Route 236 Corridor Study

Kittery-Eliot-S.Berwick

August 24, 2006

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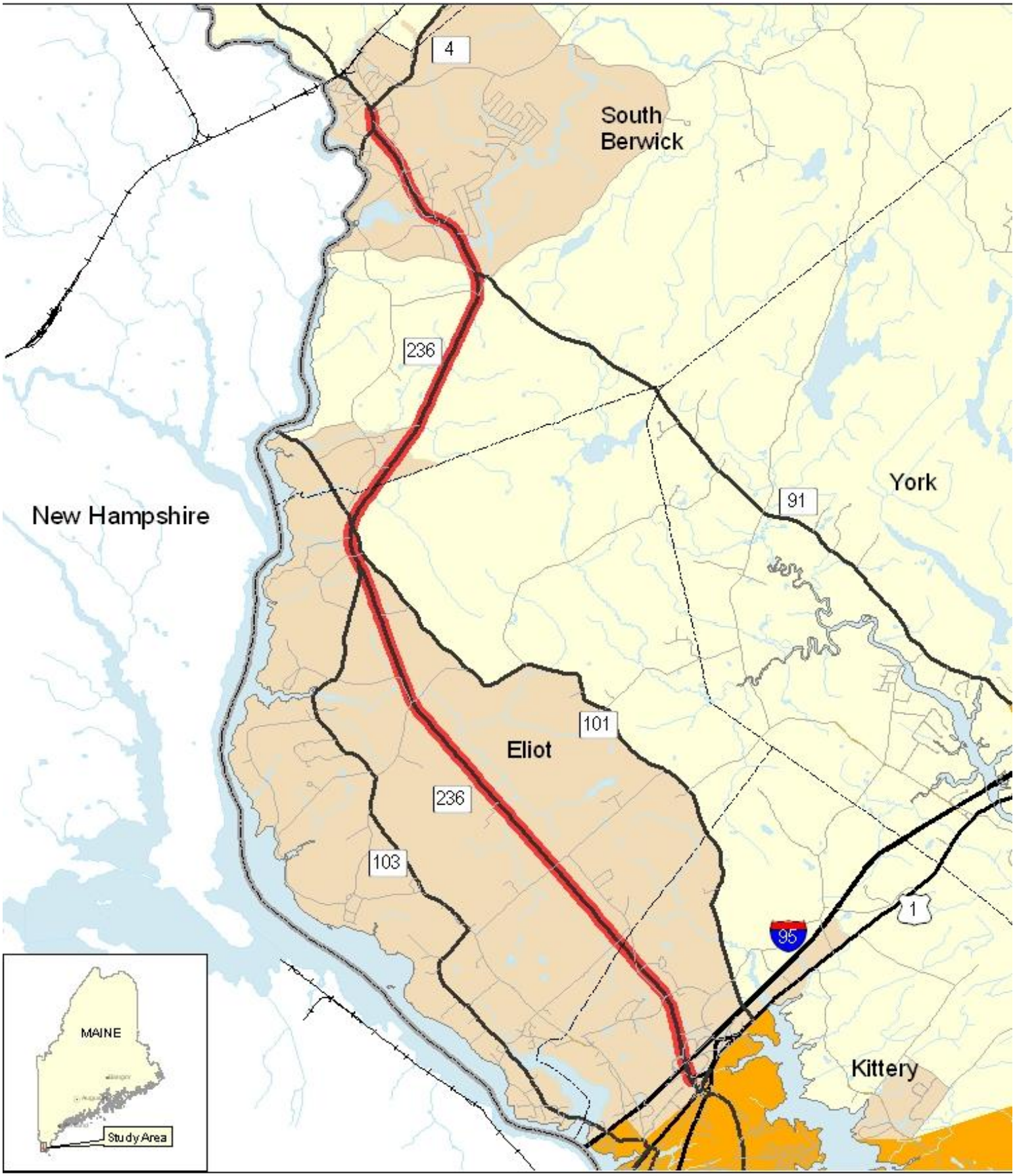

Route 236 Corridor Study

Study Area

Legend

- Study Area
- Federal Urban
- State Urban

0 0.2 0.4 0.8 1.2 1.6 2 Miles

MaineDOT
State of Maine
Department of Transportation
Bureau of Planning

08/08/06 File 236study_area

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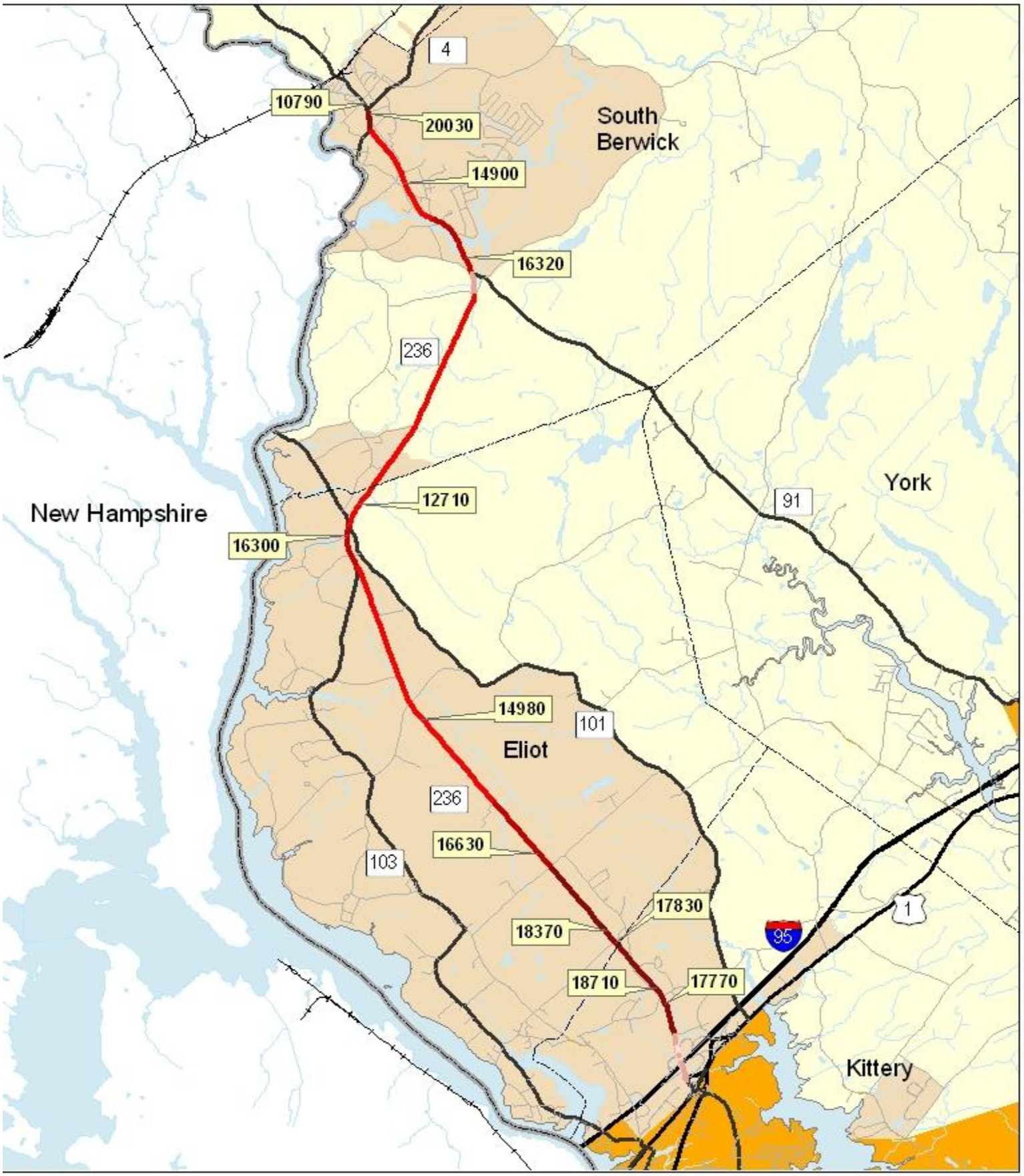

Route 236 Corridor Study

2006 Annual Average Daily Traffic Volumes

2006 AADT

- 5,000 - 10,000
- 10,001 - 12,500
- 12,501 - 15,000
- 15,001 - 17,500
- > 17,500

0 0.2 0.4 0.8 1.2 1.6 2 Miles

MaineDOT

State of Maine
Department of Transportation
Bureau of Planning

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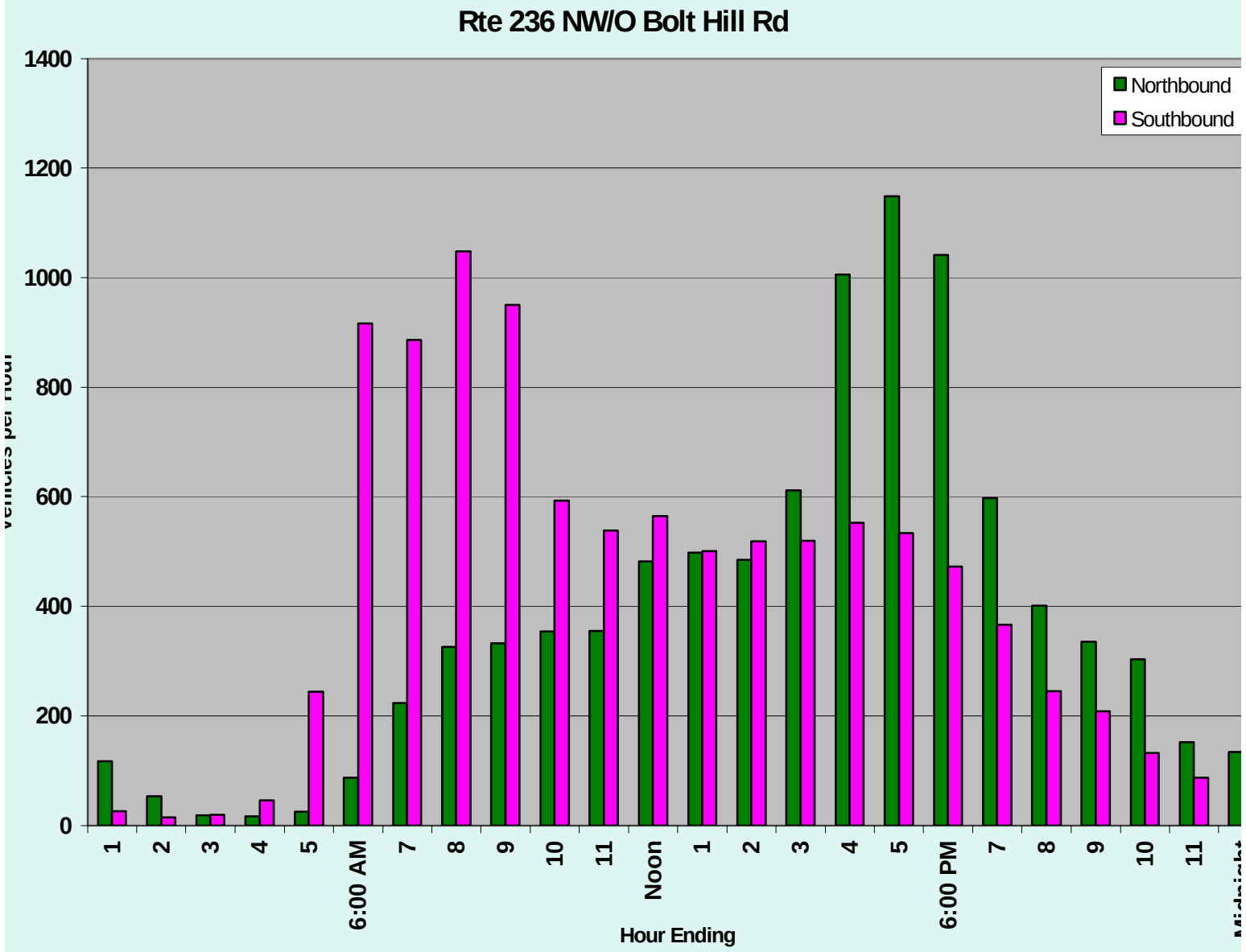
24 Hr Directional Flow



