



Public Advisory Committee Meeting

Seabrook-Hampton Bridge Project
Project No. 15904

December 4, 2018



Innovative Planning
BETTER COMMUNITIES

Agenda



- Welcome and Introductions
- Last PAC Meeting (November 13, 2018)
- Goals of Today's Meeting
- Review of Roadway Alignments and Profiles
- Next Steps
 - ▶ Abutters, Cultural Resources & Public Information Meetings in December & January

What we covered at the last PAC meeting



- Two Rehabilitation Alternatives under consideration
 - ▶ Replacement of full superstructure to widen bridge
 - ▶ Second movable bridge
- Bridge would need to be modified to carry modern design loads
- In order to widen bridge, entire superstructure would need to be replaced
- 15 vessels responsible for approximately 90% of lifts based on current usage



Bridge open to allow for vessel passage

What we covered at the last PAC meeting



- Traffic study showed:
 - ▶ Current congestion not related to bridge itself
 - ▶ Congestion at Ashworth Ave and Ocean Boulevard due to U-turn movement
 - ▶ Current and future vehicle counts well below current lane capacity
 - ▶ Traffic distribution doesn't support 3-lane configuration
 - ▶ Additional lanes wouldn't improve access for emergency vehicles

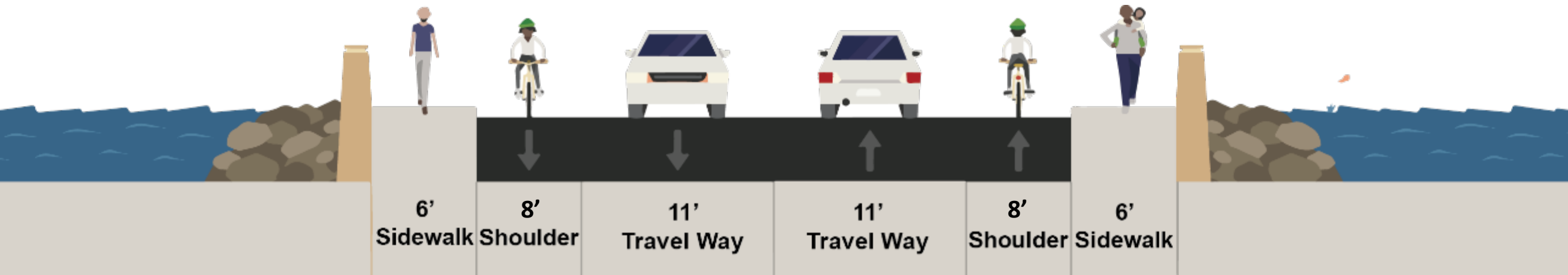


Looking down at bascule span

Typical Roadway Section



- Project Team received general agreement from PAC members on the following cross section:
 - ▶ 2 travel lanes
 - ▶ 8' shoulders
 - ▶ 6' sidewalks with bumpouts
- Study moving forward using this roadway cross section, subject to further review and approval



Today's Meeting Goals

- Capitalize on feedback and knowledge of PAC
- Provide introduction of working options
- Receive feedback to inform process moving forward
- Select roadway alignments for further study
 - ▶ Focus on roadway users, impacts of bridge/roadway reconstruction, constructability and cost



Looking North Into Hampton

Roadway and Bridge Design Criteria



- Navigational Clearance
- Traffic Operations & Typical Section
- Horizontal Alignments
- Roadway and Bridge Vertical Change
- Cost
- Constructability
- Environmental and Cultural Resources
- Other Elements that affect Costs and Schedules
 - ▶ Utility Relocation and Impacts
 - ▶ Right-of-Way Acquisition



Looking Northwest

Key Variables

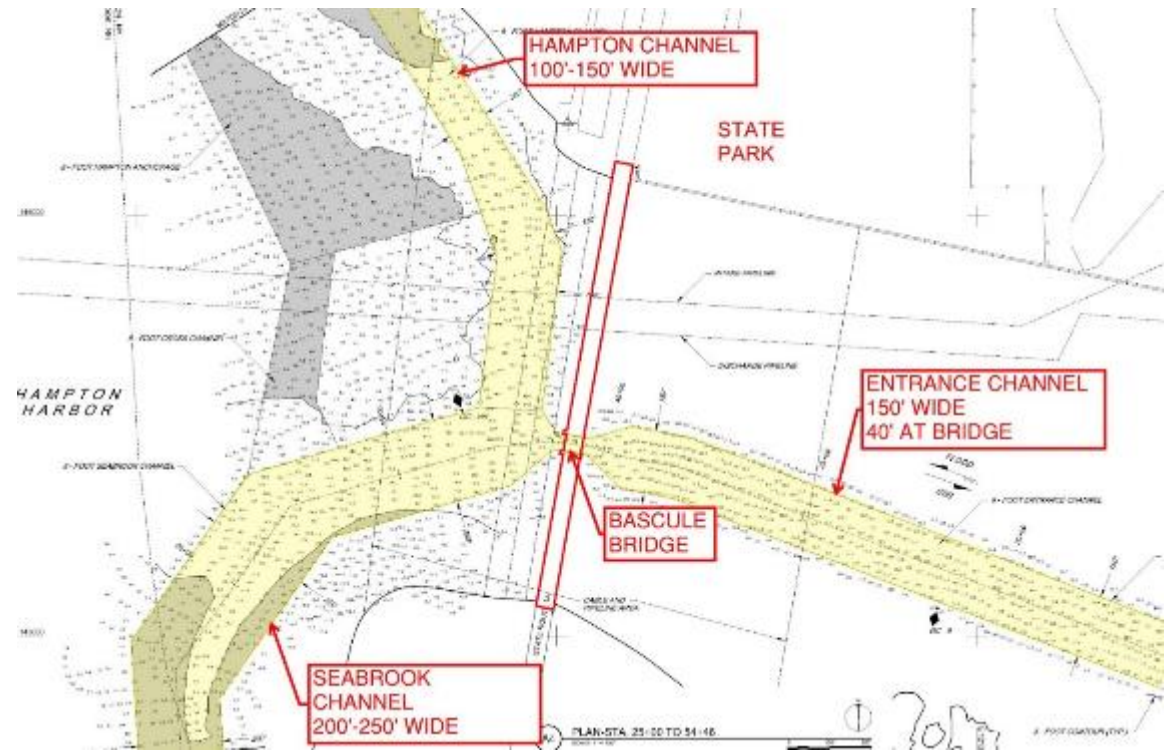
- Clearances for Vessel Navigation
 - ▶ Higher clearances improve navigation and reduce impacts to roadway traffic
 - ▶ Lower clearances reduce approach impacts
- East vs West vs Existing Alignment
 - ▶ Impacts of both alignments must be considered
- Roadway slope
 - ▶ Steeper slopes reduce approach impacts and improve navigation
 - ▶ Flatter slopes improve vehicular, bicyclist and pedestrian access
- Increase in Roadway Height at Abutment
 - ▶ Informs impacts to resources, right-of-way and facilities on approaches
- Constructability and Cost
 - ▶ Full cost estimates not developed at this stage, but qualitatively considered



