

# Maine-NH Connections Study

Public Informational Meeting

June 23, 2010

Portsmouth High School



# Agenda

- Study Update and Schedule
- Detailed Analysis of Alternatives
  - Revisit Key Assumptions
  - Recent Progress
- Alternatives Update
  - Memorial Rehabilitation
  - Mid-Level Hybrid
- List of Remaining Alternatives – Pros/Cons
- Next Steps

# Study Update

- Study began with aggressive schedule due to deteriorated condition of existing bridges
- Study purpose is to identify the best long-term solution
- Lots of excellent data has been gathered, and analysis and evaluation is ongoing
- Both DOTs agree a joint solution is needed - the Study data will inform that solution
- Timing and implementation of the decision will be based on the realities of funding limitations

# Study Schedule

Task	June	July	August
Complete revisit of key assumptions and analysis	Active	Light	Light
Detailed Analysis and Evaluation/Documentation	Active	Light	Light
Evaluate Alternatives – ID top tier	Light	Active	Light
Draft Report	Light	Active	Light
Final Report	Light	Light	Active

- Schedule does not include Section 106, 4(f) and NEPA process which will continue on parallel track but likely to extend beyond August

# Detailed Analysis of Alternatives

- Detailed analysis includes key assumptions
- Given the magnitude of the Study outcome, appropriate to revisit key assumptions at this time
- Study Team has revisited in past 6 weeks
  - Traffic growth assumptions
  - Bridge Traffic Capacity assumptions
  - Alternative assumptions
  - Review and update cost estimates
- Study Team is also documenting dismissal of MB rehabilitation based on bridge inspection

# Traffic Growth Assumptions



0.9 % per year

0.7 % per year

0.8 % per year

# Key Assumptions in Traffic Growth

- Job Growth at PNSY
- Population growth anticipated in both Kittery and Portsmouth
- Strong job growth anticipated in downtown Portsmouth and near hospital
- Conclusion – traffic growth forecasts confirmed and validated

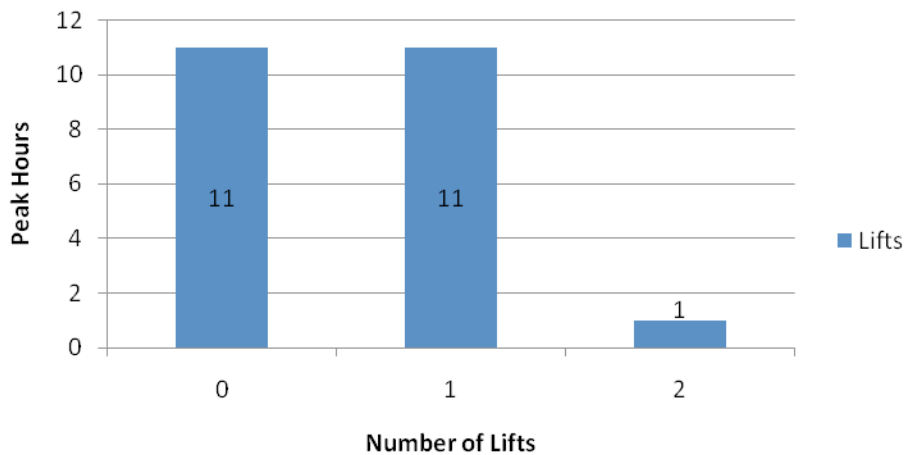


# Bridge Traffic Capacity Assumptions

- Previous analysis based on 2 lifts during peak hour (allowed by law, but occurring small % of time)