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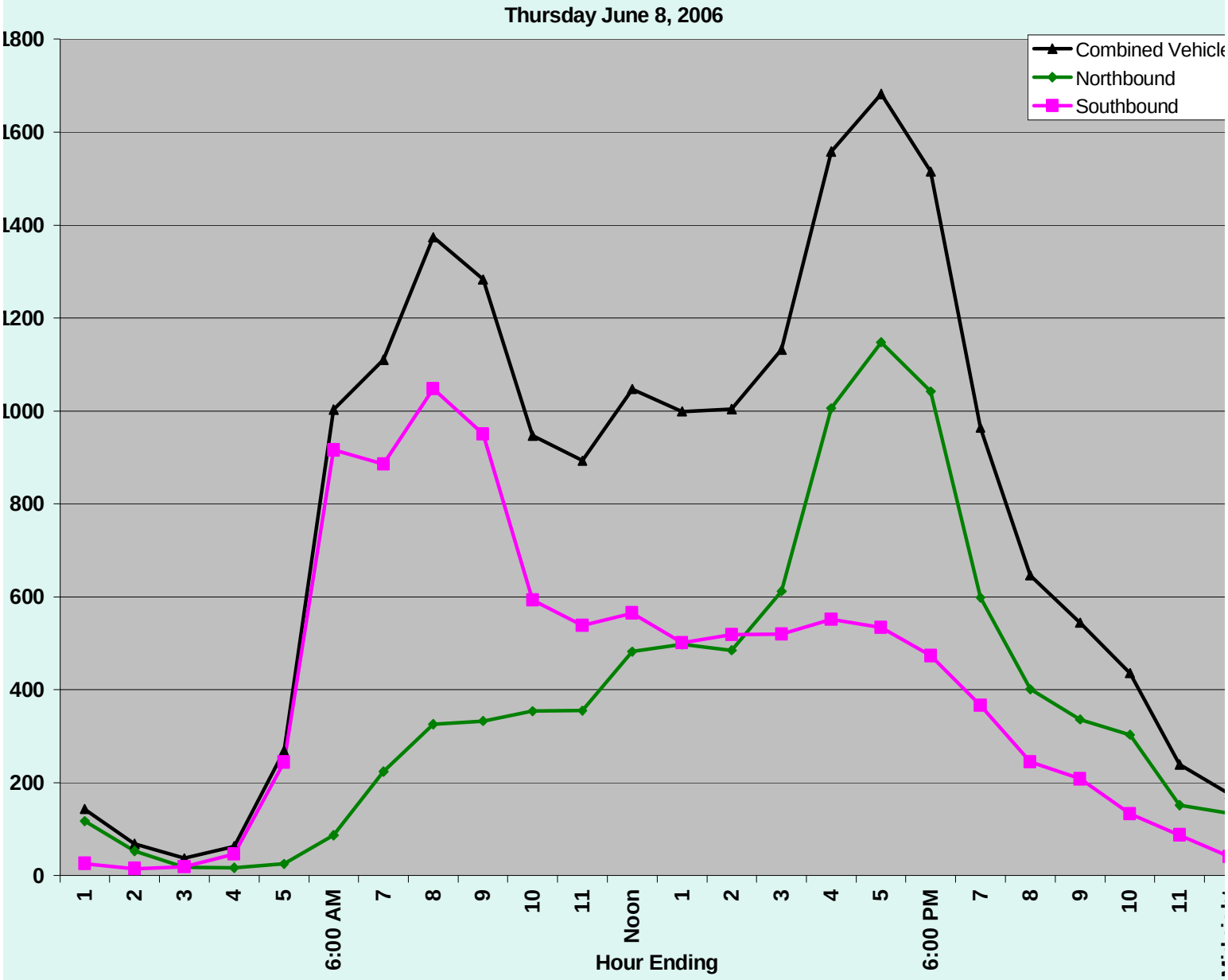
24 Hr Directional Flow



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Existing Crash Conditions

Crash Rate = $\frac{\text{Number of crashes}}{\text{Annual Hundred Million Veh. Miles x Study Period in Yrs}}$

Fatal Crash Rate

	2003	2004	2005	2003-2005 Crash Rate
Total Fatal Crashes Statewide	**184**	**176**	**152**	
Total Fatal Crashes on Minor Arterial Two Lanes	**34**	**35**	**25**	**1.08**
Total Fatal Crashes on Route 236 Study Area	**0**	**0**	**0**	**0**

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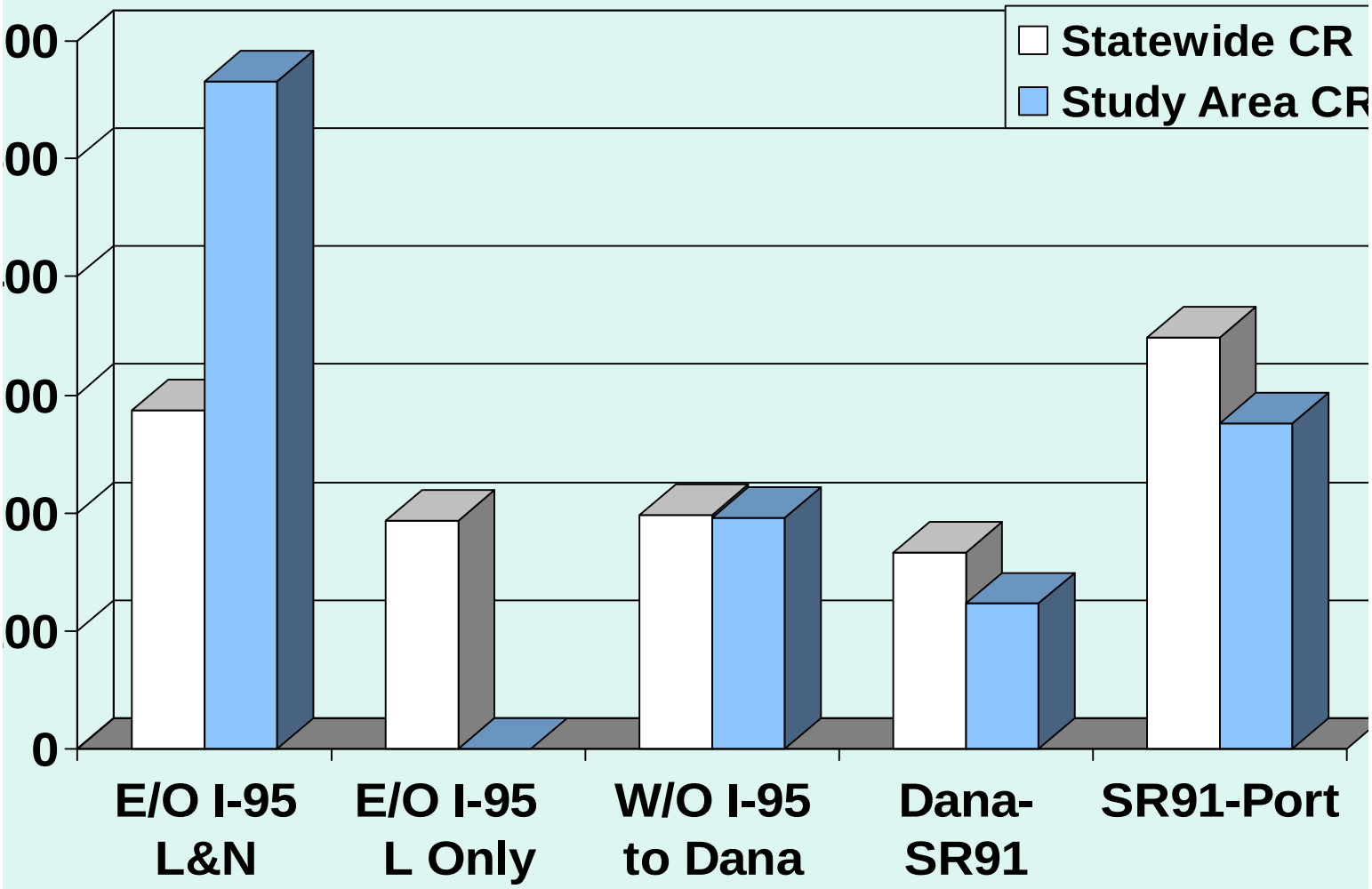
Crash Rate Comparison
(2003-2005)



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Crash Type	Statewide 2003-2005 Total	Statewide Percent of Total %	Route 236 2003-2005 Total	Route 236 Percent of Total %
Object in Road	2,609	2.49%	9	2.59%
Run Off Road	27,471	26.25%	36	10.37%
Rear End / Sideswipe	33,583	32.09%	158	45.53%
Head On / Sideswipe	3,477	3.32%	10	2.88%
Intersection Movement	21,015	20.08%	96	27.67%
Pedestrians	746	0.71%	1	0.29%
Sled / Bike	566	0.54%	2	0.58%
Train	12	0.01%	0	0.00%
All Other Animals	420	0.40%	2	0.58%
Deer	9,406	8.99%	25	7.20%
Moose	1,976	1.89%	0	0.00%
Bear	72	0.07%	0	0.00%
Non Collision	1,360	1.30%	1	0.29%
Other	1,950	1.86%	7	2.02%
Unknown	0	0.00%	0	0.00%
Total	**104,663**	**100.00%**	**347**	**100.00%**

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Human Factors	Statewide 2001-2003 Total	Statewide Percent of Total %	Route 236 2003-2005 Total	Route 236 Percent of Total %
No Improper Driving	75,599	46.65%	306	49.28%
Failure to Yield R/W	13,234	8.17%	51	8.21%
Illegal Unsafe Speed	16,853	10.40%	8	1.29%
Follow Too Close	8,248	5.09%	21	3.38%
Disregard Traffic	2,197	1.36%	9	1.45%
Driving Left of Center	940	0.58%	4	0.64%
Improper Passing	1,768	1.09%	2	0.32%
Improper Lane Change	1,673	1.03%	7	1.13%
Improper Start/Stop	601	0.37%	1	0.16%
Improper Turn	1,683	1.04%	11	1.77%
Unsafe Backing	2,284	1.41%	1	0.16%
No Proper Signal	471	0.29%	1	0.16%
Impeding Traffic	279	0.17%	5	0.81%
Driver Inattention	25,020	15.44%	156	25.12%
Driver Inexperience	2,415	1.49%	10	1.61%
Pedestrian Violation	293	0.18%	0	0.00%
Physical Impairment	2,186	1.35%	9	1.45%
Vision Obscured Glass	184	0.11%	1	0.16%
Vision Obscured Light	884	0.55%	2	0.32%
Vision Obscured Other	1,480	0.91%	6	0.97%
Other Human Factor	3,310	2.04%	10	1.61%
Hit & Run	454	0.28%	0	0.00%
Total	**162,056**	**100.00%**	**621**	**100.00%**

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Existing Crash Conditions

- High Crash Location is where frequency of crashes exceeds average State rate for similar locations.

  1. Eight or More Crashes in 3 Year Period

  2. Critical Rate Factor > 1.0

CRF= Crash Rate / Critical Rate

Critical Rate is the Expected Rate

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High Crash Locations (2003-2005)

- Statewide- 1,054 HCL’s
- York County- 143 HCL’s
- Route 236 Corridor Study- 7 HCL

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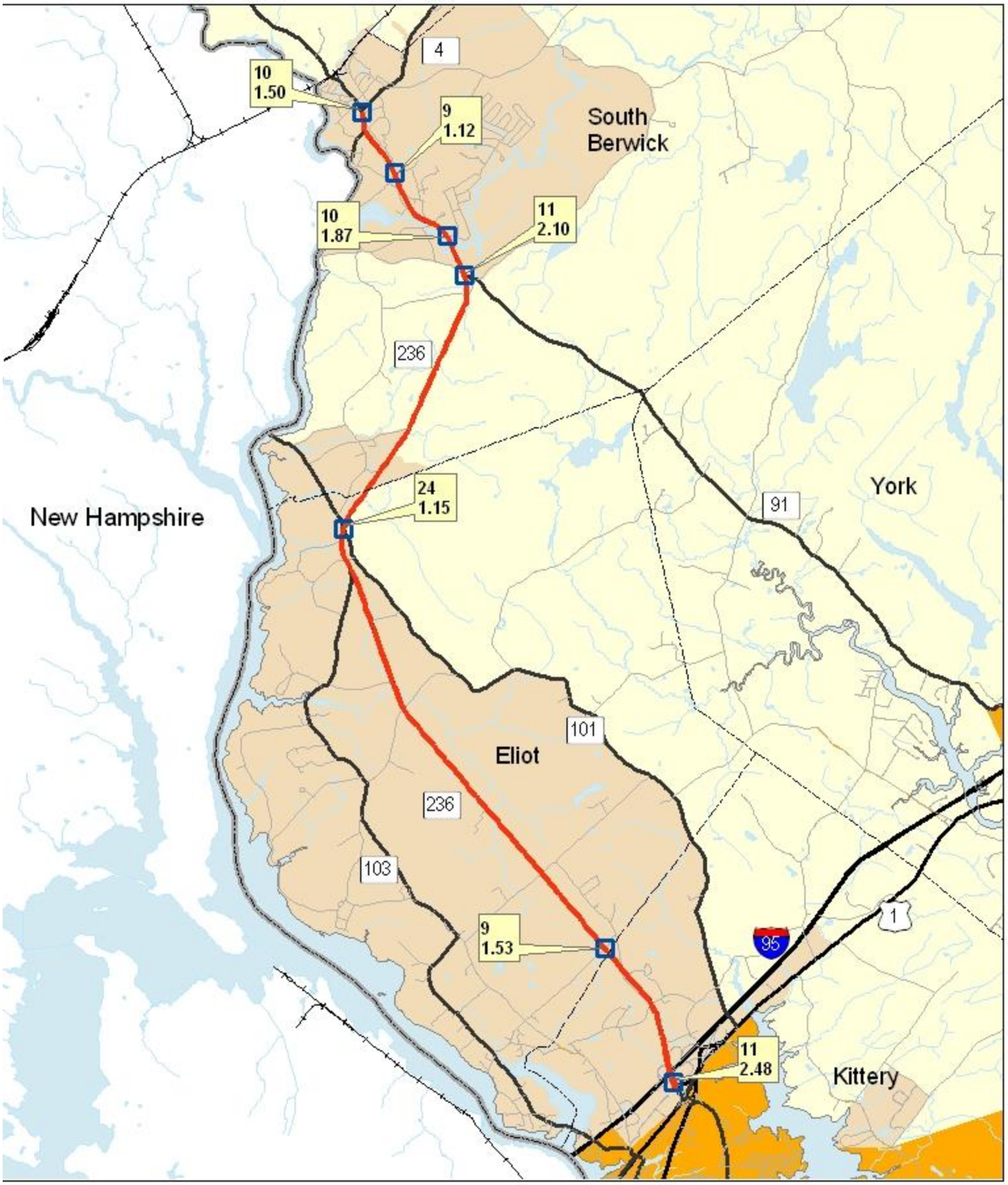

