

Tier 2 Proposed Action

How to Read This Chapter: As directed by Governor John Baldacci and the state legislature, MaineDOT has advanced Segment 4 as the first Tier 2 Proposed Action because construction of this segment will improve transportation mobility in one of the largest cities in Aroostook County, thus advancing the goals of the ACTS Purpose and Need more effectively than other segments.

This chapter describes the alternatives analysis that has led to the identification of the Proposed Action within Segment 4, the Route 1 -161 Connector in Caribou. All accompanying figures are bound separately in Volume 2 of this FEIS.

3.1 Introduction

FHWA and MaineDOT have deferred identifying a preferred corridor at this time. However, based upon the transportation, economic, and environmental analyses and available funding within the foreseeable 20-year construction expectation, MaineDOT has identified Segment 4, the Route 1-161 Connector in Caribou, as the Tier 2 Proposed Action that is the subject of this FEIS.

Segment 4, the Route 1-161 Connector in Caribou is a key component of the overall program of improvements that is being studied as part of the ACTS. Segment 4 is the first segment proposed for construction following completion of the ACTS ROD (for Segment 4 only). The need for, and benefits of, a Route 1-161 Connector in Caribou should not be considered in a vacuum, but rather must be seen as a critical component of a long-term program meant to serve the entire ACTS Area.

3.1.1 Purpose and Need

Improved traffic through or around Caribou would help to reduce travel time to, from, and within Aroostook County; improve traffic flow through downtown Caribou; and reduce speed differentials in developed area, and among highway uses. Segment 4 has independent utility and will partially satisfy the Purpose and Need of the Study for the following reasons:

- It would address the need for traffic relief (particularly trucks) in downtown Caribou;
- It would improve safety at 3 High Crash Location (HCL);
- It would provide better access to the north side of Caribou’s downtown, supporting the recommendations of the Route 1 Corridor Management Plan to concentrate Caribou’s growth in the vicinity of Routes 1 and 89;
- It is consistent with Caribou’s local planning initiatives, including its designated Pine Tree Zone; and
- It would improve network connectivity by linking Route 1 to the Route 161 corridor.

3.1.2 U.S. Army Corps of Engineers Basic Project Purpose

During the Highway Methodology process, the USACE, in conjunction with MaineDOT, identified a Basic Project Purpose (BPP) for Segment 4. The BPP states:

The purpose of the Segment 4 transportation improvements is to enhance regional transportation by improving connectivity and reducing travel times between Route 161 and Route 1 at Caribou, Maine thereby improving public safety and traffic flow/mobility in downtown Caribou.

Each alignment option and alternative evaluated for Segment 4 satisfies, to varying degrees, the USACE BPP and the Purpose and Need of the ACTS as described in Section 1.2 (page 1-6).

3.1.3 Caribou Area Road and Highway Characteristics

Caribou is the second largest city in Aroostook County and one of the major economic activity centers in Aroostook County. Route 1 is the major north-south route through Caribou. Route 1, with controlled access between its southern intersection with Route 164 south of downtown and Route 89 north of downtown, provides an eastern bypass of Caribou. The uncontrolled access Route 164 provides direct access into the downtown from Route 1 south of Caribou and connects Route 1 with Route 161 west of Caribou. Route 164 is built up with commercial development along much of its length.

Route 161 is the principal connection between the St. John Valley (Fort Kent, Frenchville, Madawaska) and areas south and east of Caribou. For most of its length, Route 161 is a 2-lane rural arterial with maximum posted speeds of 55 mph. Vehicles traveling north on Route 1 to the Saint John Valley either exit Route 1 at Route 164 and travel through the one-way downtown loop to reach Route 161 (Figure 3-1) or exit Route 1 further north at Fort Street (Route 161) and then pass through the

downtown business district one-way loop. These connections have a 25-mph speed limit, stop signs, and congested residential and commercial streets, which increase travel times and result in conflicts between through traffic (particularly trucks) and local destination traffic, as well as with the pedestrian use of downtown Caribou.

