



Round 3 Public Engagement

Cape Cod Bridges Program

November 15/17, 2022

Project File No. 608020



Zoom Webinar Controls for Meeting



- Listen in Spanish and Portuguese



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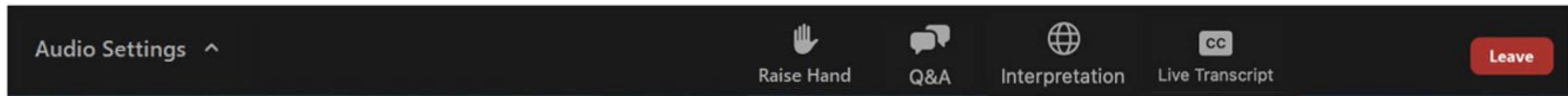
- Closed captioning automatically generated by Zoom

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Public meeting notes and procedures:

Notification of video recording

- This virtual public meeting will be recorded. The Massachusetts Department of Transportation may choose to retain and distribute the video, images, audio, and/or chat transcript.
- All parts of this meeting are considered public record.
- By continuing attendance with this virtual public meeting, you are consenting to participate in a recorded event.
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Important notes

- Your microphone and camera are automatically disabled upon entering the meeting.
- The meeting will be open to questions and answers at the end of the presentation.
- Your feedback is important.

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Thank you for joining our meeting. We appreciate your participation!

Panelists

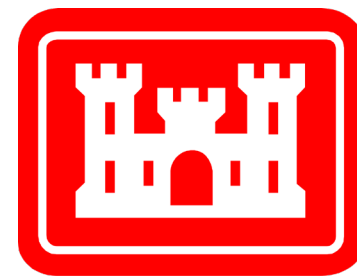
MassDOT

- Bryan Cordeiro, Project Manager
- Mike O'Dowd, Director of Major Projects
- Gareth Saunders, Office of Legislative Affairs Highway Liaison
- Joe Yoo, Producer/Facilitator
- Hung Pham, Producer/Facilitator
- Makaela Niles, Producer/Facilitator



USACE

- Craig Martin, Navigation Section New England District
- Scott Acone, Programs and Project Management Division



**US Army Corps
of Engineers®**

HNTB

- Dave Anderson, Project Manager
- Mark Kolonoski, Deputy Project Manager and Environmental Lead
- John Smith, Lead Bridge Designer

HNTB



Agenda

01 Introduction

02 Public Outreach

03 Draft Program Purpose and Need

04 Program Updates

05 Bridge Type

06 Next Steps



Introduction

Program Team – Agencies

Federal:

- United States Army Corps of Engineers (USACE)
 - Owns and Maintains the Existing Bridges
 - Operates the Cape Cod Canal
- Federal Highway Administration (FHWA)
 - Administers the Federal Aid Highway Program

State:

- MassDOT
 - Will lead the project delivery process, complete the feasibility study and alternatives analysis, preliminary design and environmental permitting process
 - Program Manager – Bryan Cordeiro



U.S. Department of Transportation
Federal Highway Administration

massDOT
Massachusetts Department of Transportation

Continuation of the Major Rehabilitation Evaluation Report (MRER)

- In April of 2020, the USACE completed the MRER
- The USACE prepares a MRER when maintenance costs are expected to exceed \$20 million and take more than two years of construction to complete
- Purpose is to determine whether major rehabilitation or replacement would provide the most reliable, fiscally responsible solution
- The study concluded that there is sufficient justification for pursuing a program of bridge replacement for both the Bourne and Sagamore Bridges
- The potential Bridge Types presented later in this presentation are consistent with the MRER



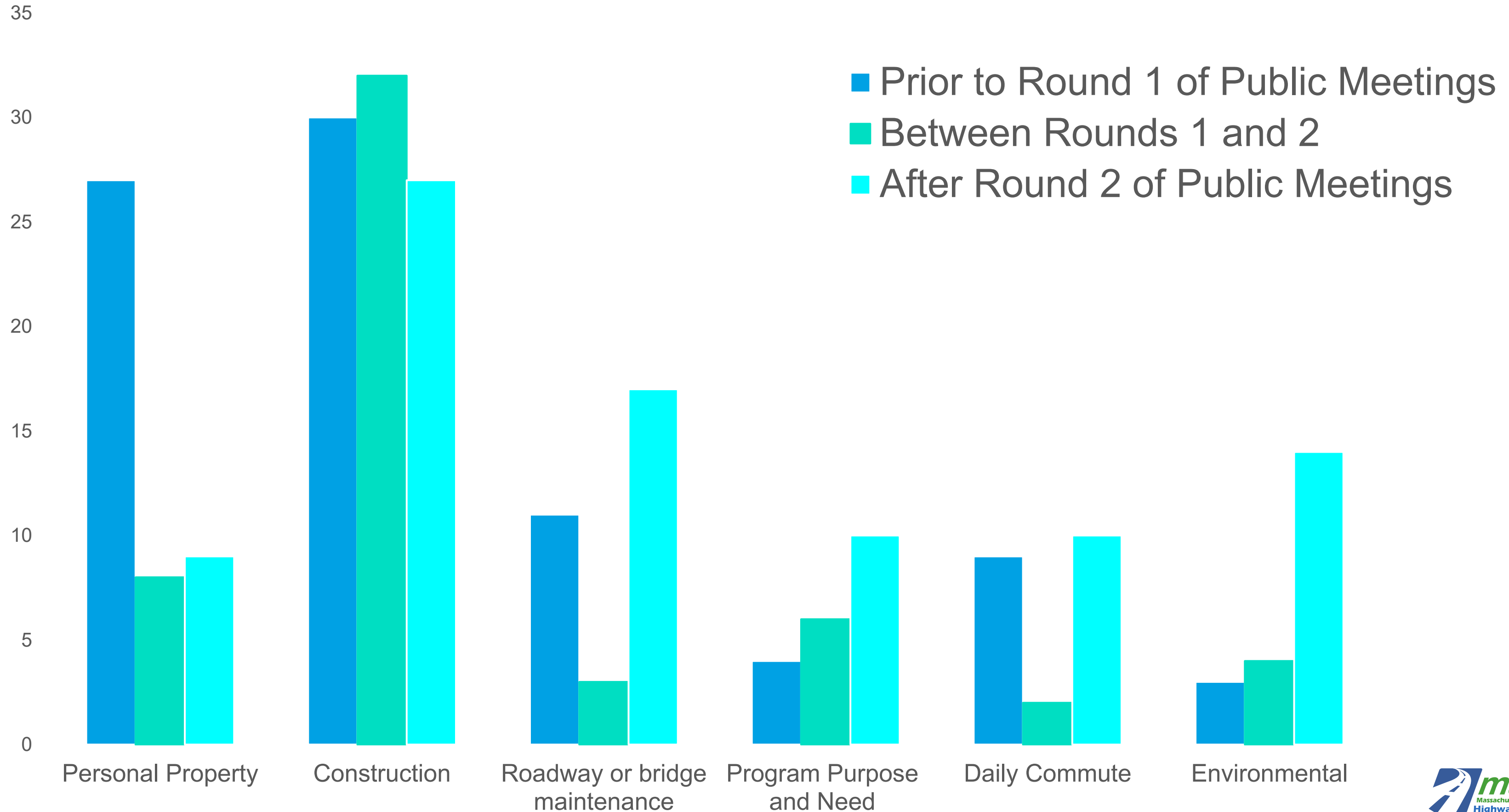
Public Outreach

Virtual Public Meetings

- Round One Public Outreach
 - June 29th and 30th, 2021
 - 346 Total Attendees
 - Topics: Program History, Data Collection, Program Need
- Round Two Public Outreach
 - November 16th and 18th, 2021
 - 159 Total Attendees
 - Topics: Existing Conditions, Purpose and Need, Draft Measures of Effectiveness

The screenshot shows a web form titled "Cape Cod Canal Area Transportation Improvement Program" from the Massachusetts Department of Transportation (MassDOT). The form includes a language selection dropdown, a "Powered by Google Translate" notice, and a "Required" indicator. The main content area contains four numbered sections: 1) A text input field for comments with a "Required" label and a note to avoid personally identifiable information. 2) A selection of topics: "Roadway or bridge maintenance", "Construction", "Personal property", "Daily Commute", "Environmental", "Other", and "Program Need". 3) Personal information fields for "Zip Code", "Last Name", and "Email", each with a "Required" label. 4) A dropdown menu for "Do you have a specific question or concern that you would like a response to?" with the option "Respond to me by e-mail". A "CONTINUE" button with a right arrow is at the bottom. A footer note provides contact information: "If you are having trouble accessing any portion of this page please email pima@massdotpi.com".

