

Route 1 and Route 1A Mobility and Safety Analysis

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Prepared by: Jeremy Gabrielson and Judy East
Washington County Council of Governments

Introduction

As the primary transportation corridor for coastal Washington County, Route 1 (along with the designated Route 1A corridors in Milbridge, and Harrington; and Jonesboro, Whitneyville and Machias) provides vital transportation links for freight, commuter and tourist traffic moving into, out of and through coastal Washington County.

Route 1 (or designated Route 1A corridors) serves as the “Main Street” for many communities in the region including: Milbridge, Cherryfield, Harrington, Jonesboro, Whitneyville, Machias, East Machias, Whiting, Perry, Pembroke, Robbinston and Calais. Multiple, clustered, curb cuts and reduced speed limits in these areas with higher densities of development impede the movement of through traffic along the corridor. Additionally, anticipated development of seasonal and year-round homes in coastal communities along the corridor will result in increased commuter and tourist traffic throughout Washington County.

Municipal land use regulations must play a role in preserving the corridor’s ability to serve as a regional transportation artery. At the same time, design solutions that facilitate the separation of freight from commuter and tourist traffic are also needed to maintain an adequate level of service.

- This report identifies three primary strategies for separating freight from commuter and tourist traffic: improved turning access to facilitate separation of commuter and through-traffic;
- additional scenic pull-offs to facilitate separation of tourist and freight traffic; and
- the addition of passing lanes.

Along the approximately 100-mile corridor between Steuben and downtown Calais, we identified 16 locations where roadway improvements for turning access are needed. This report recommends that MDOT make necessary roadway improvements for turning access at all 16 identified locations. We also identified 11 potential sites for scenic pull-outs to facilitate separation of tourist and freight traffic; and 26 potential locations for passing lanes. This report recommends development of four additional scenic pull-outs; and at least four passing lanes in each direction.

TURNING LANES

Overview

Between Steuben and downtown Calais, we identified 16 locations where roadway improvements for turning access would enhance separation of commuter and through-traffic and improve roadway safety. (See Map 1). Recommended improvements at the various sites include expanded shoulders for turning traffic; designated left-hand turn lanes; and widened throats for improved turning access. The locations identified for improvements include schools, tourist attractions and intersections of major commuter routes with the Route 1 Corridor (see Table 1).

Our recommendations for roadway improvements at these locations are based on observations of impeded traffic flow and consultation with local officials.

We recommend that substantive improvements to improve separation of commuter and freight traffic be made at all 16 identified locations.

Table 1: Turning Lanes

Site	Town	Recommended Improvements	
		Northbound	Southbound
1. Smithville Road	Steuben	Right-hand turn lane	Left-hand turn lane
2. Harrington Elementary School	Harrington	Right-hand turn lane	Left-hand turn lane
3. Jct of Route 1 and 1A	Harrington		Expanded shoulder for right-hand turn lane
4. Columbia Falls, West	Columbia Falls	Expanded shoulder for right-hand turn lane	
5. Columbia Falls, East	Columbia Falls		Left-hand turn lane
6. 187 Jct East	Jonesboro		Left-hand turn lane
7. Jonesboro Elementary School	Jonesboro	Expanded shoulder for right-hand turn lane	
8. Jct of Route 1 and 1A	Jonesboro	Left-hand turn land	
9. Cobscook State Park	Edmunds	Right-hand turn lane	Left-hand turn lane
10. Pembroke Elementary School	Pembroke		Expanded shoulder for right-hand turn lane
11. Perry Elementary School	Perry	Expanded shoulder for right-hand turn lane	Left-hand turn lane
12. Robbinston School	Robbinston		Expanded shoulder for right-hand turn lane
13. Robbinston Boat Launch	Robbinston	Right-hand turn lane	Left-hand turn lane
14. St. Croix Island International Historic Site	Calais	Widened throat for right-hand turn lane	Widened road way for left-hand turn lane
15. Devil's Head Conservation Area	Calais	Widened throat for turning traffic; wayfinding signage	Left-hand turn lane; wayfinding signage
16. Washington County Community	Calais	Left-hand turn lane	