3.1.4 Segment 4 Study Area

The Segment 4 Study Area (the total area depicted on Figure 3-2) is approximately 10,000 acres, consisting of the eastern portion of downtown Caribou and northern Caribou. The Study area also contains a portion of the western side of the Towns of Woodland and New Sweden.

Downtown Caribou serves as the shopping, business, and employment center for this area. It is a dense population center and provides a full range of community resources and services, including educational, medical, civic, recreational, and commercial facilities. The Aroostook River passes through the southeast portion of the Study Area, serving as the eastern boundary of downtown Caribou.

In contrast, northern Caribou and the portions of Woodland and New Sweden included in the Segment 4 Study Area consist predominately of farmland (approximately 4,900 acres) and undeveloped forest (approximately 3,900 acres).

3.2 Alternatives Evaluated

This section describes the No-Action, build, and other alternatives that have been studied for Segment 4. MaineDOT studied 6 different alignment options and a Transportation System Management (TSM) Alternative with the potential to satisfy the NEPA Purpose and Need for the Route 1-161 Connector in Caribou. The alignment options included the 3 alignment options (Alignment Options 1, 2, and 3) presented in the SDEIS (SDEIS Section 2.6.2, page 3-31) and 3 additional alignment options (Alignment Options 4A, 4B, and 4C) developed during the subsequent USACE Section 404 Highway Methodology process, in coordination with the USACE and other regulatory agencies. Alignment Options 4A, 4B, and 4C, depicted on Figure 3-2 are refinements of the SDEIS alignment options. Segment 4 was modified from SDEIS – the 4-lane section of Route 1 (formally part of segment 5) was eliminated as not requiring modifications.

Each of the 6 Route 1-161 Connector in Caribou Alignment Options, shown on Figure 2-6 and described below, satisfies the Purpose and Need to some degree. Alignment Options 1 and 4C consist of a combination of an upgrade of Route 1 and new location highway, while the other 4 alignment options are primarily new location highways. All are envisioned as eventually being 4-lane, median-divided, access-controlled highways. MaineDOT plans initially to build a 2-lane facility, but

would acquire sufficient ROW (300-foot width) to accommodate widening to 4 lanes in the future, should conditions warrant.

The alternatives and alignment options evaluated for Segment 4 include:

- No-Action Alternative
- Transportation System Management (TSM)
- Route 1-161 Connector Alignment Options
 - Alignment Option 1
 - Alignment Option 2
 - Alignment Option 3
 - Alignment Option 4A
 - Alignment Option 4B
 - Alignment Option 4C

Alignment Options 1, 2, and 3 were dismissed from consideration through the USACE Highway Methodology process conducted subsequent to the SDEIS. The following sections provide a brief description of alternatives and alignment options evaluated for Segment 4 and the reasons they were dismissed (or identified as the preferred alternative). A comparison of the key environmental impacts for these alternatives and alignment options is provided in Table 3-1 (page 3-9).

3.2.1 No-Action Alternative

The No-Action Alternative serves as a baseline to which other alternatives can be compared. The No-Action Alternative is defined as continuing MaineDOT's ongoing construction program with no additional major projects. MaineDOT's *Multimodal Six-Year Capital Improvement Plan, State Fiscal Years 2010-2015* lists the potential projects planned for construction during that period (see Table 2-1, page 2-11). This list includes both highway reconstruction and highway bridge maintenance projects. This program of potential improvements would be carried out regardless of whether or not a separate construction project arises from the EIS and permitting processes.

In 2006, MaineDOT completed construction of a roundabout in Caribou at the intersection of Route 1, North Main Street, and the Cary Medical Center driveway. There are no other planned highway improvements on Route 1 in Caribou.

The No-Action Alternative was dismissed from consideration because it would retain the existing traffic patterns in downtown Caribou. The Route 1-161 connection would continue to be circuitous and slow through the downtown business district. The No-Action Alternative would therefore not improve travel times or remove the through traffic, particularly trucks, from the downtown streets.