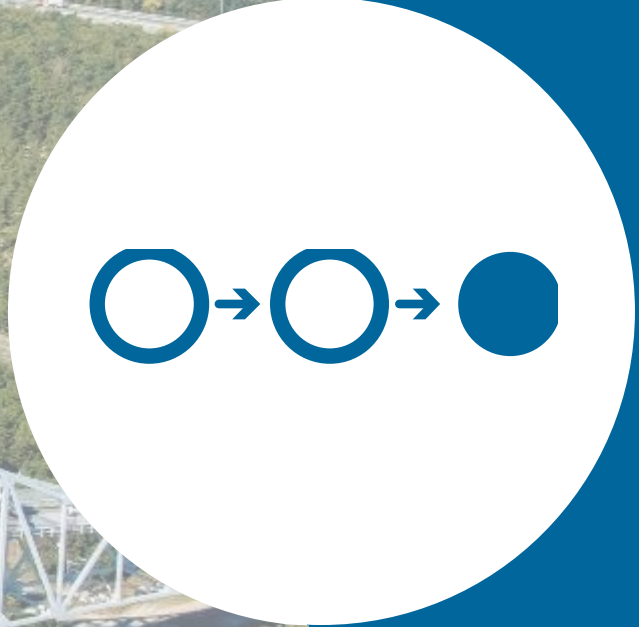
Public Involvement- Themes in Comment



Stakeholder Engagement

- Stakeholder briefings with:
 - Federal Delegation
 - State Delegation
 - Regional Planning Agencies
 - Regional Transit Agencies
 - Chambers of Commerce
 - Municipalities
- Outreach methods
 - Social Media
 - E-mail blasts
 - Press Releases
 - Newspaper Ads
 - Website updates

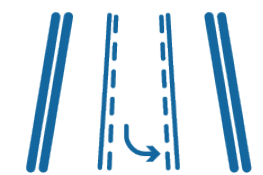




Draft Program Purpose and Need

Draft Program Purpose and Need

- Why the Program Purpose and Need is important
 - Provides a comprehensive understanding of why the project is needed and what it hopes to accomplish
 - A requirement under the National Environmental Policy Act (NEPA)
 - Defines the range of reasonable alternatives
 - Assists in the identification of a preferred alternative
 - Purpose and Need can evolve over time
 - Changes to the Purpose and Need require a reevaluation of feasible alternatives



Draft Program Purpose and Need

- Development Process
 - Incorporated comments received during past public meetings
 - In coordination with federal partners
 - Draft Purpose and Need Statement approved by USACE and FHWA



Draft Program Purpose and Need

“The Purpose of the Cape Cod Bridges Program is to improve cross-canal mobility and accessibility between Cape Cod and mainland Massachusetts for all road users and to address the increasing maintenance needs and functional obsolescence of the aging Cape Cod Canal highway bridges.

The Program will improve traffic operations and multimodal accommodations to facilitate the dependable and efficient movement of people, goods, and services across the Cape Cod Canal.”



Program Updates

Infrastructure Investment and Jobs Act (IIJA)

- On November 15, 2021, President Biden signed into law the Infrastructure Investment and Jobs Act (IIJA)
- IIJA authorized \$1.2 Trillion for transportation and infrastructure (\$350.8B for highway programs) spending over 5 years
- Much of the IIJA funding is available through competitive, discretionary grant programs
- MassDOT and USACE have focused recent efforts on securing project funding through competitive programs

Grant Applications

- On May 23, 2022, the USACE, in partnership with MassDOT, submitted a grant application under the Multimodal Project Discretionary Grant (INFRA and Mega) Program requesting \$1.113 billion
- On August 9, 2022, the USACE, in partnership with MassDOT, submitted a grant application under the Bridge Investment Program requesting \$1.882 billion.
- MassDOT was informed that funding will **not** be awarded to the Program in this round of INFRA grants
- Award announcement of Mega and BIP is expected in the near future
- MassDOT and USACE will continue to monitor for future grant opportunities

Program Updates – Recent and Ongoing Activities

- Pilot Soil Investigations
- Analyzed Potential Bridge Types
- Began Investigations on a Range of Roadway Alternatives
- Traffic Safety Analysis
- Future Year Traffic Analysis
- Utility Coordination
- NEPA Class of Action Coordination
- Execution of Section 106 Programmatic agreement between USACE and Mass Historic Commission





Bridge Type

Bridge Type – Design Considerations

- Lane configurations and roadway alignments will be discussed at future public meetings
- All potential bridge types we will present tonight will work with any potential lane configuration or alignments.
- Lane Configurations we will be presenting are consistent with what was developed in the USACE MRER report, but do not imply any final decisions have been made.

Bridge Type – Program Requirements

- Maintain 2 lanes in each direction at each crossing during construction
- Maintain all existing local roadway connections during construction
- Get traffic off existing bridges as soon as possible to avoid disruption of having to perform extensive repairs on aging Sagamore and Bourne bridges
- Bridge Types shall be chosen that minimize impacts to Canal Operations
- Provide a sidewalk during construction and a Shared Use Path for pedestrians and bicycles in the final condition

Bridge Type – Twin Bridges at Each Crossing

- Twin Replacement bridges at each location:
 - Quickest way to get traffic off the existing Sagamore and Bourne bridges
 - Best maintains traffic flow during construction
 - Best preserves all local connections during construction
 - Are structurally more efficient with a shallower structure depth than a single bridge
 - Are more easily constructed

