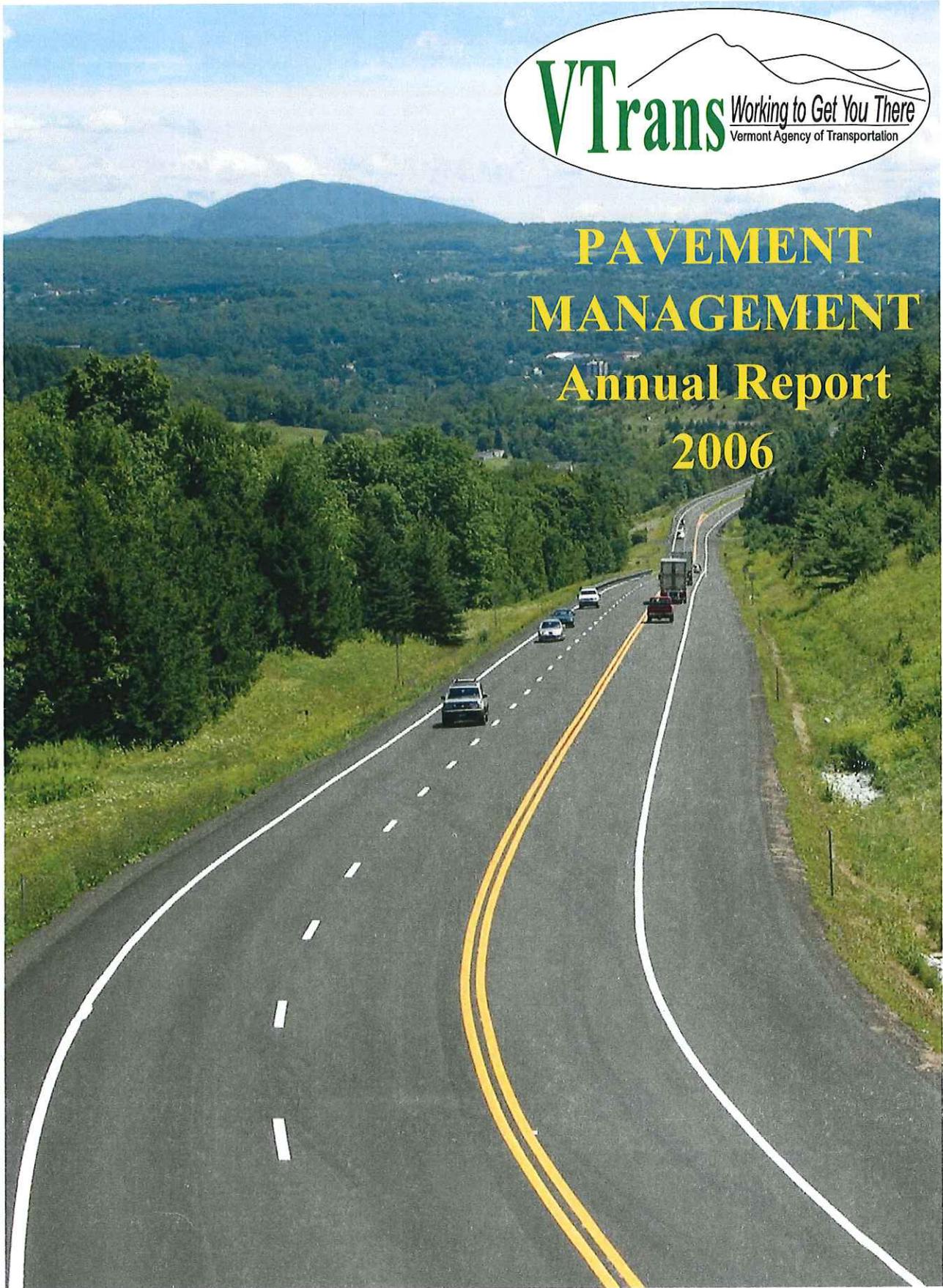




# PAVEMENT MANAGEMENT Annual Report 2006



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**Cost-effective management of highways requires several things: a comprehensive inventory of assets and their condition, an understanding of how they will likely deteriorate, and efficient design and construction of improvement projects.**

**Road Analyzer**



**Non-Destructive Testing**



**Smoothness Testing**



## SUMMARY

There are 3200 two-lane miles of highways for which VTrans is responsible, including Interstate, US and State routes, and Class I Town Highways. Many of those are in need of help. The challenge is not to find and fix the worst, but to care for the entire network in a manner that best serves all of our travelers and taxpayers.