3.2.2 Transportation System Management (TSM)

The TSM Alternative includes carrying out measures in downtown Caribou to improve traffic flow. These measures include upgrading 1.3-miles of Route 161 in downtown Caribou, traffic signal timing or signal phasing adjustments, access management improvements, and improved signage or pavement markings.

Currently, there is no direct connection between Route 161, which connects the St. John Valley to Caribou, and Route 1, which is on the east side of Caribou. Route 161 approaches Caribou from the northwest as a 2-lane, 55-mph state highway. In downtown Caribou, Route 161 is a system of one-way city streets that passes through the downtown business district and residential areas. These streets have turning lanes at critical intersections, which are controlled by stop signs or yield signs. There are no traffic signals. The downtown street system is posted at 25 mph. This street system is shown on Figure 3-1.

The purpose of the Route 1-161 Connector is not to correct existing safety or congestion problems in downtown Caribou. The purpose of the Caribou Route 1-161 Connector is to improve regional connectivity and mobility, reduce travel times, and reduce the number of through trips (particularly trucks) through the downtown. There are no direct road connections between Route 161 and Route 1 that could be upgraded to provide a direct, high-speed connection between these 2 highways. It is not practicable or feasible to convert any of the existing downtown streets to a 2-way, direct connection.

The TSM Alternative was dismissed from consideration because it would not satisfy the Purpose and Need other than a negligible (0.4-minute) decrease in travel times.

3.2.3 Alignment Option 1

Alignment Option 1, shown on Figure 2-6, diverges from Route 1 at the Route 1/North Main Street intersection (immediately north of the roundabout at the Cary Medical Center). This option crosses over primarily agricultural land and intersects with Route 161 at-grade near Ogren Road at the Caribou-Woodland municipal boundary. Alignment Option 1 includes 3.5 miles of new alignment highway, and modifies a 0.16-mile section of Route 161 at the intersection of Route 161 and the Route 1-161 Connector.

As seen on Table 3-1 (page 3-9), Alignment Option 1 would result in only moderate reduction in travel times, total VHT, and truck VHT for through trips between points northwest (Route 161) and south (Route 1) of Caribou, when compared to the No-Action Alternative. Of the alignment options studied, Alignment Option 1 performed the third-worst in the traffic analysis, as seen on Figure 3-6 (page 3-14).

As seen on Table 3-2 (page 3-10), Alignment Option 1 results in the second-fewest acres of wetland impact (6 acres) but has the highest amount of farmland impact (83 acres) and has 9 structures impacts.

Alignment Option 1 was dismissed from consideration because it only minimally satisfies the transportation elements of the NEPA Purpose and Need, is not practicable because the City of Caribou opposes the commercial property and business impacts, and has substantial environmental impacts to non-aquatic resources.

3.2.4 Alignment Option 2

Alignment Option 2, shown on Figure 2-6, includes an upgrade of 0.35 miles of Route 1 beginning at the High Street intersection north to the Route 89 intersection. It then diverges from Route 1 and extends north through a mix of agricultural land and forest east of the Cary Medical Center. It then swings west, crossing Route 1 and more open, agricultural land and forest before intersecting with Route 161 near Ogren Road at the Caribou-Woodland municipal boundary.

Alignment Option 2 includes 4.8 miles of new-alignment highway and 0.35 miles of existing highway reconstruction, including a 0.16-mile section of Route 161 that would be upgraded at the intersection of Route 161 and the Route 1-161 Connector.

Alignment Option 2 has the second highest amount of wetland impact (20 acres) of the alignment options considered and substantial farmland impacts (54 acres). It would result in the loss of 7 commercial and 15 residential properties, with potentially severe economic consequences to the City of Caribou.

Alignment Option 2 was dismissed from consideration because, although it would satisfy the transportation elements of the NEPA Purpose and Need, it is not practicable because the City of Caribou opposes the commercial property and business impacts, and has substantial environmental impacts to non-aquatic resources (see Table 3-2, page 3-10). Other alignment options retained for consideration would satisfy the transportation elements of the NEPA Purpose and Need with less impact to aquatic resources and other natural and social environmental resources.

