Tri-State Performance Measures

2014 Annual Report

New Hampshire DOT
Department of Transportation

MaineDOT

VTrans
Working to Get You There
Vermont Agency of Transportation

Date: 04/15/2015

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Executive summary:

Maine, New Hampshire, and Vermont, hereinafter referred to as "Cooperating States" or "Tri State," have a strong working relationship, which has been forged through the continued sharing of information, coordinated material procurement, training exercises, and the cooperative development, implementation, and support of the Managing Assets for Transportation System (MATS).

The Tri State recognized that performance standards were being discussed on a national scale by the United States Congress (Congress) as early as 2009 for incorporation into future Transportation Bills, by the American Association of State Highway and Transportation Officials (AASHTO), and by Federal Highway Administration (FHWA) for incorporation into respective stewardship agreements. It was also recognized that standard performance measures would benefit the Cooperating States by assisting in communications with each state's respective stakeholders and customers. For these reasons the Tri States entered into a Memorandum of Understanding (MOU) in the fall of 2010 (Appendix A) to work together in developing Standard Performance Measures relating to asset conditions, business processes, and safety.

Since that time Congress has passed the federal transportation bill entitled Moving Ahead for Progress for the 21st Century (MAP-21), AASHTO has increased emphasis on performance measures within the work plan of the Standing Committee on Performance Management (SCOPM), and FHWA has begun the process of rulemaking per the implementation requirements in MAP-21 regarding performance measures. The Tri State work to date has focused on utilizing standard measures to monitor performance. The close and collaborative monitoring of these measures has identified areas for improvement which have been highlighted in a number of national arenas as examples of how the MAP-21 language can work. These efforts have the three states well positioned to meet the requirements (establish performance targets) of the federal law when it comes into full effect. In addition, future collaboration across the Asset Management spectrum is anticipated as each state begins its process to comply with the new federal requirements.

Previous *Annual Tri State Reports* included asset performance measures for bridge and pavement condition, safety and traffic signage, business process performance measures related to annual bid advertisement, percent on time, annual dollar amount advertised compared to planned, and engineer estimates compared to low bid result beginning in 2010. These efforts have led to improved communications and efforts on issues relevant to all three states. For example, the act of comparing similar measures triggered Tri State workshops where member states learned from one another on such topics as on time project delivery and highway safety.

This year's report performance measures remain similar to previous years. In years to come Tri State will continue to consider and evaluate inclusion of other new performance measures in this report, and expand upon other assets and business processes. Without a doubt, and with "no fear," the Tri State members recognize the value in collaborating and comparing similar performance measures.

A thank you goes out to our varied stakeholders and customers in recognizing the value of this report and for sharing our successes along the way.

Sue Minter, Secretary Vermont Agency of Transportation

David Bernhardt, PE, Commissioner Maine DOT

Jeff Brillhart, Acting Commissioner New Hampshire DOT

Tri-State Business Performance Measures

Tri-State Business Performance Measures

As agencies of state government, the most important asset we can build and maintain is the trust of the people we serve. Trust in our agencies not only makes projects go easier, it makes legislative and executive funding decisions a more straightforward process. When the public and our partners in industry believe in our ability to deliver on promises, they become stronger advocates for our agencies' goals, plans, and budgets.

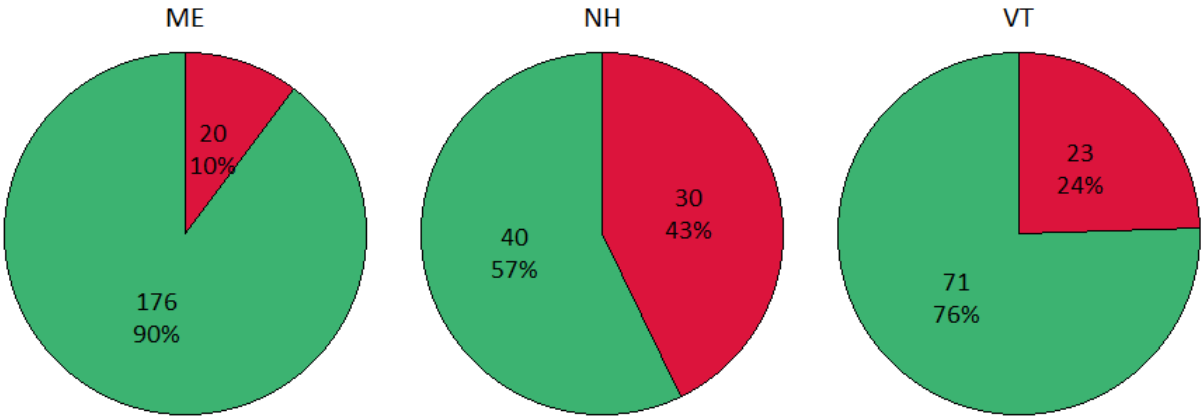
That trust is built by *consistently* doing three simple things: say what we intend to do, do it, and when necessary, clearly explain why something wasn't done. In the realm of capital project development, it begins and ends with schedules, budgets, and the quality of our final products.

In the fall of 2010, representatives of MaineDOT, New Hampshire DOT, and Vermont AOT agreed to begin tracking some common performance measures in the area of operations and capital project production. It was an outcome of regular Tri-State Meetings among the management staffs of the three agencies.

Percent On-Time Delivery

A year earlier, MaineDOT had begun to measure and report on the quality of its project schedules, and their process was used as a framework for the first of the Tri-State measures, Percent On-Time Delivery. The basis for measurement is a calendar year Construction Advertisement Plan (CAP), published at or before the first of the year. The CAP includes all projects developed for advertisement by each agency's in-house staff. Because it extends across an entire year, the standard for "On-Time" is advertisement within 30 days of the CAP date. The reports are issued quarterly. The green portion of the pie charts seen below represents the On Time percentage, by number of projects, at the time of the report. The schedule status for the remainder of the year (zeroes on this 4th Quarter example), and the projected year-end results are contained in the table beneath the pie charts.

Percentage Advertised On Time: 2014 Qtr 4 Results



	Year-to-Date			Rest Of Year			Projected Year End		
State	On Time	Delayed or Re-moved	% On Time	On Time	Delayed or Re-moved	% On Time	On Time	Delayed or Re-moved	% On Time
ME	176	20	90%				176	20	90%
NH	40	30	57%				40	30	57%
VT	71	23	76%				71	23	76%

Total Delivery

The second measure reflects two aspects of program management: The accuracy of cost estimates in the original CAP (described above), and the volume of work added to our programs in an ad hoc manner. At the time of reporting, this measure compares the Construction Value advertised-to-date plus the Construction Value for projects added to the schedule after CAP publication, with the originally-estimated value of the projects included in the CAP. Construction Value refers only to the actual or estimated contract award amount for each project. It does not include PE, CE, or Right of Way costs.

Total Construction Value Delivered: 2014 Quarter 4 Results

(All Dollars in Millions)

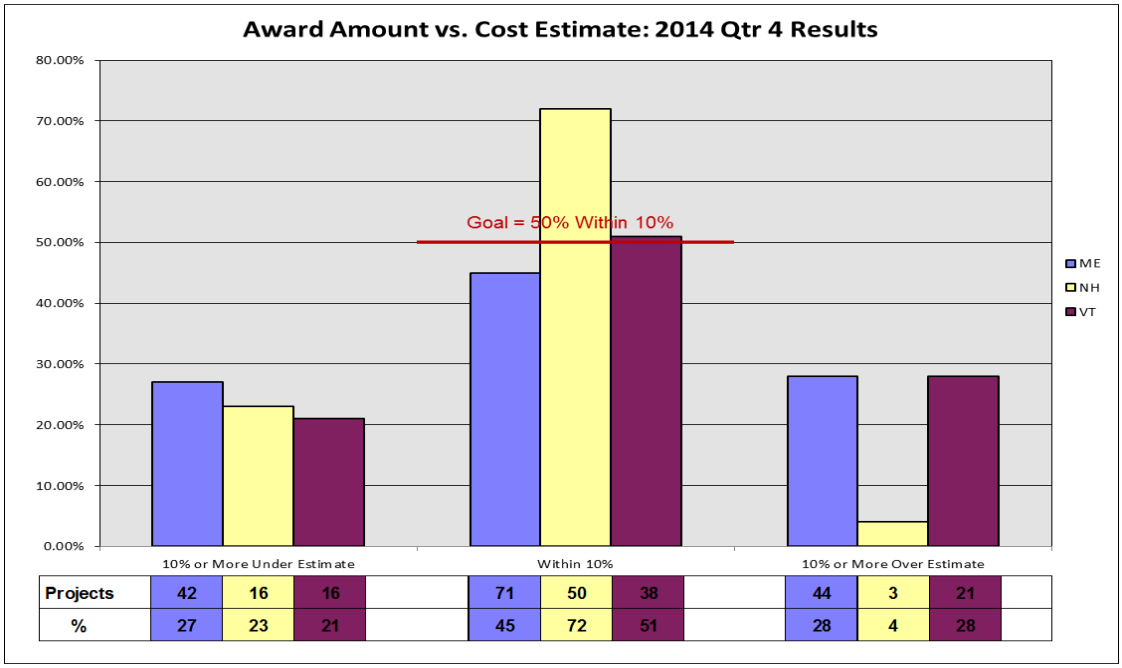
State	Advertised to Date	Remainder of Calendar Year	Projected for Year	Construction Value of CAP	Percent of CAP
ME	$420.21	$0	$420.21	$443.98	95%
NH	$145.40	$0	$145.40	$169.78	85%
VT	$207.20	$0	$207.20	$178.80	115%

Estimate vs. Award

This measure is an assessment of our agencies' ability to accurately anticipate project costs. Accurate cost estimation allows us to plan sufficient work to fully utilize the resources available, without the need to drop projects from the schedule as limited resources are used up. The goal for this measure is to have 50% of our projects come in within 10% of our estimated cost at the time of letting.