2005 has proven especially challenging from a budgeting perspective with project costs increasing significantly over previous years due to commodity prices. This unfortunately caused the need to defer some proposed projects to stay within the Program's budget. However, with the passage of SAFETEA-LU the opportunity exists to mitigate this problem and potentially enhance the commitment to the Paving Program.

During the 2005 construction season eleven paving projects, covering 90 miles, were completed. In addition, 194 miles of highways received crack sealing or rut filling treatments to extend their useful service lives. In 2006, funding permitting, we plan to pave 141 miles and use preventive maintenance techniques on an additional 112 miles. What appears to be a significant decrease in preventive maintenance miles for the 2006 construction is the result of a lack of qualified crack seal candidates based on the 2002 and 2003 programs. These years saw a significant decrease in paving miles from the previous which results in fewer sites worthy of this treatment. In other words, crack sealing typically trails a paving treatment by 3 – 5 years so with fewer miles in those years there are less pavements in a condition that makes the process viable. Otherwise, the preventive maintenance program mileage is essentially consistent with previous years when considering increased costs.

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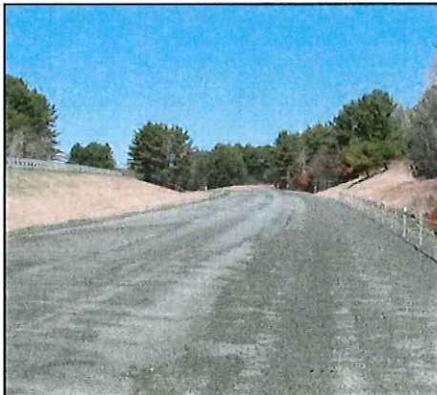


**The key to cost-effective pavement management is the timely application of relatively low-cost preventive maintenance treatments. Prompt attention to minor needs can defer the need for far more costly projects.**

Crack sealing keeps out moisture that can rapidly deteriorate otherwise good pavements. In the right location, a good crack seal can add years of life to a pavement for a very modest investment.



Some parts of our Interstates experience the development of wheel-path ruts that could lead to dangerous hydroplaning. Many such ruts can be addressed or prevented, at low-cost, through our single lane rut filling program. In addition to this treatment, the first full scale project involving an "Ultrathin Overlay" will be constructed in 2006 and will provide the advantage of treating both the travel and passing lanes cost effectively accomplishing the same purpose where rutting is not too extreme.



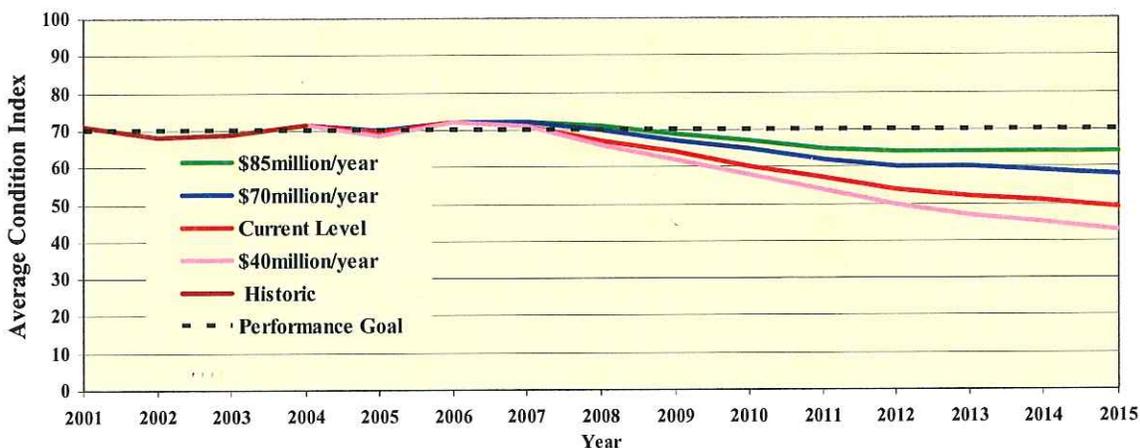
The 2005 construction season saw the continued need for re-treatment of Interstate pavements due to the premature failure of surfaces placed in the 90's. Nearly 3/4 of the 2005 Interstate miles were focused on these sections, and fortunately the mileage remaining suffering the same fate is becoming more manageable.