SCENIC PULL-OFFS

There are currently four designated scenic pull-offs along the Route 1 Corridor between Steuben and downtown Calais. Two existing pull-offs – Little Augusta and the Edmunds Picnic Area – are in Edmunds Twp, a third pull-off without interpretive signage is near the Ridge Road in Robbinston, and the fourth is south of the city center in Calais; the only public restroom facility currently available is one seasonal outhouse at the Edmunds picnic area. Additional informal scenic pull-offs include: “the Dyke” (so-called) in Machias and the public boat launches at Indian Lake in Whiting and on Passamaquoddy Bay in Robbinston. Public facilities are not available at any of these locations. In addition, site constraints, limited parking, and heavy use by commercial and recreational boaters limit the usefulness of the public boat launch in Robbinston as a scenic pull-off.

Including the three existing sites, we identified a total of 12 sites between Steuben and Calais that either currently function as scenic pull-off or have the potential for development of a scenic pull-off. Sites were identified based on:

- a) **Existing use.** Existing, designated pull-offs and non-designated pull-offs that function as scenic pull-off were included in the inventory.
- b) **Visual Amenities.** Locations where visual amenities such as water views or scenic vistas are visible from the roadside were identified through direct observation and GIS analysis.
- c) **Input from local officials.**

With appropriate interpretive signage, strategic development of scenic pull-outs has the potential to enhance ongoing tourism promotion and resource protection efforts in Washington County. In many cases, the scenic attributes of a site lend themselves to themed interpretive signage. Where this is the case, we have identified partner agencies that may be interested in collaborative site development and/or development of interpretive signage.

To enhance tourism infrastructure along this section of the coast and facilitate the separation of tourist traffic from through traffic, we recommend development of one scenic pull-out each in Segment 1, Segment 2 and Segment 3. This would bring the corridor to a level of one scenic pull-out approximately every 20 miles, facilitating greater separation of tourist from commuter and freight traffic. We also recommend development of additional facilities at the site in Robbinston (including interpretive signage and a picnic area) in order to encourage more tourist traffic to use the identified scenic pull-off as opposed to the nearby Robbinston boat launch. Our findings and recommendations are summarized below (Table 2).

The potential sites for development of scenic pull-outs have been vetted with local officials. We have not conducted on-the-ground site analysis or deed research on any of the recommended sites.