At each quarter, it reflects the results for all projects awarded up to that time. Unlike the first two measures, this one is not tied directly to the CAP.

This measure is an assessment of our agencies' ability to accurately anticipate project costs. At each quarter, it will reflect the results for the year-to-date.



Tri-State Bridge Condition Performance Measure

Tri-State Performance Measures

Historically the "health" of the national network of bridges has been measured and compared amongst states utilizing Structural Deficiency as a tally of bridges and as a percentage of population. It is recognized that this measure as an indicator only focuses on the population of bridges in the poor to critical condition of bridges. As such the Tri-State partnership created the Bridge Condition Index (BCI). The BCI not only captures the overall range of condition ratings, it also weighs the condition by the size of the bridges. In this manner the network-wide BCI provides owners a better means to track the general health of their population of bridge assets utilizing data that has been collected similarly for over two decades.

The performance measures that the Tri-State uses are:

- Bridge Condition Index (BCI)
- % Structurally Deficient by Deck Area

Bridge Condition Index (BCI)

- BCI = Inventory Sum of (Individual Bridge Substructure Condition Rating*Individual Bridge Number of Spans)/(Total Number of Spans in Inventory)*50;
- + Inventory Sum of (Individual Bridge Superstructure Condition Rating*Individual Bridge Overall Span Length)/(Total Span Length in Inventory)*30 and;
- + Inventory Sum of (Individual Bridge Deck Condition Rating*Individual Bridge Deck Area)/(Total Deck Area Inventory)*20

New Tri-State Performance Measure (A test-drive of an AASHTO idea)

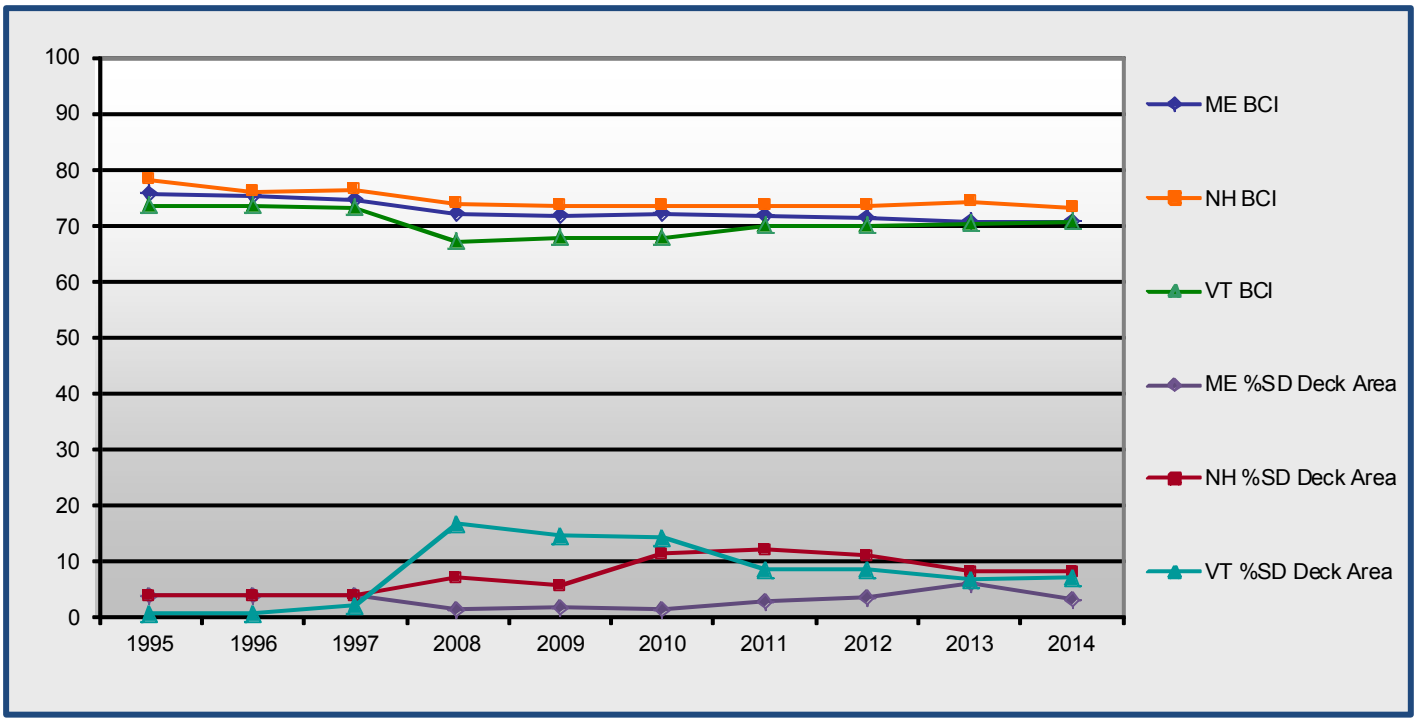
AASHTO Subcommittee on Bridges and Structures (SCOBS) task force is in general concurrence with AASHTO's Subcommittee on Performance Measures (SCOPM) with the following refinements and modifications:

> "The second measure should reinforce an asset management approach and show bridge preservation and replacement needs. Instead of using the terms Good, Fair, and Poor, the task force recommends the following work category descriptors: Cyclic Maintenance (CM), Preventative Maintenance (PM), and Rehabilitation and Replacement (R&R)."

The following chart shows each of the needs based categories with the NBI bridge condition ratings that make up the category.

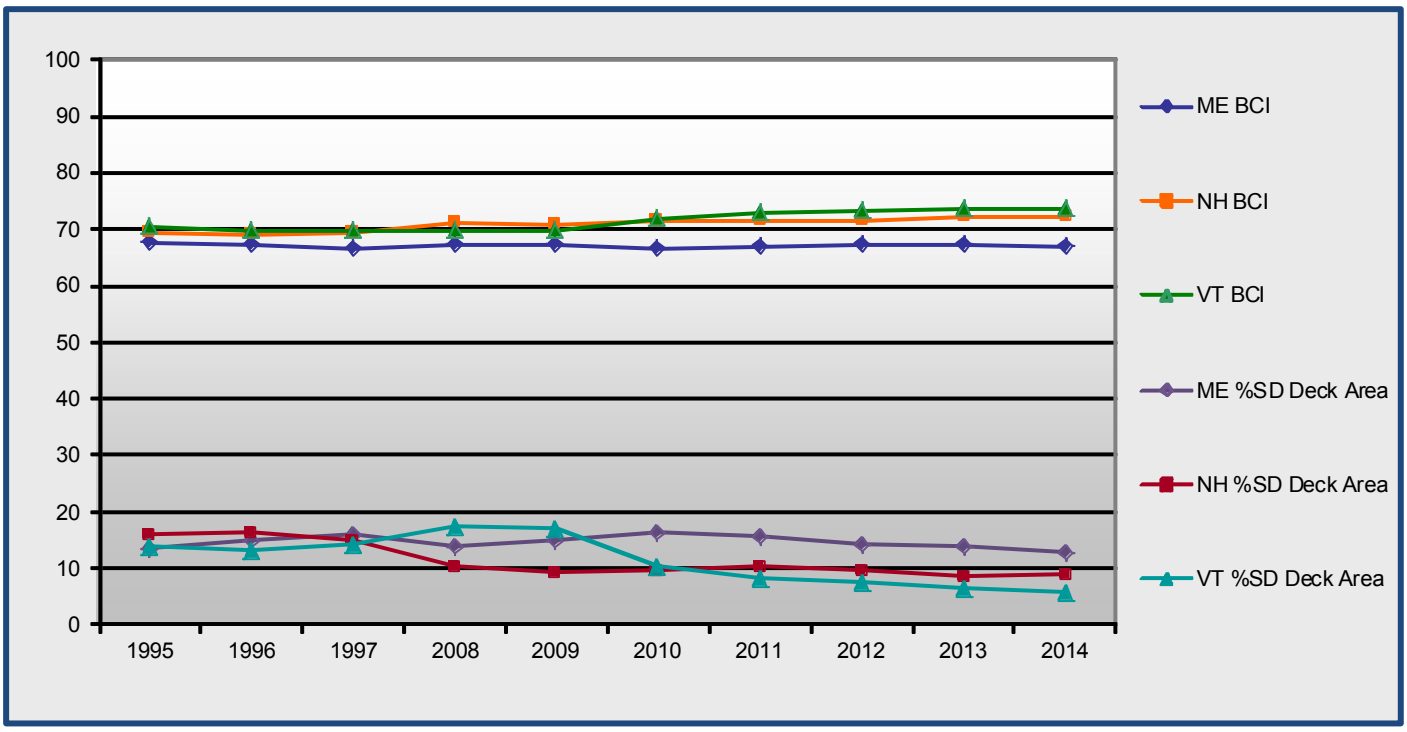
Bridge Condition Index (BCI) & % Structurally Deficient