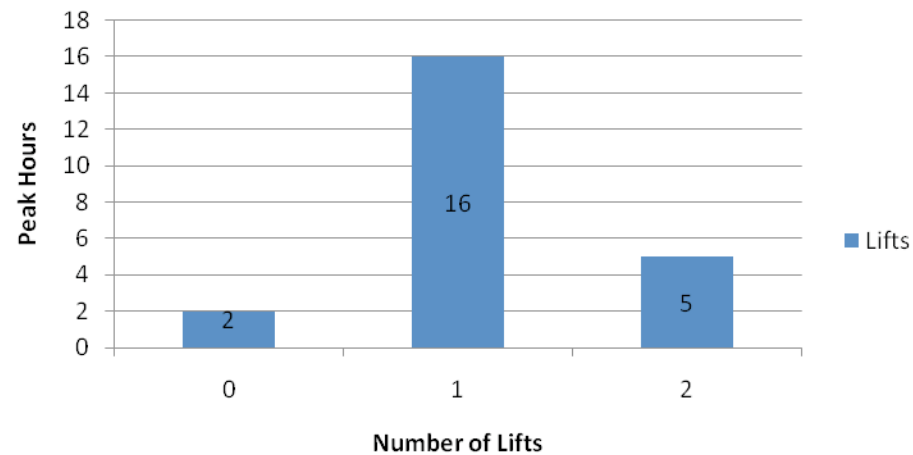
## Sarah Long Bridge Lifts

### Peak Hour Lifts, July 2008



## Memorial Bridge Lifts

### Peak Hour Lifts, July 2008





# Bridge Traffic Capacity Assumptions

- Re-ran travel demand model under assumption of 1-lift and 0-lifts per peak hour for both Memorial and Long Bridges
- Also needed to evaluate vehicle capacity at intersections adjacent to Long Bridge to accommodate increased bridge traffic volume.

# Sarah Long Bridge:

## Bridge Traffic Capacity vs. Intersection Capacity

- Two signalized intersections on either side of Sarah Long bridge have specific capacities
- By increasing bridge traffic capacity, need to check intersection throughput capacity
- If intersection vehicle capacity is lower revised than bridge demand, additional intersection modifications/improvements may be necessary

# Sarah Long Bridge:

## Bridge Capacity vs. Intersection Capacity

2035 Capacity	2035 Traffic Capacity	2035 PM PH Bridge Volume w/ MB	2035 PM PH Bridge Volume w/o MB
Bridge Capacity – 1 lift	1,250		
Capacity at Albacore NB	1,580	1,077	1,358
Capacity at Albacore SB	945	927	1,179
Capacity at Bridge/Oak NB	1,180	1,077	1,358
Capacity at Bridge/Oak SB	1,160	927	1,179

# Sarah Long Bridge:

## Bridge Capacity vs. Intersection Capacity

2035 Capacity	2035 Traffic Capacity	2035 PM PH Bridge Volume w/ MB	2035 PM PH Bridge Volume w/o MB
Bridge Capacity – 0 lift	1,800		
Capacity at Albacore NB	1,580	1,186	1,585
Capacity at Albacore SB	945	1,135	1,316
Capacity at Bridge/Oak NB	1,180	1,186	1,585
Capacity at Bridge/Oak SB	1,160	1,135	1,316

# Bridge Traffic Capacity Conclusions

- Likely to revise SML and MB capacities upward following documentation review
- Need to re-evaluate intersection capacity
- With higher bridge traffic capacity, intersection capacity may be the driver as opposed to bridge traffic capacity
- Update plans and documentation as needed.

# Alternatives Update

- Study Team identified new mid-level alternative for the SML – named a “hybrid”
- Maintains road and rail on same deck
- Rail is at low-level elevation, road is at mid-level elevation
- Deck moves to accommodate need
- Two-lane bridge

# SML Hybrid

## Description

- Single Deck
- Approx. 80' clearance above MHW
- 315' horizontal lift span
- 135' + vertical clearance
- 6% approach grade
- Top of towers approx. 75' higher than current bridge
- Two-lanes

## Pros

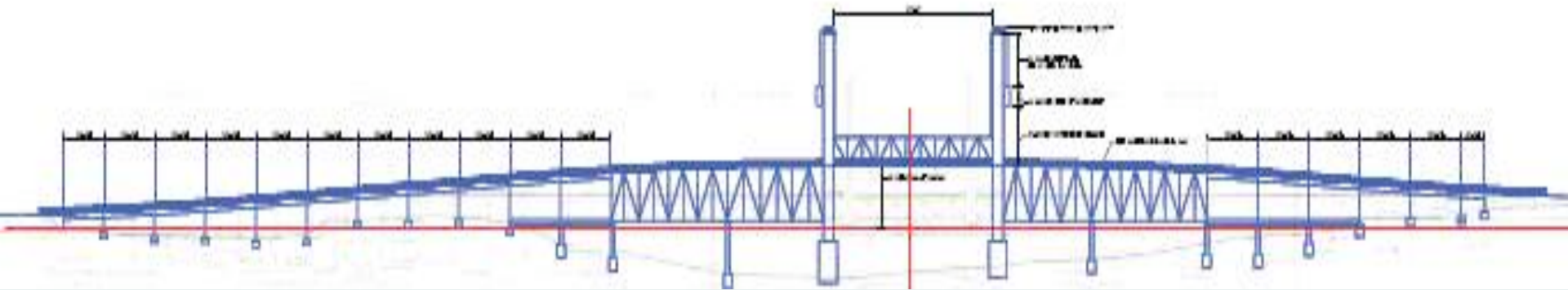
- Increased horizontal clearance
- Reduces number of bridge openings by 70% +/-
- May eliminate need for 4-lane bridge