Unfortunately, due to the sustained lack of funding many roads such as the one on the left have reached a condition that can no longer be effectively treated with low cost preventive maintenance treatments. The investments required to rehabilitate these surfaces will now be much more significant toward the preservation of the pavement structures and maintaining a condition consistent with the traveling public's expectations. In this scenario the average condition of our highway network will deteriorate without an increased commitment.

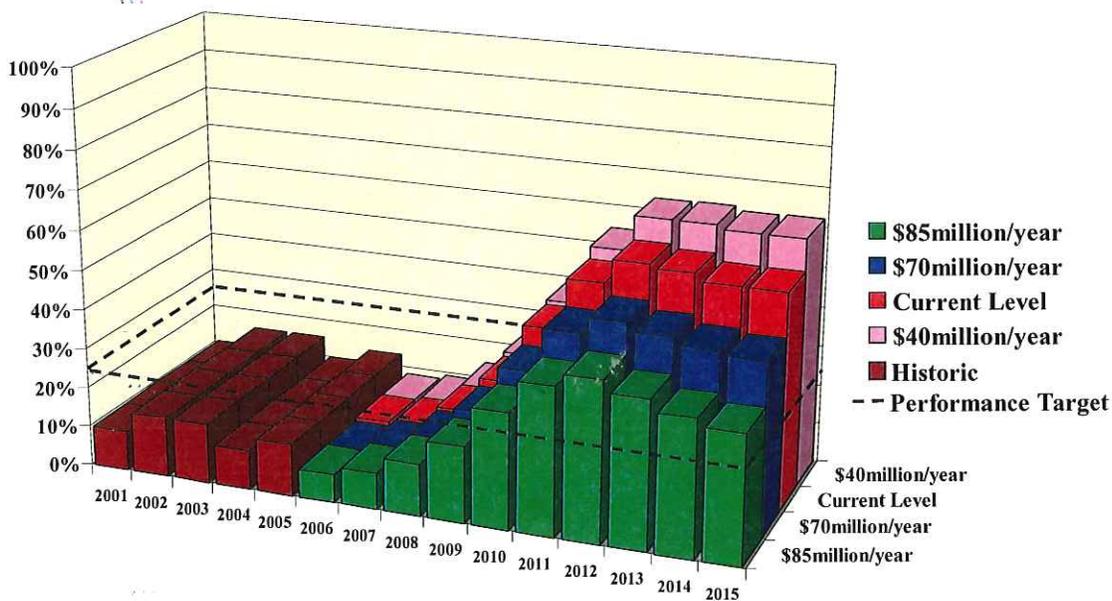
**With tight budgets, it can be tempting to defer preventive maintenance projects on roads that aren't too bad . . .  
. . . such decisions can prove very costly in the long-run.**

## Average Pavement Condition Historic & Projected at Various Funding Levels



*Average Travel Conditions* - Automated surveys are conducted annually to determine pavement conditions across the state. Each segment of road is rated on a scale of 0 to 100 based on rutting, cracking, and roughness. These are then weighted by their respective traffic volumes and are projected into the future based on various funding levels. The VTrans goal for this performance measure is 70.