Route 236 Corridor Study

High Crash Locations

Study Area

2003-2005 High Crash Locations

Total Crashes
Crital Rate Factor

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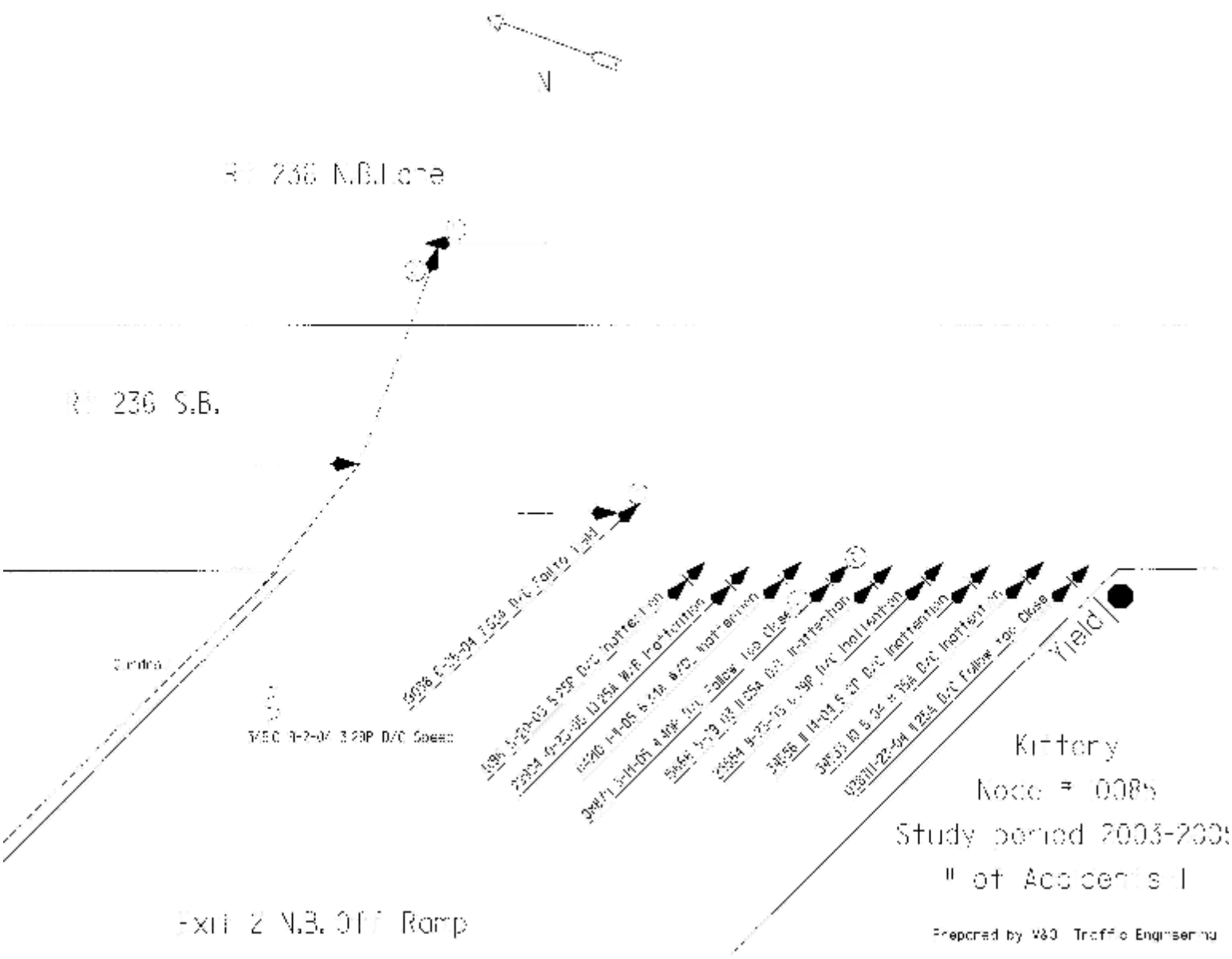
Route 236 / Exit 2 NB Off-Ramp



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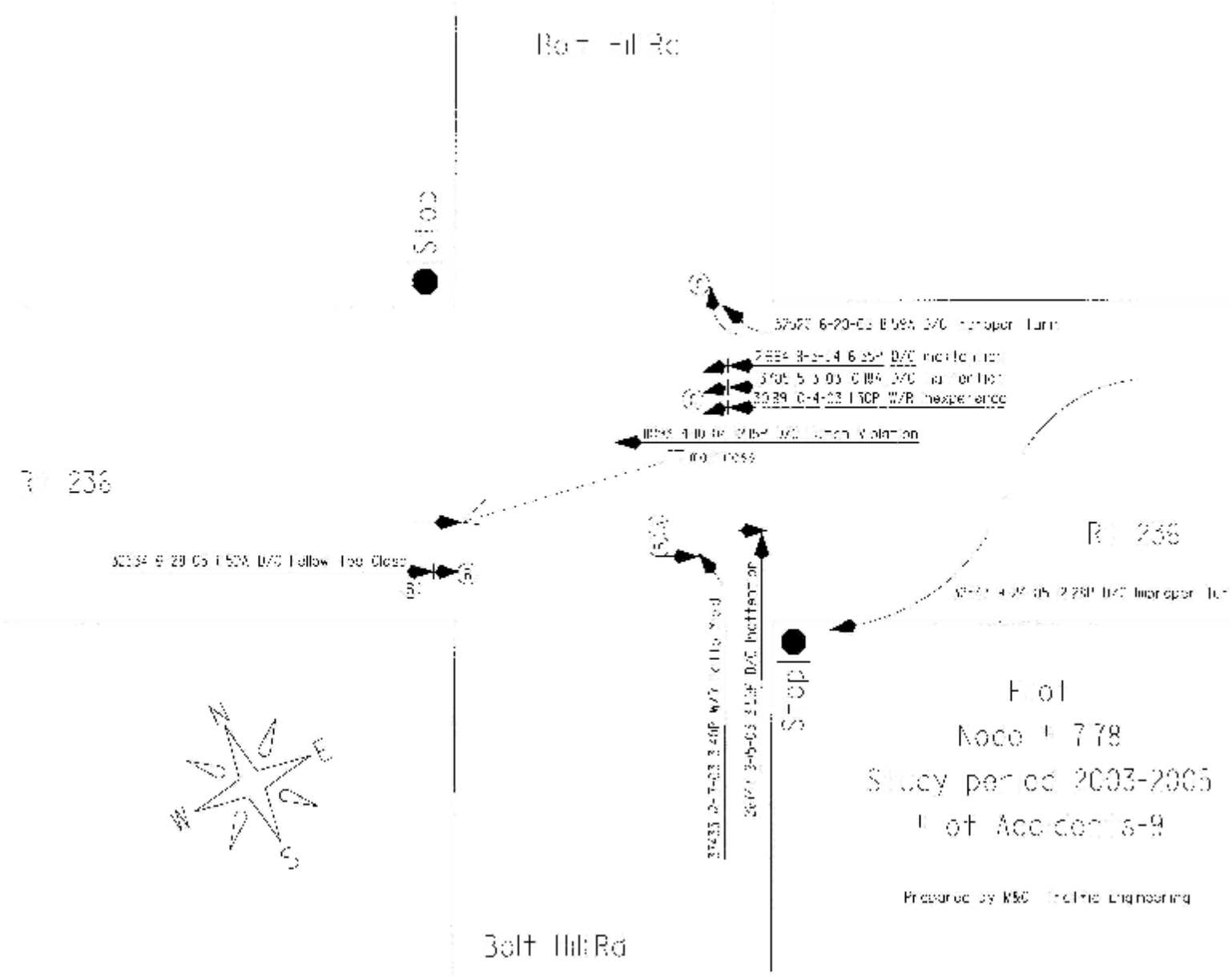
Route 236 / Bolt Hill Rd



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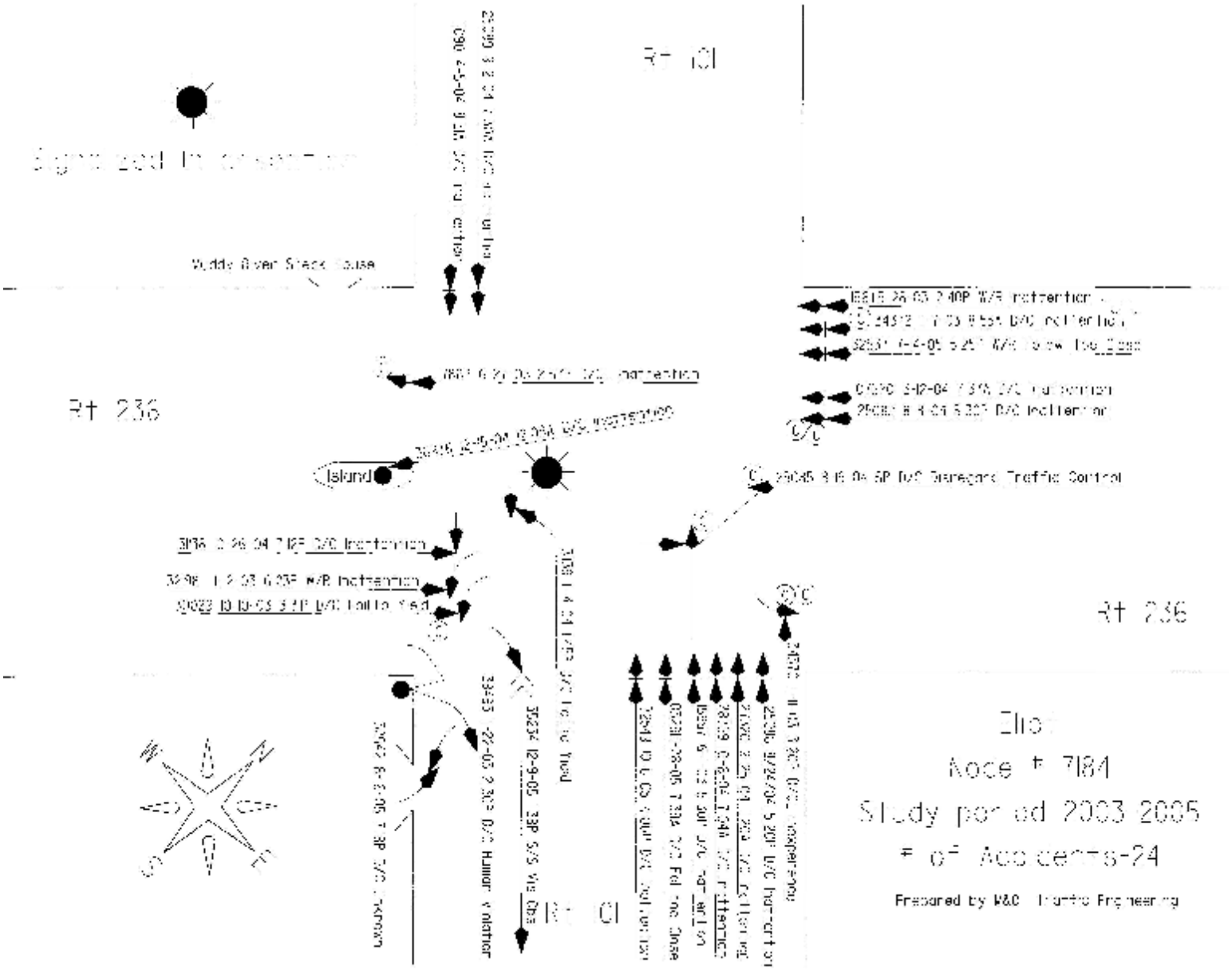
Route 236 / 101