Example of Twin Bridge Configuration

MassDOT Whittier Bridge, I-95 over Merrimack River

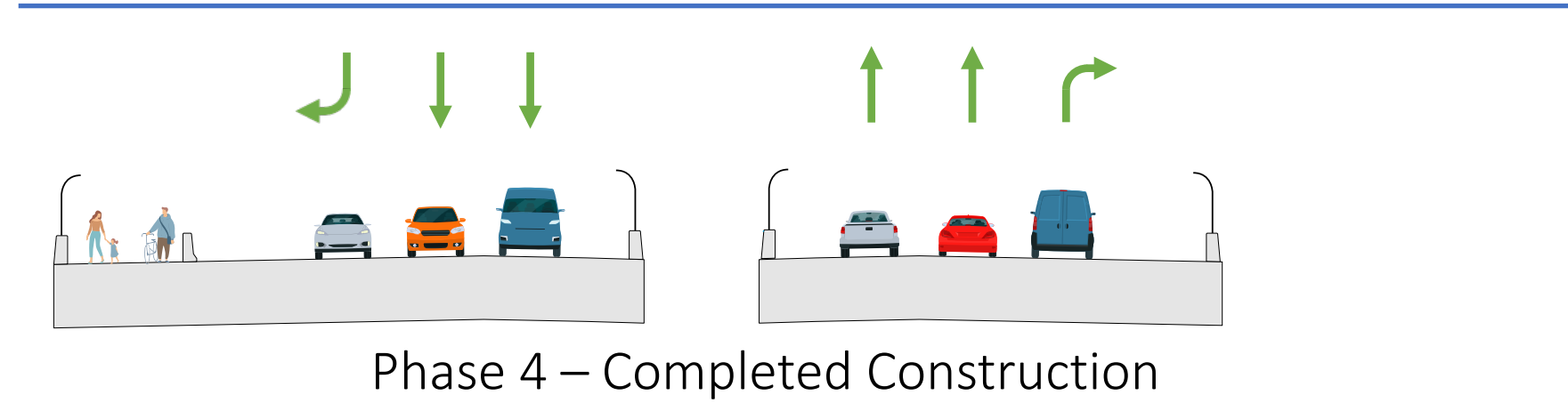
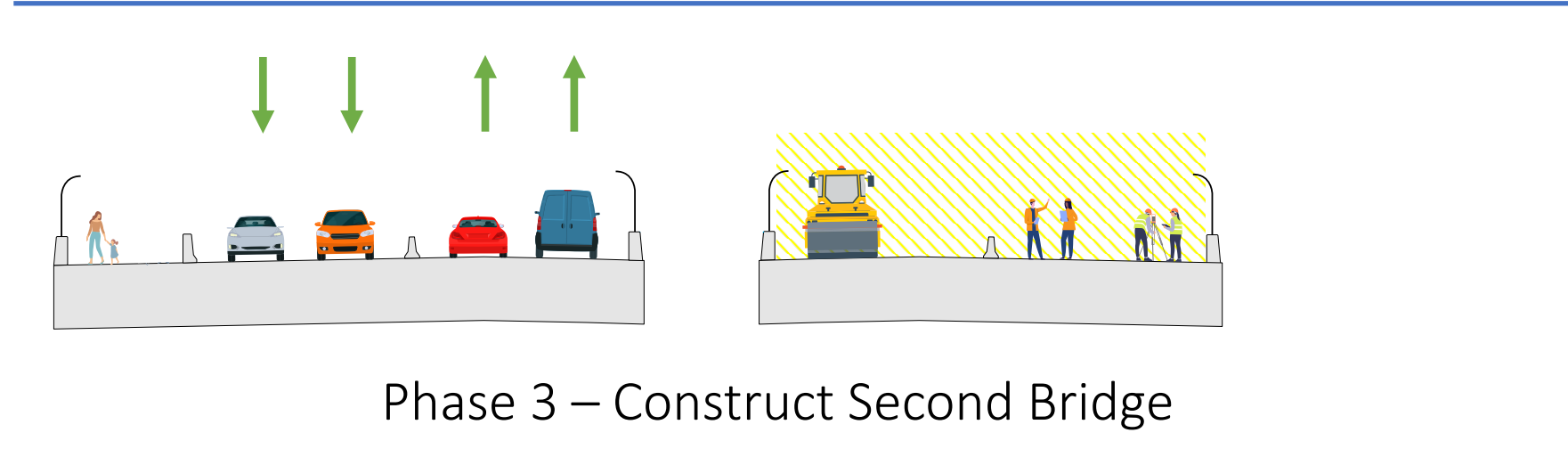
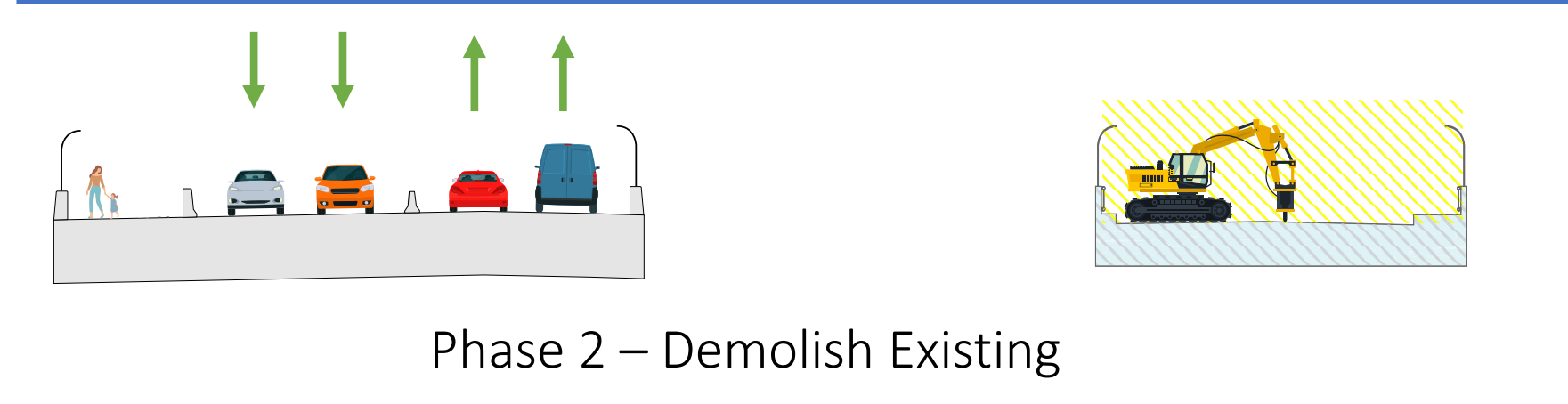
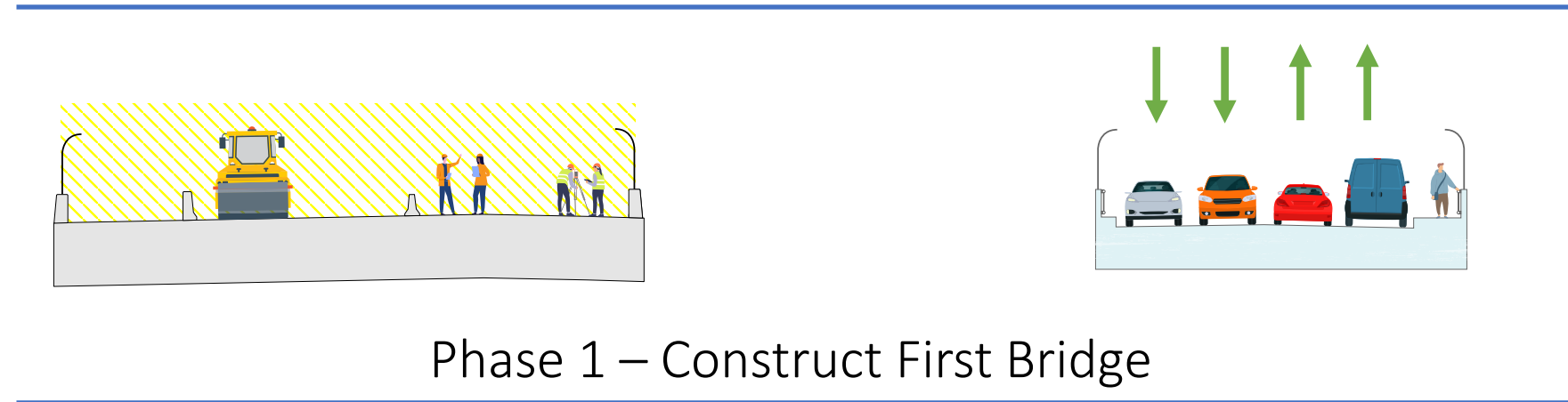
Staged traffic condition