## Percent of Pavements in "Very Poor" Condition Historic & Projected at Various Funding Levels

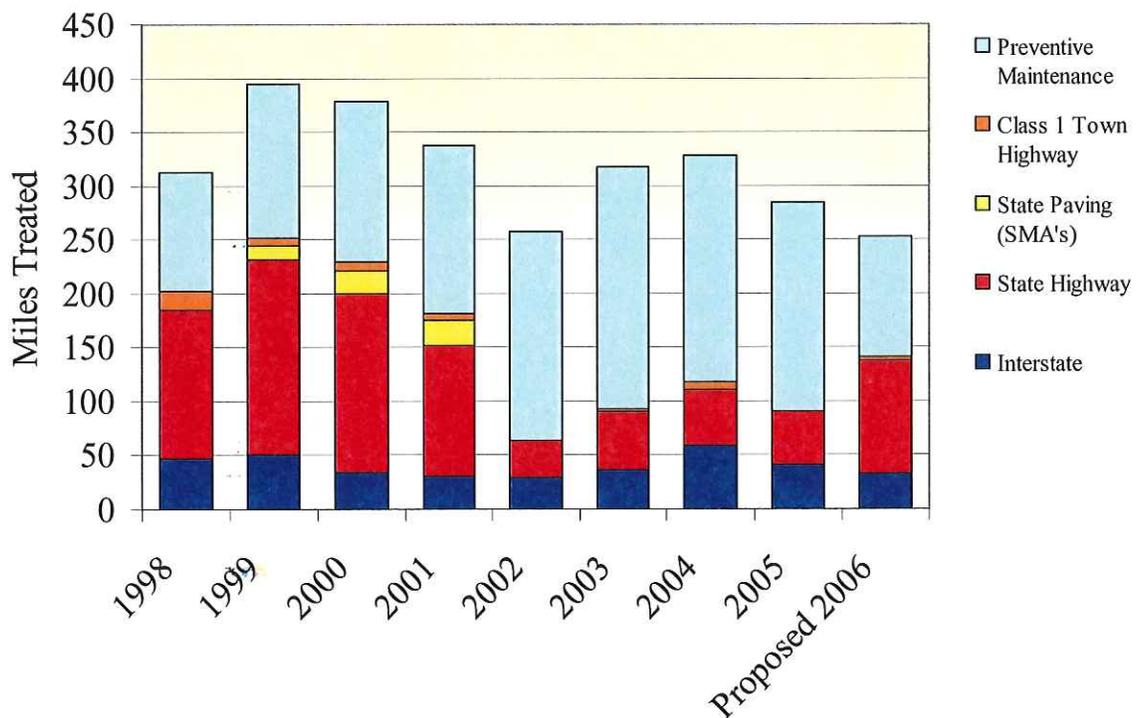


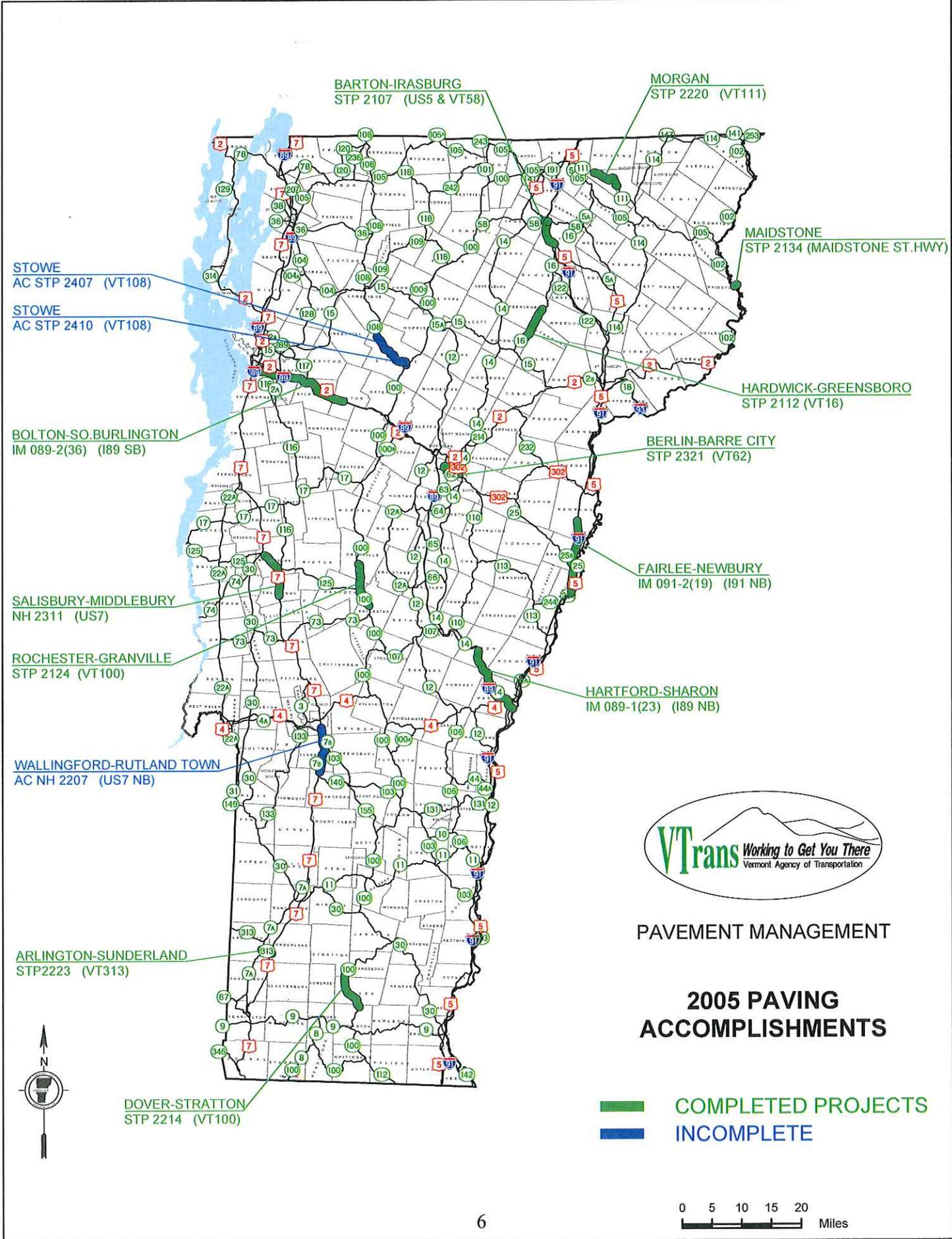
*Percent of Network in "Very Poor" Condition* - While the "Average Travel Conditions" graph measures VTrans' performance for the majority of road users, this chart measures the agency's performance to all users, including those on low volume roads. The percentage of roads in very poor condition is expected to increase even with a considerable funding effort. The VTrans goal for the percentage of roads in very poor condition is no more than 25%.