Navigational Horizontal Clearance



- Existing Channel
- Fixed Bridge (150' Clearance)
 - ▶ Matches full width of current maintained navigational channel
 - ▶ Provides significant improvement over current 51' horizontal opening
 - ▶ Must serve needs of navigational users
 - ▶ Future use must be considered
- Bascule Bridge (80' Clearance)
 - ▶ Governed by USACE dredge equipment Cirrituck
 - ▶ Provides improvement over current 51' horizontal opening



Navigational Vertical Clearance



- Bascule Bridge
 - ▶ Height increases do not need to pass all vessels
 - ▶ Decreasing lifts
- Fixed Bridge
 - ▶ Height will restrict future navigation
 - ▶ Must serve needs of navigational users
 - ▶ Future use must be considered
- Clearances account for 3.9' Sea Level Rise
 - ▶ “Intermediate-High” range of estimated 2100 rise by UNH Sustainability Institute

Vertical Underclearance (from MHW)	Approx. Percentage of Lifts Eliminated
55'	Greater than 97%
40'	Greater than 90%
30'	Greater than 55%
18'	Current Clearance

MHW: Mean High Water

Questions

- Before moving to the next section, please ask any questions you may have regarding
 - ▶ Navigational Clearances



Horizontal Alignments



- ▶ Bridge and Roadway Horizontal Alignment Considerations
 - Constructability
 - East
 - West
 - Online
 - ROW & Property Impacts
 - Capital and Life Cycle Costs
 - Environmental Impacts
 - Horizontal Curvature and Superelevation
 - Sight Distance (through the inside of a curve)
 - Corridor Consistency & Maintenance

Horizontal Alignment - Online



- ▶ Full Closure w/ Regional Detour
 - Construction Schedule 2+ years depending on Environmental Restrictions
 - Required detour is approx. 12 miles
- ▶ Temporary Bridge Required
 - Increases Cost Significantly – on the order of \$20 million or more based similar project
 - Lengthens Construction Duration by 1 year or more for construction of temporary moveable bridge

Detour Map

Horizontal Alignments

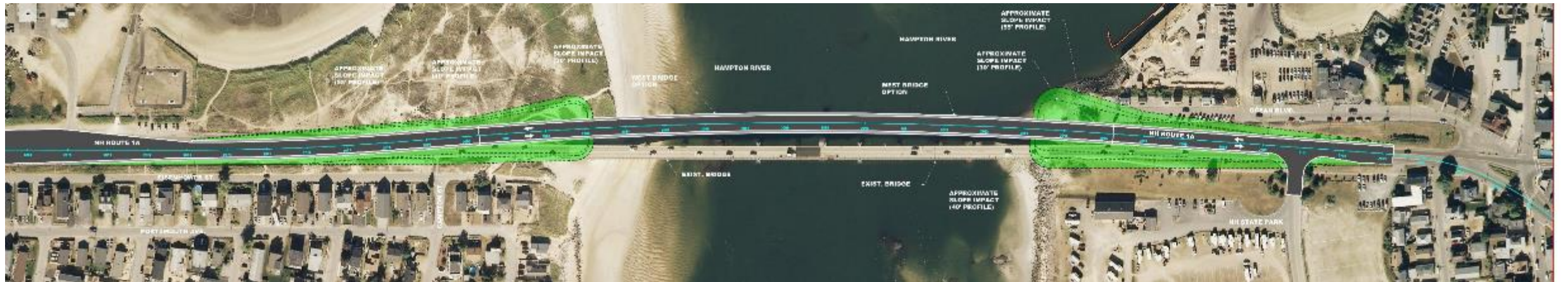


West Alignment	East Alignment
Businesses	Residences
State Pier	State Park
Conservation Area	Sensitive Habitat
Beach	Beach
Utilities	
Navigational Channel	

Horizontal Alignments - Offline



Eastern Alignment

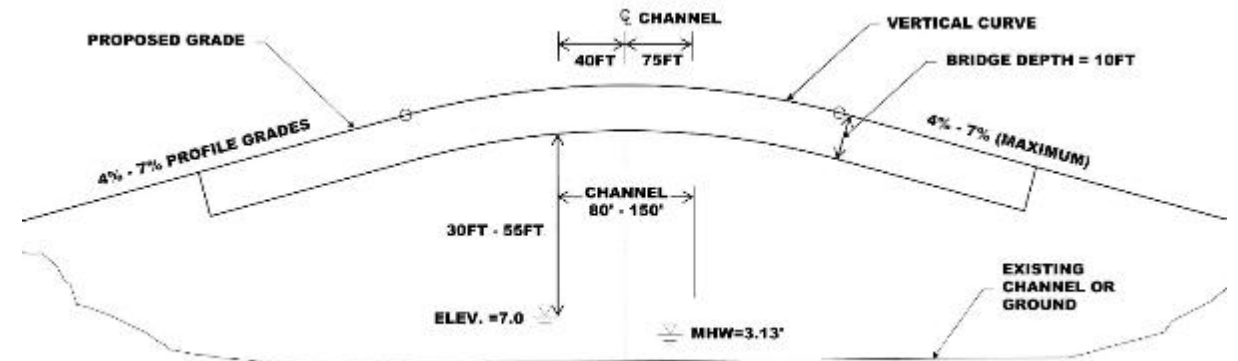


Western Alignment

Roadway and Bridge Vertical Change



- ▶ Vertical Alignment Considerations
 - Navigational Clearance
 - Bridge Superstructure Type & Depth
 - High Tide Elevation
 - Climate Change
 - Maximum Profile Grades
 - Stopping Sight Distance & Headlight Sight Distance



Roadway Slope	Serviceability for Ped and Bike
3%-4%	Desirable for Pedestrians and Bicyclists
5%-6%	Acceptable Per Code Requirements
7% or More	Less Desirable