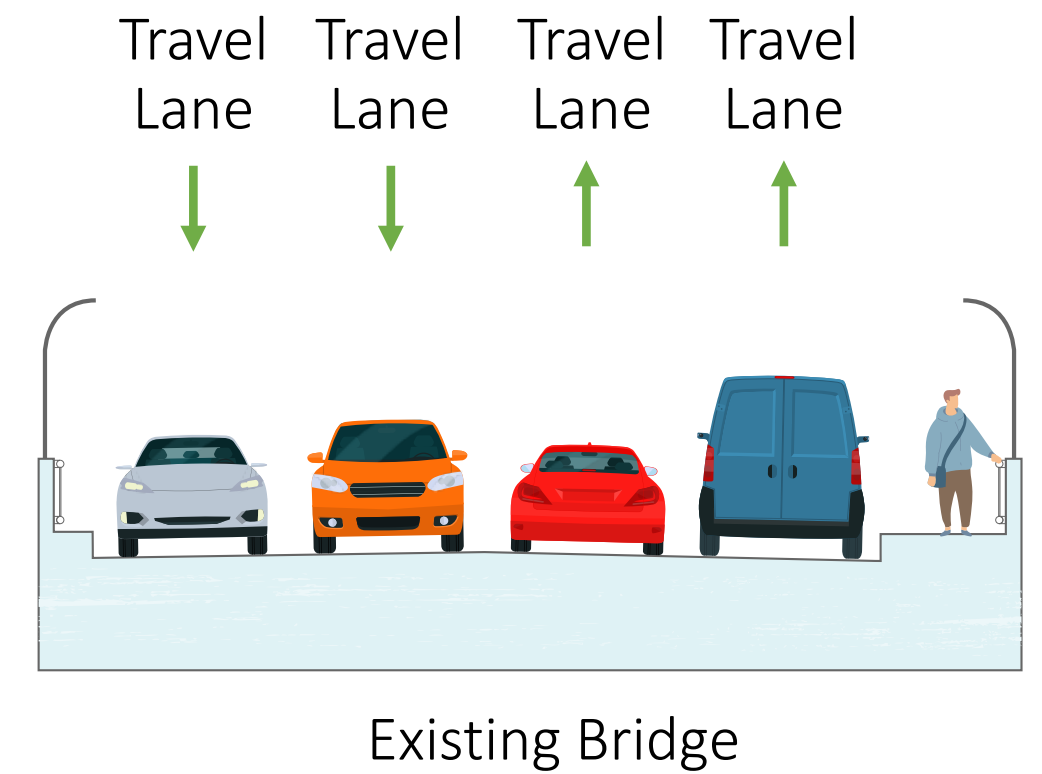
Final traffic condition



Conceptual Construction Staging - Twin Bridges at Each Crossing

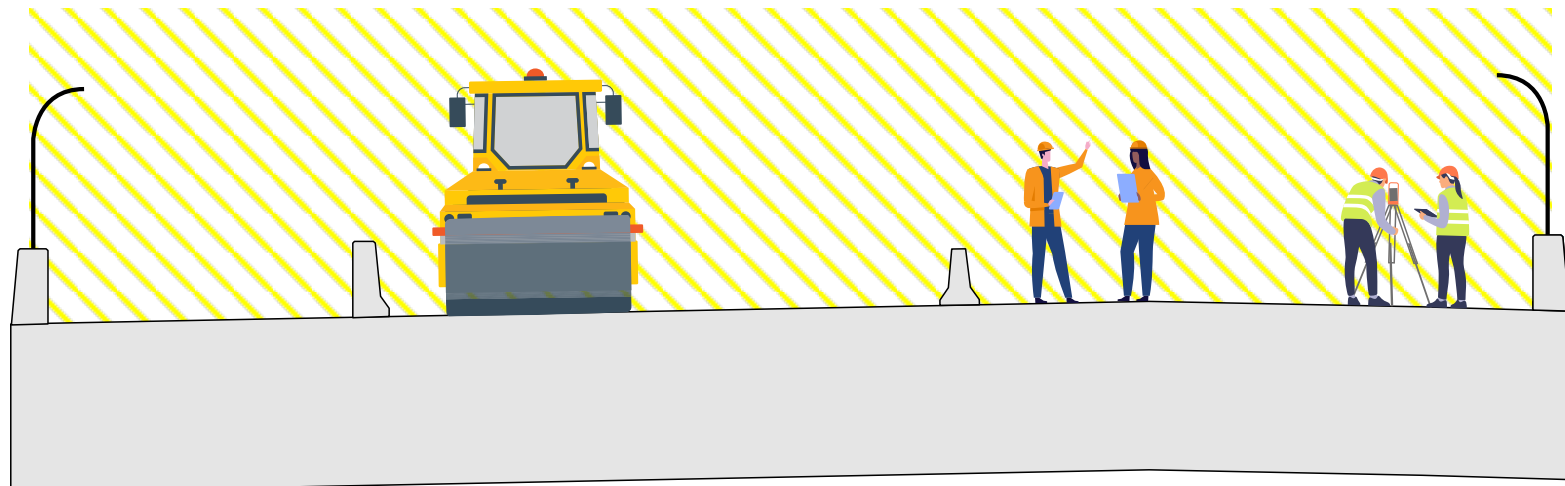


Conceptual Construction Staging - Twin Bridges at Each Crossing

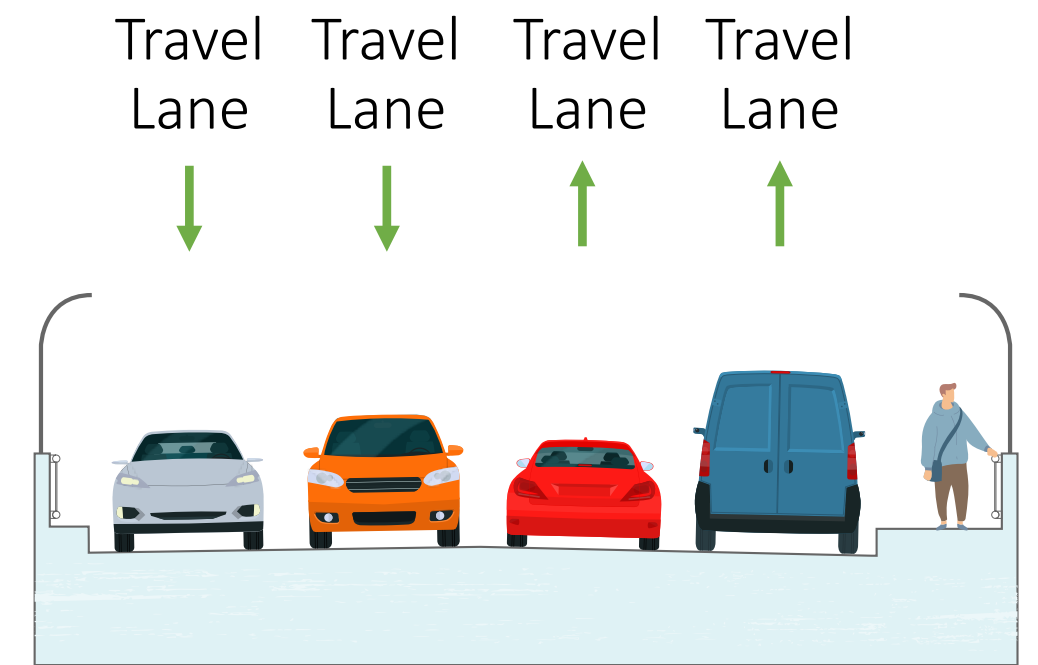


Existing Bridge

Conceptual Construction Staging - Twin Bridges at Each Crossing



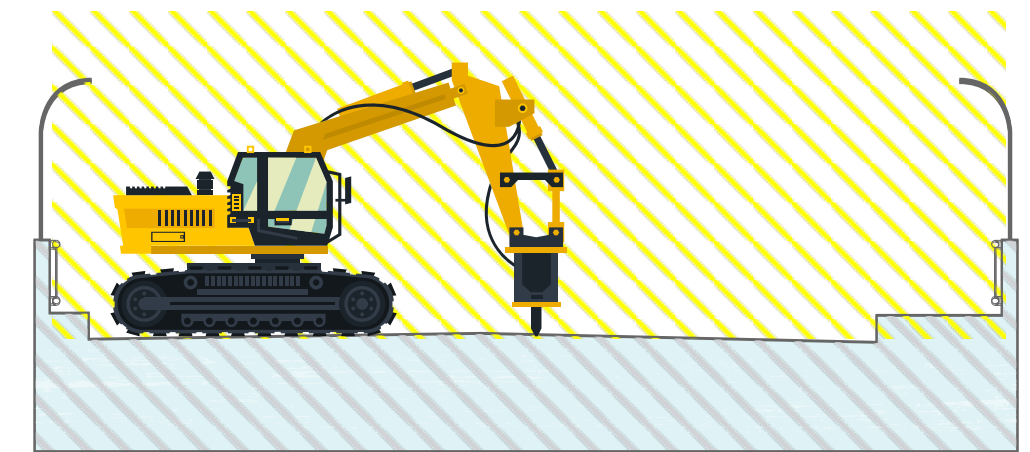
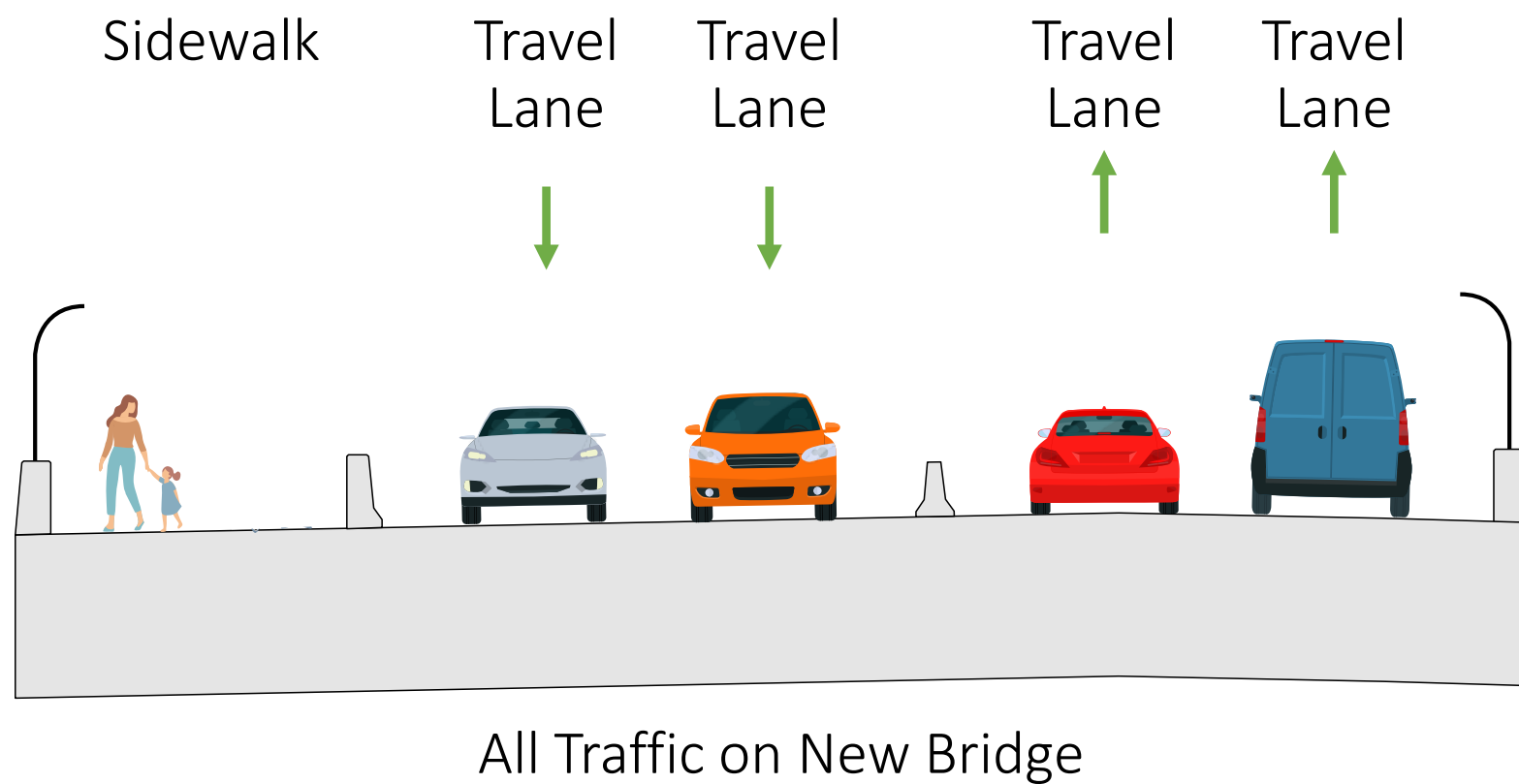
First Bridge Under Construction