3.2.5 Alignment Option 3

Alignment Option 3, shown on Figure 2-6, is on primarily new alignment. It includes an upgrade of Route 1 along an approximately 0.11 mile long section then extends along new alignment northeast roughly parallel to the Montreal, Maine, and Atlantic (MM&A) railway before swinging northwest, crossing Route 89, and traveling along 1.2 miles of the Bangor-Aroostook Trail (a publicly-owned trail along a former rail

line used by ATVs and snowmachines), crossing predominantly undeveloped forest; crossing Route 1, and then traversing farmlands and forest before intersecting with Route 161 near Ogren Road at the Caribou-Woodland municipal boundary along the same alignment as Alignment Option 2.

Alignment Option 3 includes 5.4 miles of new-alignment highway and 0.27 miles of existing highway reconstruction, including the upgrade of a 0.16-mile section of Route 161 at the intersection of Route 161 and the Route 1-161 Connector and 0.11 miles of Route 1 at the south end of the Connector.

As seen on Table 3-2 (page 3-10), Alignment Option 3 has the highest amount of wetland impact (22 acres) of the alignment options considered and substantial farmland impacts (49 acres). It would result in the loss of 5 commercial and 12 residential properties, with potentially severe economic consequences to the City of Caribou.

Alignment Option 3 was dismissed from consideration because, although Alignment Option 3 satisfies the transportation elements of the NEPA Purpose and Need and is practicable, it would result in the greatest impact to wetlands (22 acres) of the alignment options considered. There are other alternatives under consideration that would have less wetland impact and would be less environmentally damaging.

3.2.6 Alignment Option 4A

Alignment Option 4A (Figure 3-3) was developed based on recommendations from the City of Caribou to minimize impacts to the commercial/business district at the intersection of Routes 1 and 89.

Alignment Option 4A would be primarily on new alignment. It would include an upgrade of Route 1 along an approximately 0.3 mile long section and would extend northeast along new alignment roughly parallel to the MM&A railway before swinging northwest and crossing Route 89. From Route 89, this alignment option would cross predominantly undeveloped forest, cross Route 1, and then traverse farmland and forest before intersecting with Route 161 near Ogren Road.

Alignment Option 4A would include 5.2 miles of new-alignment highway, and 0.46 miles of existing highway reconstruction, including the upgrade of a 0.16-mile section of Route 161 to “tie-in” to Route 161 and a 0.3 mile section of Route 1 at the south end of the Connector. It would have an at-grade intersection with Route 1 (south) and Route 161, and a grade-separated intersection at Route 1. Route 89 would not be provided access and would be either overpassed or underpassed.

Alignment Option 4A satisfies the Purpose and Need for Segment 4. However, Alignment Option 4A was not selected as the Preferred Alternative because, as seen

on Table 3-2 (page 3-10), it would result in 15.5 acres of wetland impact and 66 acres of farmland impact. This is substantially more than other alignment options considered. Alignment Option 4A also requires the use of a Section 4(f) property, a land taking from a National Register-eligible property (Banked Dairy Barn). Alignment Option 4A results in the greatest impact to structures (10) as compared to Alignment Options 4B and 4C.

3.2.7 Alignment Option 4B

Alignment Option 4B was developed based on recommendations from the City of Caribou to minimize impact to the commercial/business district at the intersection of Routes 1 and 89 and to reduce wetland impact.

Alignment Option 4B, shown on Figure 3-4, would be primarily on new alignment. It would include an upgrade of Route 1 along an approximately 0.3 mile long section, and then extend northeast along new alignment roughly parallel to the MM&A railway before swinging northwest and crossing Route 89. North of Route 89, this alignment option crosses predominantly undeveloped forest, crosses Route 1, and then traverses farmlands and forest before intersecting with Route 161 near Ogren Road.

Alignment Option 4B includes 3.7 miles of new-alignment highway, and 0.58 miles of existing highway reconstruction. A 0.28-mile section of Route 161 would be upgraded to “tie-in” to Route 161, and 0.3 miles of Route 1 would be upgraded at the south end of the Connector. Alignment Option 4B ties into Route 161 at a “T” intersection approximately 1.5 miles south of Ogren Road. It has an at-grade intersection with Route 1 (south) and Route 161, and a grade-separated intersection at Route 1 (north). Route 89 would not be provided access and would be either overpassed or underpassed.