*Interstate System over Time



Bridge Condition Index (BCI) & % Structurally Deficient

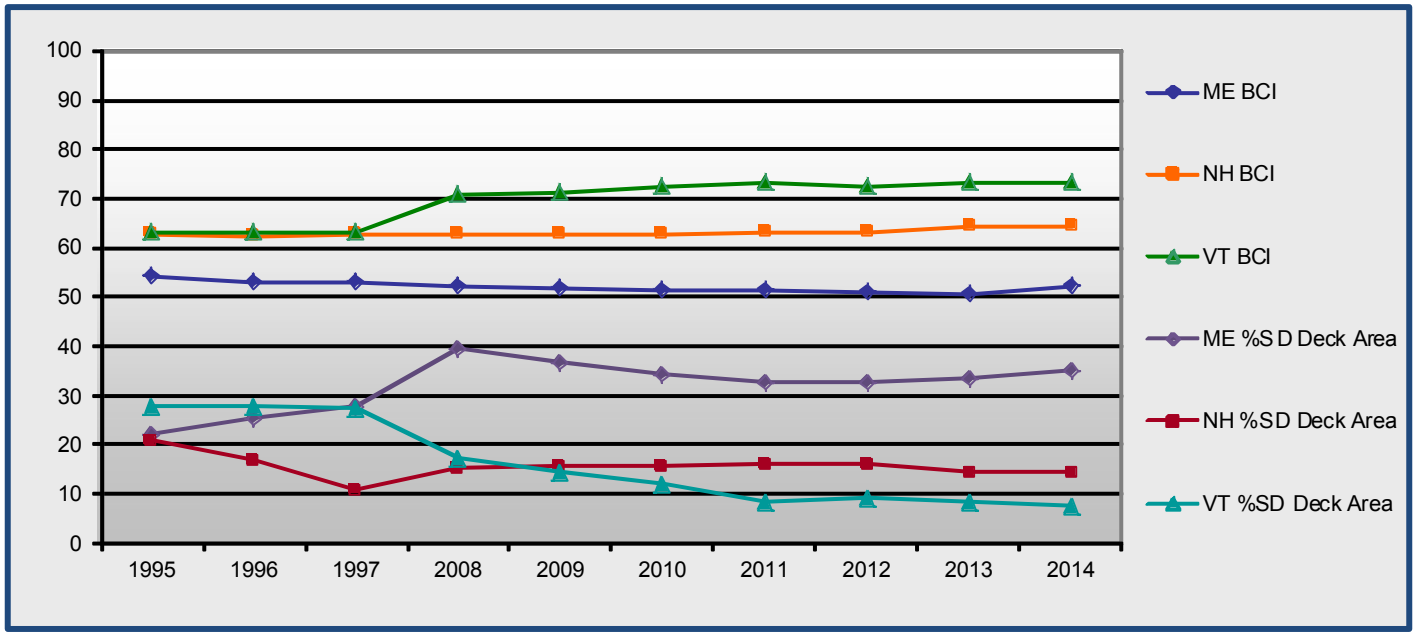
*State Highway System over Time



Bridge Condition Index (BCI) & % Structurally Deficient

* Local Highway System over Time

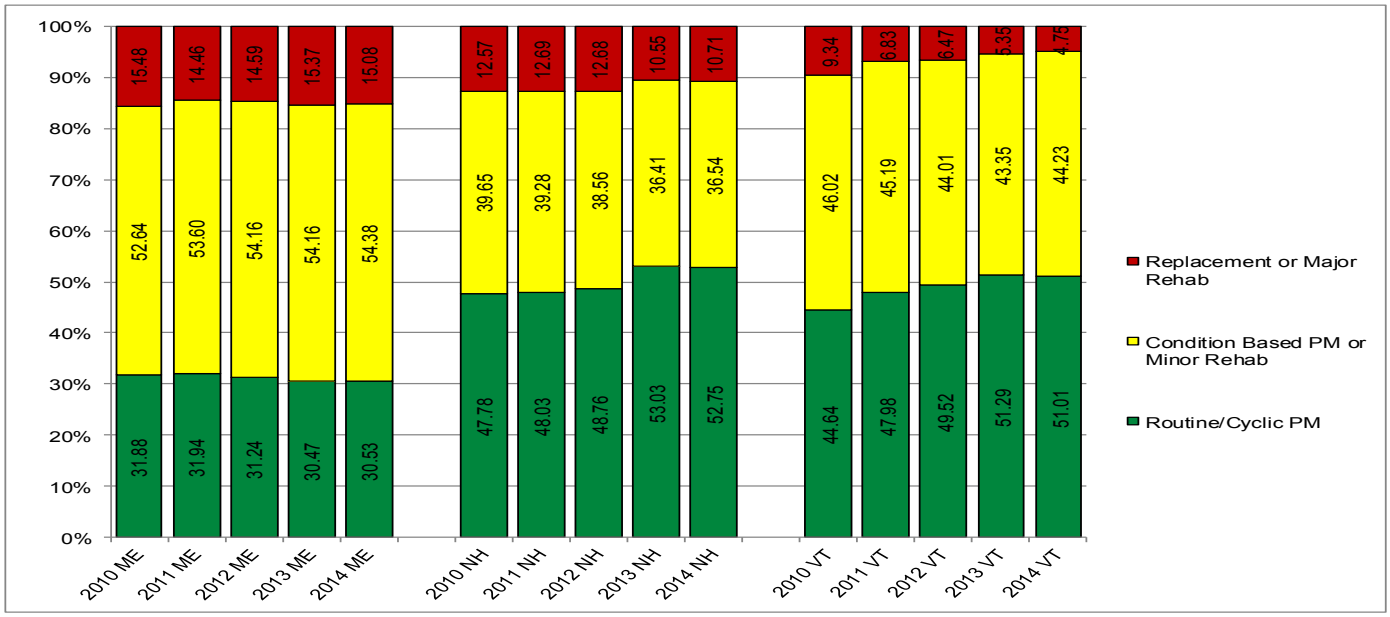
Based on 2014 Calendar Year NBI Data



The AASHTO "Test-Drive"

April 2010—April 2014 Bridge Conditions

* All Roadway Bridges



Tri-State Pavement Condition Performance Measure

Pavement Condition

It has been recognized that each of the Cooperating States has been collecting International Roughness Index (IRI) data on their respective highway networks for a number of years following established standards and protocols as part of their HPMS submittals. This protocol includes the IRI data taken while driving over both bridges and railroad crossings. Based on that, this measure of condition was chosen for comparing the relative health of their pavement surfaces as well as an implicit measurement of the effectiveness of each Cooperating State's pavement management strategies. To further characterize and compare the condition of their respective highway networks, IRI data has been compiled by functional classification to identify how each of the highway types compares and illustrate where similarities and differences may lie in the manner with which the Cooperating States prioritize the allocation of the funds made available for the management of pavements. FHWA recently updated the recommended classification designation coding, reducing the number of classes from 12 to seven and making them more concise. The old codes map directly to the new codes based on the protocol established by FHWA providing a straightforward manner to utilize the new codes with existing historical data. Considering the efficiency gained from an illustrative standpoint the new codes were chosen for this effort.

Condition states were also assigned by establishing numeric thresholds for the IRI results equating to a Good, Fair, and Poor designation. Recognizing that higher type facilities such as interstates and other principal arterials, functional class 1 and 2, typically host higher travel speeds and larger traffic volumes by our respective users, a more rigorous breakpoint between Fair and Poor was utilized for the IRI as compared to all other facility types. The premise was that roughness would be perceived as less objectionable on those lower speed facilities. These separate and distinct thresholds were established based on FHWA recommendations as well as other references both of which are essentially recognized at the national level as being practical from a user perspective. Additionally, to evaluate how each Cooperating State manages their highway networks with respect to customer usage, IRI data was further categorized in a separate analysis by weighting the various roadway segments by vehicle miles traveled. This approach is meant to illustrate and emphasize the health of our networks, as experienced by the greatest number of users.

The tables and charts on the following pages show that the Cooperating States trend is toward maintaining their higher type facilities at a higher level of service in terms of smoothness as compared to remainder of the networks.

Tri-State Performance Measure
2013 Pavement Condition - International Roughness Index (IRI)

Percentage based on Miles

Functional Class *	ME	NH	VT	ME		NH		VT		ME		NH		VT		ME		NH		VT	
	Collected Miles in Functional Class			Good						Fair						Poor					
				IRI < 95 in/mi						IRI ≥ 95 in/mi and ≤ 170 in/mi						IRI > 170 in/mi					
				Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles
1	732	453	640	85%	624	91%	413	100%	639	14%	104	8%	36	0%	1	1%	4	1%	5	0%	0
2	31	164	19	58%	18	91%	149	73%	14	39%	12	8%	12	25%	5	3%	1	2%	3	2%	0
				IRI < 95 in/mi						IRI ≥ 95 in/mi and ≤ 220 in/mi						IRI > 220 in/mi					
				Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles	Percent	Miles
3	935	527	462	52%	489	66%	350	47%	218	44%	412	30%	156	52%	242	4%	34	4%	21	1%	3
4	1259	968	820	41%	518	51%	496	7%	59	54%	679	39%	381	91%	751	5%	62	9%	91	1%	11
5	3740	1122	1994	18%	681	28%	312	8%	168	62%	2323	53%	592	83%	1646	20%	736	19%	218	9%	181
6	2154	424	9	7%	159	13%	53	15%	1	65%	1390	49%	206	6%	1	28%	605	39%	164	78%	7
7	0	15	0		0	13%	2					54%	8					32%	5		
Total	8851	3673	3946	28%	2489	48%	1775	28%	1099	56%	4920	38%	1392	67%	2645	16%	1442	14%	505	5%	202

Percentage based on VMT (Vehicle Miles Traveled)