## Paving Mileage Summary

(two-lane miles, rounded to nearest mile)

Category	Construction Season									
	Proposed 2006	2005	2004	2003	2002	2001	2000	1999	1998	
Interstate	33	41	59	34	14	31	34	42	38	
Carried forward from previous year	0	0	0	3	15	0	0	8	9	
Incomplete, to be carried forward	0	0	0	0	3	15	0	0	8	
Rutfilling (single lane miles)	12	22	36	26	25	40	16	2	0	
Ultrathin Overlays	9	0	0	0	0	0	0	0	0	
State Highway	89	41	51	53	18	102	130	155	122	
Carried forward from previous year	15	8	0	0	17	18	36	27	15	
Incomplete, to be carried forward	0	15	8	0	0	17	18	36	28	
Class 1 Town Highway	3	0	4	3	0	6	8	8	6	
Carried forward from previous year	1	0	3	0	0	0	0	0	12	
Incomplete, to be carried forward	0	1	0	3	0	0	0	0	0	
State Paving (SMA's)	0	0	0	0	0	24	21	12	0	
Crack Seal	82	153	150	158	146	116	133	141	110	
Carried forward from previous year	9	19	25	40	22	0	0	0	0	
Incomplete, to be carried forward	0	9	19	25	74	22	0	0	0	
<b>Paving Project Total (items in green)</b>	<b>141</b>	<b>90</b>	<b>117</b>	<b>93</b>	<b>64</b>	<b>181</b>	<b>229</b>	<b>252</b>	<b>202</b>	
<b>Preventive Maintenance Total (items in blue)</b>	<b>112</b>	<b>194</b>	<b>211</b>	<b>224</b>	<b>193</b>	<b>156</b>	<b>149</b>	<b>143</b>	<b>110</b>	





BARTON-IRASBURG  
STP 2107 (US5 & VT58)

MORGAN  
STP 2220 (VT111)

MAIDSTONE  
STP 2134 (MAIDSTONE ST.HWY)

STOWE  
AC STP 2407 (VT108)

STOWE  
AC STP 2410 (VT108)

HARDWICK-GREENSBORO  
STP 2112 (VT16)

BOLTON-SO.BURLINGTON  
IM 089-2(36) (189 SB)

BERLIN-BARRE CITY  
STP 2321 (VT62)

SALISBURY-MIDDLEBURY  
NH 2311 (US7)

FAIRLEE-NEWBURY  
IM 091-2(19) (191 NB)

ROCHESTER-GRANVILLE  
STP 2124 (VT100)

HARTFORD-SHARON  
IM 089-1(23) (189 NB)

WALLINGFORD-RUTLAND TOWN  
AC NH 2207 (US7 NB)