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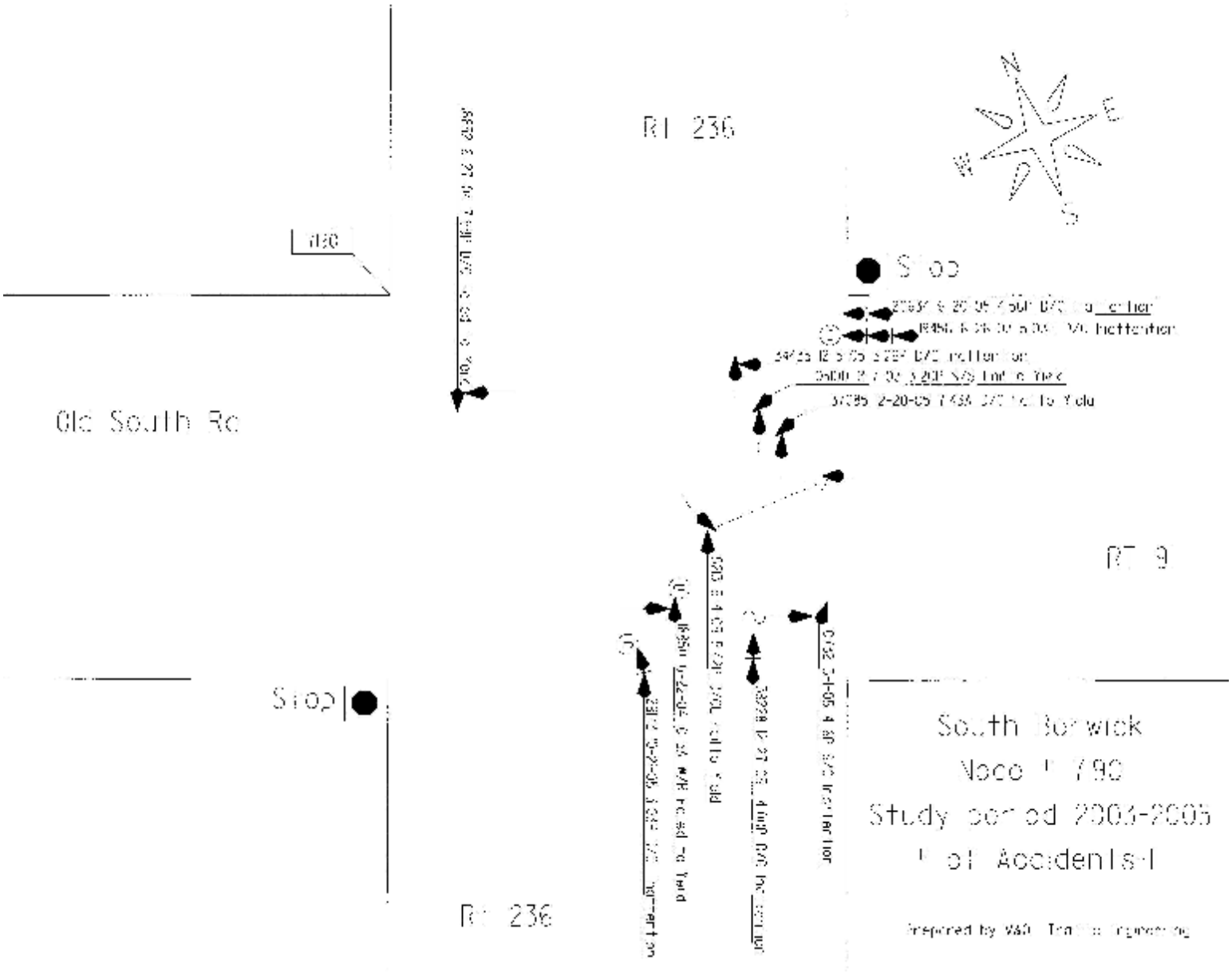
Route 236 / 91 HCL



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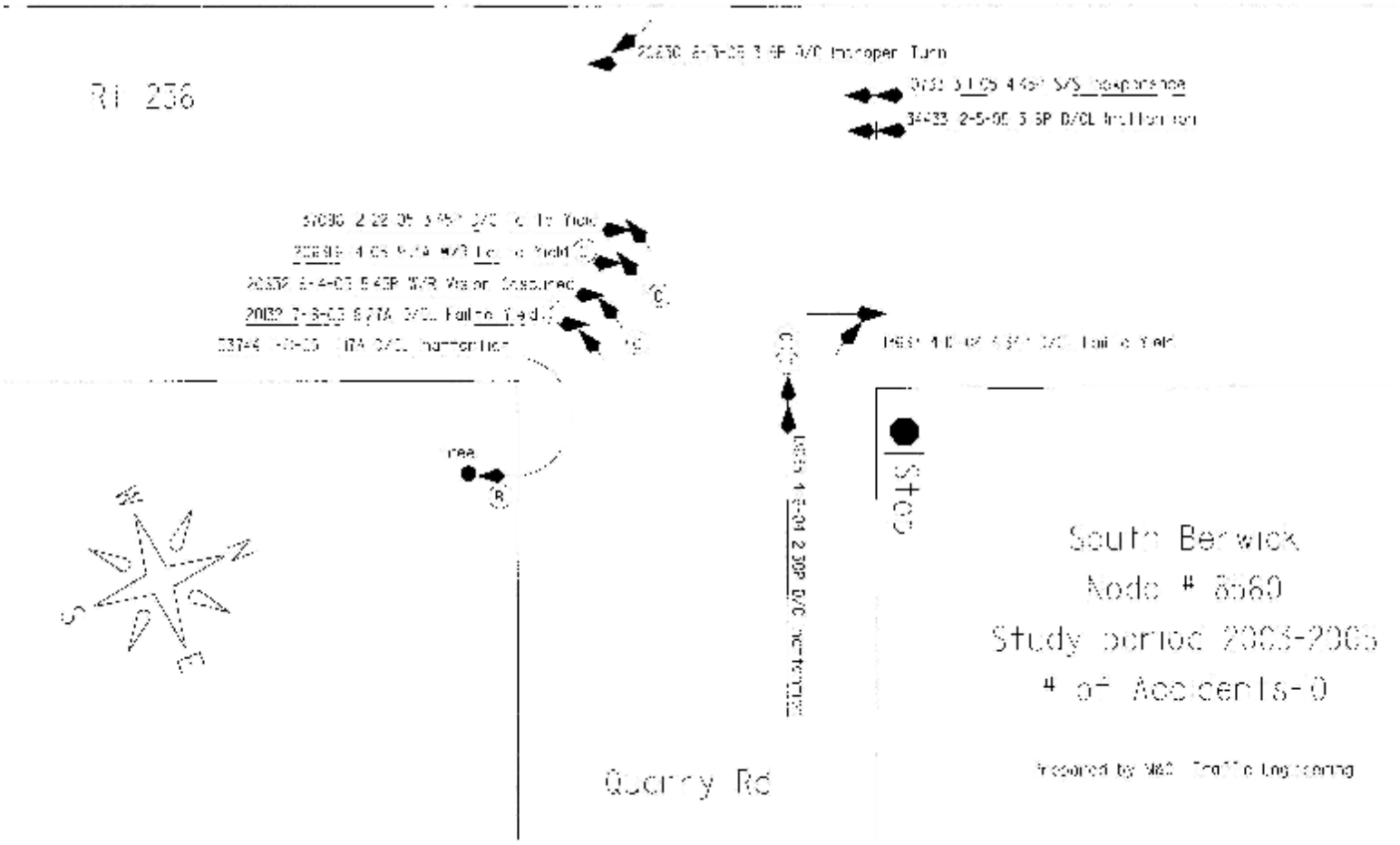
Route 236 / Quarry Rd



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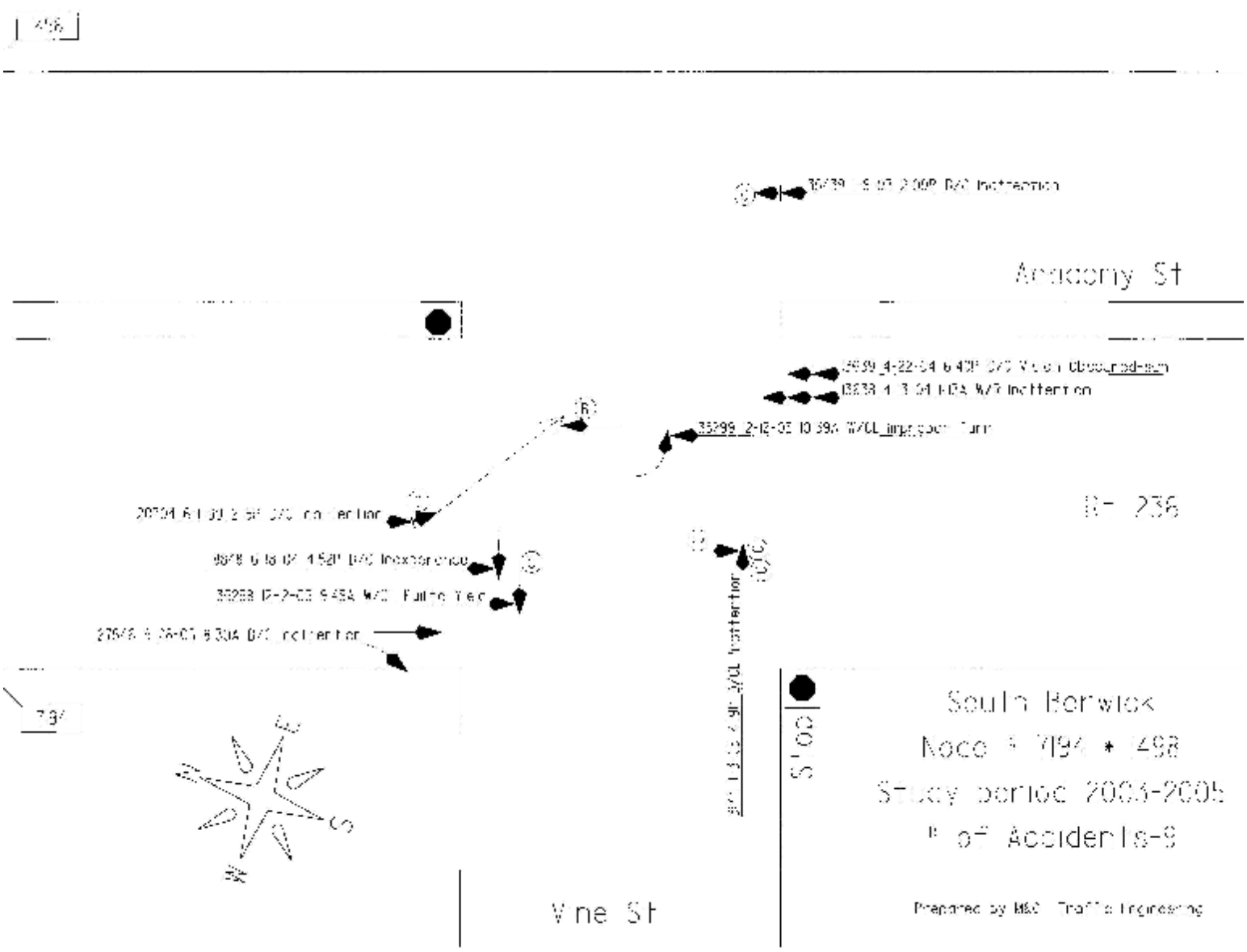
Route 236 / Vine St



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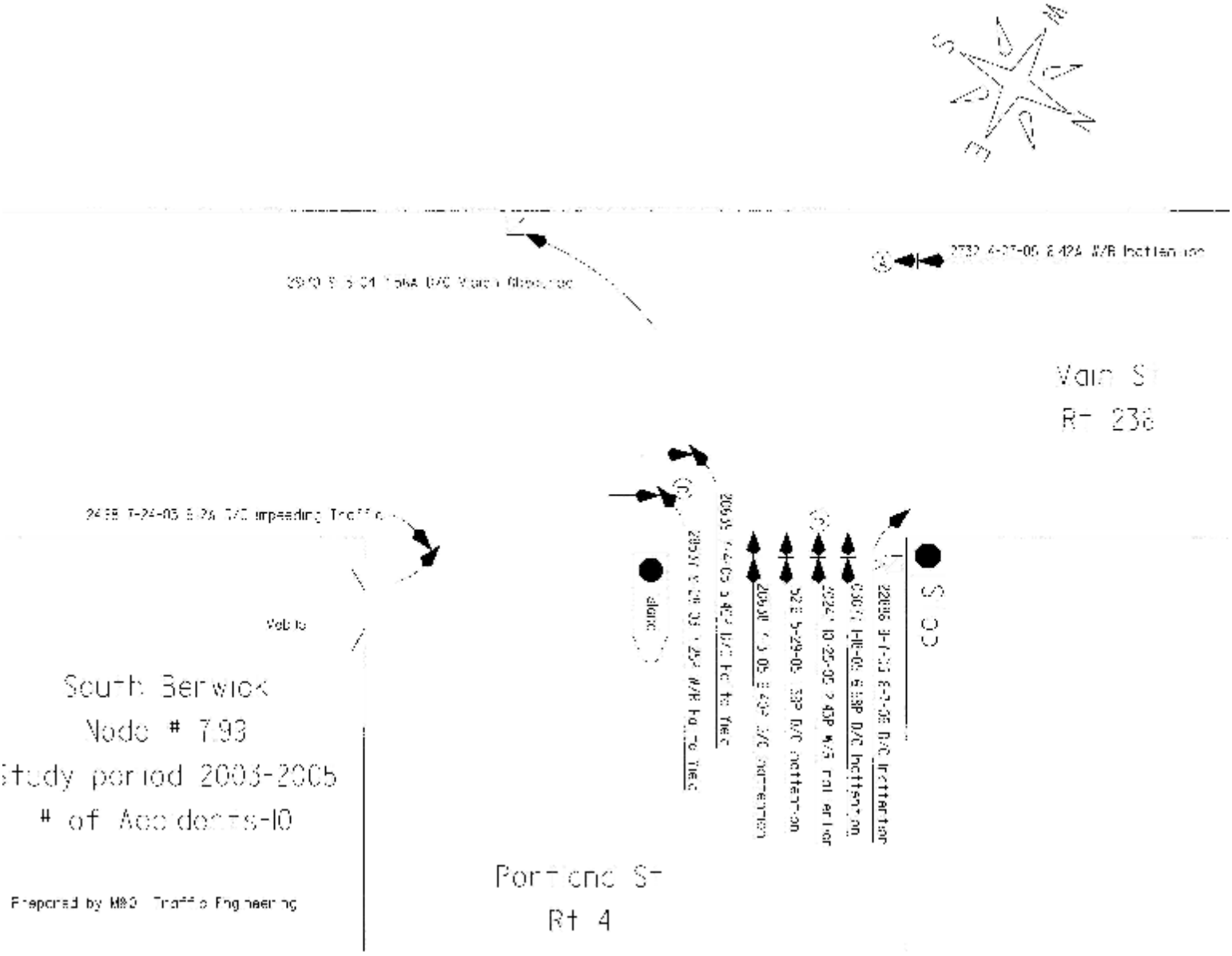
Route 236 / Portland St