Functional Class *	ME	NH	VT	ME		NH		VT		ME		NH		VT		ME		NH		VT	
	VMT in Functional Class ($x10^3$)			Good						Fair						Poor					
				IRI < 95 in/mi						IRI ≥ 95 in/mi and ≤ 170 in/mi						IRI > 170 in/mi					
				Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT
1	3037	7812	4466	89%	2714	94%	7354	99%	4442	11%	320	5%	419	1%	24	0%	3	1%	39	0%	0
2	131	3776	170	63%	83	92%	3458	74%	125	35%	46	7%	268	22%	38	2%	2	1%	50	4%	7
				IRI < 95 in/mi						IRI ≥ 95 in/mi and ≤ 220 in/mi						IRI > 220 in/mi					
				Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT	Percent	VMT
3	2505	6043	3175	51%	1278	64%	3846	37%	1178	45%	1128	31%	1890	62%	1975	4%	99	5%	307	1%	23
4	2657	6508	3252	39%	1024	52%	3401	9%	291	55%	1472	40%	2613	89%	2910	6%	161	8%	493	2%	51
5	3100	3419	3227	23%	698	36%	1234	14%	447	61%	1896	52%	1768	78%	2516	16%	506	12%	417	8%	265
6	812	618	6	9%	72	19%	116	61%	4	66%	539	52%	323	3%	0	25%	201	29%	179	36%	2
7	0	34	0			25%	9					56%	19					19%	7		
Total	12242	28210	14296	48%	5869	69%	19418	45%	6486	44%	5401	26%	7300	52%	7462	8%	972	5%	1492	2%	347

* Functional Classes		Good	Fair	Poor
1	Interstate	IRI < 95	IRI ≥ 95 and ≤ 170	IRI > 170
2	Other Freeways and Expressways	IRI < 95	IRI ≥ 95 and ≤ 170	IRI > 170
3	Other Principal Arterial	IRI < 95	IRI ≥ 95 and ≤ 220	IRI > 220
4	Minor Arterial	IRI < 95	IRI ≥ 95 and ≤ 220	IRI > 220
5	Major Collector	IRI < 95	IRI ≥ 95 and ≤ 220	IRI > 220
6	Minor Collector	IRI < 95	IRI ≥ 95 and ≤ 220	IRI > 220
7	Local	IRI < 95	IRI ≥ 95 and ≤ 220	IRI > 220

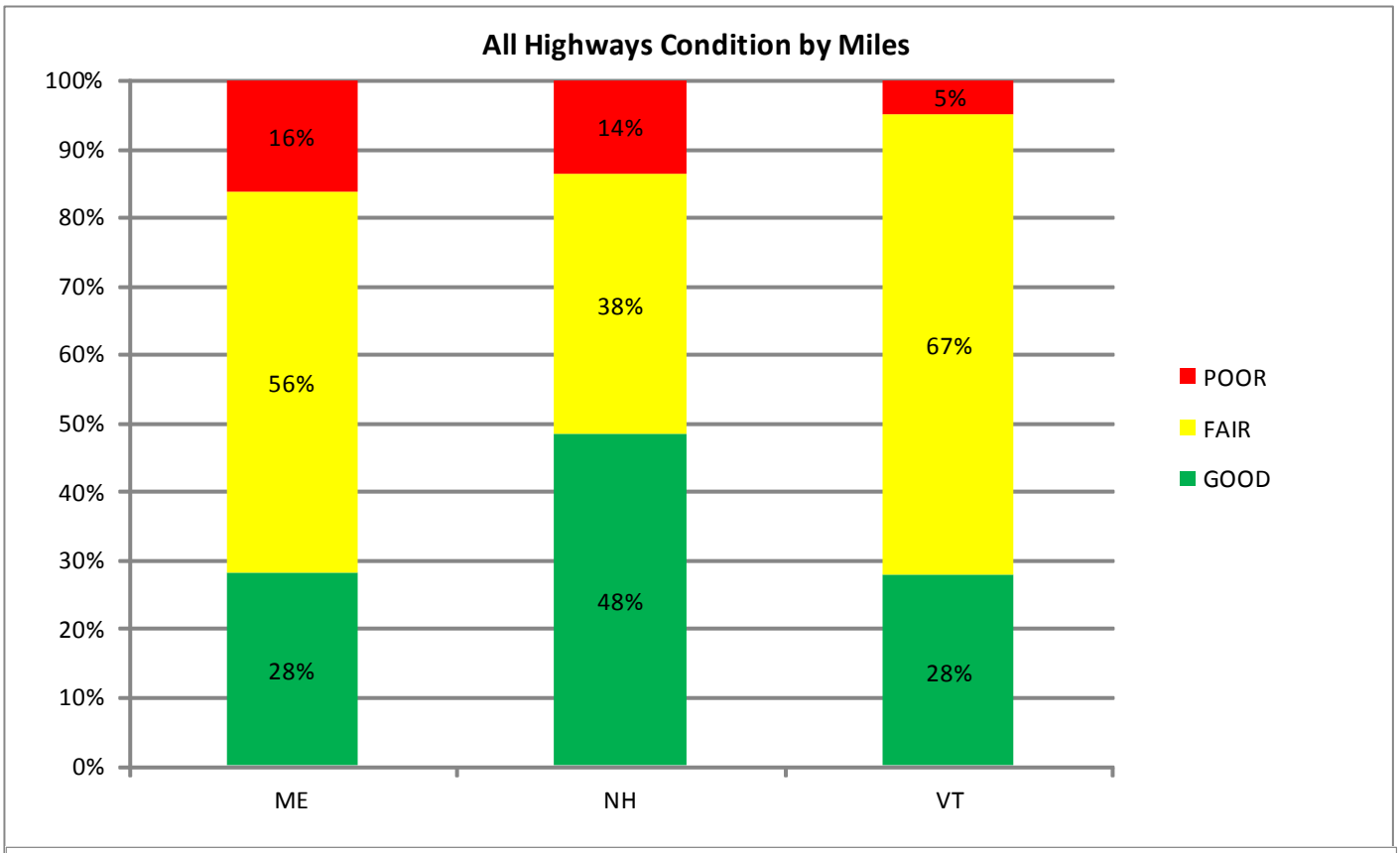
Notes:

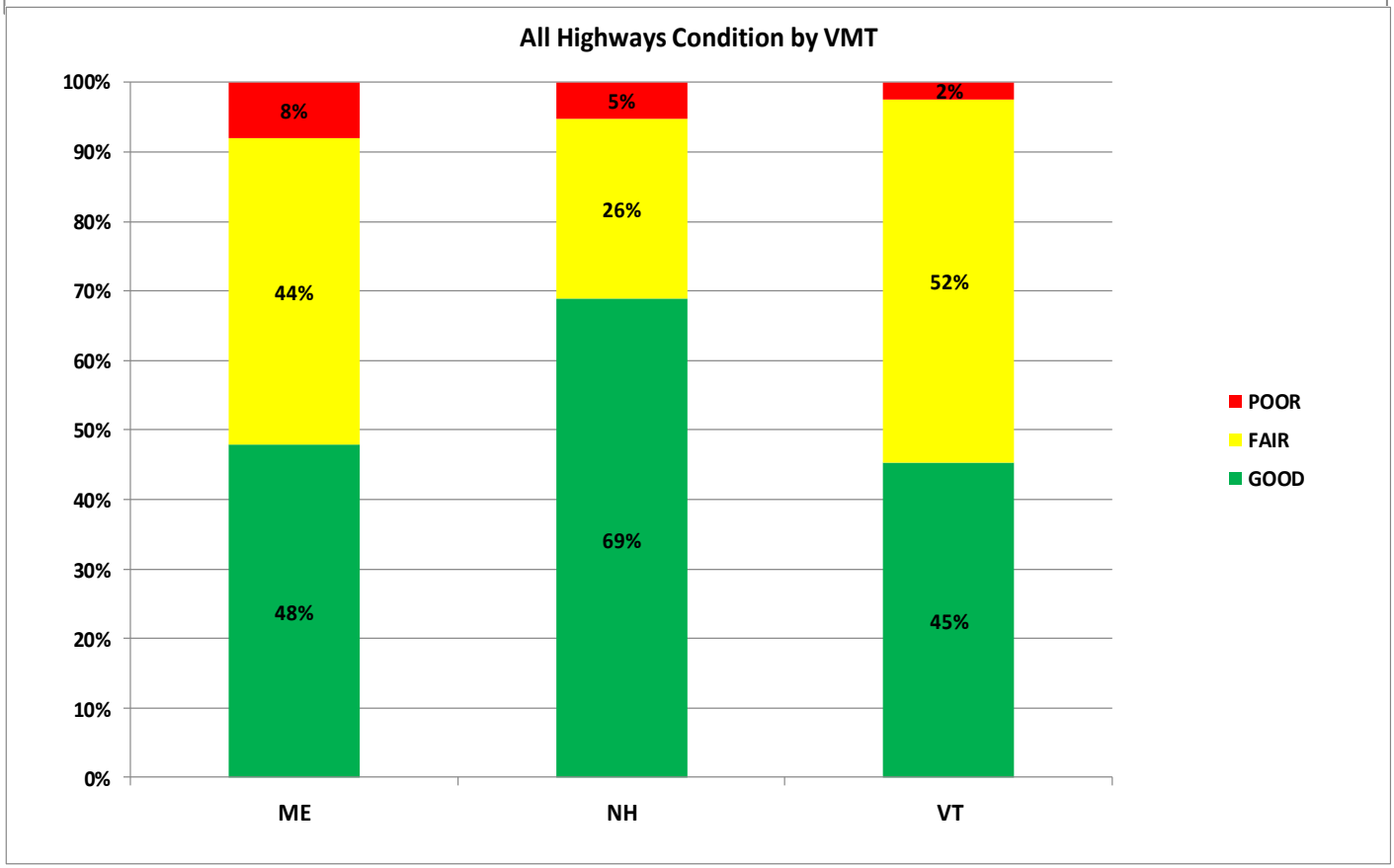
1. Divided highways are reported in barrel miles and all other roads are reported in centerline miles.