PAVEMENT MANAGEMENT

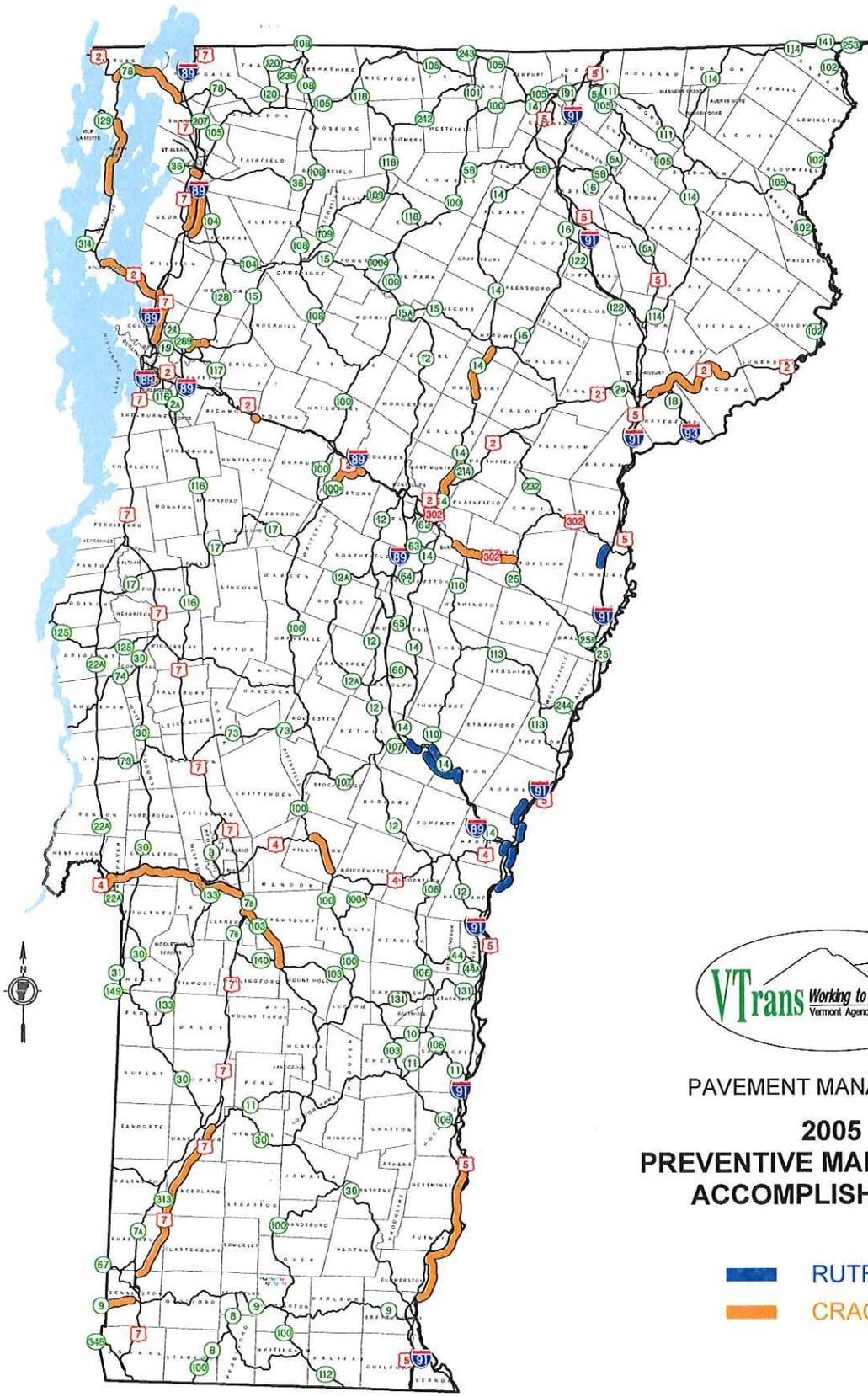
2005 PAVING ACCOMPLISHMENTS

- █ COMPLETED PROJECTS
- █ INCOMPLETE



DOVER-STRATTON  
STP 2214 (VT100)





PAVEMENT MANAGEMENT  
**2005**  
**PREVENTIVE MAINTENANCE**  
**ACCOMPLISHMENTS**

- █ RUTFILL
- █ CRACKFILL



CAMBRIDGE-BELVIDERE  
STP 2219 (VT109)  
COLCHESTER-GEORGIA  
IM 089-3(59) (I89 SB)

ESSEX  
NH 2403 (VT289)

COLCHESTER  
STP 2307 (US7)  
WINOOSKI  
STP 2306 (US7)

STOWE  
AC STP 2407 (VT108)  
STOWE  
AC STP 2410 (VT108)

CASTLETON-SUDBURY  
STP 2402 (VT30)

WEST RUTLAND  
STP 2302 (VT4A & US BR4)

WALLINGFORD-RUTLAND TOWN  
NH 2408 (US7 SB)

WALLINGFORD  
NH 2108 (US7)

VERNON-BRATTLEBORO  
AC STP 2126(1)S (VT142)

MORGAN-BRIGHTON  
STP 2404 (VT111)

MARSHFIELD-CABOT  
AC NH 2104 (US2)