Roadway and Bridge Vertical Change



I-95 over Piscataqua River
4% Grade
~1300 Linear Feet



Sarah Mildred Long Bridge
4% Grade
~1,600 Linear Feet



Route 1 over Rail Trail
5%-6% Grade
~300 Linear Feet

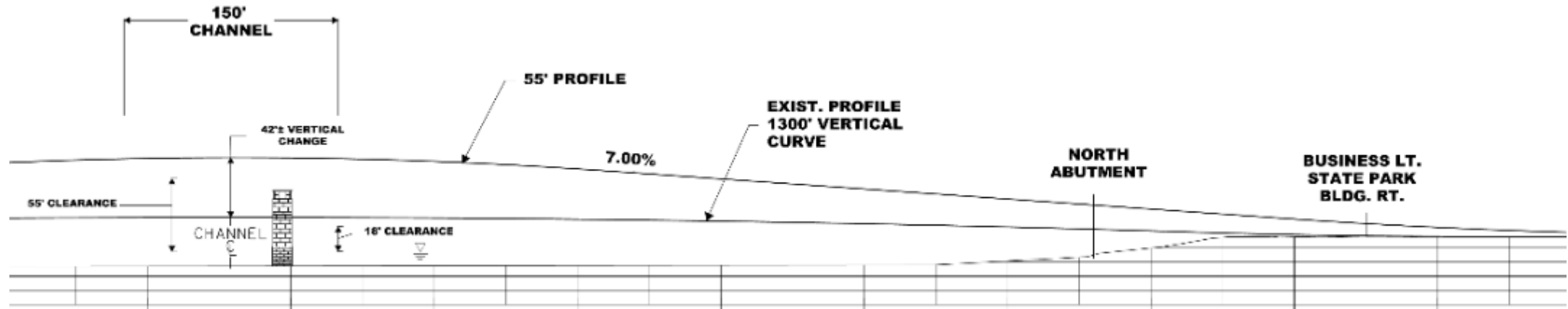
Roadway and Bridge Vertical Change



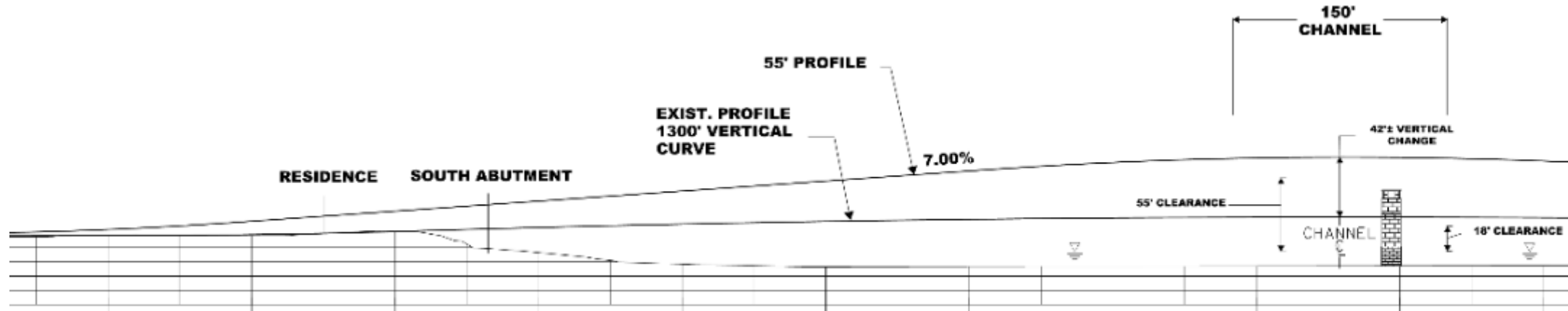
- ▶ Vertical Alignment Study
 - Over 30 variations of alignments/profiles assessing:
 - Navigational Clearance
 - Profile Grades
 - Elevation Change at abutments
 - Consolidated information into 3 profile options for today's discussion.
 - 55' Clearance – “High” Fixed Bridge
 - 30' Clearance – Bascule Bridge
 - 40' Clearance – “Low” Fixed Bridge