Existing Bridge

Phase 1 – Construct First Bridge

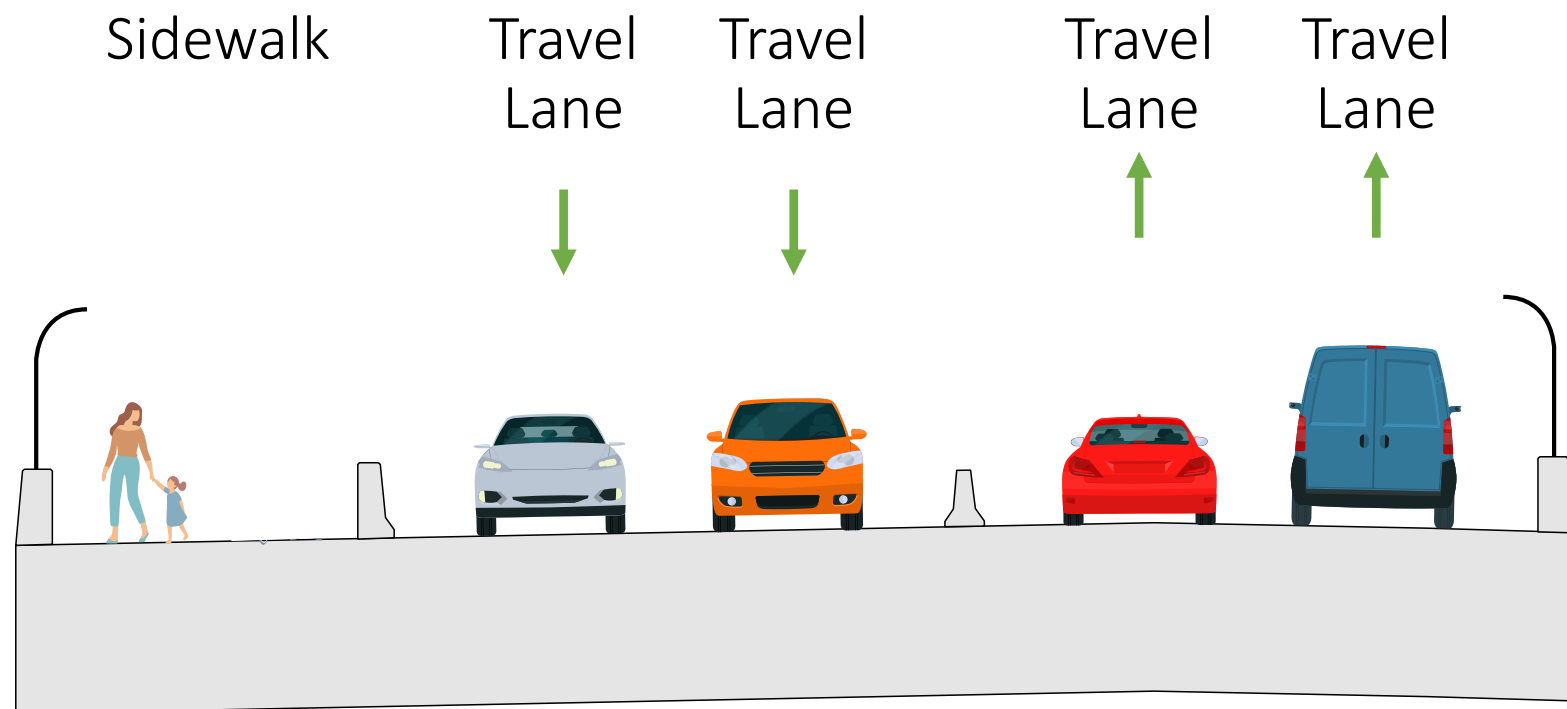
Conceptual Construction Staging - Twin Bridges at Each Crossing