## Cons

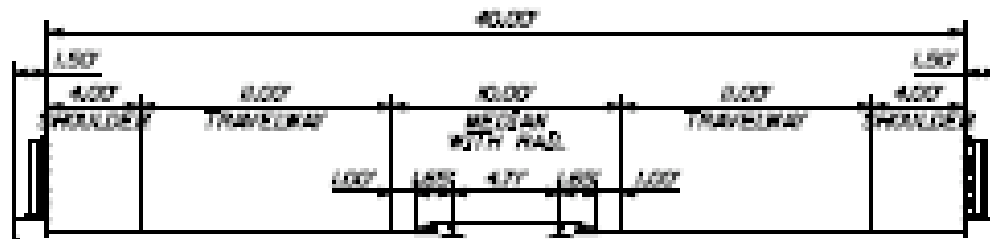
- Rail in road
- Can accommodate only one mode at a time
- Potentially more impacts than 2-lane bridge alternative



# SML Hybrid – Profile and Cross Section

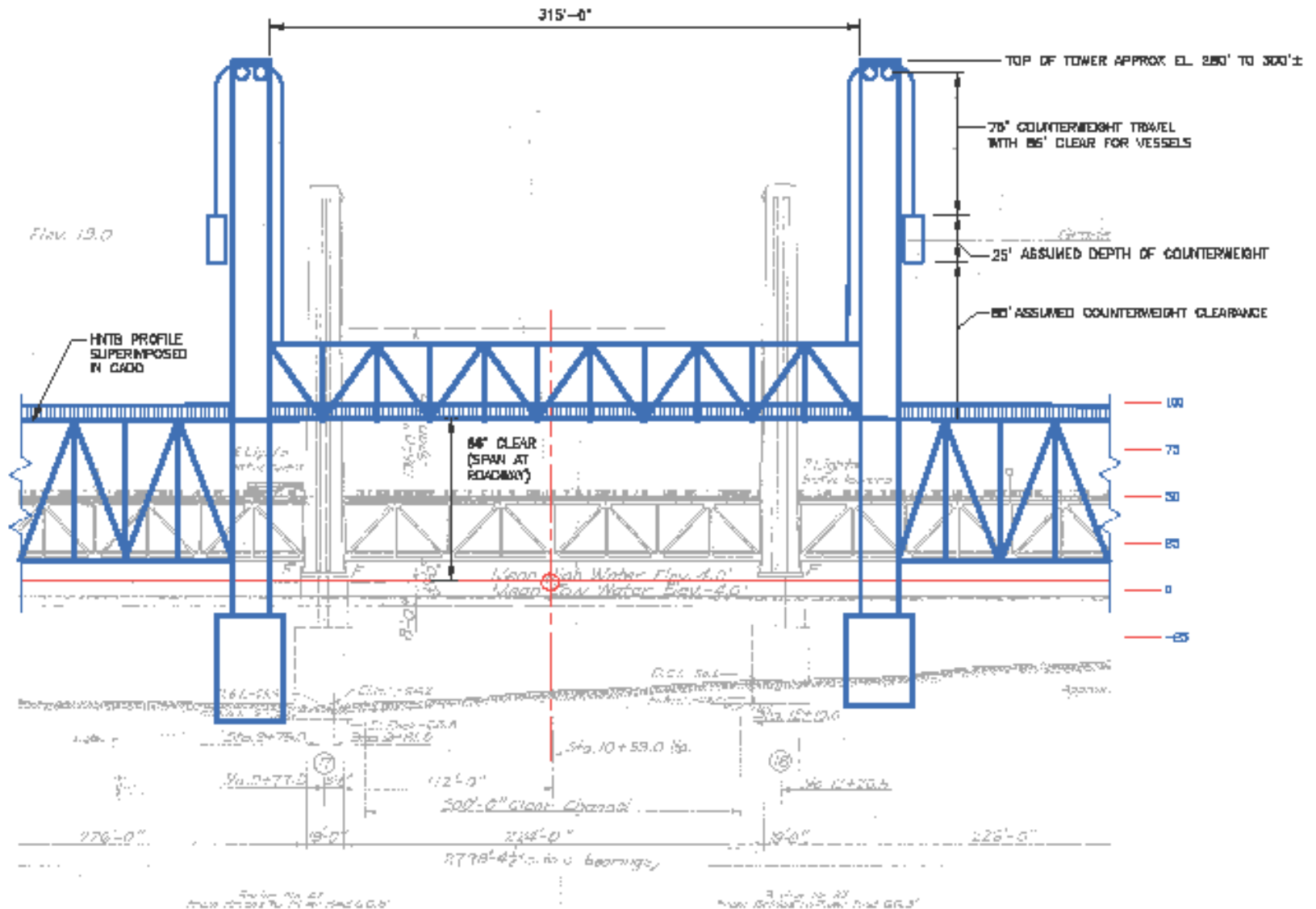