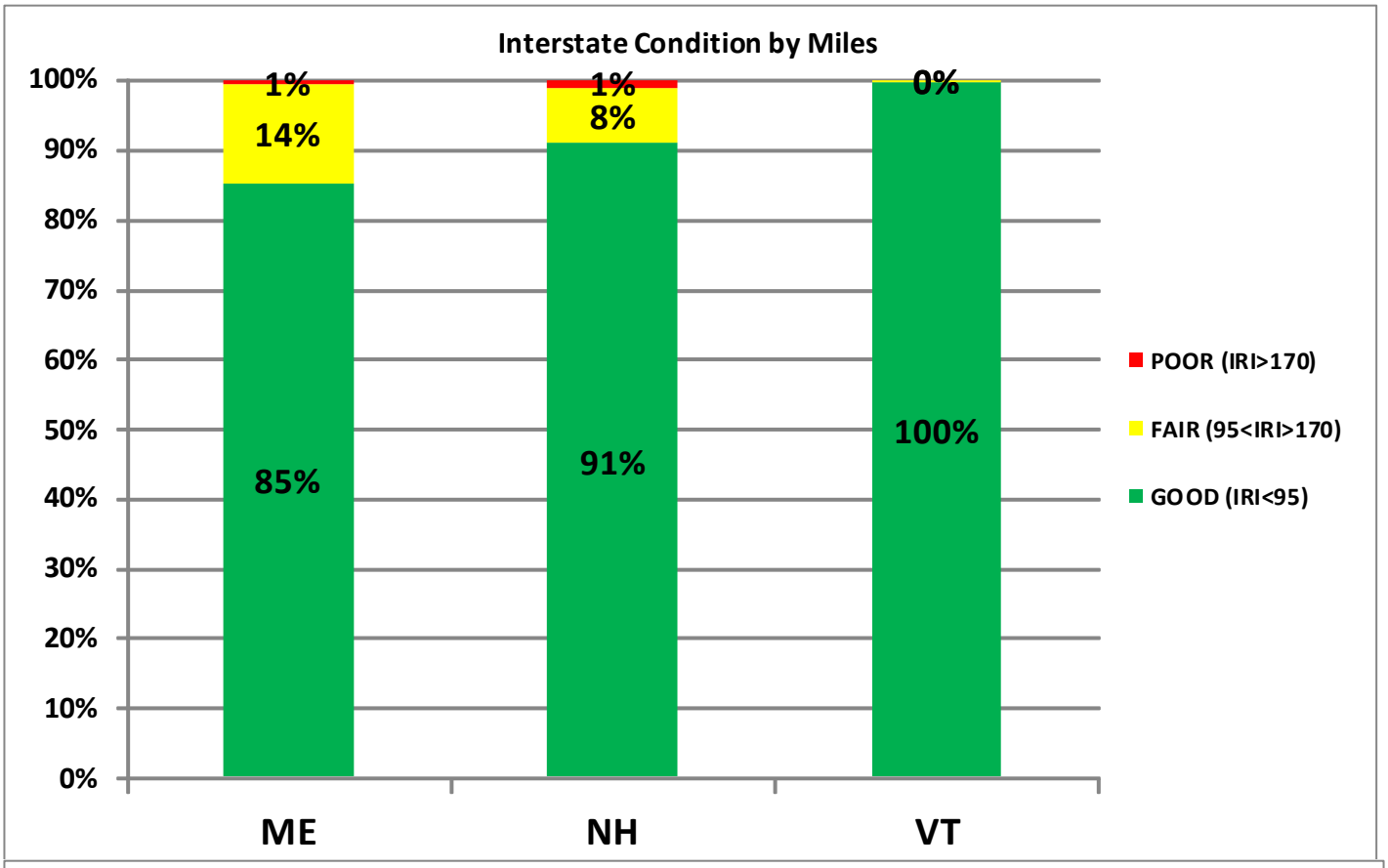
2. New Hampshire data is collected with a Pathway vehicle and includes Interstates, Turnpikes, and numbered routes collected in 2013 and the unnumbered roads collected in 2012. IRI data for Interstates and Turnpikes was recorded in the right most travel lane. AADT where not available is modeled using Functional Classes and geographical location weighted averages. Changes in functional class, due to the 2010 US Census, are incorporated into the reporting of the 2013 data and will be fully reflected in the 2015 Tri-State Reporting.

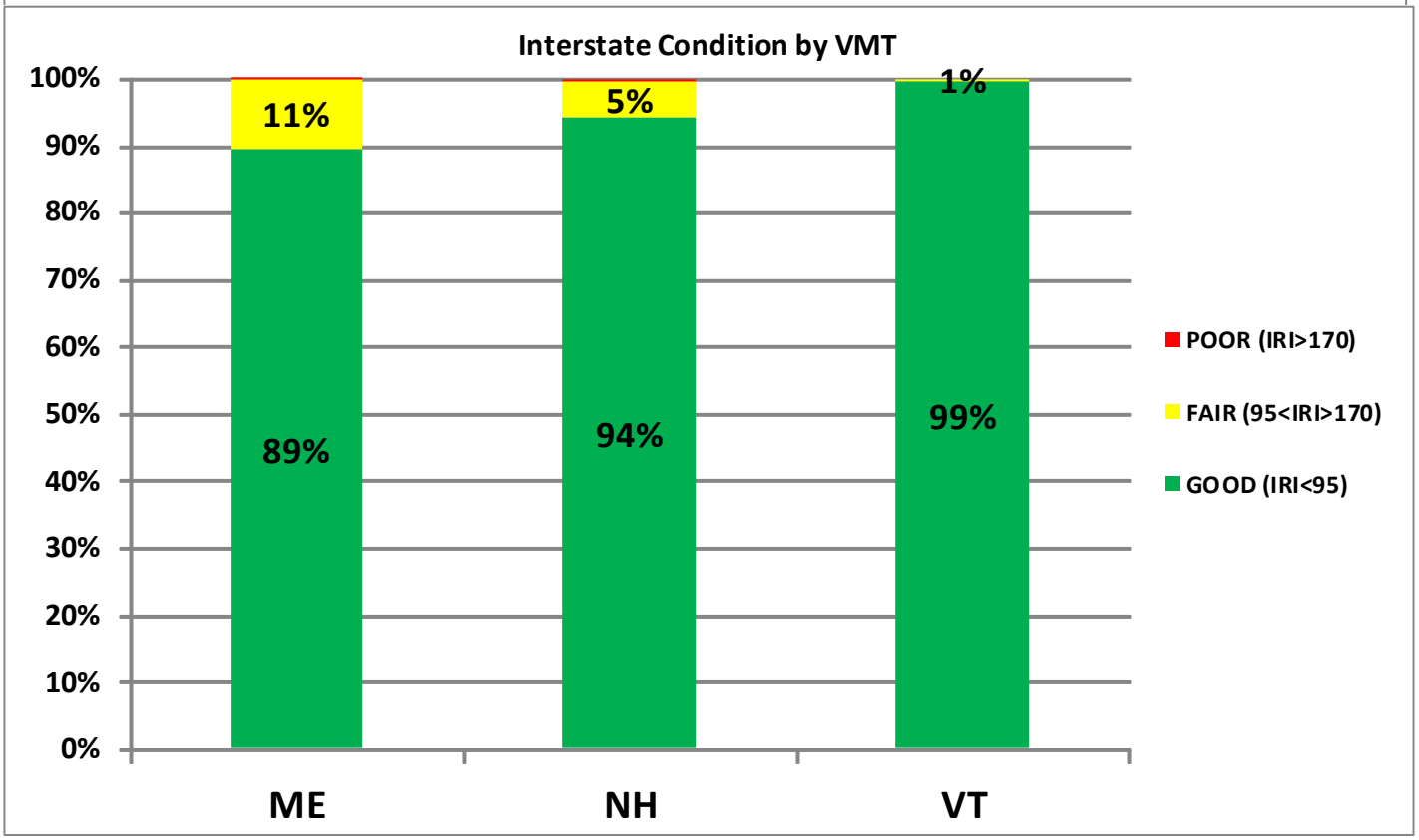
3. Maine data is comprised of data collected with the ARAN vehicle in 2012 and 2013 (all Interstate data is from 2013).

4. Vermont condition data is comprised of data collected by Fugro-Roadware and VAOT in 2012 and 2013. Vermont traffic data is from 2012.


All Highways Condition by Miles
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
16%
56%
28%
14%
38%
48%
5%
67%
28%
ME
NH
VT
POOR
FAIR
GOOD


All Highways Condition by VMT
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
8%
44%
48%
5%
26%
69%
2%
52%
45%
ME
NH
VT
POOR
FAIR
GOOD


Interstate Condition by Miles
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1%
14%
85%
1%
8%
91%
0%
100%
ME
NH
VT
POOR (IRI>170)
FAIR (95<IRI>170)
GOOD (IRI<95)


Interstate Condition by VMT
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
11%
89%
5%
94%
1%
99%
ME
NH
VT
POOR (IRI>170)
FAIR (95<IRI>170)
GOOD (IRI<95)

Tri-State Sign Performance Measure

Performance Measure Yearly Reporting:

The tri-state sign performance measure is a snapshot of the percent signs above service life in each respective state. As a snapshot it tells us the current status of the non-interstate sign system. This will be updated yearly with the updates being submitted to VTrans for incorporation into the annual report. This information is due to VTrans on December 1.