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Speed and Delay Study

- 31 Runs in Each Direction
- NB Direction:

  Travel Time:15’05”(10:04am) to 22’52”(4:09pm)
- SB Direction:

  Travel Time:15’41”(1:02pm) to 22’04”(7:20am)
- Max Delay:

Martin	1’17” (4:09pm)
Beech	0’44” (12:02pm)
Depot	3’05” (4:08pm)
Rte 101	0’57” (5:13pm)
Rte 236/Main	2’48” (4:09pm)
Portland	7’25” **(5:20pm No Police-4’52” 8:06am Police)**

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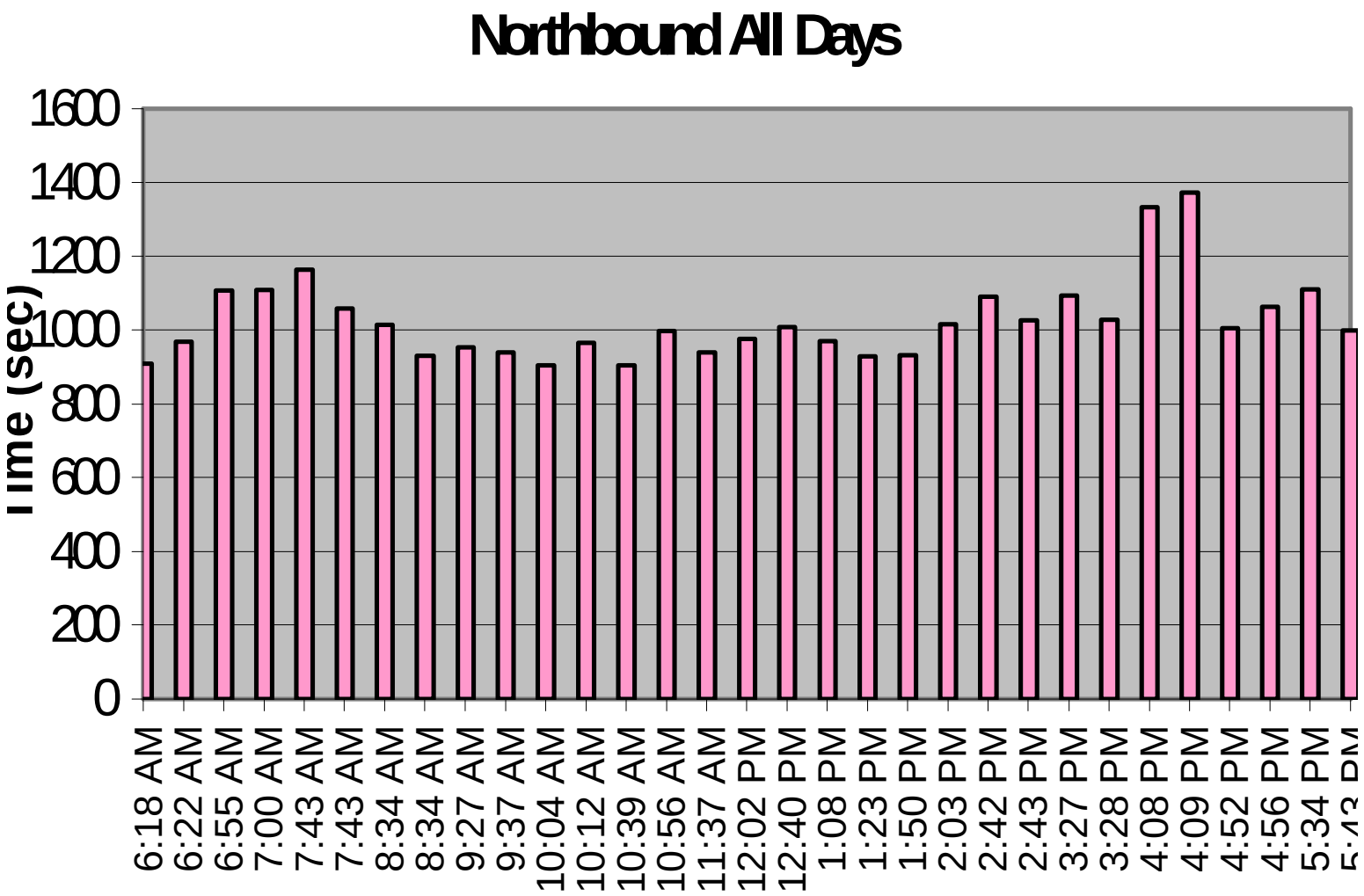
Corridor Travel Time



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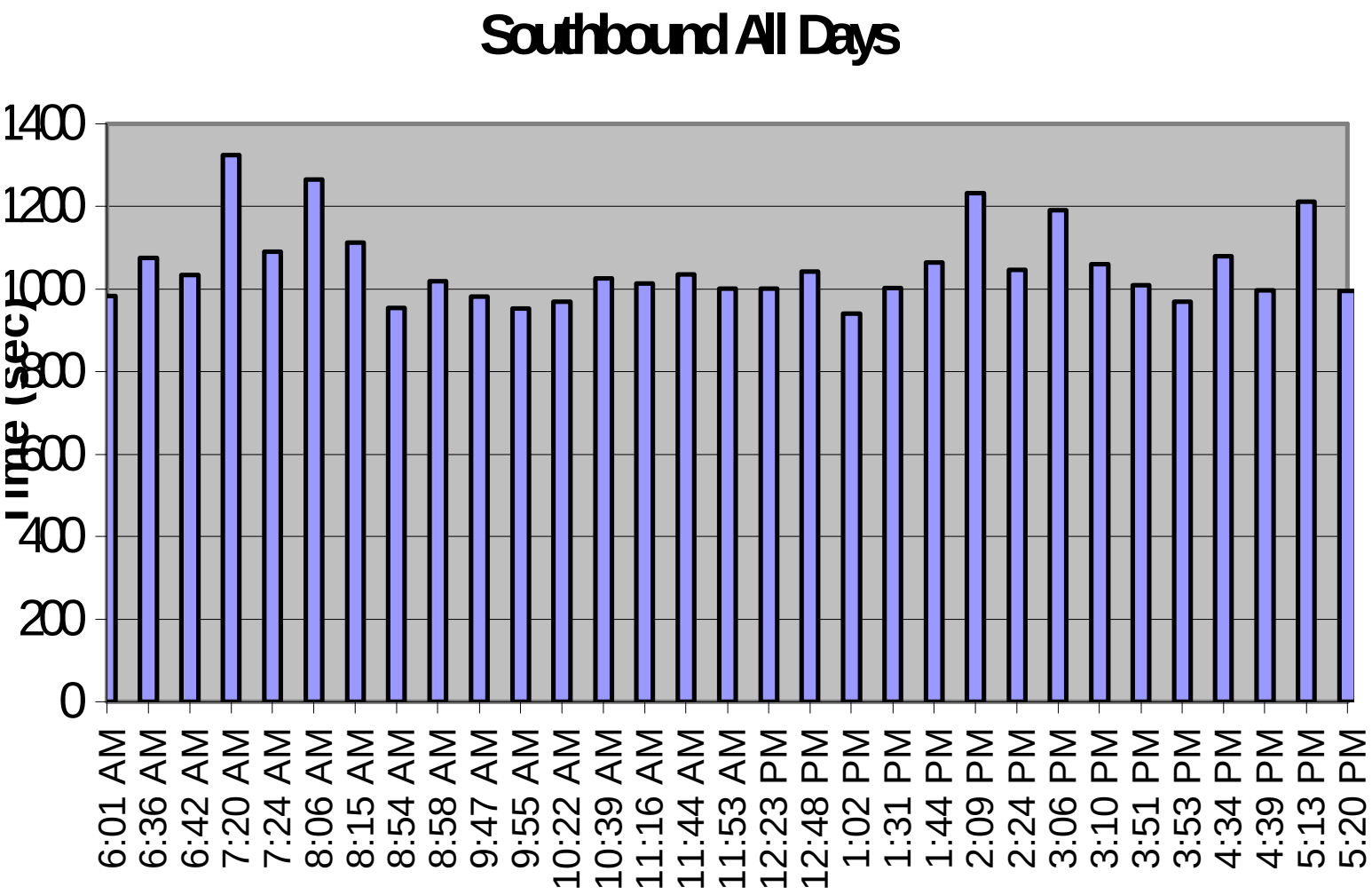
Corridor Travel Time



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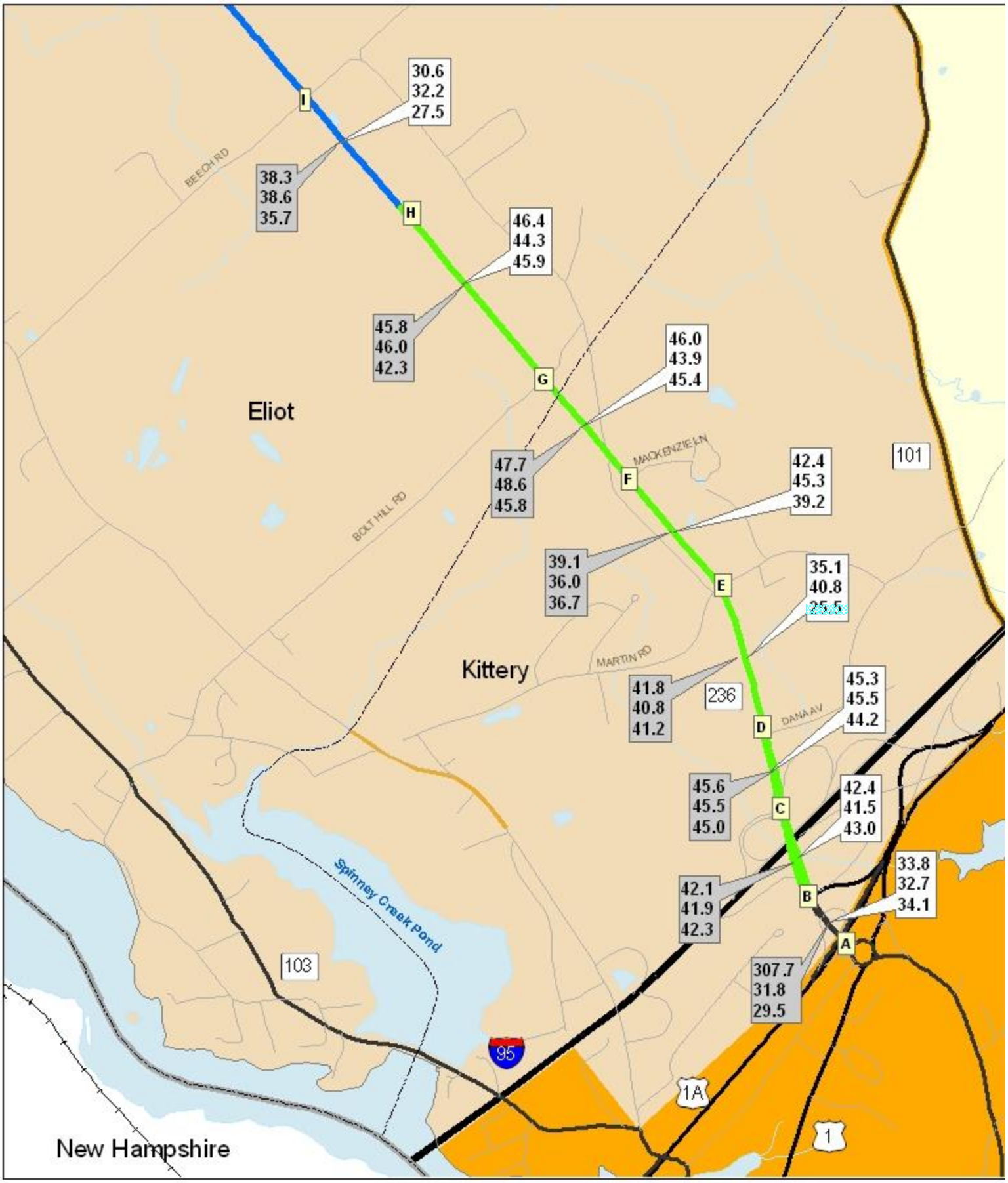