Alignment Option 4B satisfies the Purpose and Need for Segment 4. Alignment Option 4B results in the fewest acres of wetlands impact and farmland impact (see Table 3-2, page 3-10). Alignment Option 4B results in the fewest structures takings. Alignment Option 4B has been selected as the Preferred Alternative.

3.2.8 Alignment Option 4C

Alignment Option 4C, shown on Figure 3-5, was developed based on comments from the U.S. Environmental Protection Agency (EPA) that a shorter route be considered. Alignment Option 4C would depart from Route 1 approximately 1.25 miles north of the Route 1/North Main Street intersection (north of the

**Table 3-1
 Summary of Transportation Benefits vs. No-Action Alternative (2030)**

	Truck VHT	Total VHT	Total VMT	Travel Time	Mobility	Downtown Truck ADT	Downtown Total ADT
No-Action Alternative				<i>9 min</i>	<i>39%</i>	<i>1,240 trucks</i>	<i>13,730 vehicles</i>
TSM Measures	<i>-10 vehicle-hours</i>	<i>-70 vehicle-hours</i>	no change	<i>-0.4 min.</i>	<i>39 %</i>	<i>no change</i>	<i>no change</i>
Alignment Option 1	-30 vehicle-hours	- 230 vehicle-hours	+ 80 vehicle-miles	- 0.8 min.	40 %	- 120 trucks	- 1,310 vehicles
Alignment Option 2	- 50 vehicle-hours	<i>- 360 vehicle-hours</i>	+ 930 vehicle-miles	<i>- 2.4 min.</i>	40 %	- 340 trucks	<i>- 3,730 vehicles</i>
Alignment Option 3	<i>-60 vehicle-hours</i>	- 310 vehicle-hours	+ 2,170 vehicle-miles	- 2.0 min.	40 %	- 280 trucks	- 3,080 vehicles
Alignment Option 4A	- 50 vehicle-hours	- 340 vehicle-hours	+ 1,540 vehicle-miles	- 2.2 min.	40 %	- 310 trucks	- 3,450 vehicles
Alignment Option 4B	- 50 vehicle-hours	- 310 vehicle-hours	<i>+2,190 vehicle-miles</i>	- 2.0 min.	40 %	- 280 trucks	- 3,060 vehicles
Alignment Option 4C	-30 vehicle-hours	-220 vehicle-hours	+ 85 vehicle-miles	- 0.7 min.	40 %	- 270 trucks	-2,980 vehicles

Note: Shaded entries denote the optimal value for each measure. Entries in bold and italics denote the worst value for each measure.

**Table 3-2
 Comparison of Key Environmental Impacts**

Alignment Option	Length of New Highway (mi)	Length of Upgraded Highway (mi)	Access Points	Wetland Impacts ¹ (ac)	Farmland Impacts ² (ac)	Number of Stream Crossings ¹	Structures Impacted ²	Historic Properties Affected ²	Section 4(f) Property Affected ^{2,3}
TSM	0.0	1.3	No change in access	0	0	0	0	0	0
Alignment Option 1	3.5	0.16	Route 1 (south) Route 161	6	83	2	9	1	1
Alignment Option 2	4.8	0.35	Route 1 (south) Route 1 (north) ⁴ Route 161	20	54	2	22	1	1
Alignment Option 3	5.4	0.27	Route 1 (south) Route 1 (north) ⁴ Route 161	22	49	2	17	1	2
Alignment Option 4A	5.2	0.46	Route 1 (south) Route 1 (north) ⁴ Route 161	15.5	66	1	10	1	1
Alignment Option 4B (Preferred Alternative)	3.7	0.58	Route 1 (south) Route 1 (north) ⁴ Route 161	3.4	32	1	4	0	0
Alignment Option 4C	2.8	0.16	Route 1 (north) Route 161	7.9	62	0	5	2	2

¹ Based on width of a two-lane highway. Wetland Impacts for Alignment Options 4A, 4B, and 4C rounded to nearest tenth of an acre

² Based on the full 300foot ROW Width.