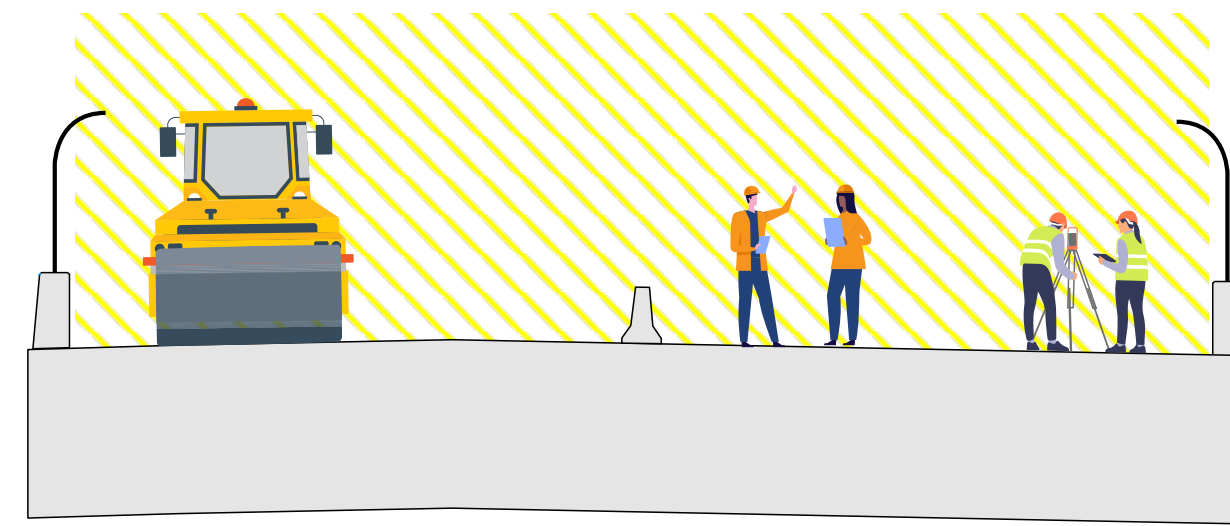
Demolish Old Bridge

Phase 2 – Demolish Existing

Conceptual Construction Staging - Twin Bridges at Each Crossing



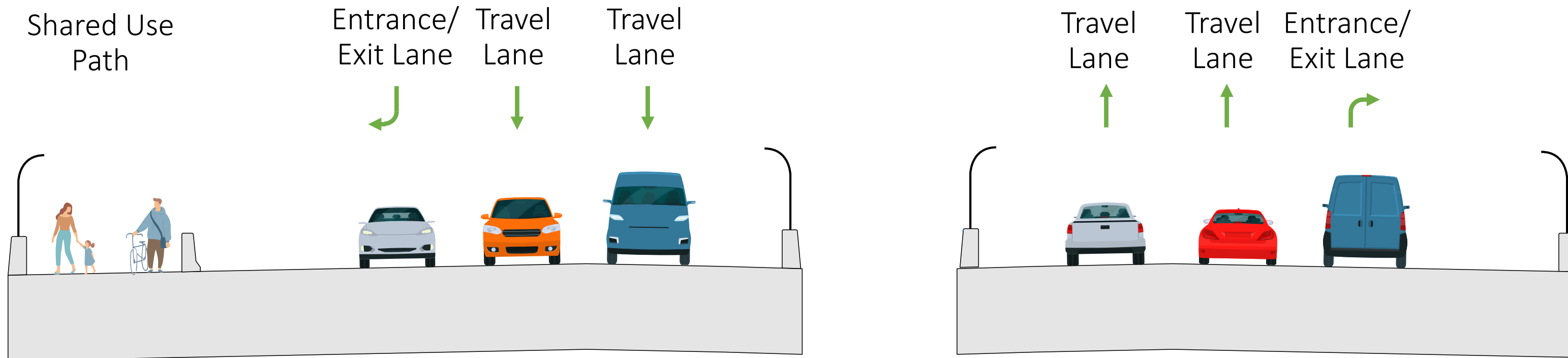
All Traffic on New Bridge



Construct Second Bridge

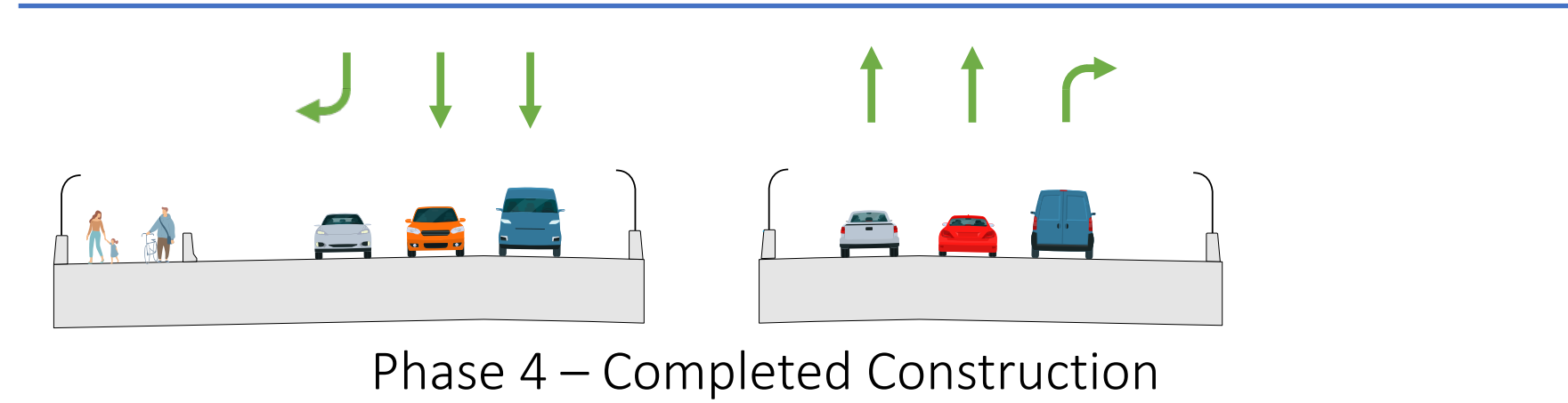
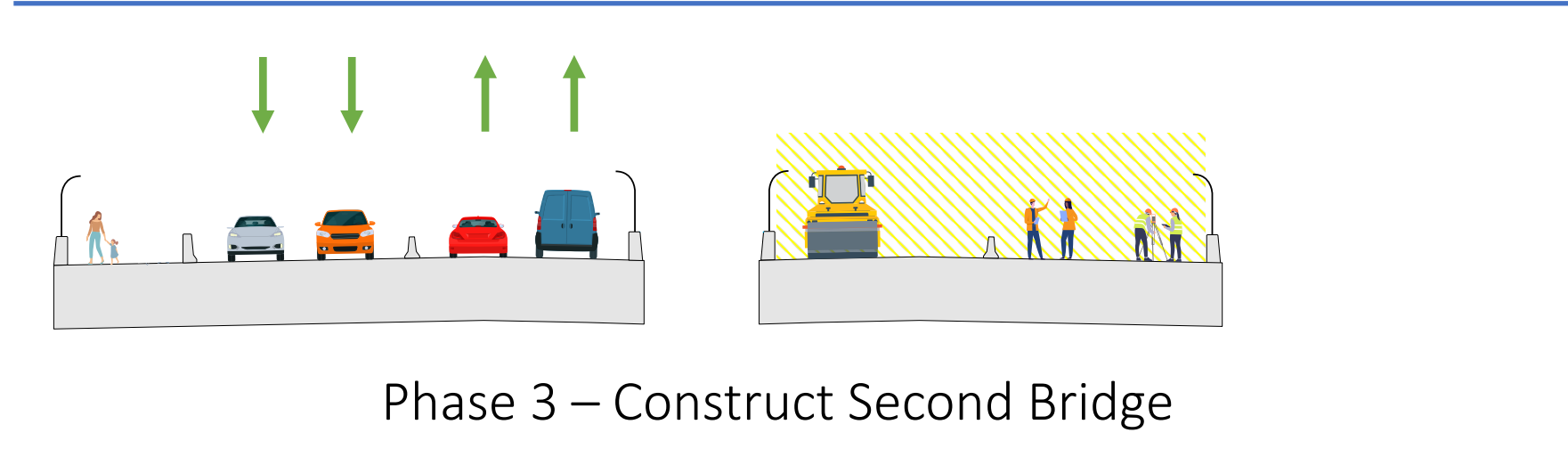
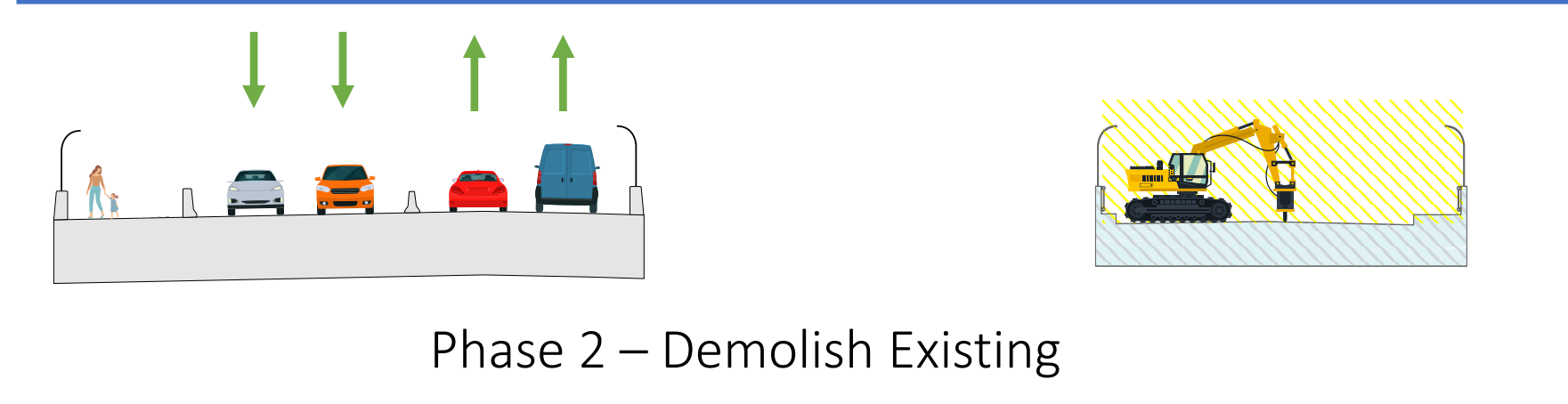
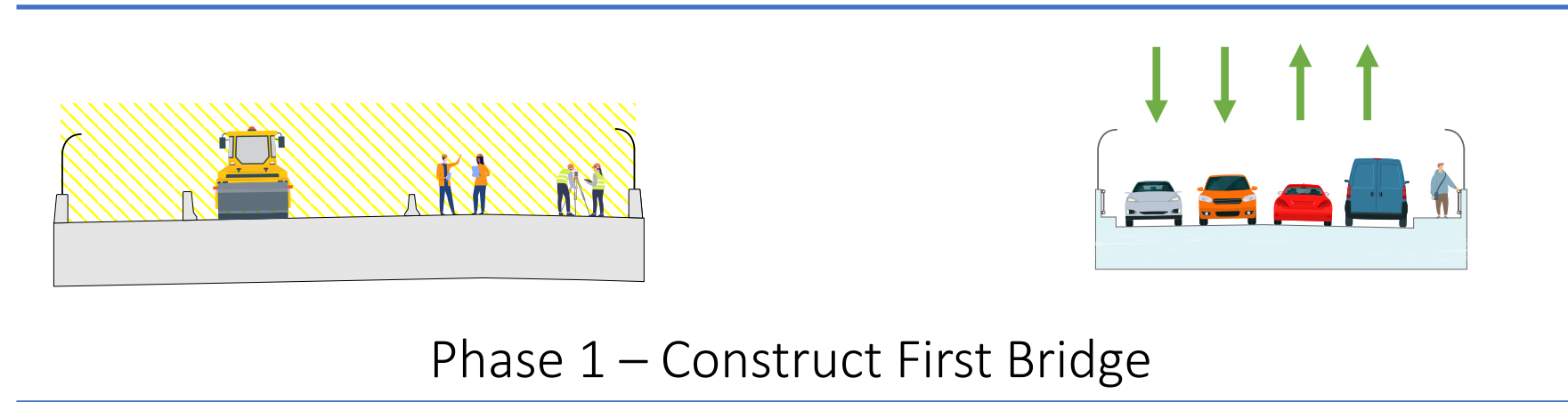
Phase 3 – Construct Second Bridge