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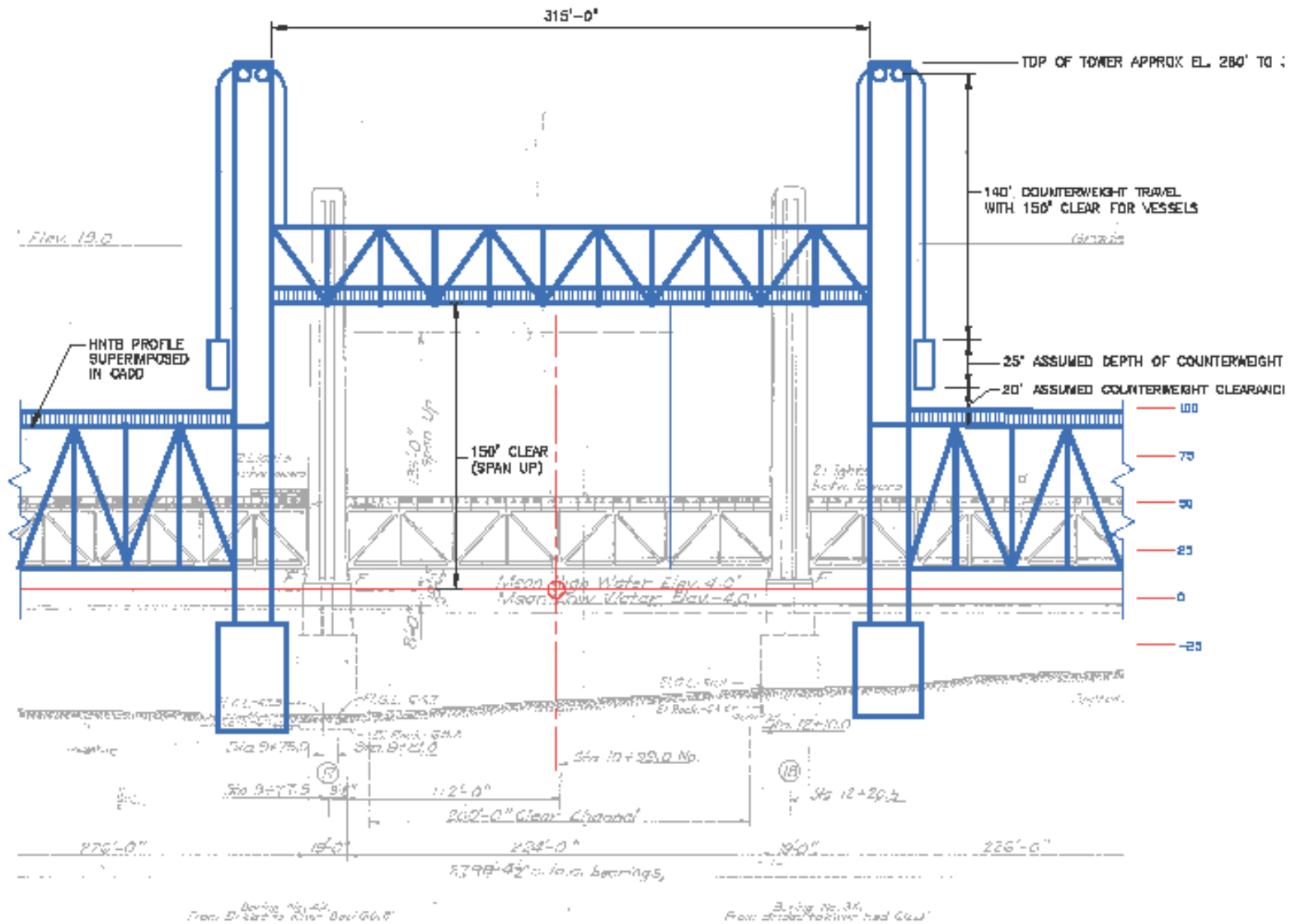
*Sarah Mildred Long Bridge  
Typical Section - Replacement  
2 Travel Lanes With Rail In Raised Median*