Route 236 Corridor Study

Average Travel Speed

Kittery - Eliot

0 0.125 0.25 0.5 0.75 Miles

Posted Speed
- 25
- 35
- 45
- 55

ATS: Average Travel Speed (mph)

XX Northbound
XX Southbound

Overall ATS
AM Peak ATS
PM Peak ATS

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State of Maine
Department of Transportation
Bureau of Planning

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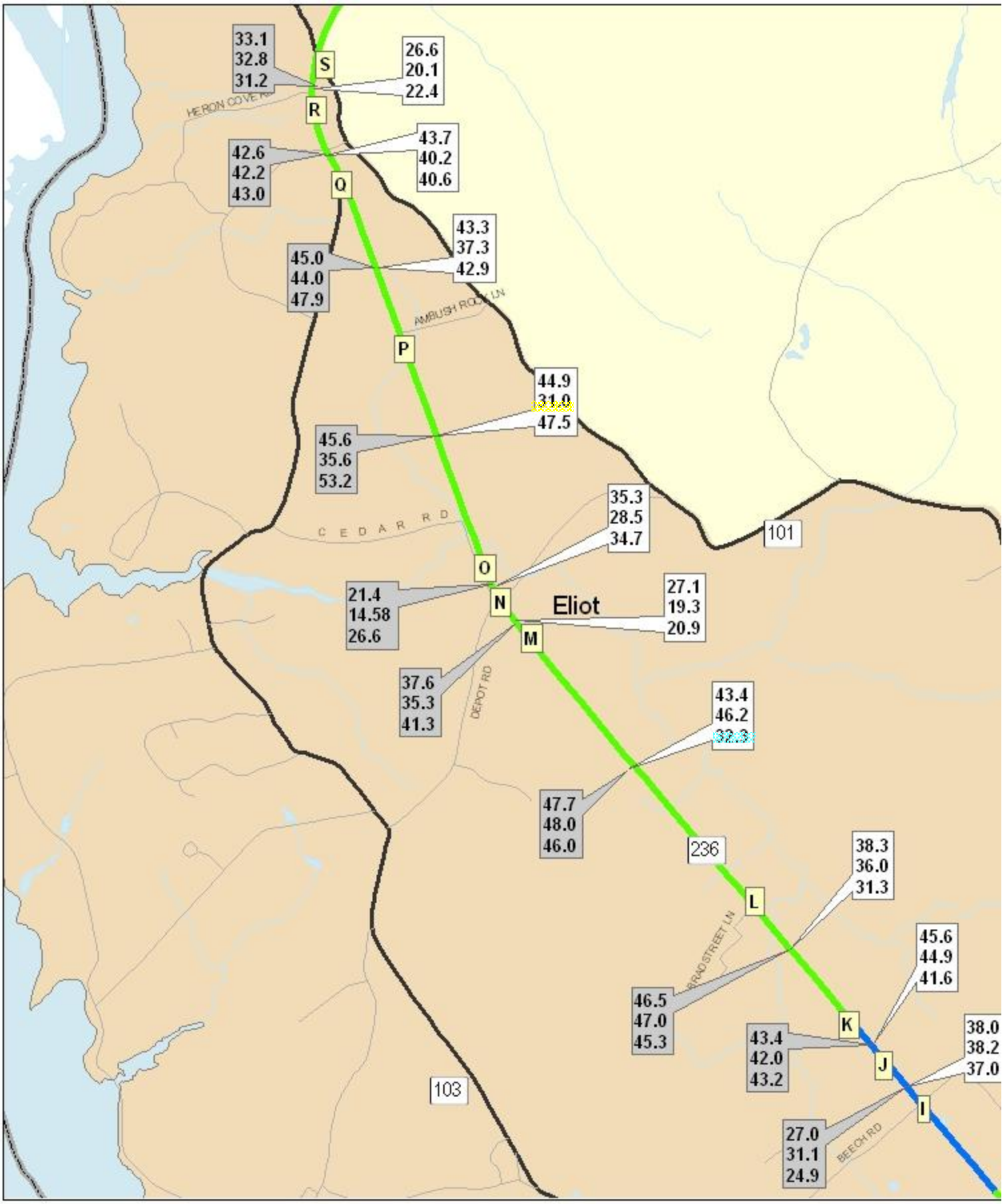

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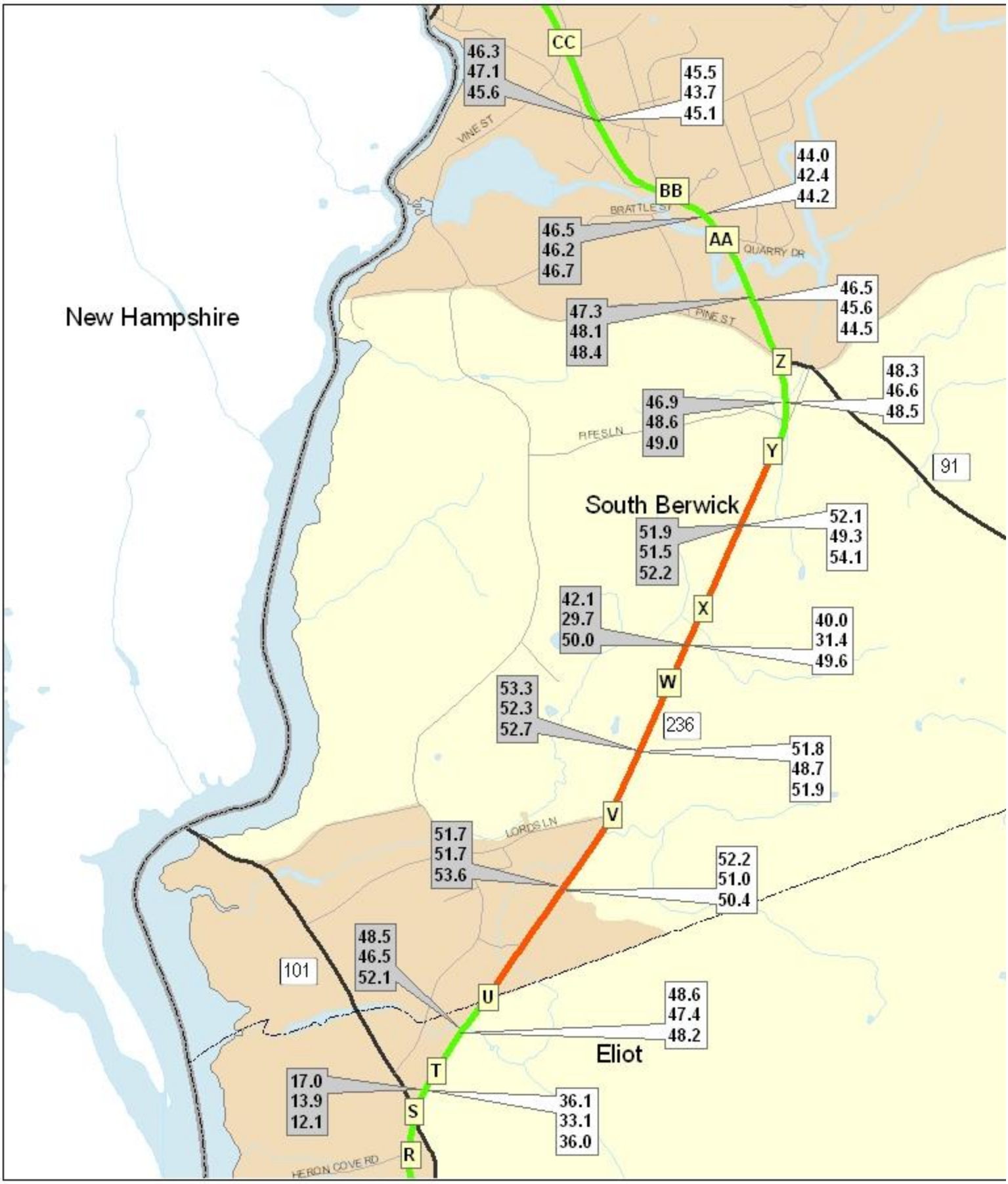

Route 236 Corridor Study

Average Travel Speed

Eliot - South Berwick

Posted Speed (mph)

- 25
- 35
- 45
- 55

ATS: Average Travel Spped (mph)

XX Northbound

XX Southbound

Overall ATS
AM Peak ATS
PM Peak ATS

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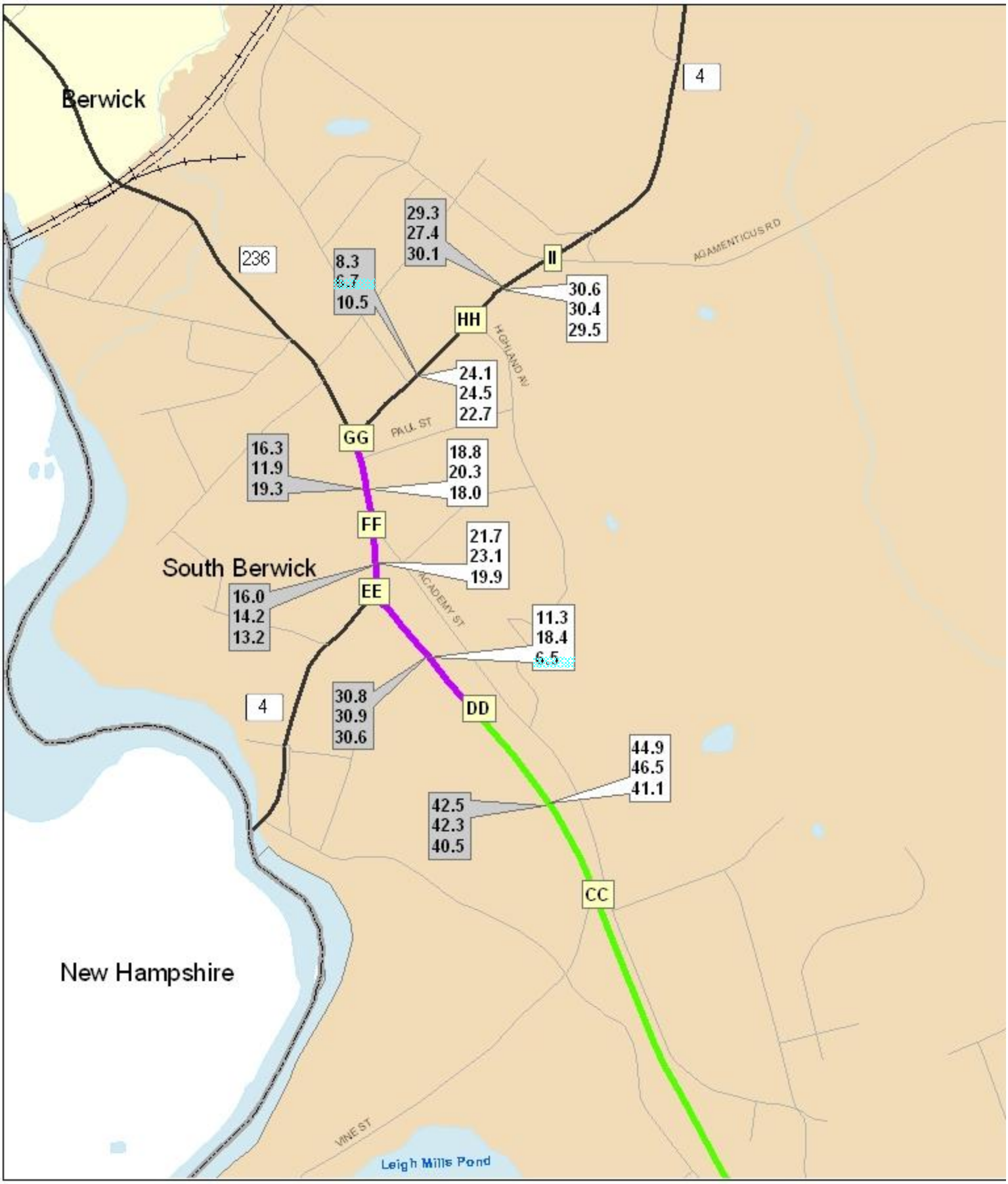

Route 236 Corridor Study

Average Travel Speed
South Berwick

Posted Speed (mph)
- 25
- 35
- 45
- 55

ATS: Average Travel Speed (mph)