Table 2: Scenic Pull-offs

Site	Direction/Location	Scenic Attribute	Existing Facilities	Recommendations	Theme (<i>Partner</i>)
1. Narraguagus River (<i>Milbridge</i>)	Northbound ¼ north of bridge on <i>Narraguagus R</i>	Salt marsh; Narraguagus River	None	-Pull-out -Interpretive signage	Atlantic salmon (<i>Narraguagus Watershed Council</i>)
2. Mill River (<i>Harrington</i>)	Either direction <i>Mill River bridge</i>	Mill River; historic mill works	None	*Paved pull-off *Interpretive signage *Boat Launch	Ice Age Trail (<i>Down East RC&D</i>)
3. Curtis Creek (<i>Harrington</i>)	Either direction <i>Curtis Cr. bridge</i>	Curtis Creek	None	*Paved pull-off *Boat Launch	
4. Blueberry Barrens (<i>Jonesboro</i>)	Northbound ~3/4 mi west of J'boro town line	Blueberry barrens; scenic vista	None	*Paved pull-off *Interpretive signage	1. Blueberry barren (<i>UMaine Coop. Ext.</i>) 2. Ice Age Trail (<i>Down East RC&D</i>)
5. Machias Dyke (<i>Machias</i>)	Southbound <i>In-town Machias</i>	Machias Bay; Middle River	Paved parking; Boat launch; Farmers' Market	*Development of visitor center at Station 98	
6. Indian Lake Boat Launch (<i>Whiting</i>)	Southbound <i>Indian Lake</i>	Indian Lake	Public boat launch; Gravel parking	*Landscaping *Interpretive signage *Picnic tables	
7. Little Augusta (<i>Edmunds</i>)	Northbound	Cobscook Bay	Gravel parking; Kayak launch	<i>Development of additional facilities not recommended.</i>	
8. Truck Pull-off (<i>Edmunds</i>)	Southbound ~¼ mi north of Crane Bk. bridge	Crane Brook (View blocked by vegetation).	Paved roadside parking	<i>Development of additional facilities not recommended.</i>	
9. Picnic Area (<i>Edmunds</i>)	Northbound	Mixed hardwood forest	Picnic table area; Outhouse; Paved parking	*Interpretive signage	Woodcock habitat (<i>Moosehorn NWR</i>)
10. 'Quoddy Bay Vista (<i>Robbinston</i>)	Northbound & Southbound >1/4 mi N of Ridge Rd	Passamaquoddy B. Saint Andrews, NB	Paved parking north- & southbound; Way finding signage	*Interpretive signage *Picnic area(s)	
11. Boat Launch (<i>Robbinston</i>)	Northbound ~3 mi south of Calais city line	Passamaquoddy B.	Public boat launch	<i>Development of additional facilities not recommended.</i>	
12. Whitlock Mills Picnic Area (<i>Calais</i>)	Northbound ~3.5 mi south of downtown Calais	St. Croix River & Whitlock Mills Light	Paved roadside parking; Picnic area	<i>Development of additional facilities not recommended.</i>	

PASSING LANES

Overview

There are currently no passing lanes (or “truck lanes” or “third lanes”) along Route 1 between Steuben and Calais. Passing opportunities are limited to passing zones designated by yellow dotted lines. In some locations, existing passing opportunities are sufficient to allow for unimpeded flow of traffic. However, along most of the length of the corridor additional passing opportunities are needed. At times of peak traffic, oncoming traffic frequently limits the use of existing passing zones. This is especially true during summer months. Based on an anticipated increase in traffic volume, existing passing opportunities will be increasingly limited, especially at time of peak traffic volume.

For the purposes of making detailed recommendations, we divided the Route 1 Corridor between Steuben and Calais into 4 segments that roughly reflect the movement of commuter and local traffic within the region. In order to allow for sufficient separation of commuter traffic from tourist and freight traffic, we recommend development of at least one passing lane in each direction within each segment. (More detailed recommendations below). Site location maps are included in this report as Appendix 1.

Methodology

Site selection criteria for potential passing lanes were:

- 1). **Proximity to population centers:** As a primary consideration, sites were selected to be outside of built-up areas; and away from significant civic locations and traffic generators (such as schools and factories). Where sites for potential passing lanes are recommended near population centers, the recommendation direction is oriented away from developed areas
- 2). **Impact on adjacent properties:** As a secondary consideration, we considered the number of existing houses and curb cuts along the roadway; as well as the proximity of houses to the road.
- 3). **Sight lines:** In general, we gave preference to relatively flat, straight segments of road that provide ample sight lines for overtaking traffic.
- 4). **Slope:** Preference was given to sites with shallow slope adjacent to roadway in order to minimize the need for blasting and/or fill.
- 6). **Wetlands impact:** In order to minimize wetlands impacts, we gave preference to sites that do not cross and are not adjacent to open bodies of water. Water bodies as well as hydric and partially hydric soils are identified on site location maps appended to this report.
- 7). **Grade:** In general, we gave preference to sites with limited grade. Grade was a factor in determining the recommended direction for passing lanes: in general, the recommended direction of passing lanes is uphill.
- 5). **Length of roadway:** We limited site selection to segments of suitable roadway that were approximately 1 km (0.6 mi) in length or greater. Lengths of roadway included in this report are approximate and included for planning purposes only; the actual lengths will vary based on site analysis and on-the-ground considerations.