# SML Hybrid: Normal Roadway Position



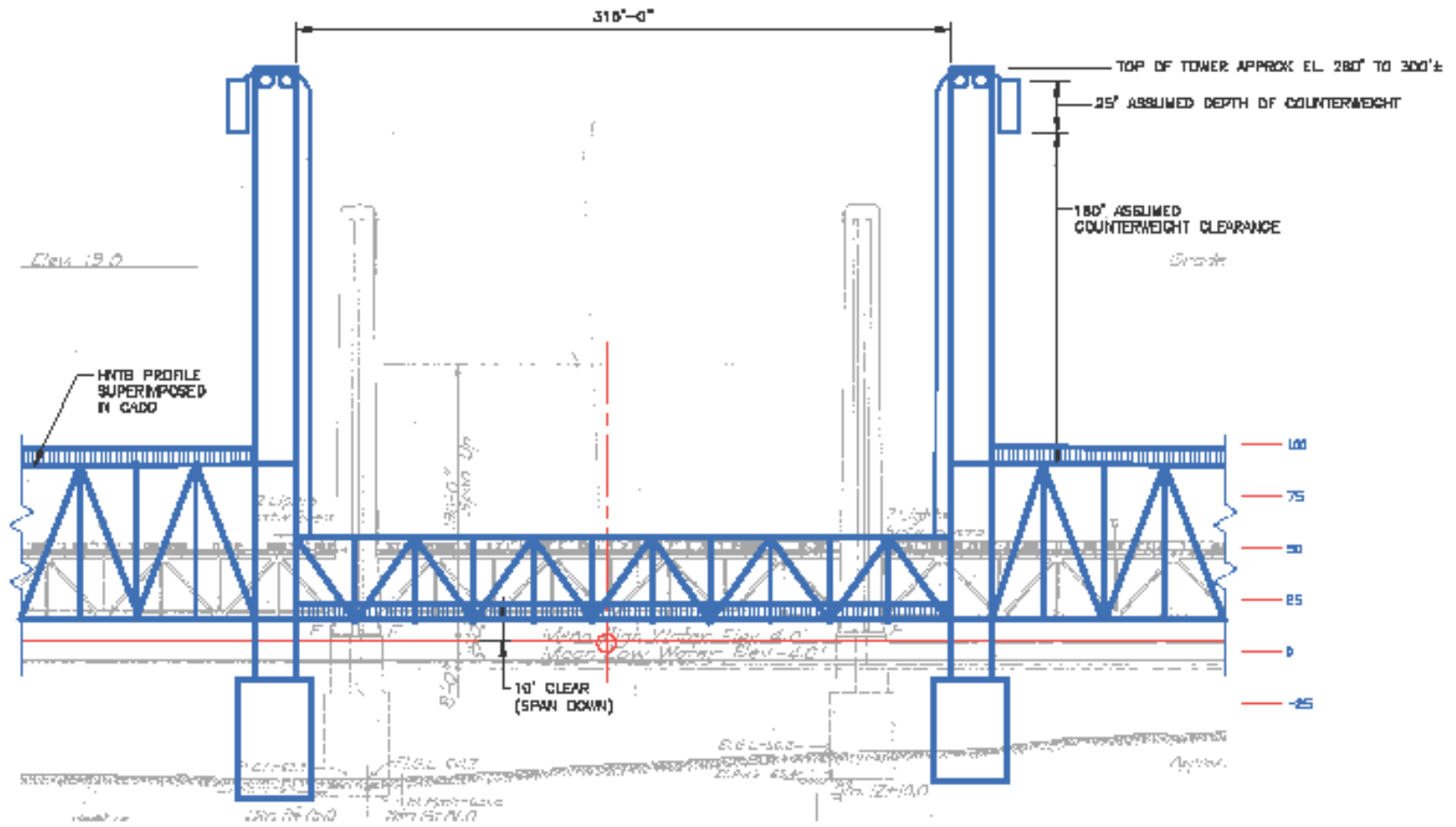
**MOVABLE SPAN POSITIONED  
FOR NORMAL ROADWAY OPERATION**

# SML Hybrid – Tall Vessel Position



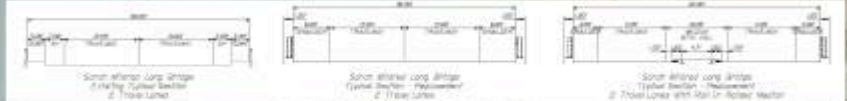
**MOVABLE SPAN POSITIONED FOR  
MAXIMUM MARITIME OPERATIONS CLEARANCE**

# SML Hybrid – Rail Position



# SML Hybrid - Plan

DRAFT



SL29: SARAH MILDRED LONG BRIDGE (2 LANES)  
HYBRID ALIGNMENT UPSTREAM  
MAINE / NEW HAMPSHIRE CONNECTIONS STUDY  