Conceptual Construction Staging - Twin Bridges at Each Crossing



Phase 4 – Completed Construction

Conceptual Construction Staging - Twin Bridges at Each Crossing



Bridge Types – Existing Bridges



Bridge Types – Existing Bridges



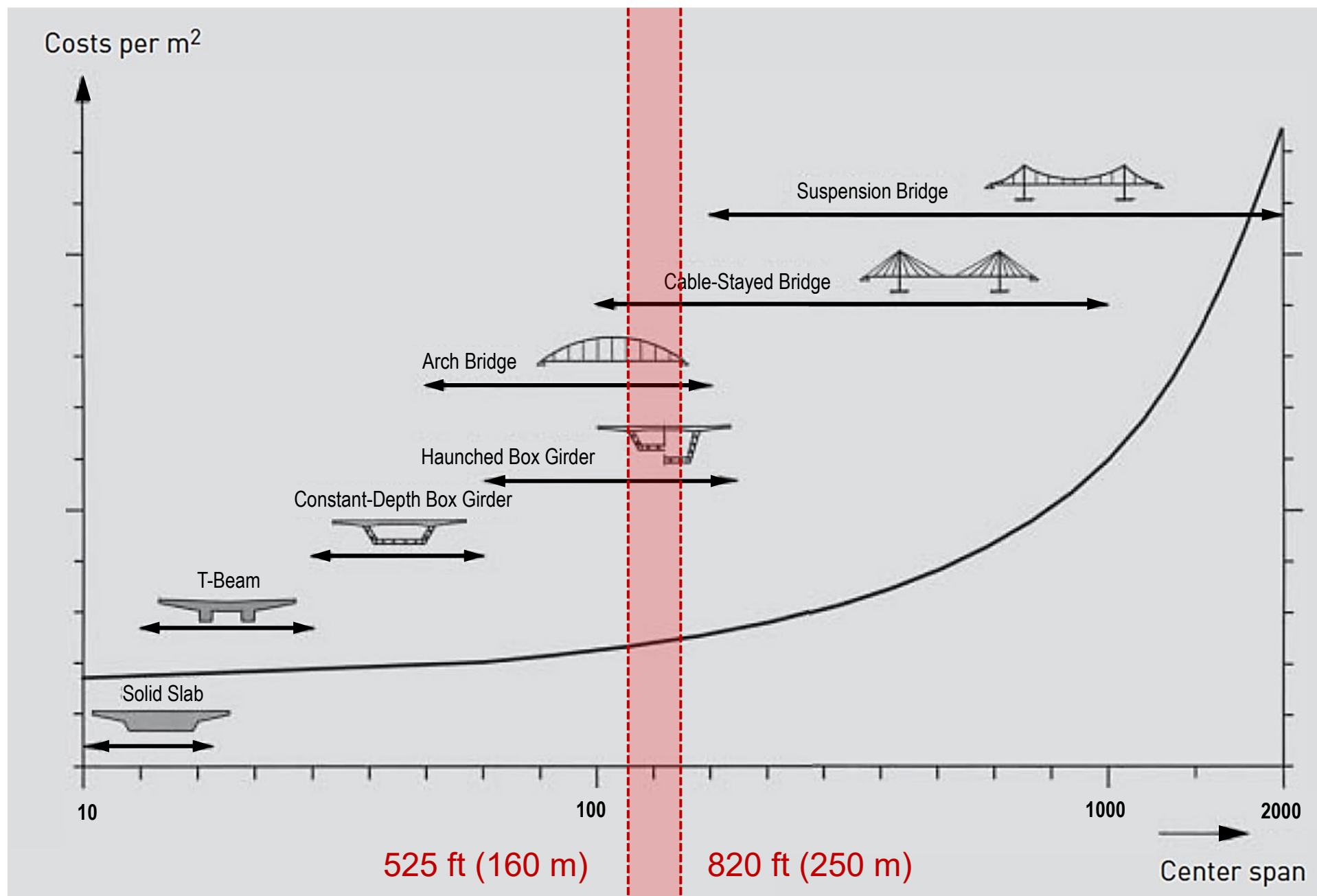
Iconic Existing Bridges

- Well recognized Gateways to Cape Cod
- Arch main spans emphasize the crossing of the Canal
- Arch forms visually consistent with the surrounding terrain
- State of the art structures in the 1930's



Feasible Bridge Types – Preliminary Engineering Assessment

Tied Arch	Tied Arch with Delta Frame	Truss	Two-Tower Cable Stayed	Single-Tower Cable Stayed	Box Girder	Suspension Bridge



Adapted from Svensson, H., *Cable-Stayed Bridges – 40 Years of Experience Worldwide*, Ernst & Sohn, 2011



Screening Criteria

Concrete Box Girder

- Lack of gateway experience for the driver
- Massive concrete structure is a departure from the graceful existing steel bridges
- May not be consistent with historic context and may have adverse effect to Cape Cod Canal Historic District
- Best performance under wind loading
- Construction would not affect canal operations
- Structure depth leads to longer approaches and more impacts to the surrounding area
- Largest foundations which increase construction risk
- Extended construction schedule because of cold weather sensitivity