Introduction:

Traffic signs provide an important means of communication for all roadway users. They are intended to promote safety by supplying advanced warning of upcoming regulatory, warning, or guidance information. In addition to daylight hours, traffic control mechanisms must be capable of conveying this information during inclement weather and evening hours when there may be little to no contribution from overhead lighting (1). Therefore, the appearance and proper recognition of traffic control devices is essential for the overall safety of the traveling public.

The Federal Highway Administration (FHWA) has mandated retroreflectivity requirements for traffic signs. To comply with these requirements requires that public agencies implement a management method that will ensure that the retroreflectivity levels for traffic signs are maintained at or above the minimum levels specified in the Manual on Uniform Traffic Control Devices (MUTCD).

The purpose of this document is to summarize the Tri-State efforts in working towards a common performance measure for traffic signs. In order to better understand how the sign performance measure was selected it is worthwhile taking a look at traffic sign management in each state.

State Traffic Sign Summaries:

Vermont

The Vermont Agency of Transportation (VTrans) is responsible for approximately 63,943 active traffic signs statewide along 2,704 miles of state owned highway system. This is comprised of 703 miles of National Highway System, 320 of which is Interstate miles.

The management of this system is accomplished by the combined efforts of the Project Delivery Bureau (PDB), the Asset Management and Performance Bureau (AMP), and the Maintenance and Operations Bureau (MOB) Signs are installed through construction projects and by MOB work orders.

VTrans has managed signs since 1996 using a proprietary software. The inventory tracks over 30 sign attributes such as location information, age, MUTCD/state code, support information, and work history. This information is used in support of VTrans' retroreflectivity management method, sign plaque age, which uses a 15 year useful life.

2014 saw the programming or construction of over 93 miles of sign projects, 36 miles of which was along the interstate. This past year also saw the continuation of the statewide sign data project.

New Hampshire

The New Hampshire Department of Transportation (NHDOT) is responsible for 49,395 traffic signs statewide along 4,608 center line miles of state owned highway system. This is comprised of 1,217 miles of National Highway System, 840 of which is Interstate/Turnpike miles.

The management of the sign system is accomplished through the Bureau of Traffic. Both individual sign replacements due to age and damage, and program sign replacements using State and Federal funds, are managed out of the Traffic Bureau.

NHDOT is in the early stages of collecting sign inventory and like Vermont we will be utilizing the MATS asset management module to keep track of sign work orders and accomplishments. Until this inventory is complete we will use the data collected to date and extrapolate to obtain statewide totals. This assumes the condition of the signing statewide is uniform.

To address the MUTCD requirement regarding minimum retroreflectivity, NHDOT began a night riding program in 2009 to replace signs based on their appearance at night. This type of replacement program is not data driven and only requires a trained eye to determine if a sign should be replaced. This approach should get the Department in compliance by 2014 if one fifth of each district is ridden in each year. This approach will allow NHDOT to reach the mandated minimums, using existing resources in the short term, and to develop a sustainable plan moving forward. The number of substandard signs to be found by night riding is unknown and funding will play a role in the rate that progress is made. However, using the data obtained from this process will give us a measure of performance; this can be measured and is comparable from one year to the next.

In 2014 the number of signs identified below service life during our visual night time inspection was 2,868. The inventory is extrapolated to be 49,395 sings with an extrapolated 13,472 signs below service life or 27% of the total inventory. This leaves 73% of the total above service life which is about 13 points lower than last year. It is expected that as this program continues and the inventory is completed that the number of signs below service life will lower to around 5%.

Maine

The Maine Department of Transportation (MEDOT) is responsible for approximately 67,000 traffic signs statewide along 8,600 miles of state-owned highway. The system includes 1,330 miles of National Highway System, 367 miles of which is interstate. To date MEDOT has inventoried over 8,000 miles (not including interstate) and it is extrapolated that there are 80,000 signs under state responsibility.

Sign management is the responsibility of the Traffic Engineering Division in the Bureau of Maintenance and Operations (M & O). Sign replacement, due to age and damage, as well as sign replacement using State and Federal funds is performed by maintenance crews in each Region within the Bureau of M & O.MEDOT is approximately 98% compliant on regulatory and warning

signs statewide. We are currently making a big push to bring our guide signs into compliance and adding mileage to all destinations. We have approximately 90% compliance on reflectivity on statewide guide signs. Our interstate guide signs are next on our list. We are approximately 40% compliant at this point and over the next two years we plan to bring the rest into compliance with our maintenance crews and contracted projects.

We are currently trying to complete our sign inventories statewide. Our interstate signs are 100% complete in MATS. It is worth noting that MEDOT is looking into alternatives for data collection.

Performance Measure:

Maine, Vermont, and New Hampshire share a common goal of having a sign performance measure that will provide a benchmark on the overall sign system. This performance measure will allow the three states a common reference point from which to view their systems and will aid in the continued cooperative sharing of information between the three states.

In 2010 the three states worked together to accomplish the above recognizing that each state has different degrees of data granularity available. As a starting point the different sign management systems were discussed and summarized by systematically stepping through the pros and cons of various possible measures while keeping in mind what data was available and feasible for each state. The result of these efforts was the choice of Percent of Non-Interstate Signs Above Service Life as the most appropriate performance measure was established

Percent of Non-Interstate Signs Above Service Life is an indicator of those signs that are still functioning as intended and are providing adequate guidance to the traveling public. These signs have not unduly deteriorated due to various factors such as age, loss of retroreflectivity, or damage. The table below gives a snap shot of what the current percentage looks like for each state as well as the management method currently being used to make that determination.

Table 1: Existing % signs above service life.

State	Current % Above Service Life	Method
New Hampshire	73 %	Night Time Visual Assessment
Vermont	80 % *	Sign age
Maine	98 %	Sign Age

* The VTrans sign database is undergoing a statewide reconciliation and as such the current % above service life will not be rerun until the reconciliation is completed.

It is recognized that this measure will need to be revisited in the future as each state's sign database matures and changes.

Performance Measure Yearly Reporting:

The Tri-State sign performance measure of Percent Signs above Service Life is a snapshot of the respective state sign systems. As a snapshot it tells us the current status of the non-interstate sign system. All three states will submit their yearly sign performance measure as identified in the table above to VTrans for incorporation into the final report. This information is due to VTrans by December 1 with a final report being due to management on January 1.

References:

1. U.S. Department of Transportation – Federal Highway administration (FHWA). "MUTCD Overview." FHWA-Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). 12/05/2007. http://mutcd.fhwa.dot.gov/kno-overview.htm.

2. Vermont Agency of Transportation Materials and Research Section, "Evaluation of Measuring Methods for Traffic Sign Retroreflectivity" Final Report, Report 2009-8, Wendy M.E. Kipp and Jennifer M.V. Fitch.

3. National Cooperative Highway Research Program, "Performance Measures and Targets
for Transportation Asset Management," NCHRP Report 551.

4. Tri State Agreement for Standardized Performance Measures Memorandum of Understanding, dated August 19, 2010.

Tri-State Safety Performance Measure

The Tri State partners recognize that highway safety is not the responsibility of any one group or agency but is the combined responsibility of many agencies and departments. As such, each state has a Strategic Highway Safety Plan (SHSP), developed with the input from state and federal agencies, municipalities, industry, and the business community, that puts forth those critical emphasis areas (CEA) that would offer the greatest potential for reducing major crashes in their state. In the broader context of safety, the SHSP is meant to be implemented in conjunction with other state safety plans. An overview of each states SHSP with corresponding emphasis was done in 2011. It was found that although each state has CEAs that are unique to that state, we do share six CEAs. These are Speed, Safety Belts, Young Drivers, Impaired Drivers, Distracted Drivers and Intersections.

With the SHSP plans in mind, the Safety Performance Measure Working Group sought a performance measure that would complement these efforts. To this end, the group chose the national vision of Toward Zero Deaths with a corresponding performance measure of reducing the fatality five-year rolling average by 50% by the year 2030. While Towards Zero Deaths is tracking the actual number of deaths it was thought that a measure that takes vehicle miles traveled into account would help normalize the metrics to a common reference and provide a more useful picture of safety on our highways. To this end, the fatality rate per one hundred million vehicle miles traveled and fatal plus incapacitating injuries per one hundred million vehicle miles was selected to report.