³ Includes Historic Property Impacts

⁴ Indicates that access point is grade separated. All other access points are envisioned as being non-grade separated interchanges.

Cary Medical Center roundabout), and extend northwest across farmland and forest before intersecting with Route 161 near Ogren Road, using the same alignment as Alignment Option 2.

Alignment Option 4C includes 2.8 miles of new-alignment highway. A 0.16-mile section of Route 161 would be upgraded to “tie-in” to Route 16. It has an at-grade intersection with Route 1 (south) and Route 161.

Alignment Option 4C marginally satisfies the Purpose and Need for Segment 4. However, Alignment Option 4C was not selected as the preferred alternative. It performed worse than all other options in the traffic analysis because it is routed through the Route 1 roundabout at the Cary Medical Center. Alignment Option 4C also requires the use of 2 Section 4(f) properties, both land taking from National Register-eligible properties (Banked Dairy Barn and Colonial Revival-style House). This alignment option would also impact more than twice as many acres of wetlands than Alignment Option 4B (7.9 acres vs. 3.4 acres) and nearly double the acres of farmland (62 acres vs. 32 acres) (see Table 3-2, page 3-10).

3.3 Identification of the Preferred Alternative

The identification of the Preferred Alternative for Segment 4 was based on an analysis of the forecast transportation benefits and environmental impacts of the alternatives and alignment options evaluated for Segment 4. The following sections describe the results of the transportation benefit analysis and environmental impact analysis which led to selection of the Preferred Alternative.

3.3.1 Transportation Benefit Analysis

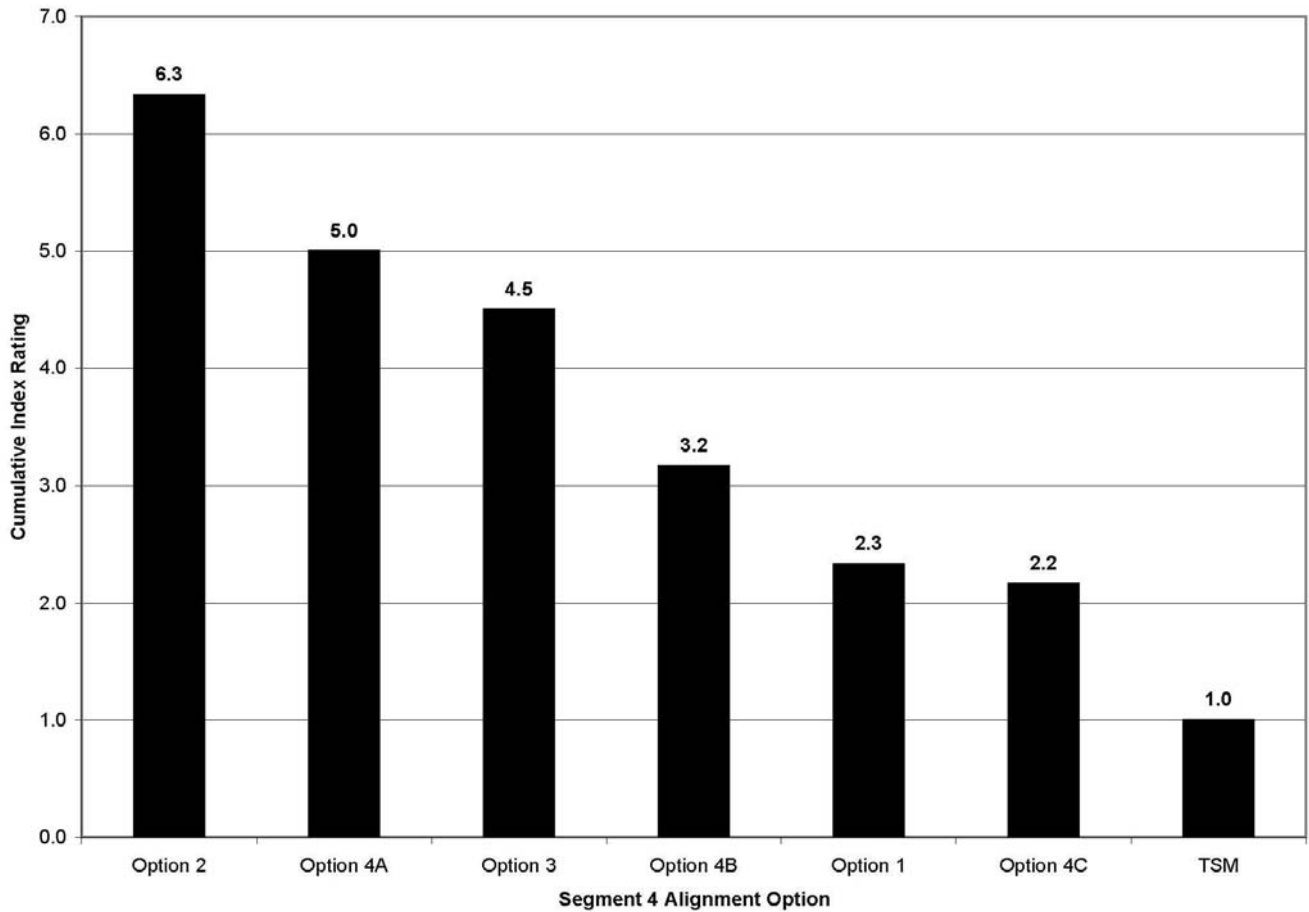
The SDEIS TTM¹ contains a detailed description of the Aroostook County Travel Demand Model that was used to evaluate how the Route 1-161 Connector Alignment Options performed with respect to the USACE Basic Project Purpose (BPP) and the NEPA Purpose and Need. This methodology was subsequently applied to Alignment Options 4A, 4B, and 4C.