WAITSFIELD-MORETOWN  
STP 2227 (VT100)  
FAYSTON-WAITSFIELD  
STP 2406 (VT17)

HARTFORD-ROYALTON  
AC STP 2121 (VT14 & VT132)

WALLINGFORD-RUTLAND TOWN  
AC NH 2207 (US7 NB)

SPRINGFIELD  
STP 2405 (VT106)

GUILFORD-BRATTLEBORO  
IM 091-1(54) (I91 SB)  
GUILFORD-BRATTLEBORO  
IM 091-1(51) (I91 NB)

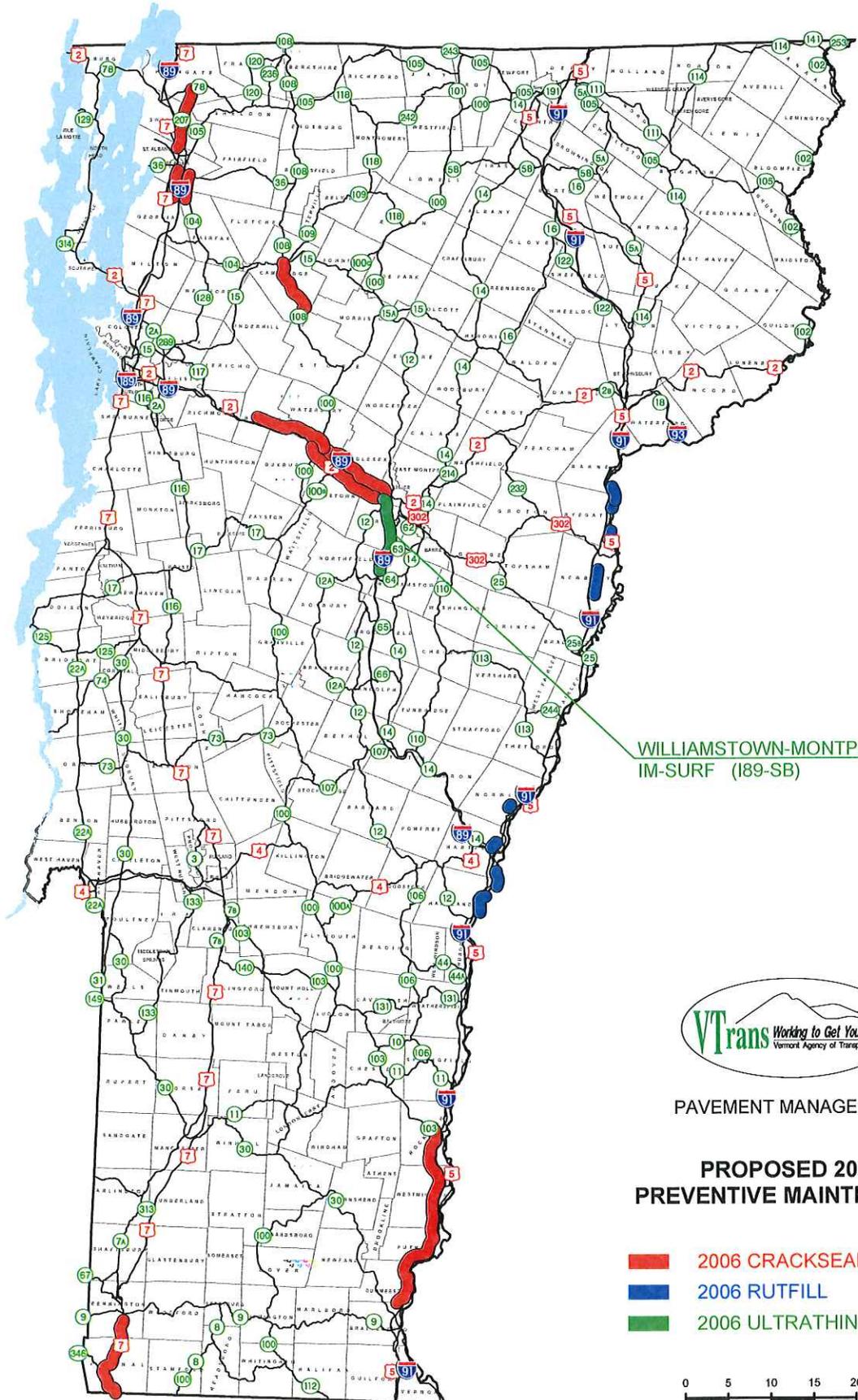


PAVEMENT MANAGEMENT

**PROPOSED 2006  
PAVING PROGRAM**

**2005 CARRYOVER**  
**2006 PROJECTS**





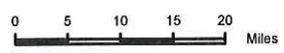
WILLIAMSTOWN-MONTEPELIER  
IM-SURF (189-SB)