Initial site selections were determined by windshield survey; and subsequently confirmed by return visit(s) and GIS analysis. Site selection did not include any analysis of land ownership; not did it include any detailed survey work or engineering.

Site location detail maps for each of the 26 identified sites are included as an appendix to this report. Maps depict the approximate location of each site with available aerial photography, contours (in 20-foot intervals), and soils data depict hydric and partially-hydric soils. Maps included with this report are intended for planning purposes exclusively. Detailed engineering and survey work is required to determine site suitability.

Segment 1: Route 1 Steuben to Columbia Falls

Along Route 1, it is approximately 24 miles from the county line in Steuben to Four Corners in Columbia Falls. Along this segment, Route 1 passes through town centers in Milbridge, Cherryfield and Harrington; it by-passes the village of Steuben. The town center in Milbridge and Four Corners in Columbia Falls both have significant retail and service attractions for local and commuter traffic; there is also a high volume of traffic entering and leaving at Four Corners on the Addison Road and Station Road.

High volumes of northbound freight traffic exit in Milbridge, Cherryfield and Harrington on Route 1; likewise, southbound freight enters at these same locations. High volumes of northbound commuter, tourist and through traffic exit at Route 1A in Milbridge; due to road conditions and the location of businesses, Route 1A sees more limited use by freight traffic. Some volume of northbound tourist traffic enters at Route 182 in Cherryfield.

Commuter traffic along this segment moves largely among Milbridge, Cherryfield, and Harrington. From Cherryfield west, commuter traffic moves predominantly west in the morning and east in the evening; from Harrington east, the predominant direction of commuter traffic is east in the morning and west in the evening.

We identified four potential locations for passing lanes (points A, B, C, D on General Map) between Steuben and Milbridge center. Because of the higher volumes of traffic along this stretch of road (both northbound traffic has split at Route 1A; and after southbound traffic has merged), one passing lane in each direction is merited between Steuben and Milbridge. If only one passing lane can be accommodated, a southbound passing lane between Steuben and Milbridge would be more useful than a northbound passing lane, given the separation of northbound freight and commuter traffic at Route 1A in Milbridge.

Due to roadway characteristics and a greater density of development no sites for potential passing lanes were identified between Milbridge and Cherryfield.

We identified three potential locations for passing lanes on the stretch of roadway between Cherryfield and Harrington (known as the “Cherryfield Stretch”). This stretch of roadway offers the greatest potential for development of passing lanes between Steuben and Columbia Falls. Non-forested wetlands and the adjacent Sunrise Trail Corridor north of the roadway represent potential site constraints. However, we recommend that these three sites have the highest priority for the development of passing lanes (Sites E, F and G).

Due to roadway characteristics and a greater density of development no sites for potential passing lanes were identified between Harrington and Columbia Falls.

Recommendations:

- 1). *At least one northbound and one southbound passing lane. The highest priority sites should be Site E, Site F and Site G;*
- 2). *A southbound passing west of Milbridge (Site A, Site C or Site D);*
- 3). *A northbound passing lane west of Milbridge (Site A or Site B).*

Segment 1A: Route 1A (Milbridge and Harrington)

It is approximately 8 miles along Route 1A between Milbridge and Harrington. For through traffic, Route 1A represents a significant time savings over Route 1 both due to its shorter length and because it avoids the villages of Cherryfield and Harrington. However, the road surface is significantly degraded, especially in Milbridge. Resurfacing and shoulder would significantly increase the usefulness of Route 1A for freight and other traffic.

In addition, there are currently no passing opportunities along Route 1A. We identified two potential locations (points H and I on General Map) for passing lanes (one in each direction) along this stretch of road way. To allowing for adequate passing opportunities and separation of freight and commuter traffic, we recommend that both of these sites be developed as part of larger roadway improvement project for this stretch of roadway.