To better compare the relative difference between the TSM Alternative and Alignment Options 4A, 4B, and 4C's performance,² the results were indexed. For each performance measure, the optimal values were indexed to 1.0, the worst values were indexed to 0, and the remaining values were rated proportionally between 0 and 1.0. See Figure 3-6 on page 3-12.

¹ Vanasse Hangen Brustlin, Inc. August 2005. *Supplemental Draft Environmental Impact Statement, Traffic Analysis Technical Memorandum*. Prepared for the Maine Department of Transportation

² At the time of the 2007 transportation benefit analysis, Alignment Options 1, 2, and 3 had already been dismissed by MaineDOT, through the USACE Highway Methodology Process, because of excessive impacts to wetlands and farmland.

Figure 3-6: Segment 4 - Ranking of Transportation Benefits



For all performance measures considered (travel time savings, vehicle-miles traveled, vehicle-hours traveled, mobility, and downtown traffic shifts), Alignment Option 2 has the greatest transportation benefits because it would save the most time (2.4 minutes) and it would remove the most through traffic from downtown Caribou (3,730 vehicles per day, including 340 trucks per day). Of all the 3 FEIS build options (Alignment Options 4A, 4B, 4C), Alignment Option 4A would provide greatest overall transportation benefits. Alignment Option 4B ranked fourth in the transportation benefit analysis, behind Alignment Options 2, 4A and 3, respectively. Alignment Options 1, 4C, and the TSM Alternative performed more poorly than Alignment Option 4B.

3.3.2 Environmental Impact Summary

The Segment 4 Alignment Options were evaluated to determine their impact on wetlands, stream crossings, and Inland Waterfowl and Wading Bird Habitat (IWWH) based on the calculated slope limits for a 2-lane facility. Impacts to structures,

farmland, historic properties, and Section 4(f) properties are based on a 300-foot ROW width because these impacts are caused by land acquisition. Impact to vernal pools is based on a 250-foot offset from the centerline of the proposed 2-lane roadway. Detailed results of the environmental impact analysis can be found in Chapter 5. A summary of the results is provided below.