EVALUATE FEASIBLE ALTERNATIVES - CONCEPTUAL LAYOUTS  
HNTR  
JUNE 15, 2010

# Evaluating the SML Hybrid

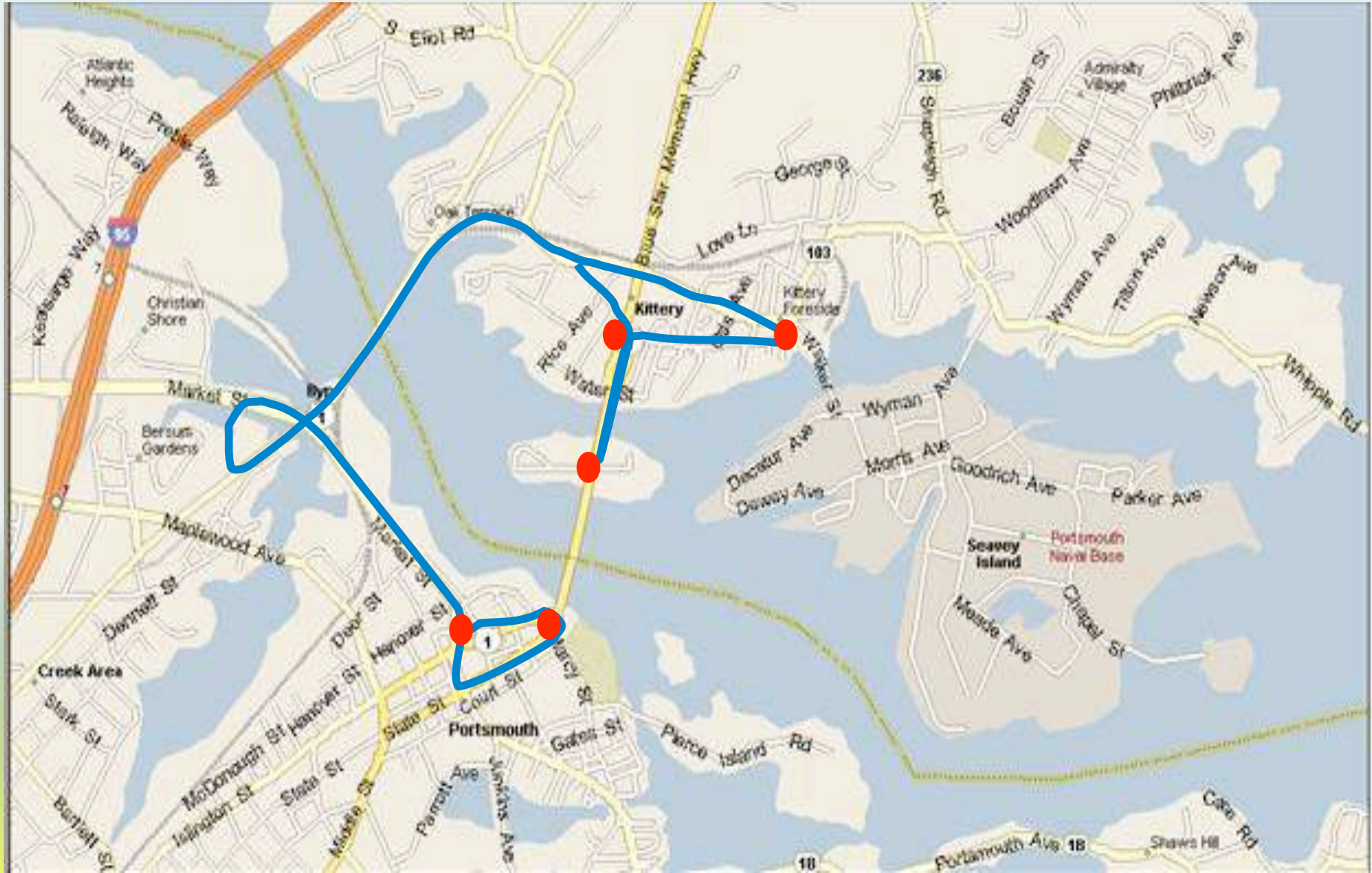
- Three MB options to consider with SML hybrid
  - w/ 2-lane MB Replacement
  - w/ MB bike/ped bridge
  - Enhanced transit alternative w/ no MB
- Study Team to evaluate SML hybrid with above and determine if passes Fatal Flaw
- Then complete detailed evaluation of those that pass and bring to same level of detail