Fixed Bridge – 55' Underclearance



North Half of Bridge and Approach



South Half of Bridge and Approach

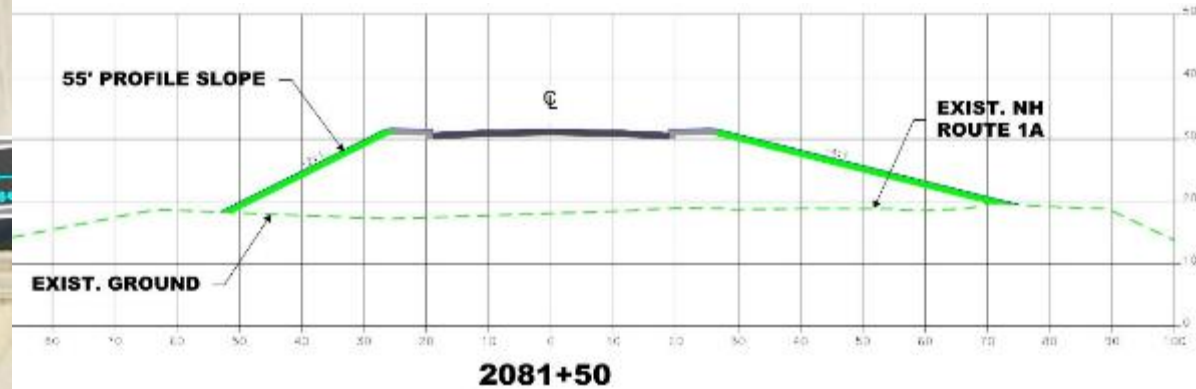
Fixed Bridge – 55' Underclearance



Western Alignment



South Approach

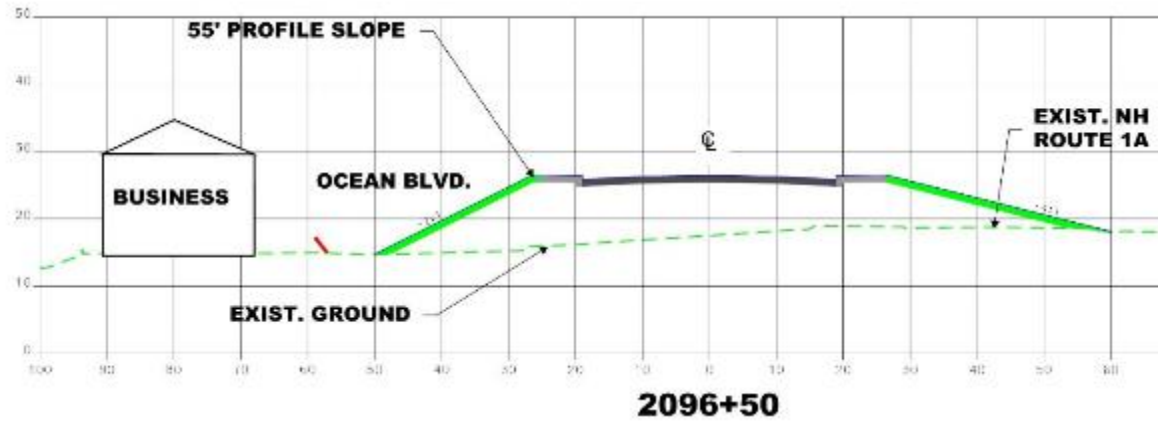


South of Bridge
Looking North adjacent to first house

Fixed Bridge – 55' Underclearance



Western Alignment



North of Bridge
Looking North adjacent to first building



North Approach

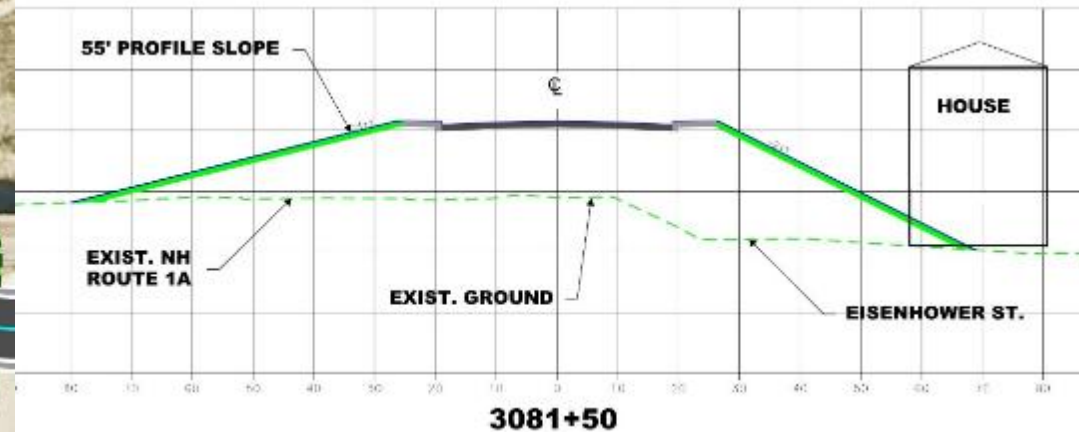
Fixed Bridge – 55' Underclearance



Eastern Alignment



South Approach

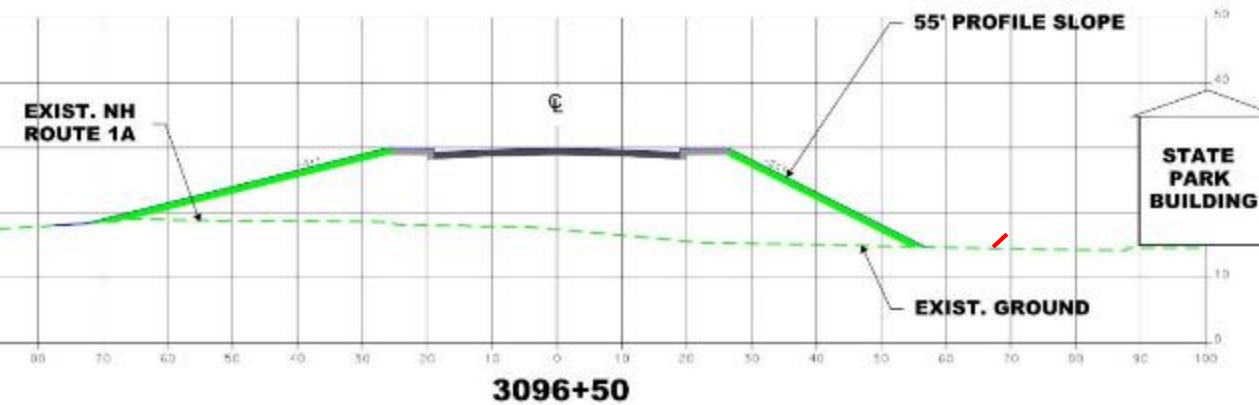


South of Bridge
Looking North adjacent to first house

Fixed Bridge – 55' Underclearance



Eastern Alignment



North of Bridge
Looking North adjacent to first building



North Approach

Summary - Fixed Bridge, 55' Clearance



- Provides largest underclearance for vessels
 - ▶ Clears USACE dredging equipment
 - ▶ Clears at least 97% of current usage
 - ▶ Provides significant improvement for horizontal clearance – 150'
- No bridge lifts required with fixed structure
- Provides steepest roadway grade – 7% slope
 - ▶ Less desirable for pedestrians and cyclists
- Largest Impact on Approaches
 - ▶ Increase height at abutment from 10'+
- East Alignment
 - ▶ Impacts residential parcels with some full acquisitions necessary
 - ▶ Impacts to State Park and Conservation Area
 - ▶ Requires realignment of Campton Street, southeast of bridge
- West Alignment
 - ▶ May impact business parcels, but mitigation with retaining wall possible
 - ▶ Impacts state pier access road
- Costs
 - ▶ Significantly lower capital costs compared to a bascule bridge

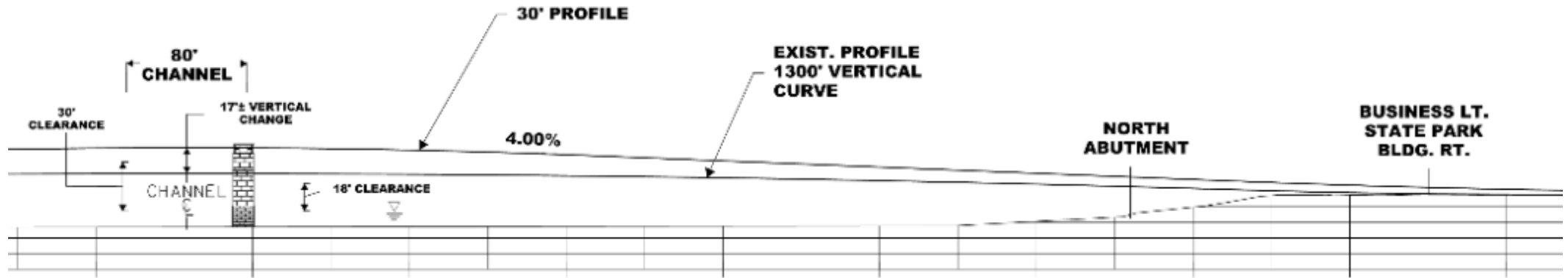
Questions and Feedback



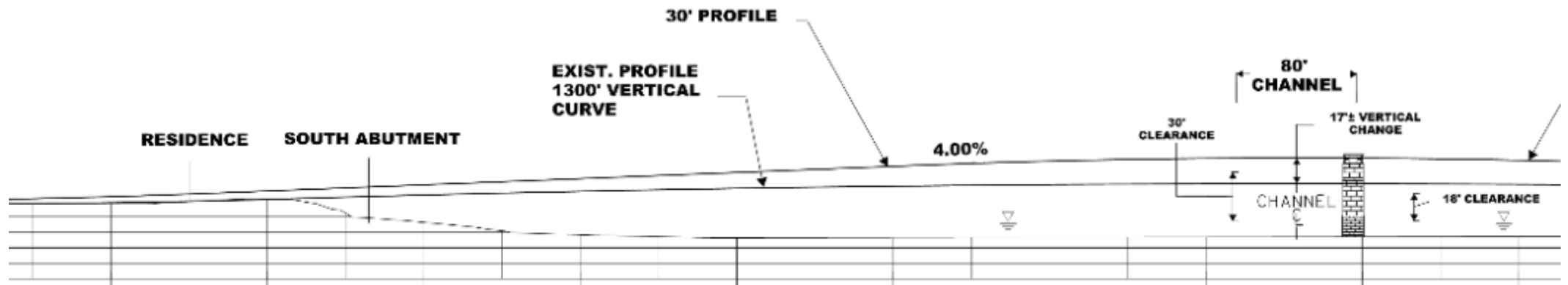
- Before moving to the next section, please provide your questions and comments regarding
 - ▶ Fixed Bridge with 55' Underclearance