XX Northbound
XX Southbound

Overall ATS
AM Peak ATS
PM Peak ATS

0 0.04 0.08 0.16 0.24 0.32 0.4 Mile

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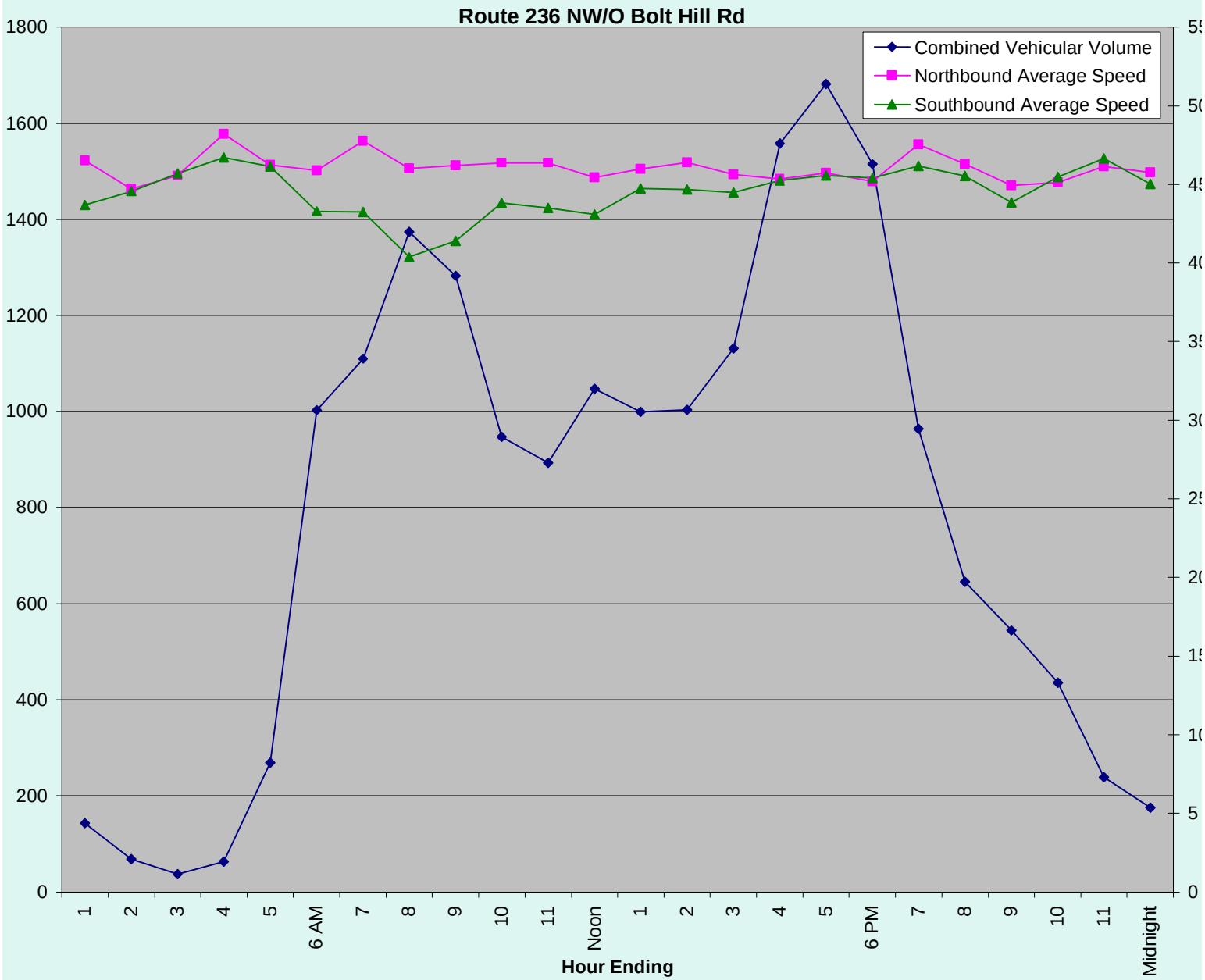

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Level of Service

Level of Service – “ Is a qualitative measure describing operational conditions within a traffic stream taking into account a number of variables i.e. speed and travel time, vehicles maneuverability, traffic interruptions, comfort and convenience.”

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Factors Affecting Roadway LOS

- Volume/Composition of Traffic
- Signals
- Access Points
- Passing Zones

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Roadway Segments

1. Exit 2 to Dana Rd – URBAN
2. Dana to Beech Rd – RURAL
3. Beech to Depot Rd – RURAL
4. Depot to Route 101 – RURAL
5. Rte 101 to Rte 91 – RURAL
6. Rte 91 to Rte 4 – RURAL
7. Rte 4 to Portland St - URBAN

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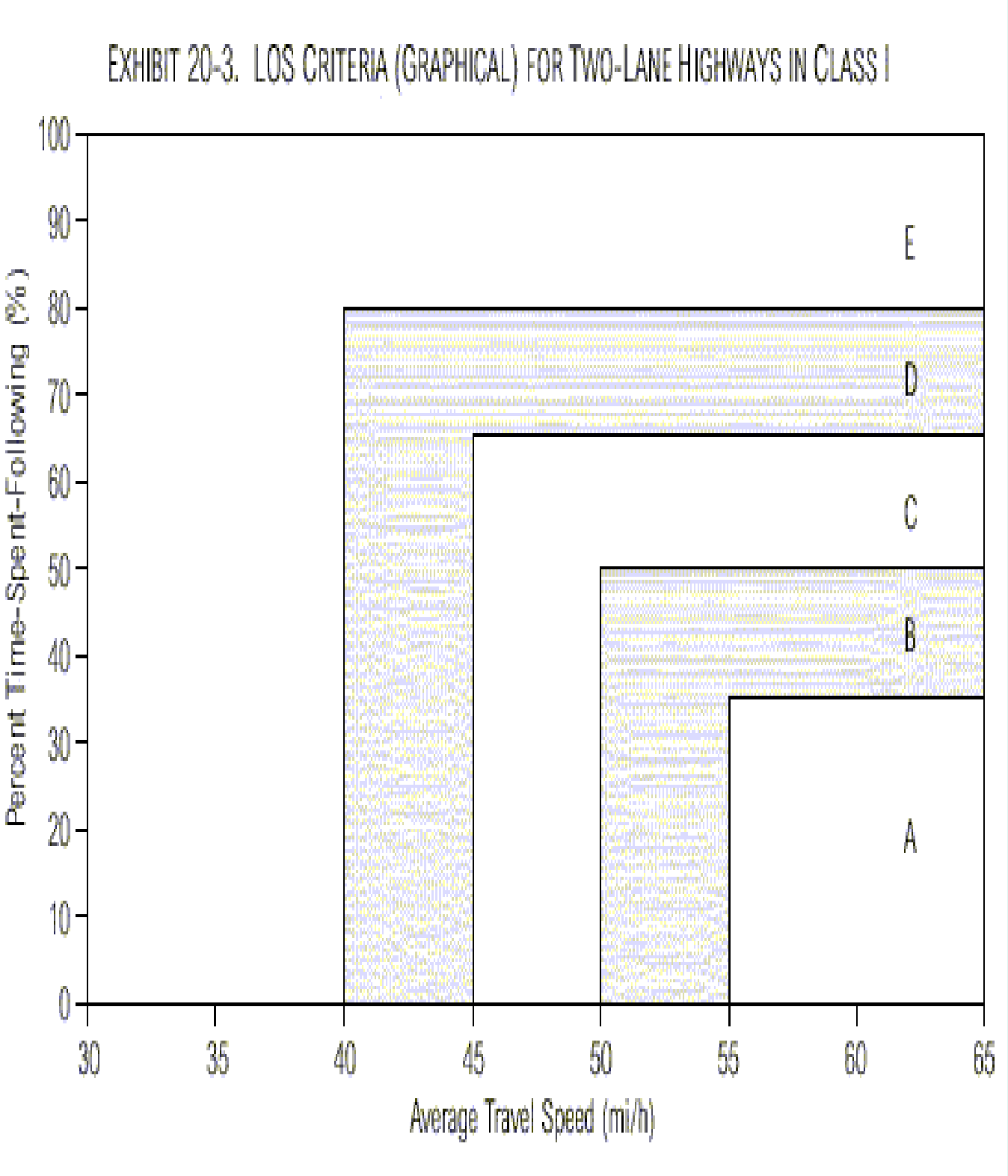
LOS Class I Two-Lane Highway



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Urban Street Class

EXHIBIT 10-3. URBAN STREET CLASS BASED ON FUNCTIONAL AND DESIGN CATEGORIES

Design Category	Functional Category	
	Principal Arterial	Minor Arterial
High-Speed	I	N/A
Suburban	II	II
Intermediate	II	III or IV
Urban	III or IV	IV

EXHIBIT 10-4. FUNCTIONAL AND DESIGN CATEGORIES

Criterion	Functional Category	
	Principal Arterial	Minor Arterial
Mobility function	Very important	Important
Access function	Very minor	Substantial
Points connected	Freeways, important activity centers, major traffic generators	Principal arterials
Predominant trips served	Relatively long trips between major points and through-trips entering, leaving, and passing through the city	Trips of moderate length within relatively small geographical areas

Criterion	Design Category			
	High-Speed	Suburban	Intermediate	Urban
Driveway/access density	Very low density	Low density	Moderate density	High density
Arterial type	Multilane divided; undivided or two-lane with shoulders	Multilane divided; undivided or two-lane with shoulders	Multilane divided or undivided; one-way, two-lane	Undivided one-way, two-way, two or more lanes
Parking	No	No	Some	Significant
Separate left-turn lanes	Yes	Yes	Usually	Some
Signals/mi	0.5–2	1–5	4–10	6–12
Speed limit	45–55 mi/h	40–45 mi/h	30–40 mi/h	25–35 mi/h
Pedestrian activity	Very little	Little	Some	Usually
Roadside development	Low density	Low to medium density	Medium to moderate density	High density

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Urban Street LOS

EXHIBIT 15-2. URBAN STREET LOS BY CLASS

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55 to 45 mi/h	45 to 35 mi/h	35 to 30 mi/h	35 to 25 mi/h
Typical FFS	50 mi/h	40 mi/h	35 mi/h	30 mi/h
LOS	Average Travel Speed (mi/h)			
A	> 42	> 35	> 30	> 25
B	> 34–42	> 28–35	> 24–30	> 19–25
C	> 27–34	> 22–28	> 18–24	> 13–19
D	> 21–27	> 17–22	> 14–18	> 9–13
E	> 16–21	> 13–17	> 10–14	> 7–9
F	≤ 16	≤ 13	≤ 10	≤ 7

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Roadway Segments LOS

From	To	Design	Urban Class	LOS
Exit 2	Dana Rd	High Speed	I	A
Dana Rd	Beech Rd	Rural		E
Beech Rd	Depot Rd	Rural		E
Depot Rd	Rte 101	Rural		E
Rte 101	Rte 91	Rural		D
Rte 91	Rte 4	Rural		E
Rte 4	Portland	Urban	III	D

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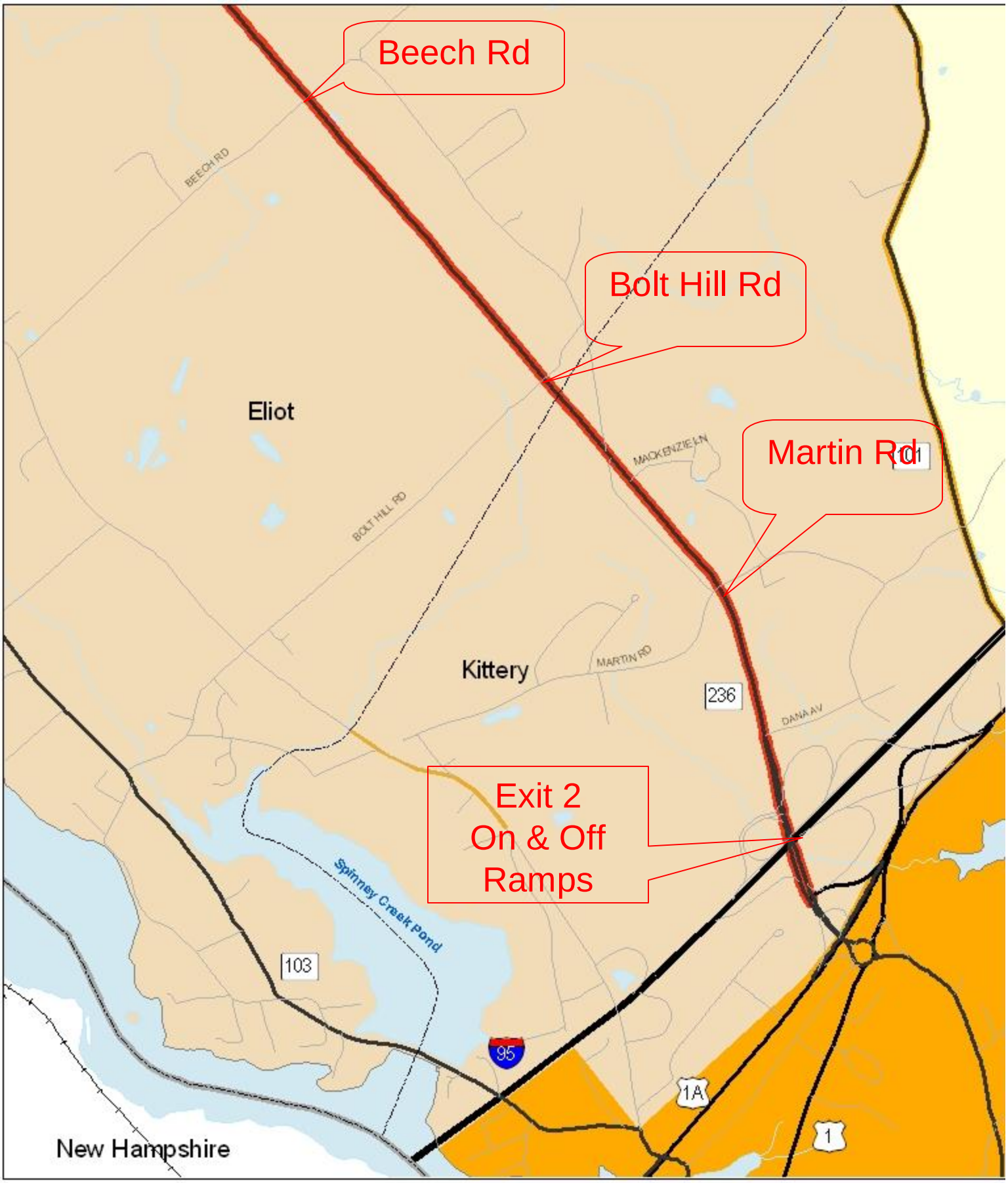

