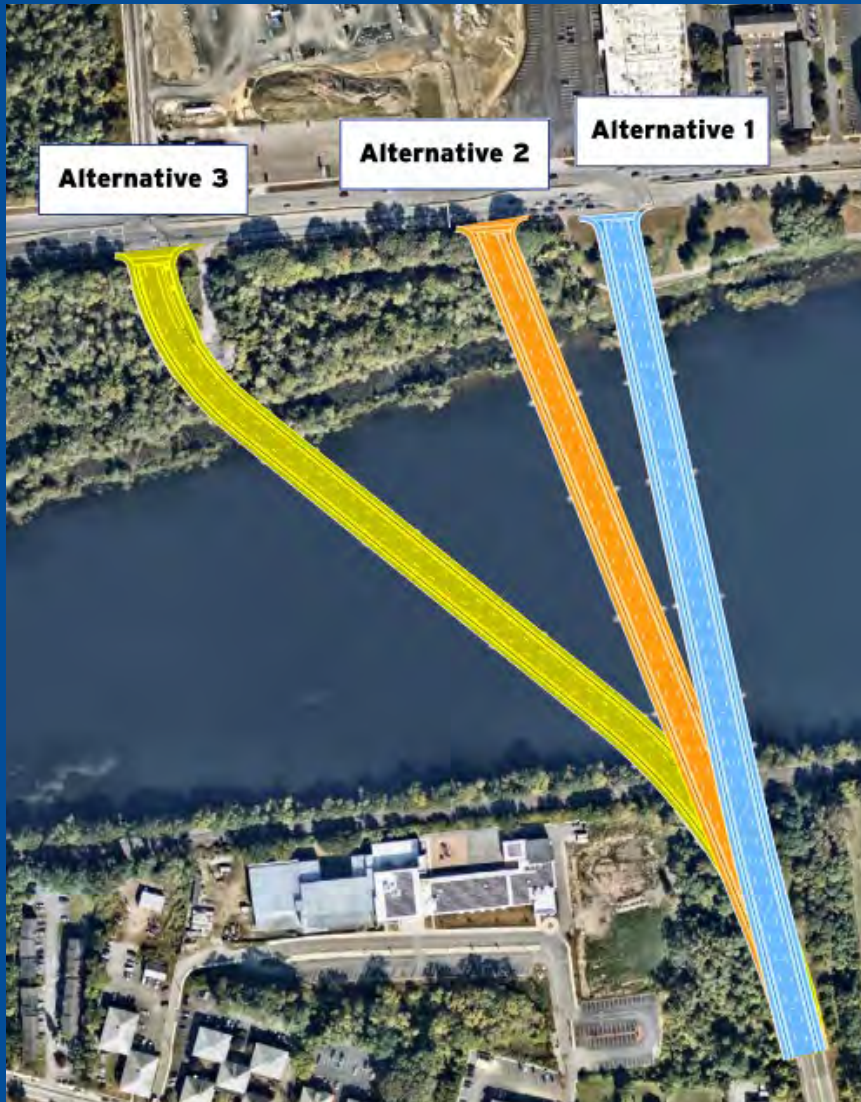
**Alignment 2: Shortest**  
(single stage construction)