Bascule Bridge – 30' Underclearance



North Half of Bridge and Approach



South Half of Bridge and Approach

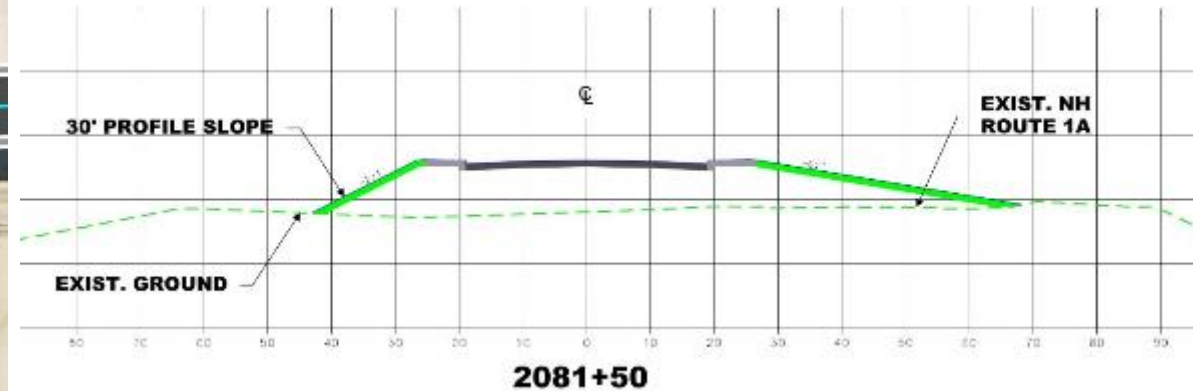
Bascule Bridge – 30' Underclearance



Western Alignment



South Approach

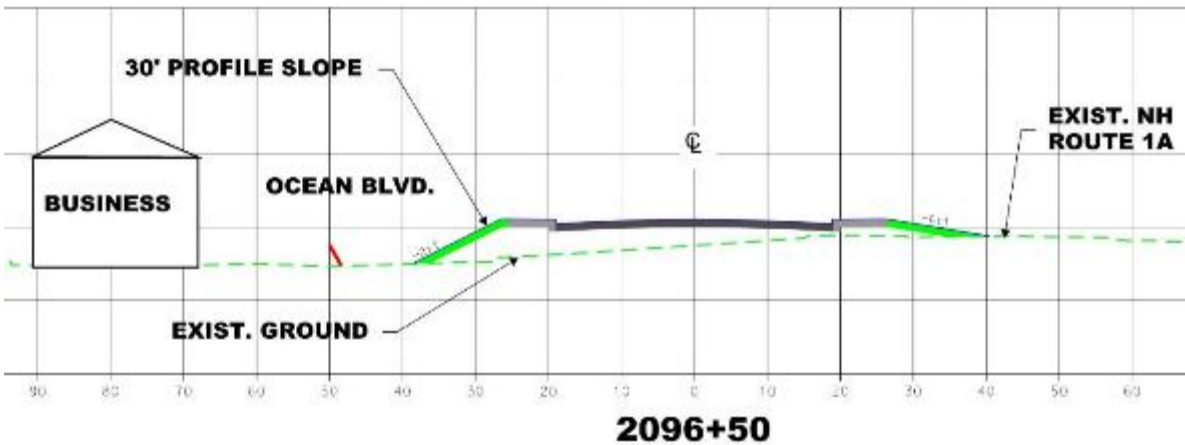


South of Bridge
Looking North adjacent to first house

Bascule Bridge – 30' Underclearance



Western Alignment



North of Bridge
Looking North adjacent to first building



North Approach

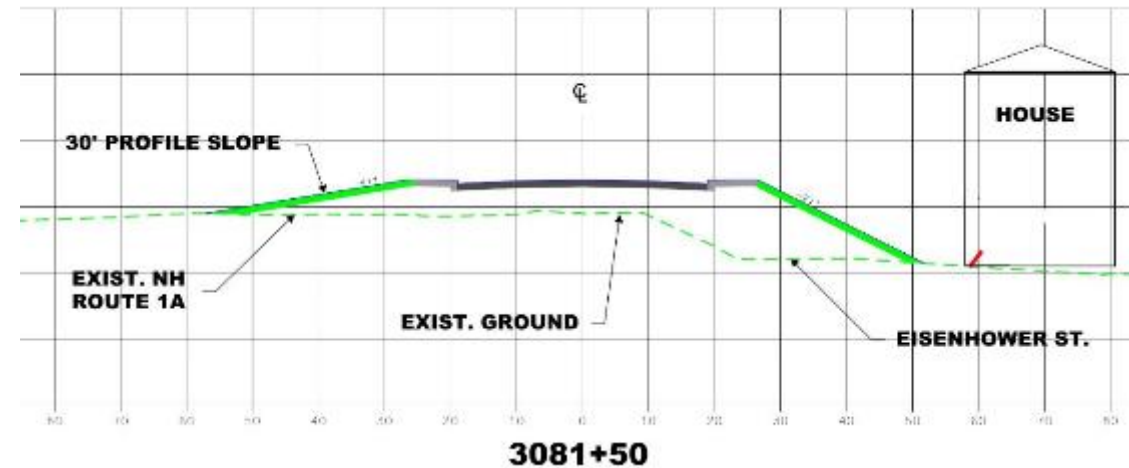
Bascule Bridge – 30' Underclearance



Eastern Alignment



South Approach

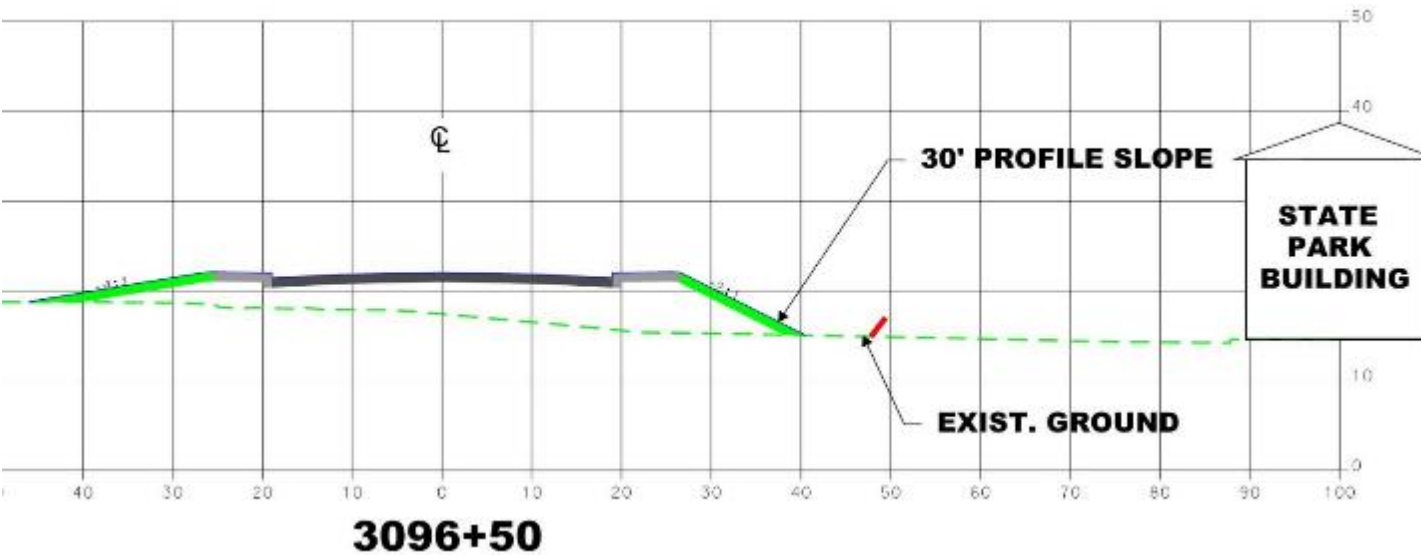


South of Bridge
Looking North adjacent to first house

Bascule Bridge – 30' Underclearance



Eastern Alignment



North of Bridge
Looking North adjacent to first building



North Approach

Summary – Bascule Bridge, 30' Clearance



- Provides improved underclearance for vessels
 - ▶ Clears USACE dredging equipment
 - ▶ Reduces lifts by over 50% based on current usage
 - ▶ Does not provide full 150' horizontal clearance