Route 236 Corridor Study

0 0.125 0.25 0.5 0.75 Miles

Study Area

MaineDOT
State of Maine
Department of Transportation
Bureau of Planning

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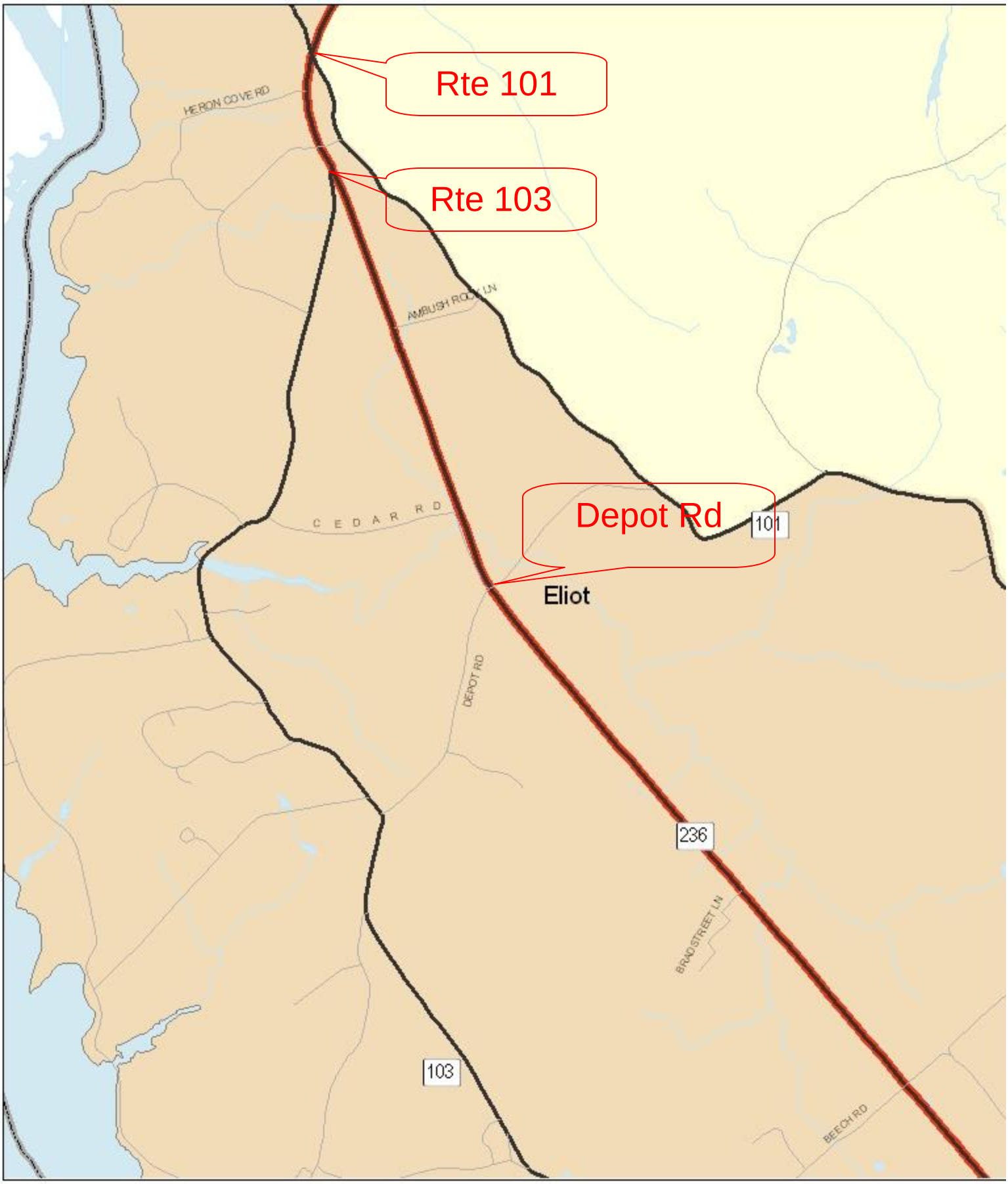

Route 236 Corridor Study

Study Area

0 0.1 0.2 0.4 0.6 0.8 1 Miles

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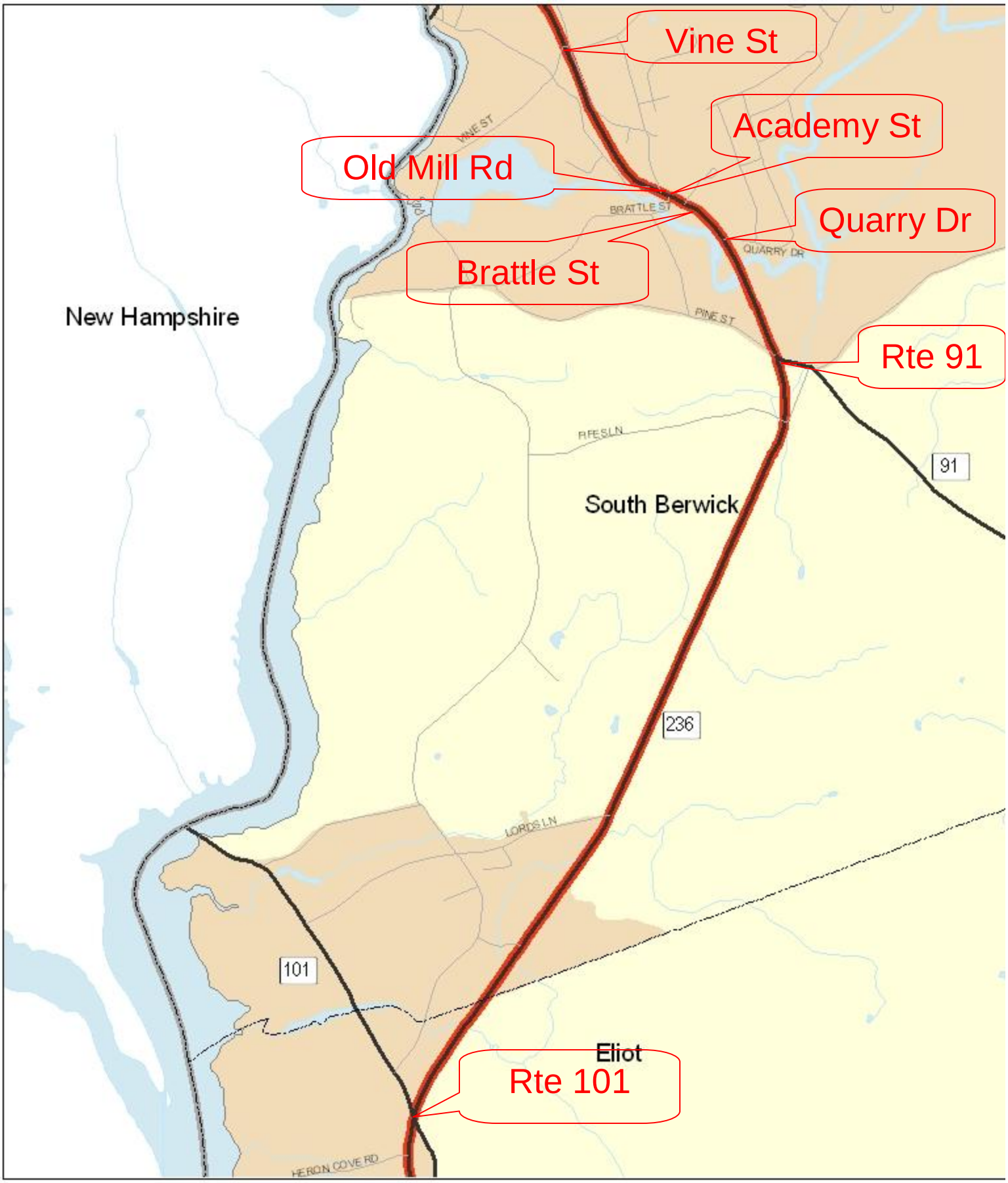

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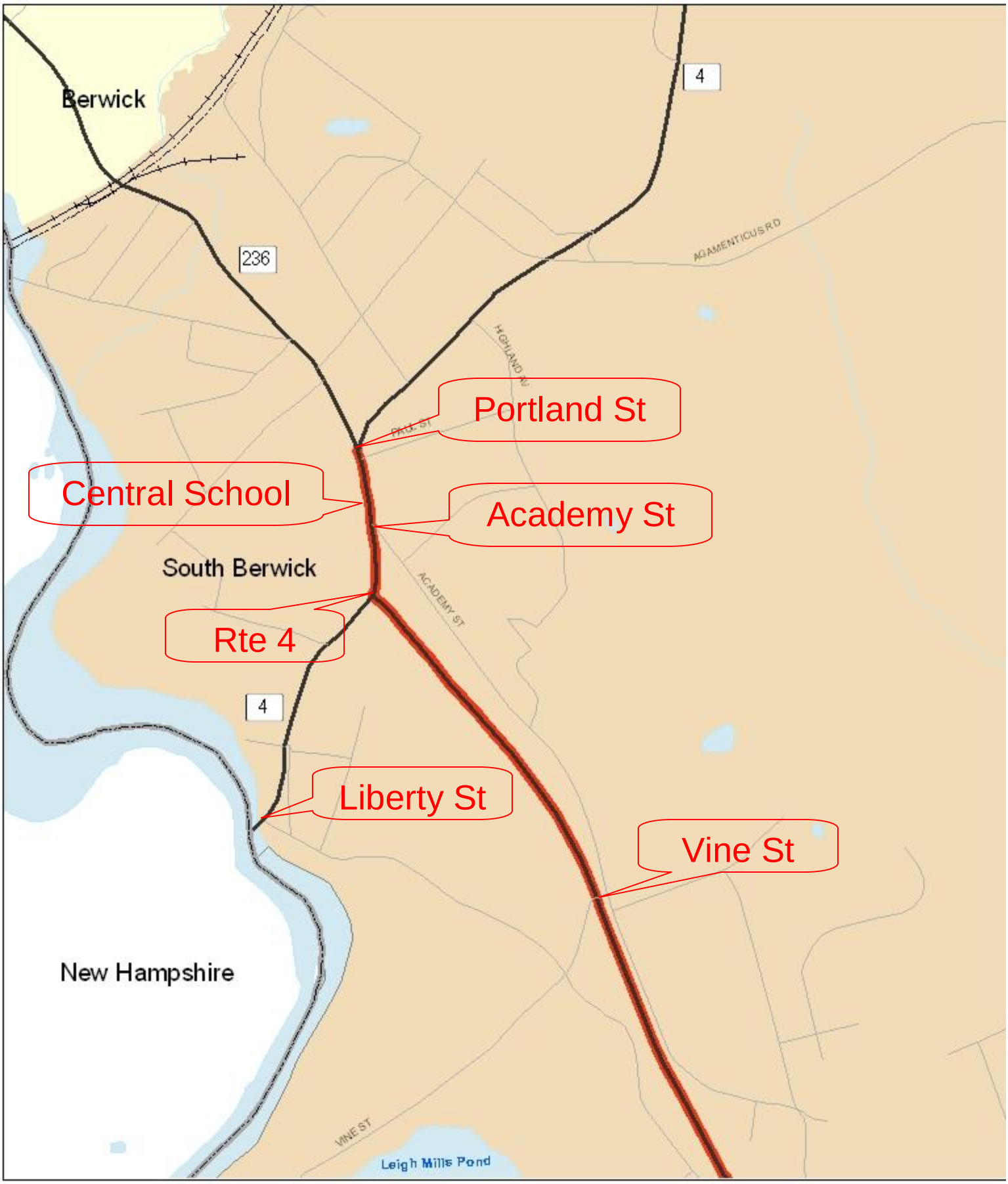

Route 236 Corridor Study

0 0.04 0.08 0.16 0.24 0.32 0.4 Mile

Study Area

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