

I-395 – Route 9 Transportation Study Summary of Existing and Future Transportation Conditions

February 2001

Annual Average Daily Traffic

Based upon MDOT traffic count data, estimates of the current and future annual average daily traffic (AADT) for all vehicles and heavy trucks were determined.

Annual Average Daily Traffic for All Vehicles

[8730] (+2290) RTE. 9 6440	[5410] (+630) 4780	[10040] (+4940) 5100 RTE. 9
[29190] (+11050) RTE. 1A 18140	[27940] (+11390) 16550	[17910] (6690) 11220 RTE. 1A
<p style="text-align: center;"><i>All Vehicles</i></p> 000 = 1998 AADT [000] = 2030 AADT (000) = Growth 1998-2030		RTE. 46 2270 [7670] (+5400) 2810 [8210] (+5400) 1920 [2390] (+470)

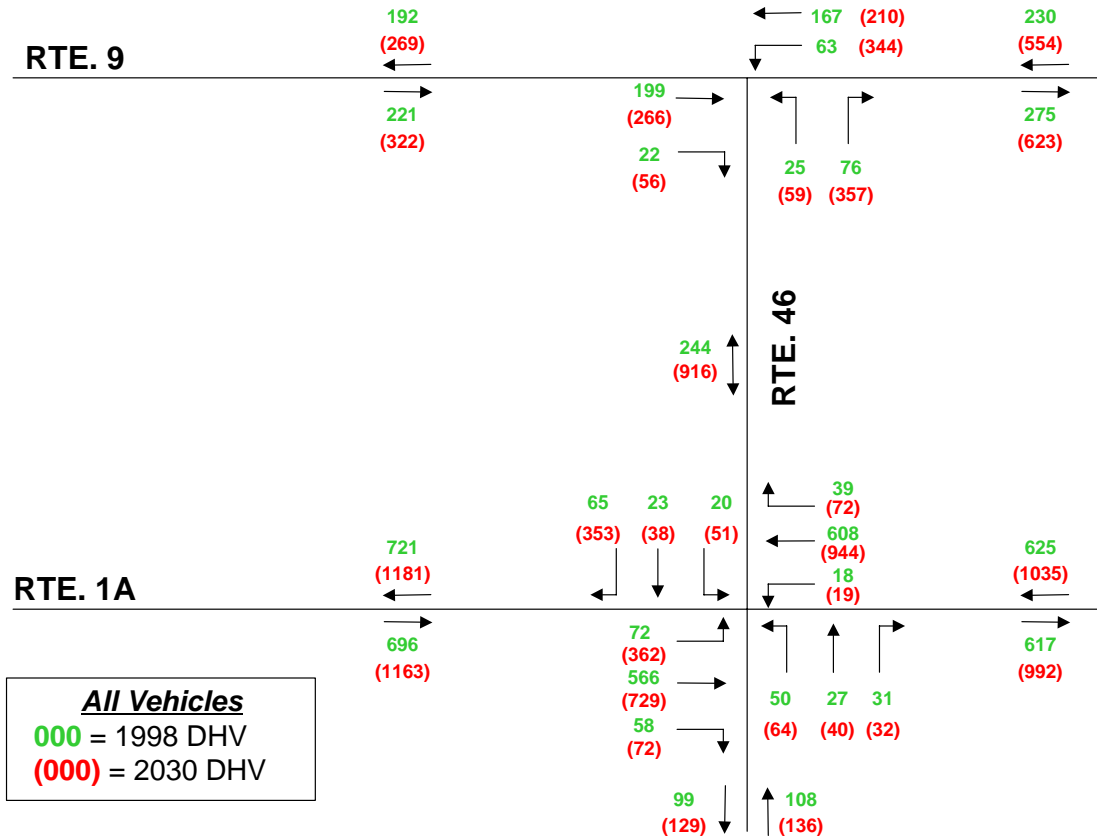
Annual Average Daily Traffic for Heavy Trucks

RTE. 9	[662] 569	[1535] 879 RTE. 9
RTE. 1A	[2449] 1569	[1607] 1272 RTE. 1A
<p style="text-align: center;"><i>Heavy Trucks</i></p> 000 = 1998 AADT [000] = 2030 AADT = Growth 1998-2030		RTE. 46 [1167] 604 265 [281]

Design Hour Volume

Design hour volumes (DHV) for the roadway segments and intersections were calculated.

Design Hour Volumes for the No-Build Alternative

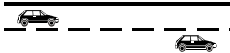
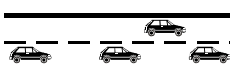
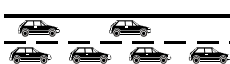
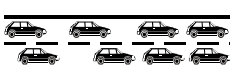




Level of Service

Using the DHVs, the level of service (LOS) provided by the region's highway system was estimated to determine the traffic performance of these highways. LOS is a qualitative measure of traffic performance. LOS consists of six grades, A through F, with A designating free flow, and F representing severe traffic congestion or delay. The definition of LOS varies among different types of traffic situations because travelers' perceptions of the travel experience vary.

Three different LOS definitions:

Level of Service Criteria For Roadway Segments

Level of Service	Traffic Flow Condition
A 	Free Flow Operations Affords the motorist a high level of physical and psychological comfort.
B 	Reasonably Free Flow Operations Ability to maneuver within traffic stream is only slightly restricted.
C 	Stable Operations Small increases in flow will cause substantial deterioration in service.
D 	Bordering on Unstable Flow Freedom to maneuver within traffic stream is severely limited.
E 	Extremely Unstable Operations Maneuverability is extremely limited and the level of physical and psychological comfort afforded the motorist is extremely poor.
F 	Forced or Breakdown Flow Traffic jammed.

Level of Service Criteria For Signalized Intersections

Level of Service	Control Delay Per Vehicle (Sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level of Service Criteria For Unsignalized Intersections

Level of Service	Control Delay Per Vehicle (Sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

The volume to capacity (v/c) ratio is the two-way traffic volume divided by the maximum number of vehicles that could be carried by the roadway during the peak hour of the day. The v/c ratio values that define the LOS thresholds vary depending on factors such as the type of terrain traversed by a two-lane road and the percent of the road where passing is prohibited.

**V/C Ratio and LOS Thresholds for Two-Lane Roadways,
Level Terrain, and 50% Passing**

LOS	V/C
A	0.09
B	0.21
C	0.36
D	0.60
E	1.00
F	>1.00

V/C Ratios and LOS measurements were determined for the design hour.

V/C Ratios and LOS for the Design Hour for Roadways

Two-Lane Section	Route 9 West of Route 46	Route 46	Route 1A West of Route 46
1998 V/C: LOS	0.28: C	0.11: B	0.75: E
2030 V/C: LOS	0.38: D	0.40: D	>1.00: F

Intersection Performance Summary – LOS and Percent Use

Intersection	Routes 9 and 46	Routes 1A and 46
1998: % Use, LOS	43%, A	58%, B
2030: % Use, LOS	90%, E	>100%, F

Conclusion

Most of the traffic growth is forecasted to affect two corridors within the study area: Route 1A between I-395 and Route 46, and Route 46 between Routes 9 and 1A. These corridors will be affected by projected increases in travel between Route 1A (west) and Route 9 (east) so-called “East-West Travel” and travel between Route 1A (west) and Route 1A (east) connecting the Bangor area and I-395 with Ellsworth and Acadia National Park.