- Bridge will be required to lift and will still affect traffic
- Provides desirable roadway grade – 4% slope
- Smallest Impact on Approaches
 - ▶ Low height increase at abutment: 5' +/-
- East Alignment
 - ▶ Impacts residential parcels with some full acquisitions necessary
 - ▶ May not require relocation of Campton St, but will impact it
 - ▶ Impacts to State Park and Conservation Area
- West Alignment
 - ▶ Impacts parcels in northwest, no full acquisition anticipated
 - ▶ Impacts state pier access road
- Costs
 - ▶ Bascule Bridge - significantly higher capital costs compared to a fixed bridge
 - ▶ Higher risk of costs associated with serviceability – system breakdowns can impact vehicular and vessel traffic
 - ▶ Increased life cycle costs associated with operating the bridge and maintaining mechanical/electrical systems

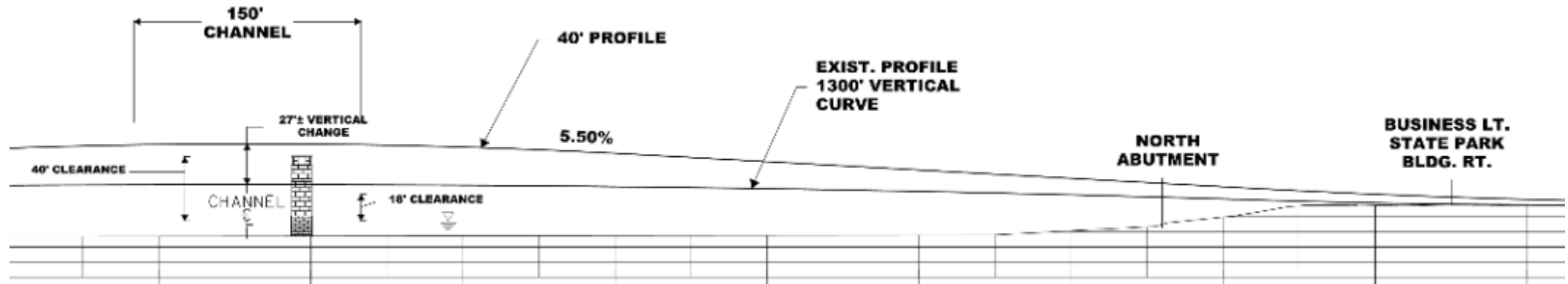
Questions and Feedback



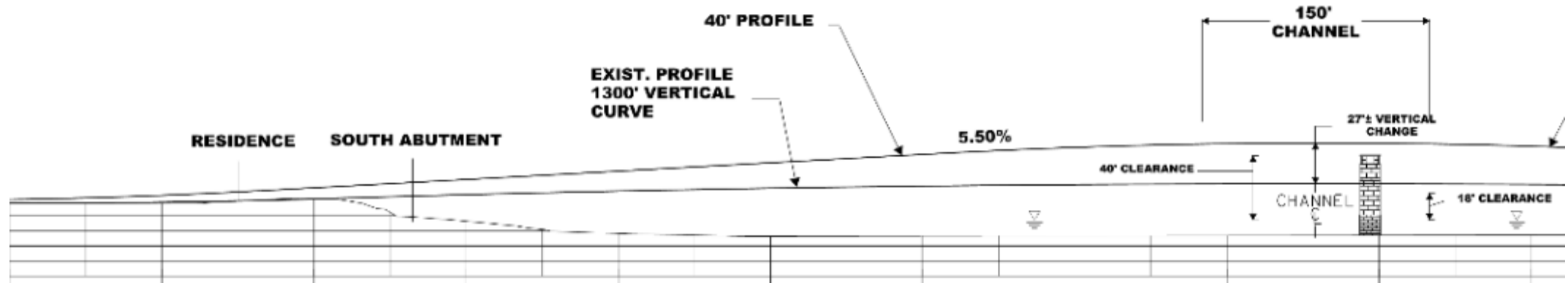
- Before moving to the next section, please provide your questions and comments regarding
 - ▶ Bascule Bridge - 30' Clearance