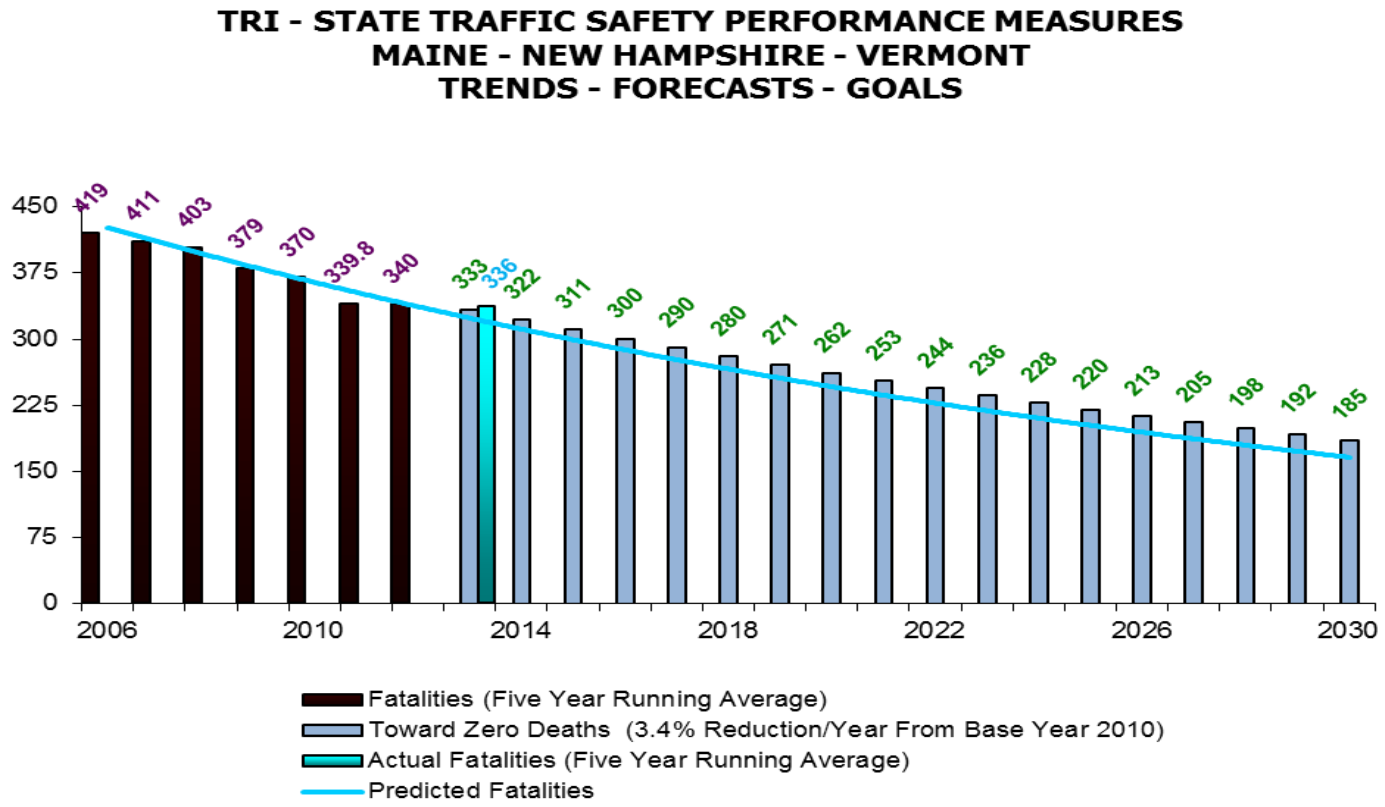
Toward Zero Deaths is a national strategy sponsored and supported by the Federal Highway Administration (FHWA) and the American Association of Highway Transportation Officials (AASHTO) that focuses on using data-driven processes to identify and create opportunities for changing the highway safety culture. This strategy recognizes that with over 35,000 fatalities occurring on our Nation's highways each year highway safety remains a challenge for all of us and is depicted in the following graphs.

Graph 1 shows us the Tri State combined trends, forecasts, and goals. Based on the current trend in yearly fatalities, the goal of having the five-year average reduced by 50% by the year 2030 will be achieved provided a 3.4% per year reduction. Graphs 2-4 show us what goal looks like for each individual state based on their individual trends and forecasts. It is worth noting that adjustments to the trend lines are likely as the national campaign progresses and as our data matures.

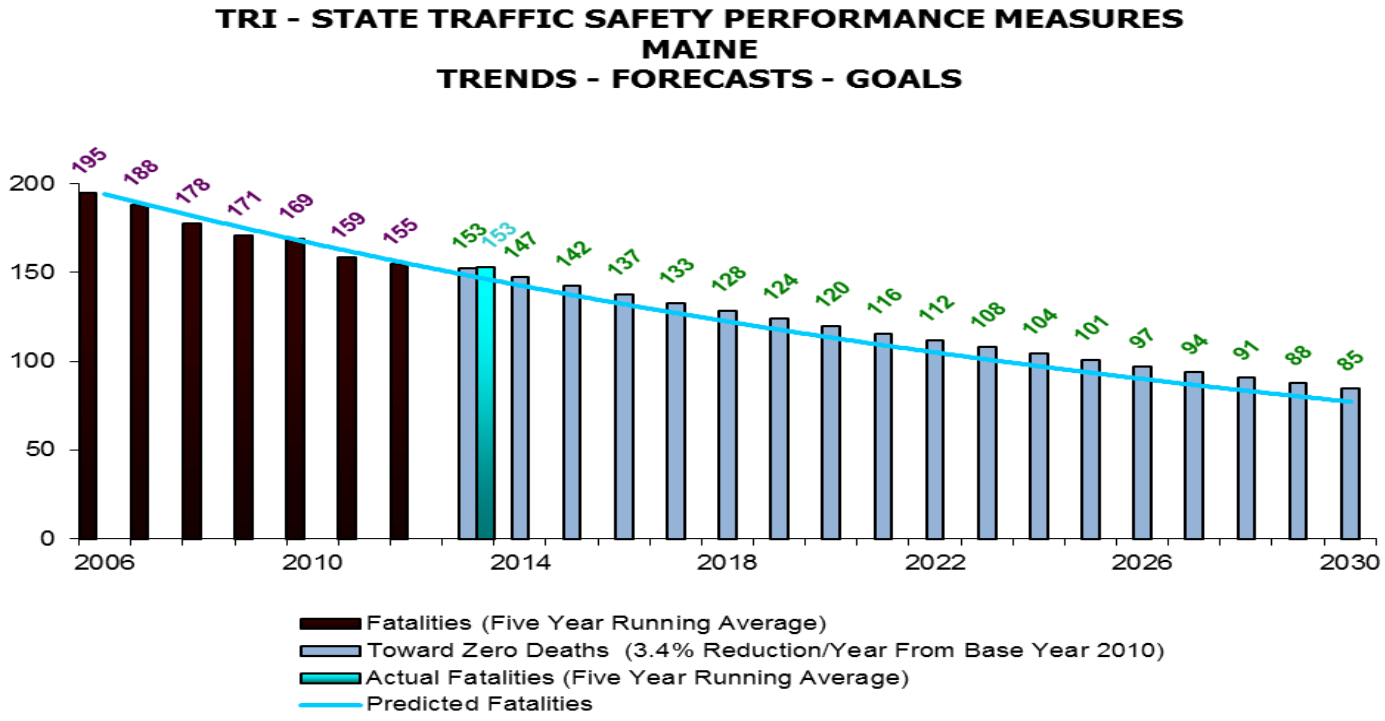
Table 1 shows both the fatality rate and the fatality plus incapacitating injury rate. These rates are calculated using the actual number of either fatalities or fatalities plus incapacitating injuries and then dividing the respective number by hundred million vehicle miles traveled.

In summary, Towards Zero Deaths embraces that even one death on our highways is unacceptable and to achieve that goal will take a collaborative effort between many disciplines and agencies both on the state level and the national level.

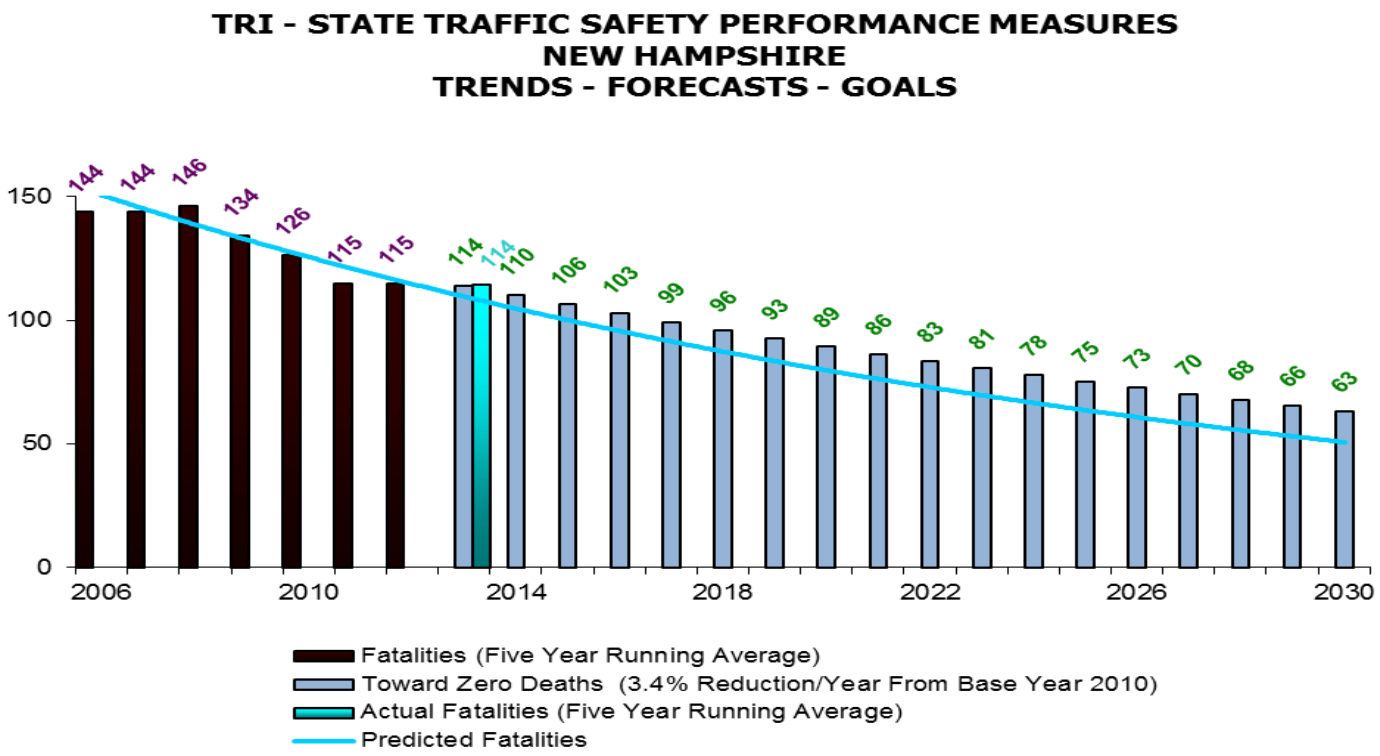
Graph 1: Tri State Toward Zero Deaths Goal