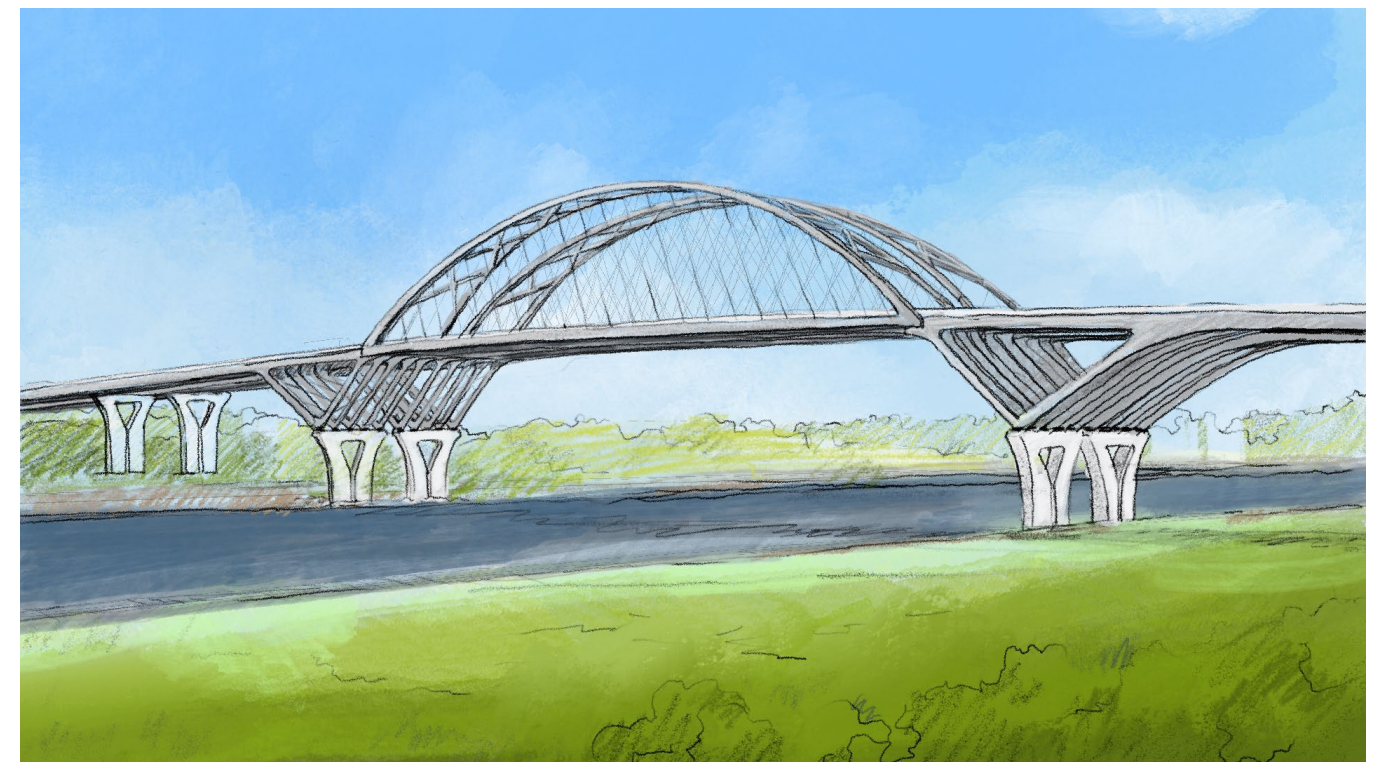
Cable Stayed

- Form is a significant departure from the visual character of the existing structure
- Visual clutter of twin bridge cable arrangement
- Tall towers emphasize canal edges instead of crossing
- Construction would not affect canal operations
- May not be consistent with historic context and may have adverse effect to Cape Cod Canal Historic District
- Requires long cable-supported back spans adding to cost and requiring steeper ramps
- Vulnerable to wind throughout construction



Arch

- Provides iconic portal, similar to the existing bridges
- Has a kinship with the existing bridge form and surrounding terrain
- Would likely be consistent with historic context and avoid adverse effect to the Cape Cod Canal Historic District
- Best able to accommodate ramp connections with smallest project footprint
- Arch built offsite and floated in will accelerate project schedule
- Construction can be easily adapted to wind conditions
- Innovative, state of the art structural system



Bridge Types

- Public input is being requested on the bridge type
- Public feedback will be shared at the next public meeting



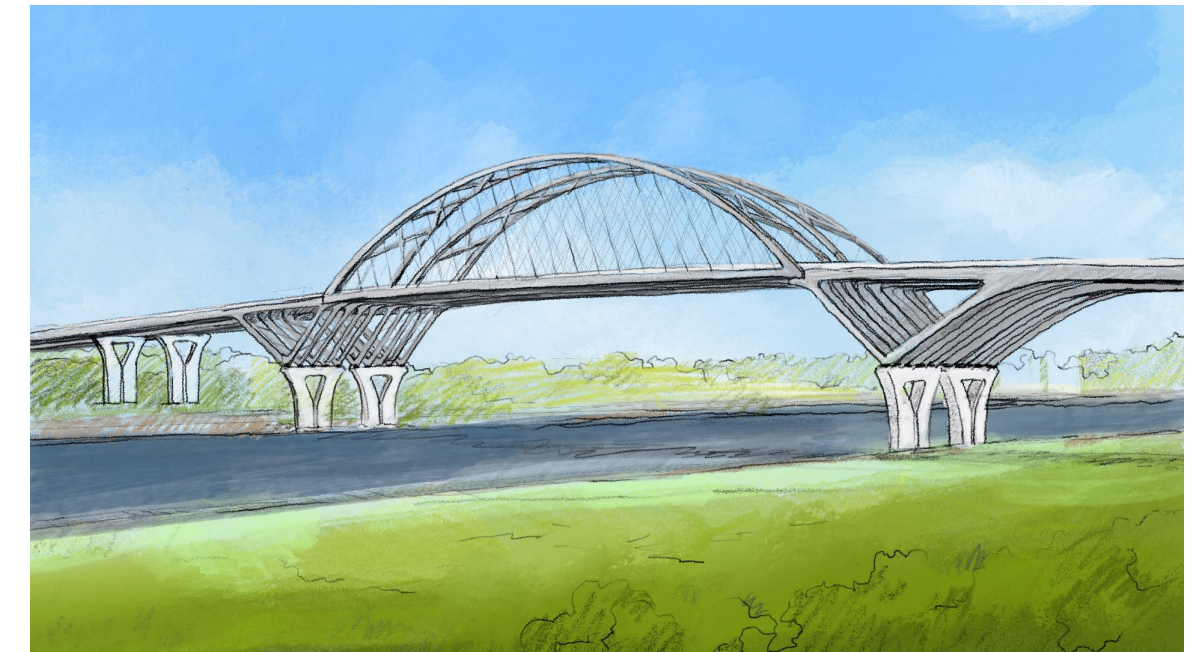
Existing



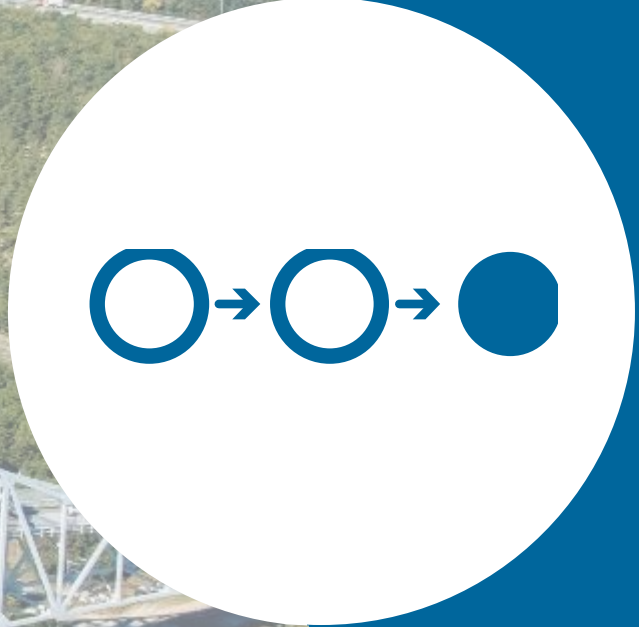
Concrete Box Girder



Cable Stayed



Arch



Next Steps

Next Steps

- Seeking input from the public
 - Comment Tool and Survey
- Continue Program Development
 - Conceptual Roadway Alternatives
 - Environmental Coordination
- Monitor Federal Grant Opportunities
- Massachusetts Environmental Policy Act (MEPA)/National Environmental Policy Act (NEPA) Reviews
- Public Outreach
 - Round 4 Meetings – Quarter 1 2023
 - Update on Public Input/Feedback
 - Feasible Alternatives
 - Continue Stakeholder Engagement



Take Our Bridge Type Survey!



**How will we
keep you
informed?**

Communications

For General Information, Visit the Project Website:

www.mass.gov/cape-bridges

To Leave a Comment Online, Visit:

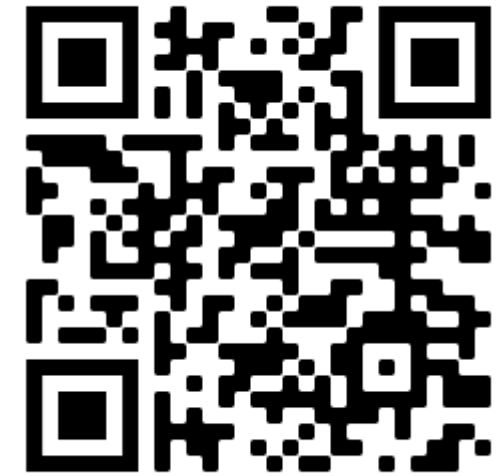
pima.massdotpi.com/public/comment/project-comment-dynamic?project_id=13868

To Submit a Comment by Mail, Write to:

Carrie Lavalley, P.E., Chief Engineer
Suite 6340, 10 Park Plaza, Boston, MA 02116,
Attention: Project Management, Project File No. 608020

or Email:

MassDOTMajorProjects@dot.state.ma.us





Questions and Discussion

Share Your Questions and Comments



Chat



- Submit your questions and comments; Alt+H
- “Raise your hand” to be unmuted for verbal questions; Alt+Y
- Please state your name before your question
- Please share only **1** question or comment at a time, limited to **2** minutes, to allow others to participate.
- To ask a question via phone, dial *9 and the moderator will call out the last 4-digits of your phone number and unmute your audio when it is your turn.
- Please take a moment to take the survey on your experience after this meeting

Please be advised that all comments are subject to disclosure for public records, therefore use these functions for project-related business only.



Thank You

Cape Cod Bridges Program

November 15/17, 2022

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