Fixed Bridge – 40' Underclearance



North Half of Bridge and Approach



South Half of Bridge and Approach

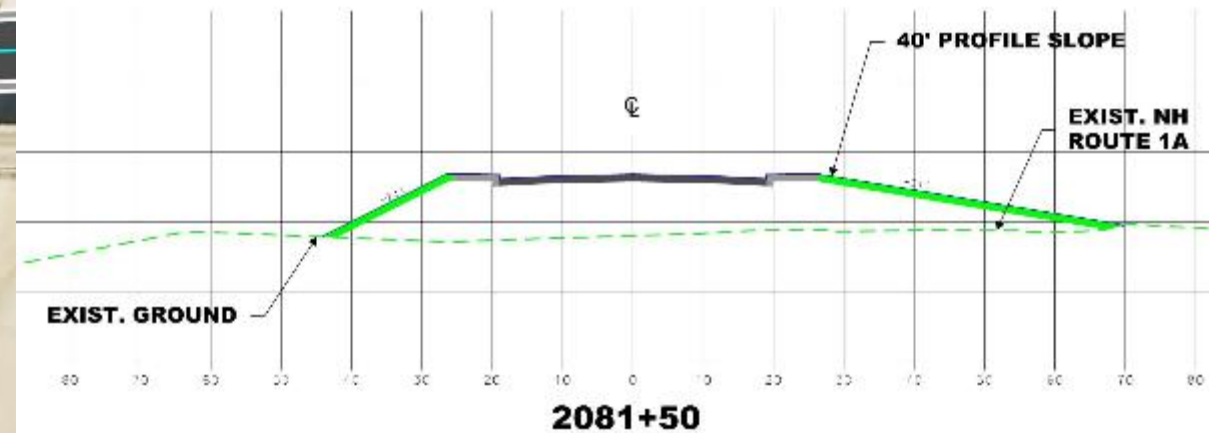
Fixed Bridge – 40' Underclearance



Western Alignment



South Approach

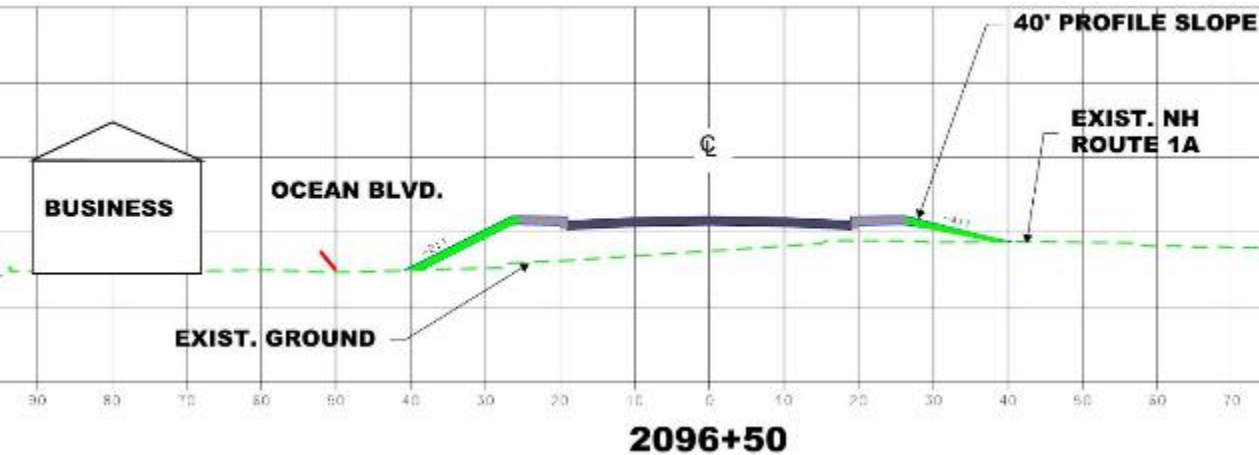


South of Bridge
Looking North adjacent to first house

Fixed Bridge – 40' Underclearance



Western Alignment



North of Bridge
Looking North adjacent to first building



North Approach

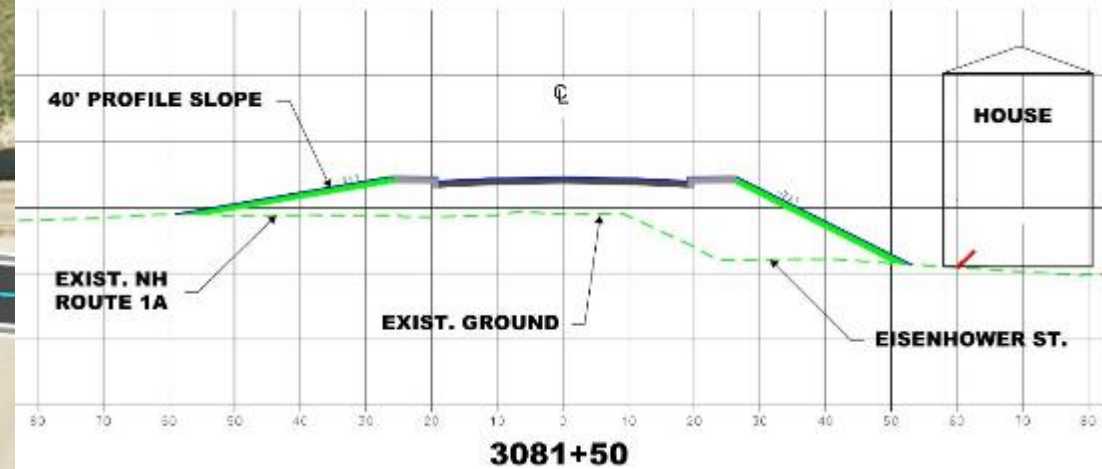
Fixed Bridge – 40' Underclearance



Eastern Alignment



South Approach

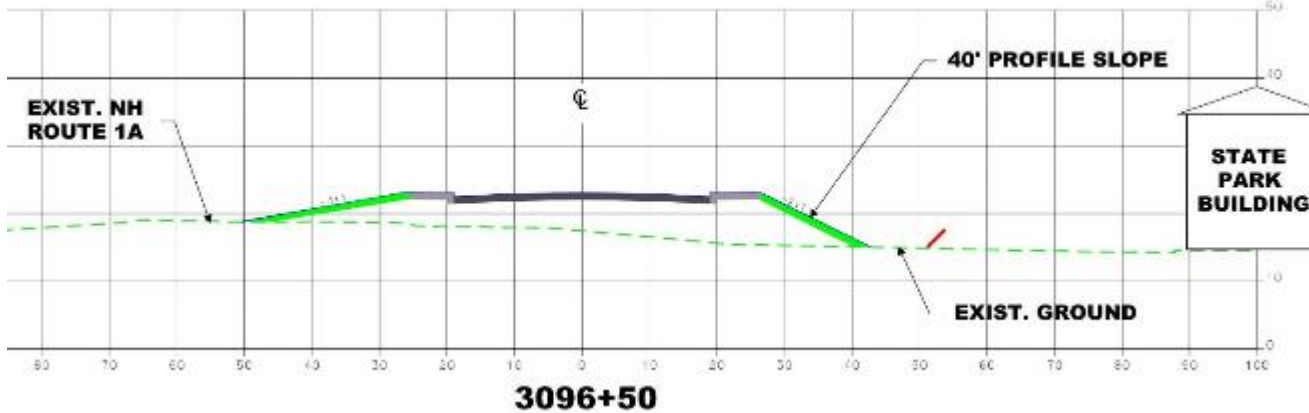


South of Bridge
Looking North adjacent to first house

Fixed Bridge – 40' Underclearance



Eastern Alignment



North of Bridge
Looking North adjacent to first building

North Approach

Summary – Fixed Bridge, 40' Clearance



- Provides improved underclearance for vessels
 - ▶ Clears at least 90% of current lifts
 - ▶ Clears all regular users
 - ▶ Provides significant improvement for horizontal clearance – 150'
- No bridge lifts required with fixed structure
- Provides acceptable roadway grade – 5.5% slope
- Balances impacts on approaches
 - ▶ Height increase at abutment: 5'±
- East Alignment
 - ▶ Impacts residential parcels with some full acquisitions necessary
 - ▶ May not require relocation of Campton St, but will impact it
 - ▶ Impacts to State Park and Conservation Area
- West Alignment
 - ▶ Impacts parcels in northwest, no full acquisition anticipated
 - ▶ Impacts state pier access road
- Fixed Bridge - significantly reduced capital and life cycle costs compared to a bascule bridge

Questions

- Before moving to the next section, please ask any questions you may have regarding
 - ▶ 40' Clearance – “Mid” Concept



Review of Concept Impacts

- Navigational Clearance
- Traffic Operations & Typical Section
- Horizontal Alignments
- Roadway and Bridge Vertical Change
- Cost
- Constructability
- Environmental and Cultural Resources
- Other Elements that affect Costs and Schedules
 - ▶ Utility Relocation