# Enhanced Transit Alternative

- Did not fully evaluate transit in previous analysis
- Establish and maintain local bus transit service between Portsmouth and Kittery downtowns
- Assumed zero-fare, 18-hour operation daily



# Enhanced Transit System



# Enhanced Transit Alternative

- Evaluating three major components
  - Potential ridership
  - Cost (Capital and Operations)
  - Meeting Purpose and Need
- Status
  - Ridership estimation ongoing
  - Preliminary costs complete
  - Evaluate P&N once ridership and costs completed

# Preliminary Cost Estimates

- Capital Cost = \$1,400,000
  - Buses, infrastructure, engineering, contingency
- Annual Operating Cost = \$1,675,000
  - Buses, operators, fuel, maintenance

# List of Remaining Alternatives

Alternative #	Memorial Bridge Option	Sarah Long Bridge Option
No Build	Closed to all modes	Existing, lower weight posting
Alternative 1	Rehabilitation	Rehabilitation
Alternative 2a	Rehabilitation	2-lane replacement on alignment
Alternative 2b	Rehabilitation	4-lane replacement on alignment
Alternative 3a	Rehabilitation	2-lane upstream replacement
Alternative 3b	Rehabilitation	4-lane upstream replacement
Alternative 4	2-lane Replacement	Rehabilitation
Alternative 5a	2-lane Replacement	2-lane replacement on alignment
Alternative 5b	2-lane Replacement	4-lane replacement on alignment
Alternative 6a	2-lane Replacement	2-lane replacement upstream
Alternative 6b	2-lane Replacement	4-lane replacement upstream
Alternative 7	Bike/Ped Bridge	4-lane replacement on alignment
Alternative 8	Bike/Ped Bridge	4-lane replacement upstream

Alternative #	Memorial Bridge Option	Sarah Long Bridge Option
No Build	Closed to all modes	Existing, lower weight posting
Alternative 1	Rehabilitation	Rehabilitation
Alternative 2a	Rehabilitation	2-lane replacement on alignment
Alternative 2b	Rehabilitation	4-lane replacement on alignment
Alternative 3a	Rehabilitation	2-lane upstream replacement
Alternative 3b	Rehabilitation	4-lane upstream replacement
Alternative 4	2-lane Replacement	Rehabilitation
Alternative 5a	2-lane Replacement	2-lane replacement on alignment
Alternative 5b	2-lane Replacement	4-lane replacement on alignment
Alternative 6a	2-lane Replacement	2-lane replacement upstream
Alternative 6b	2-lane Replacement	4-lane replacement upstream
Alternative 7	Bike/Ped Bridge	4-lane replacement on alignment
Alternative 8	Bike/Ped Bridge	4-lane replacement upstream

Alternative #	Memorial Bridge Option	Sarah Long Bridge Option
No Build	Closed to all modes	Existing, lower weight posting
Alternative 4	2-lane Replacement	Rehabilitation
Alternative 5a	2-lane Replacement	2-lane replacement on alignment
Alternative 6a	2-lane Replacement	2-lane replacement upstream
Alternative 7	Bike/Ped Bridge	4-lane replacement on alignment
Alternative 8	Bike/Ped Bridge	4-lane replacement upstream
Alternative 9	2-lane Replacement	2-lane hybrid upstream
Alternative 10	Bike/Ped Bridge	2-lane hybrid upstream
Alternative 11	Transit Alternative	2-lane hybrid upstream