The key environmental impacts assessed were impacts to wetlands, streams, farmland, structures, historic structures, and Section 4(f) properties (Table 3-2, page 3-10). Wetland impacts were considered because of the need to minimize impacts to the aquatic environment under federal and state regulations.

Impacts to resources protected under Section 106 of the National Historic Preservation Act (NHPA), as amended and under Section 4(f) of the DOT Act [Section 4(f)], were also evaluated. Section 4(f) of the DOT Act stipulates that a DOT action may not use land from a Section 4(f) property (public parks, public recreation lands, public wildlife refuges, or historic sites) unless there are no prudent and feasible alternatives.

Impacts to farmland were considered to be of critical importance to the affected community because of their protected status under the Federal Farmland Protection Policy Act and because of the importance that agriculture plays in the economy of Aroostook County and its way of life.

There are no alignment options that would avoid wetland impacts. Wetland impacts calculated for the various alignment options ranged from approximately 3.4 acres for Alignment Option 4B to 22 acres for Alignment Option 3. A TSM alternative would likely not affect wetlands because it would be within a highly developed urban area.

The alignment options can be ranked with respect to wetland impacts, from least (greatest wetland impact avoidance) to most (least wetland avoidance):

1. TSM (least)
2. Alignment Option 4B
3. Alignment Option 1
4. Alignment Option 4C
5. Alignment Option 4A
6. Alignment Option 2
7. Alignment Option 3 (most)

Alignment Options 4A and 4B require 1 new stream crossing while Alignment Options 1, 2, and 3 require 2 new stream crossings. Alignment Option 4C and TSM do not require any new stream crossings.

Historic property impacts were low among all alternatives. Alignment Options 1, 2, 3, 4A, and 4C would likely have a *de minimis* impact to a historic property on

Route 161 (Historic Property 862, Banked Dairy Barn). Alignment Option 4C would affect a second historic resource at its eastern intersection with Route 1 (Historic Property 847/849, early 20th Century Colonial Revival house and dairy barn). The effect on these 2 properties is likely to be determined to be *de minimis* as well.

The alignment options can be ranked with respect to historic property impacts, from least (historic properties affected) to most (historic properties affected):

1. Upgrade/TSM and Alignment Option 4B (least)
2. Alignment Options 1, 2, 3, and 4A
3. Alignment Option 4C (most)

Farmland impacts ranged from 32 acres for Alignment Options 4B to 83 acres for Alignment Option 1. Alignment Option 4B would be the least disruptive to farming operations because it does not cross diagonally across farmfields. This analysis considered the operational impacts associated with crossing the center of a field rather than impacts only along the periphery of a field.

The alignment options can be ranked with respect to farmland impacts, from least (acres of farmland affected) to most (acres of farmland affected):

1. TSM (least)
2. Alignment Option 4B
3. Alignment Option 3
4. Alignment Option 2
5. Alignment Option 4C
6. Alignment Option 4A
7. Alignment option 1 (most)

Each Alignment Option would affect structures (residential, commercial, agricultural, industrial, or utility). The number of structures affected ranges from 4 for Alignment Option 4B to 22 for Alignment Option 2. The ranking of alignment options with respect to structures is:

1. TSM (least)
2. Alignment Option 4B
3. Alignment Option 4C
4. Alignment Option 1
5. Alignment Option 4A
6. Alignment Option 3
7. Alignment Option 2 (most)

A TSM Alternative, if developed, may affect social resources, specifically, structures and historic and Section 4(f) property, in downtown Caribou.

3.3.3 Preferred Alternative

MaineDOT, based on an evaluation of the transportation benefit analysis and the environmental impact analysis, identified Alignment Option 4B as the Preferred Alternative for Segment 4. Of the alignment options evaluated, Alignment Option 4B has the least impact to wetlands, farmland, historic property, and structures. The USACE, in a letter dated September 18, 2008, concurred with this finding (see Appendix A) and identified Alignment Option 4B as the Least Environmentally Damaging Practical Alternative (LEDPA).

This Page Intentionally Left Blank