Recommendations:

- 1). *Resurfacing between downtown Milbridge and the Harrington town line.*
- 2). *One passing lane in each direction.*

Segment 2: Route 1 Columbia Falls to Machias

It is approximately 18 miles along Route 1 from Four Corners in Columbia Falls to downtown Machias. Route 1 passes through the village of Jonesboro along this segment; it bypasses the village of Columbia Falls.

A significant volume of commuter traffic northbound traffic exits in Columbia Falls both at Main Street and Route 187. In Jonesboro, a high volume of northbound traffic enters at Route 187; and a high volume of traffic exits at Route 1A. High volumes of northbound and southbound traffic both enter and exit at Machias.

Southbound from Machias, high volumes of traffic exits in the village of Jonesboro and Route 187 in Jonesboro as well as at Four Corners in Columbia Falls. A high volume of traffic enters at Route 187 in Columbia Falls. Route 1A in Jonesboro is primarily used by local and commuter traffic; most traffic exiting onto to Route 1A is northbound and most entering traffic from Route 1A is southbound.

Freight traffic to and from Jonesport enters and exit primarily at Route 187 in Columbia Falls; the largest volume of freight traffic along this segment is through-traffic, moving from Columbia Falls and points west to Machias and points east and vice versa.

Existing passing opportunities along this segment are limited by relatively short sight lines and high traffic flow, especially at peak hours. We identified five potential locations (points J, K, L, M on General Map) for passing lanes along this stretch of road way: one northbound, one southbound, and two that could accommodate either direction. On initial assessment, Site N (southbound) appears to have the fewest constraints in terms of wetlands and impacts on adjacent property owners.

To allowing for adequate passing opportunities and separation of freight and commuter traffic, we recommend development of at least one passing lane in either direction along this segment.

Recommendations:

1) One passing lane in each direction.

Segment 2A: Route 1A Jonesboro, Whitneyville, and Machias

It is approximately 8 miles along Route 1A between Jonesboro and Machias. Due to the fact that Route 1A is longer and passes through the village of Whitneyville, this route is primarily used by local and commuter traffic. Road conditions, especially between Whitneyville and Machias, further limit the usefulness of this route for freight traffic.

Based on field observation and input for local officials, it appears that existing passing opportunities between Jonesboro and Whitneyville are adequate. We did not identify any locations for potential passing lanes along this segment.

Segment 3: Route 1 Machias to Whiting

It is approximately 17 miles along Route 1 from Machias to Whiting Center. Route 1 passes through the village of East Machias along this segment.

A significant volume of commuter traffic northbound traffic enters and exits in East Machias at the Rim Road, in the village, and at Route 191. A significant volume of northbound traffic also exits at Route 191 as it provides a shorter route to Calais. High volumes of northbound tourist traffic exit at Route 189 in Whiting Center. Southbound from Whiting, high volumes of traffic exit in East Machias at Route 191 and in the village.

Existing passing opportunities between Machias and East Machias are inadequate; and both passing opportunities and shoulder expansion issues need to be addressed on Route 191. Between East Machias and Whiting center, existing passing opportunities are largely sufficient for current traffic volumes except at peak hours and during summer week-ends.

Due to limited development, most traffic along this stretch of road is through traffic moving between Whiting, Lubec, Eastport and points west.

There is a long, relatively flat stretch of roadway in western Whiting that has several potential locations for passing lanes. We identified six potential locations (points O, P, Q, R, S, T on General Map) for passing lanes along this stretch of road way: three northbound and three southbound. Hydric and partially hydric soils are extensive along this segment of the Route 1 Corridor; in addition, there is significant residential development very close to the road in both East Machias and near Whiting center. On initial assessment, the least constrained sites appear to be Site Q, Site R and Site S.

To allowing for adequate passing opportunities and separation of freight and commuter from tourist traffic, we recommend development of one passing lane in either direction along this segment.

