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**Route 116 over the Piscataquis River Bridge #3040, Howland,
Maine : Construction Alternative Matrix, April 7, 2009**

Maine Department of Transportation

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Maine Department of Transportation
Route 116 over the Piscataquis River, Bridge #3040
Howland, Maine
Construction Alternative Matrix

Evaluation Parameter	Alternative 1: Full Bridge Rehabilitation	Alternative 2: Bridge Replacement on Existing Alignment	Alternative 2A: Bridge Replacement on Existing Alignment (skewed)	Alternative 3: Staged Bridge Replacement, 32' Upstream Parallel Shift	Alternative 4: Bridge Replacement, 49' Upstream Parallel Shift	Alternative 5: Bridge Replacement, Downstream Alignment
Construction Cost (2009 Dollars)	\$9.15 million	\$10.07 million	\$10.46 million	\$9.57 million	\$9.08 million	\$11.19 million
Construction Duration	19 months	22 months	20 months	27 months	20 months	20 months
Traffic Impact Duration	13 months	17 months	1 month	16 months	2 weeks	1 month
Future Traffic Flow	No change	No change	No change	Slight increase in "S" movement across the river	Larger increase in "S" movement across the river	Major west-bound traffic movements get restricted to a future left turn movement.
Constructability	Significant rehabilitation with less complex utility coordination and maintenance of traffic.	Complex replacement due to up-front utility relocation and I-95 maintenance of traffic.	More complex bridge replacement with potentially complex maintenance of traffic.	More complex staged bridge construction with potentially complex maintenance of traffic.	Standard bridge construction, completely offline; utilities and maintenance of traffic less complex.	Standard bridge construction, completely offline; maintenance of traffic less complex.
Bridge Operation and Maintenance	Rehabilitated structure, 50 year design life, with full replacement following.	New Bridge Structure, minimal maintenance required, 75 year design life, with rehabilitation possible following.	New Bridge Structure, minimal maintenance required, 75 year design life, with rehabilitation possible following.	New Bridge Structure, minimal maintenance required, 75 year design life, with rehabilitation possible following.	New Bridge Structure, minimal maintenance required, 75 year design life, with rehabilitation possible following.	New Bridge Structure, minimal maintenance required, 75 year design life, with rehabilitation possible following.
Highway Approach Design	No improvement to west side adjacent intersection with minimal improvement to horizontal and vertical alignment on east side.	Full reconstruction of approaches, including east side intersection with improved horizontal and vertical alignments.	Full reconstruction of approaches, including east side intersection with improved horizontal and vertical alignments.	Full reconstruction of approaches, including both east and west side intersections with improved horizontal and vertical alignments.	Full reconstruction of approaches, including both east and west side intersections with improved horizontal and vertical alignments.	Full reconstruction of approaches, including both east and west side intersections with improved horizontal and vertical alignments. Impacts up River Road are eliminated.
Pedestrian/Bicycle Access	Pedestrian and bicycle access curtailed during rehabilitation.	Pedestrian and bicycle access eliminated during construction.	Pedestrian and bicycle access maintained throughout construction.	Pedestrian and bicycle access maintained throughout construction.	Pedestrian and bicycle access maintained throughout construction.	Pedestrian and bicycle access will need coordination, but can be maintained throughout construction.
Row Impacts	Minor potential slope easements	Acquisition of 2 properties on the west approach necessary.	Acquisition of 2 properties on the west approach necessary.	Acquisition of 2 properties on the west approach necessary with additional slope easements and loss of river enjoyment.	Acquisition of 2 properties on the west approach necessary with additional slope easements and loss of river enjoyment.	Acquisition of ice rink property from the Town on the west approach and utility property on east approach necessary, slope easements on the boat launch probable, two building takes at west intersection to allow turning lane necessary.
Utility Impacts	Minor adjustments-to-grade. Facilities remain active on existing bridge with no relocation.	More complex utility coordination w/ potential temporary & permanent relocations.	More complex utility coordination w/ potential temporary & permanent relocations; more costly.	Relocated utilities onto replacement bridge structure; minimal disruption to patrons, significant associated costs	Relocated utilities onto replacement bridge structure; minimal disruption to patrons, significant associated costs	Complex and immediate utility coordination required. Relocated utilities onto replacement bridge structure; significant associated costs with power utilities to be relocated up front.
Maintenance of Traffic	Traffic maintained at all times; use of temporary I-95 Interchange required. EMS concerns and inconvenience to local residents with loss of in-town connectivity.	Traffic maintained at all times; use of temporary I-95 Interchange required. EMS concerns and inconvenience to local residents with loss of in-town connectivity.	Downtown traffic maintained at all times; use of temp upstream bridge required, cost equivalent to temp. I-95 interchange.	Traffic maintained at all times; use of one-way signalization required, inconvenience to local residents	Traffic maintained at all times; use of existing structure until replacement structure can be opened to traffic	Traffic maintained at all times; use of existing structure until replacement structure can be opened to traffic (may need temp. lane built).
Environmental Impacts 4(f)	Minor slope work on the east side	Minor impact to boat launch on east side.	Minor impact to boat launch on east side.	More impact to boat launch on east side; parking is reduced, boaters may be required to park on south side of realigned roadway if space available.	Significant impact to boat launch on east side; parking is virtually eliminated, boaters will be required to park on south side of realigned roadway.	Impact to boat launch minimized, ice rink property severely impacted, significant environmental cleanup associated with one site acquisition.
Bridge Hydraulic Capacity	No freeboard. Bottom of superstructure (EL 155.2) below Q100 (EL 157.5)	Vertical profile of bridge and approaches raised to provide 2' min. freeboard above Q100.	Vertical profile of bridge and approaches raised to provide 2' min. freeboard above Q100.	Vertical profile of bridge and approaches raised to provide 2' min. freeboard above Q100.	Vertical profile of bridge and approaches raised to provide 2' min. freeboard above Q100.	Vertical profile of bridge and approaches raised to provide 2' min. freeboard above Q100.