**Alignment 3: Shortest**  
(single stage construction, longer bridge)





# Cost & Schedule

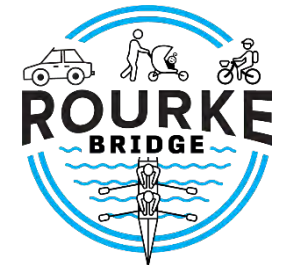


## TIMING OF BRIDGE OPENING

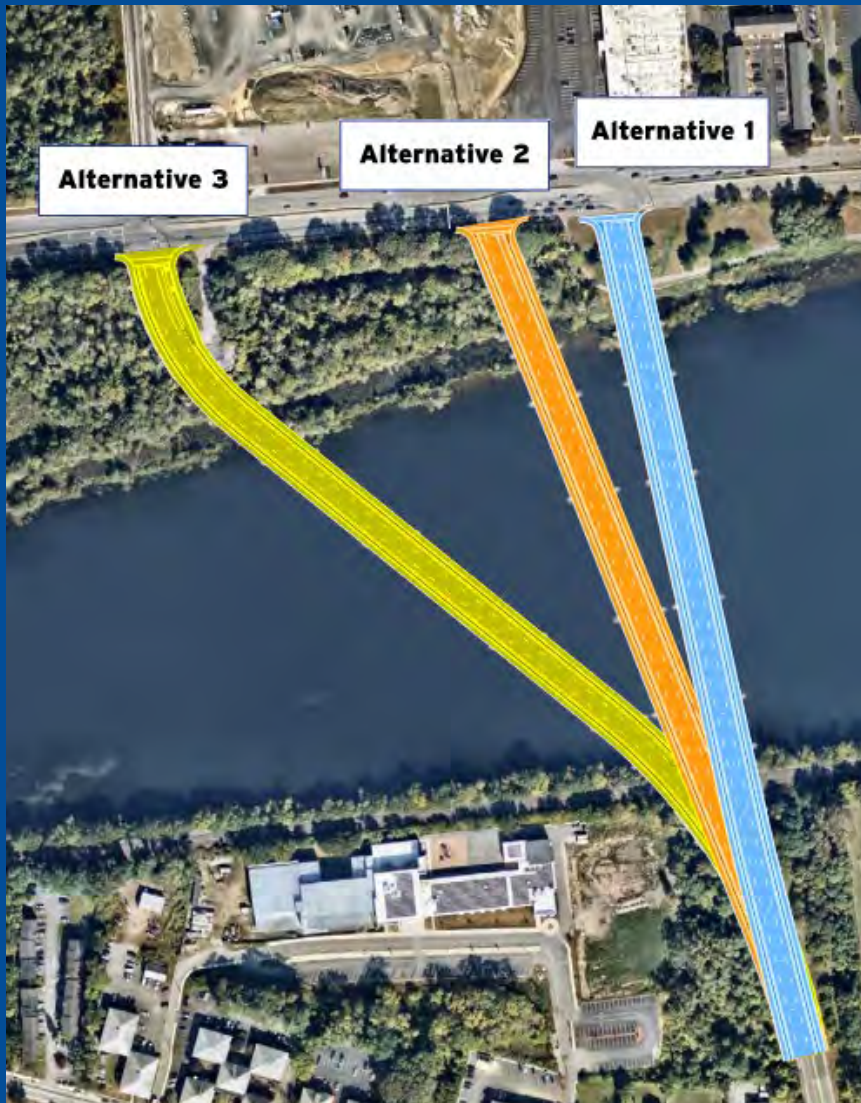
**Alignment 1: Add 1 year**  
(two stage construction)

**Alignment 2: Add 1-2 years**  
(Mandatory EIR & WPA Variance due to wetland impacts >5,000 SF)

**Alignment 3: Shortest**  
(single stage construction, longer bridge)



# Evaluation Criteria for Selection of Preferred Alignment



## POTENTIAL CRITERIA

TRAFFIC OPERATIONS & SAFETY (ALL MODES)  
EMERGENCY RESPONSE TRAVEL TIMES

VIEWS TO/FROM BRIDGE  
PEDESTRIAN AND BICYCLE MOBILITY  
RECREATION AND OPEN SPACE NETWORK  
WATER RECREATION

WETLAND IMPACTS  
RIVER IMPACTS  
PROTECTED OPEN SPACE IMPACTS

CONSTRUCTION COST  
CONSTRUCTION DURATION  
TIMING OF BRIDGE OPENING

**Which are most important to the members of the working group?**

**Are there others that should be considered?**





# **Q&A**

## **for Working Group Members**

10 Minutes

PLEASE USE RAISE HAND FEATURE



# **Q&A**

## **for Public**

10 Minutes

PLEASE USE RAISE HAND FEATURE





# **Thank You!**

**Please provide feedback online  
via the links below:**

<http://tiny.cc/RourkeBridge>