Graph 2: Maine: Toward Zero Deaths



Graph 3: New Hampshire: Toward Zero Deaths



Graph 4: Vermont: Toward Zero Deaths

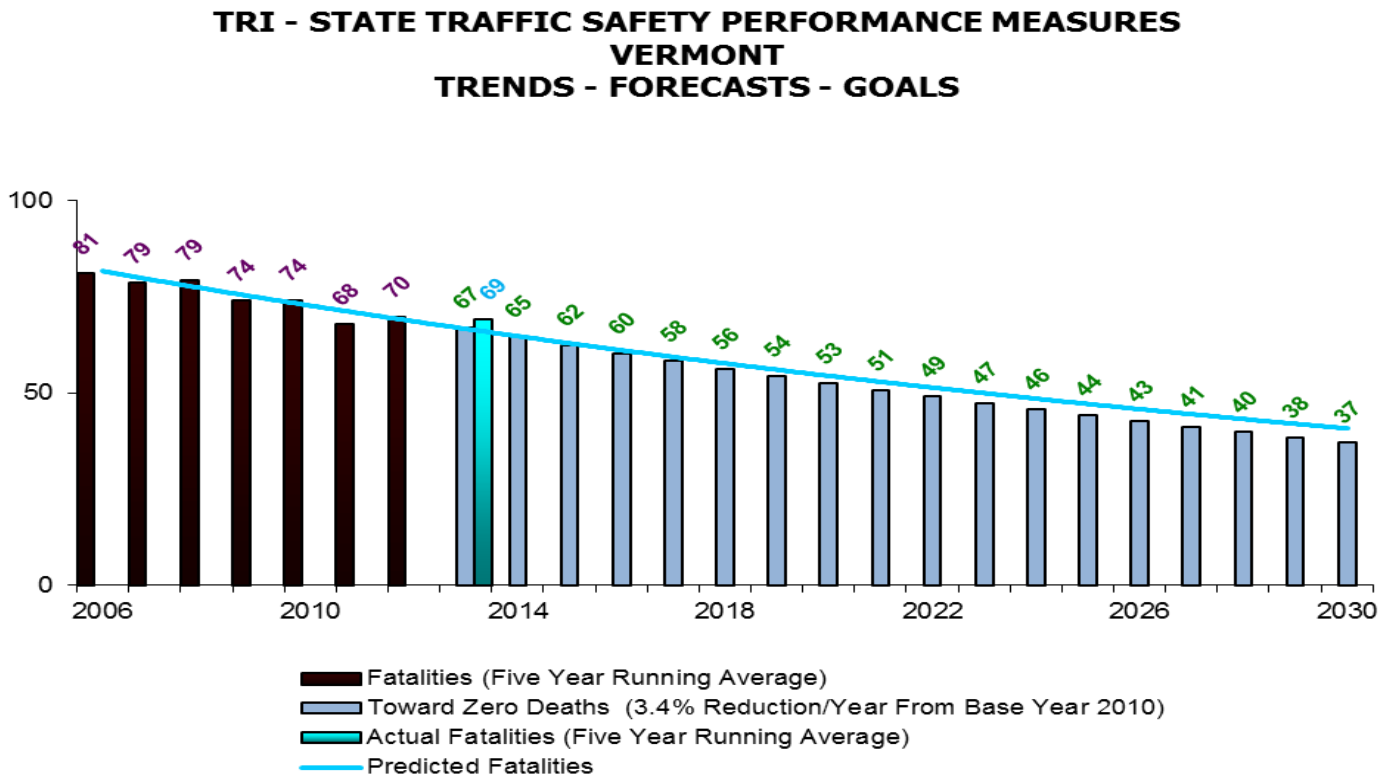


Table 1: Fatality Rate and F+I Rate.

Maine					
Year	Fatalities (K - Severity)	HMVM	Fatality Rate (per/HMVMT)	Incapacitating (A - Severity)	K+A Severity Rate
2009	159	144.82	1.10	733	6.16
2010	161	145.49	1.11	782	6.48
2011	136	142.98	0.95	876	7.08
2012	164	143.69	1.14	982	7.98
2013	145	143.98	1.01	865	7.01
(5 YR Totals)	*765*	*720.96*		*4238*	
5 YEAR AVG	**153.00**	**144.19**	**1.06**	**847.60**	**6.94**

New Hampshire					
Year	Fatalities (K - Severity)	HMVM	Fatality Rate (per/HMVMT)	Incapacitating (A - Severity)	K+A Severity Rate
2009	110	129.41	0.85	662	5.97
2010	128	130.19	0.98	528	5.04
2011	90	130.61	0.69	542	4.84
2012	108	128.61	0.84	595	5.47
2013	135	129.03	1.05	469	4.68
(5 YR Totals)	*571*	*647.85*		*2796*	
5 YEAR AVG	**114.20**	**130**	**0.88**	**559.20**	**5.20**

Vermont					
Year	Fatalities (K - Severity)	HMVM	Fatality Rate (per/HMVMT)	Incapacitating (A - Severity)	K+A Severity Rate
2009	73	75.37	0.97	394	6.20
2010	71	72.40	0.87	409	6.63
2011	55	71.40	0.77	387	6.19
2012	77	71.96	1.07	311	5.39
2013	70	71.18	0.98	308	5.31
(5 YR Totals)	*346*	*362.31*		*1809*	
5 YEAR AVG	**69.20**	**72.46**	**0.93**	**361.80**	**5.94**

Tri-State					
Year	Fatalities (K - Severity)	HMVM	Fatality Rate (per/HMVMT)	Incapacitating (A - Severity)	K+A Severity Rate
2009	342	349.60	0.98	1789	6.10
2010	360	348.08	1.03	1719	5.97
2011	281	344.99	0.81	1805	6.05
2012	349	344.26	1.01	1888	6.50
2013	350	344.19	1.02	1642	5.79
(5 YR Totals)	*1682*	*1731.12*		*8843*	
5 YEAR AVG	**336.40**	**346.22**	**0.97**	**1768.60**	**6.08**

References:

1. National Highway Traffic Safety Administration, Fatality Analysis Reporting System, http://www-fars.nhtsa.dot.gov/Main/index.aspx
2. Vermont Agency of Transportation, Policy and Planning Highway Research Crash Data
3. Tri State Agreement for Standardized Performance Measures Memorandum of Understanding, dated August 19, 2010.
4. "A Primer on Safety Performance Measures for the Transportation Planning Process," US. Department of Transportation Federal highway Administration, Report # FHWA-HEP-09-043, September 2009.
5. "American Association of State Transportation Officials Strategic Highway Safety Plan," 2005, www.transportation.org.
6. "Strategic Highway Safety Plan for Vermont, A Public/Private Collaborative & Multi-discipline Framework for Reducing Fatal and Serious Injury Crashes," December 2006.
7. "New Hampshire Strategic Highway Safety Plan, Driving Toward Zero Deaths," 2012.
8. "Maine Strategic Highway Safety Plan," 2010.
9. " Traffic Safety Performance Measures for States and Federal Agencies," U.S. Department of Transportation National Highway Traffic Safety Administration DOT HS 811 025, August 2008.

Tri-State

Appendix A: Tri-State Memorandum of Understanding

TRI-STATE AGREEMENT FOR STANDARDIZED PERFORMANCE MEASURES

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is made this 19th day of August, 2010 by and among the States of Vermont, Maine, and New Hampshire hereinafter "the Cooperating States").

WHEREAS the Cooperating States already have a strong working relationship through the Tri-State arrangement to include MATS development, material procurement, training exercises, and simply sharing of information, and

WHEREAS the Cooperating States recognize performance measures for assets and business processes are being utilized and further developed in each state, and

WHEREAS performance measures for assets and business processes are being incorporated in each Cooperating State's stewardship agreement with the Federal Highway Administration, and

WHEREAS standardized performance measures for assets and business processes are promoted by the American Association of State Highway and Transportation Officials; and

WHEREAS national performance standards are being considered by the United States Congress in discussions on the future Transportation Bill, and

WHEREAS standardized performance measures among the Cooperating States will assist in Communications with respective stakeholders and legislative bodies, and

WHEREAS the Cooperating States have similar size departments, programs, and transportation systems.

NOW THEREFORE BE IT UNDERSTOOD THAT the Cooperating States pledge to work cooperatively to develop standardized performance measures for assets and business processes. The near term objective is to roll out 3 to 6 standardized performance measures for assets as well as business processes by January 1, 2011 and report on them on at least a quarterly basis thereafter

BE IT FURTHER UNDERSTOOD THAT the Cooperating States will continue to seek further standards in the coming years, will work with respective FHWA counterparts to incorporate standard measures in the stewardship agreements where appropriate, and will be active in AASHTO to ensure these standard measures are considered for adoption on the national level

IN WITNESS WHEREOF, the parties hereunder have set their hands on the day and year as first above written.

David C. Dill, Secretary
Vermont Agency of Transportation

George N. Campbell, Jr., Commissioner
New Hampshire Department of Transportation

David Cole, Commissioner
Maine Department of Transportation