 - ▶ Right-of-Way Acquisition



West Elevation

Summary

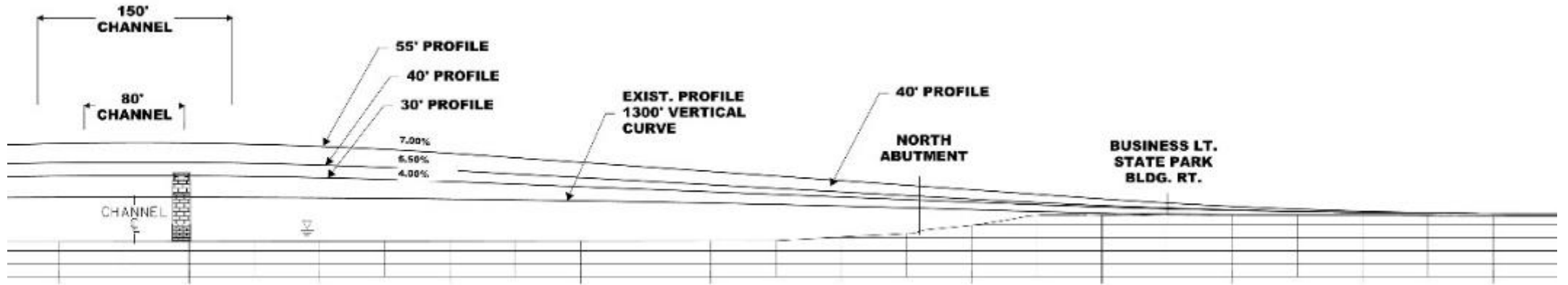


Eastern Alignment

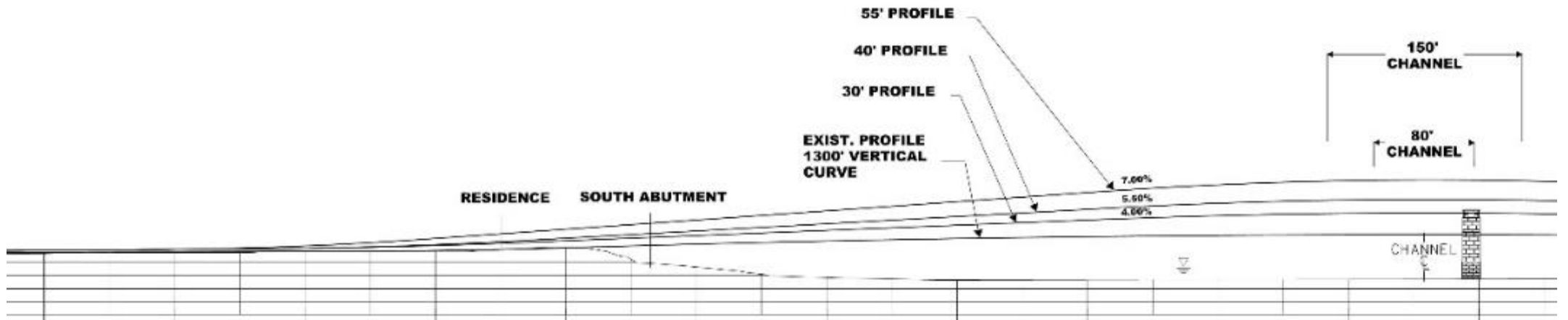


Western Alignment

Summary



North Half of Bridge and Approach



South Half of Bridge and Approach

Summary



- All three profile options will similarly impact the following:

West Alignment	East Alignment
Underwater Utilities	State Park
USACE Maintained Channel	Sensitive Habitat
Beach usage at South Abutment	Beach usage at South Abutment
Conservation Area	Underground Utilities

Summary



- Comparison Summary:

Vertical Alignment Option	Roadway Slope	Height at Abutment	West Alignment Property Impacts	East Alignment Property Impacts	Constructability and Cost
Fixed Bridge - 55' Underclearance	7%	10'±	Full acquisition	Several full acquisitions	Intermediate Cost
Bascule Bridge - 30' Underclearance	4%	0'-5'	No full acquisitions	Some full acquisitions	Highest Cost
Fixed Bridge - 40' Underclearance	5.50%	5' ±			Lowest Cost

Next Steps



- Progress and Update Alignment and Profile Study
- Meeting with Abutters
- Next Public Involvement Meeting in January 2019. Meeting moved to accommodate additional PAC , Vessel Owners and Abutters Meetings. Will provide updates on:
 - ▶ Provide updates on Historic Review process
 - ▶ Update on Rehabilitation Alternative
 - ▶ Update on alignments and profiles for Replacement Alternatives

Questions

- This concludes our presentation, please ask provide comments and questions you may have regarding
 - ▶ Summary
 - ▶ Next Steps



Project Development Process



- Complete study of all alternatives and select a Preferred Alternative 2019
 - ▶ Followed by Public Meeting to get input from Towns and Users
- Final Design of Preferred Alternative
 - ▶ Detailed design plans
 - ▶ Environmental Permitting
 - ▶ Secure necessary property rights
- Project is scheduled at Advertise in FFY 2023
- Current programmed construction cost of \$28 M
 - ▶ (Assumes a fixed structure replacement)
- Construction anticipated to span over several years beginning in 2024