# Remaining Alternatives

## Memorial Bridge

- Replacement
- Bike/Ped
- Transit\*

\* - if passes Fatal Flaw

## Sarah Long

- Rehabilitation
- Replacement
  - 2-lane
  - 4-lane
  - On or off-line
- Hybrid

# No-Build Alternative

## Pros

- Maintains rail on SML
- No natural or physical environment impacts

## Cons

- Does not meet Study Purpose and Need
- Does not address structural deficiencies
- Impacts mobility and accessibility
- Impacts local economy
- Removal of Memorial Bridge – NHRL Bridge

# Alternative 4

## 2-lane MB replacement, SML rehabilitation

### Pros

- Maintains/improves mobility to Portsmouth, Kittery, and PNSY
- Improvements to MB (structural, bike/ped, vehicle)
- Limited natural and physical environment impacts

### Cons

- Rehabilitated SML does not fully address structural deficiencies
- No improvement to SML marine vessel clearances
- Removal of Memorial Bridge – NHRL Bridge
- Both bridges closed separately during construction

# Alternative 5a

## 2-lane MB replacement, 2-lane SML replacement on alignment

### Pros

- Fully addresses structural deficiencies
- Maintains/improves mobility to Portsmouth, Kittery, and PNSY
- Improvements to MB and SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances

### Cons

- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Both bridges to be closed separately for extended period
- Greater natural environment impacts
- Both bridges closed separately during construction

# Alternative 6a

## 2-lane MB replacement, 2-lane SML replacement upstream

### Pros

- Fully addresses structural deficiencies
- Maintains/improves mobility to Portsmouth, Kittery, and PNSY
- Improvements to MB and SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances
- Traffic maintained on SML during construction

### Cons

- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Greater natural and physical environment impacts
- Memorial closed to traffic during construction

# Alternative 7

## Bike/Ped MB, 4-lane SML replacement on alignment

### Pros

- Fully addresses structural deficiencies
- Improvements to SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances

### Cons

- Impacts vehicular mobility to Portsmouth, Kittery, and PNSY
- SML to be closed to traffic during construction
- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Higher capital cost due to 4-lane SML
- Greater natural and physical environment impacts
- Some local economic impact

# Alternative 8

## Bike/Ped MB, 4-lane SML replacement upstream

### Pros

- Fully addresses structural deficiencies
- Improvements to SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances
- Can maintain traffic on SML during construction

### Cons

- Impacts vehicular mobility to Portsmouth, Kittery, and PNSY
- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Higher capital cost due to 4-lane SML
- Greater natural and physical environment impacts
- Some local economic impact



# Alternative 9

## 2-lane MB replacement, 2-lane SML hybrid upstream

### Pros

- Fully addresses structural deficiencies
- Maintains/improves mobility to Portsmouth, Kittery, and PNSY
- Improvements to MB and SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances
- Reduced # of SML bridge openings/2-lane SML

### Cons

- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Greater natural and physical environmental impacts
- Can only accommodate one mode at a time
- Rail in road at SML
- Memorial closed to traffic during construction

# Alternative 10

## Bike/Ped MB, 2-lane SML hybrid upstream

### Pros

- Fully addresses structural deficiencies
- Improvements to SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances
- Reduced # of SML bridge openings/2-lane SML

### Cons

- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Greater natural and physical environmental impacts
- Can only accommodate one mode at a time
- Rail in road at SML
- Some local economic impact
- Impacts to vehicle mobility to Portsmouth, Kittery, and PNSY

# Alternative 11

## Transit Alternative, 2-lane SML hybrid upstream

### Pros

- Improvements to SML (structural, bike/ped, vehicle)
- Improves SML marine vessel clearances
- Reduced # of SML bridge openings/2-lane SML
- One lift bridge to operate and maintain
- Local transit service established

### Cons

- Removal of Memorial and Sarah Long Bridges – NHRL Bridges
- Greater natural and physical environmental impacts
- Can only accommodate one mode at a time
- Rail in road at SML
- Local economic impact
- Impacts mobility to Portsmouth, Kittery, and PNSY

# TIGER II

- Schedule
  - July 16: pre-applications due
  - August 23: applications due
  - September 15: grants announced
- Funding obligation limitation is 9/30/2012
- Less funding than TIGER I, likely many projects competing

# Next Steps

- Feedback on information presented at today's Public Meeting
- Next round of Steering/Stakeholder meetings likely in early July to review detailed evaluation
- Next Public Meeting in late July/early August