Recommendations:

- 1). *One passing lane in each direction.*

Segment 4: Route 1 Whiting to Calais

It is approximately 41 miles along Route 1 from Whiting Center to downtown Calais. Route 1 passes through built-up areas of Dennysville, Pembroke, Perry, Robbinston and Calais along the segment of roadway.

Significant volumes of commuter traffic move along the corridor in both directions, entering and existing in Dennysville, Pembroke, Perry, Robbinston and Calais. A high volume of northbound and southbound tourist, commuter and freight traffic enters and exits in Perry at Route 190. Freight traffic using Route 214 as a short-cut between Eastport and Calais/Route 9 exits southbound in Pembroke. High volumes of northbound and southbound traffic both enter and exit at Calais.

Due to the multiple purposes served by the segment of roadway and the volume of traffic, existing passing opportunities between Whiting and Calais are largely inadequate to achieve the goal of separating commuter, tourist and freight traffic. One significant exception is that there do appear to be sufficient passing opportunities within existing passing zones between Robbinston and Calais.

We found the level of residential development and commercial strip development along the corridor to be a limiting factor for the development of passing lanes. There are few sections of road that are well suited for development of passing lanes.

We identified 6 potential locations (points U, V, W, X, Y, Z on General Map) for passing lanes within this segment of the Route One Corridor. On initial assessment, Site U (northbound) and Site W (southbound) appear to be the least constrained. While design solutions such as passing lanes and improved turning access are needed, it is our professional opinion that design solutions alone will not be sufficient to retain an adequate level of mobility for tourism, freight and commuter traffic along this segment of the Route One. Over the short- to medium-term, some level of strategic planning will be needed in order to strategically coordinate design solutions with land use policy.

Recommendations:

- 1) *At least one passing lane in each direction;*
- 2) *MDOT in conjunction with municipalities should engage in regional corridor plan for the segment of Route One between Whiting and Calais, which particular focus on the segment between Dennysville and Calais.*

The following table summarizes all potential passing lane locations in each of the three segments according to location, direction of travel and length.

Table 3: Passing Lanes

	Location	Direction	Length	
Segment 1: <i>Steuben to Columbia Falls</i>	Site A	Steuben	Either	1.15 km
	Site B	Steuben	North	0.94 km
	Site C	Steuben	South	0.95 km
	Site D	Steuben/Milbridge	South	1.22 km
	Site E	Milbridge	Either	1.47 km
	Site F	Milbridge/Cherryfield	Either	0.99 km
	Site G	Harrington	North	1.30 km
Segment 1A: <i>Route 1A</i>	Site H	Milbridge	North	1.52 km
	Site I	Harrington	South	1.01 km
Segment 2: <i>Columbia Falls to Machias</i>	Site J	Columbia Falls	North	1.28 km
	Site K	Columbia Falls	Either	0.95 km
	Site L	J'boro/Colum. Falls	Either	1.19 km
	Site M	Jonesboro	South	1.07 km
	Site N	Jonesboro	South	1.32 km
Segment 3: <i>Machias to Whiting</i>	Site O	East Machias	North	1.03 km
	Site P	E. Machias/Whiting	South	1.24 km
	Site Q	Whiting	North	1.25 km
	Site R	Whiting	South	1.00 km
	Site S	Whiting	North	1.04 km
Segment 4: <i>Whiting to Calais</i>	Site T	Whiting	South	1.16 km
	Site U	Edmunds Twp.	North	1.26 km
	Site V	Pembroke	North	1.16 km
	Site W	Perry/Pembroke	South	1.57 km
	Site X	Perry	North	1.19 km
	Site Y	Perry	North	1.21 km
	Site Z	Perry	North	1.06 km

Route One Mobility Analysis: Steuben to Calais
General Map



Legend

- Route One Corridor
- Route 9
- Other State Routes
- Other Roads
- Proposed Improvements**
Turning Access
Labels refer to tables in the report.
- Scenic Pull-offs
Labels refer to tables in the report.
- Potential Passing Lane Locations
See appended site location maps for more detail.