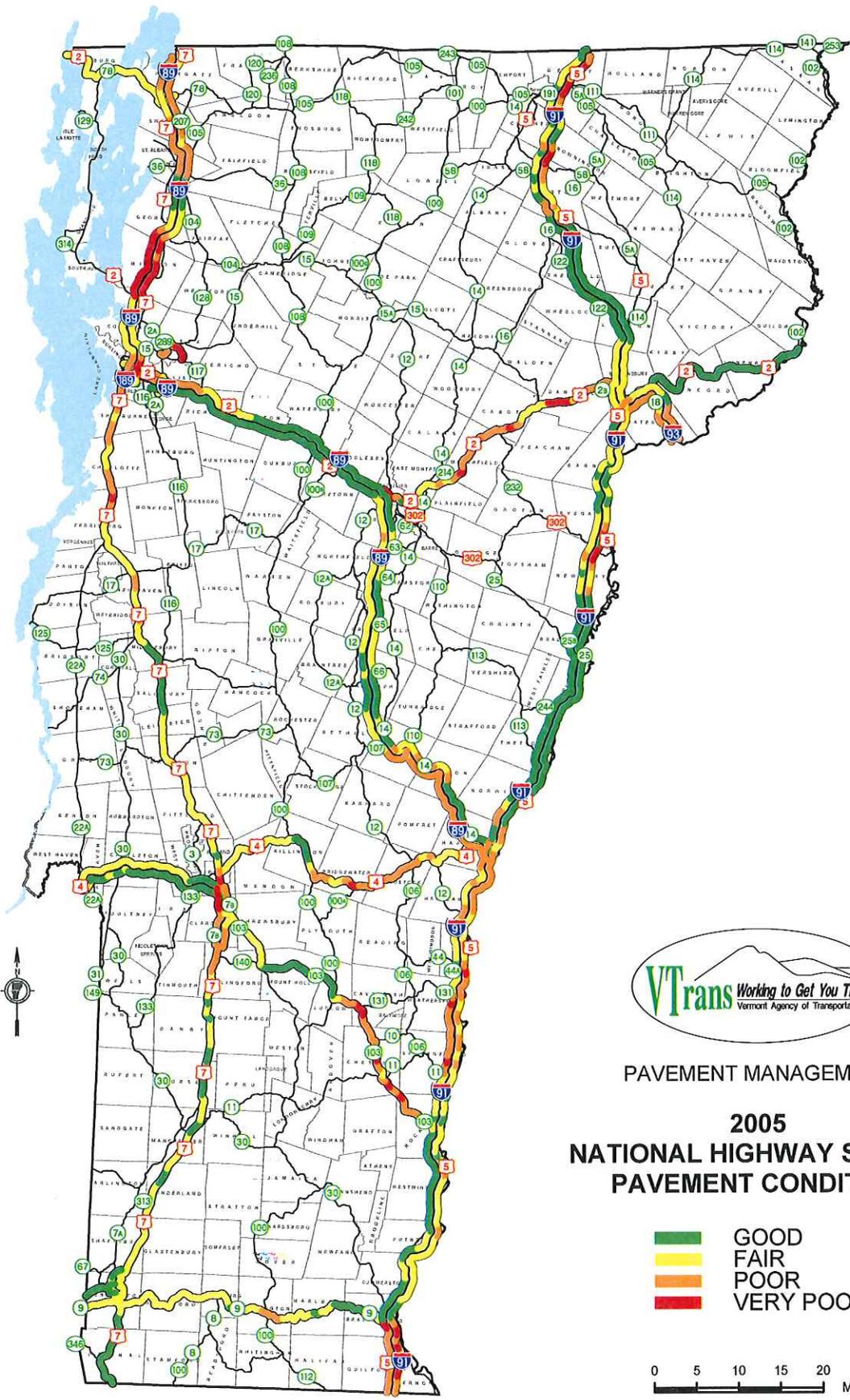


PAVEMENT MANAGEMENT

**PROPOSED 2006  
PREVENTIVE MAINTENANCE**

- 2006 CRACKSEAL
- 2006 RUTFILL
- 2006 ULTRATHIN OVERLAY

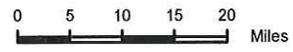


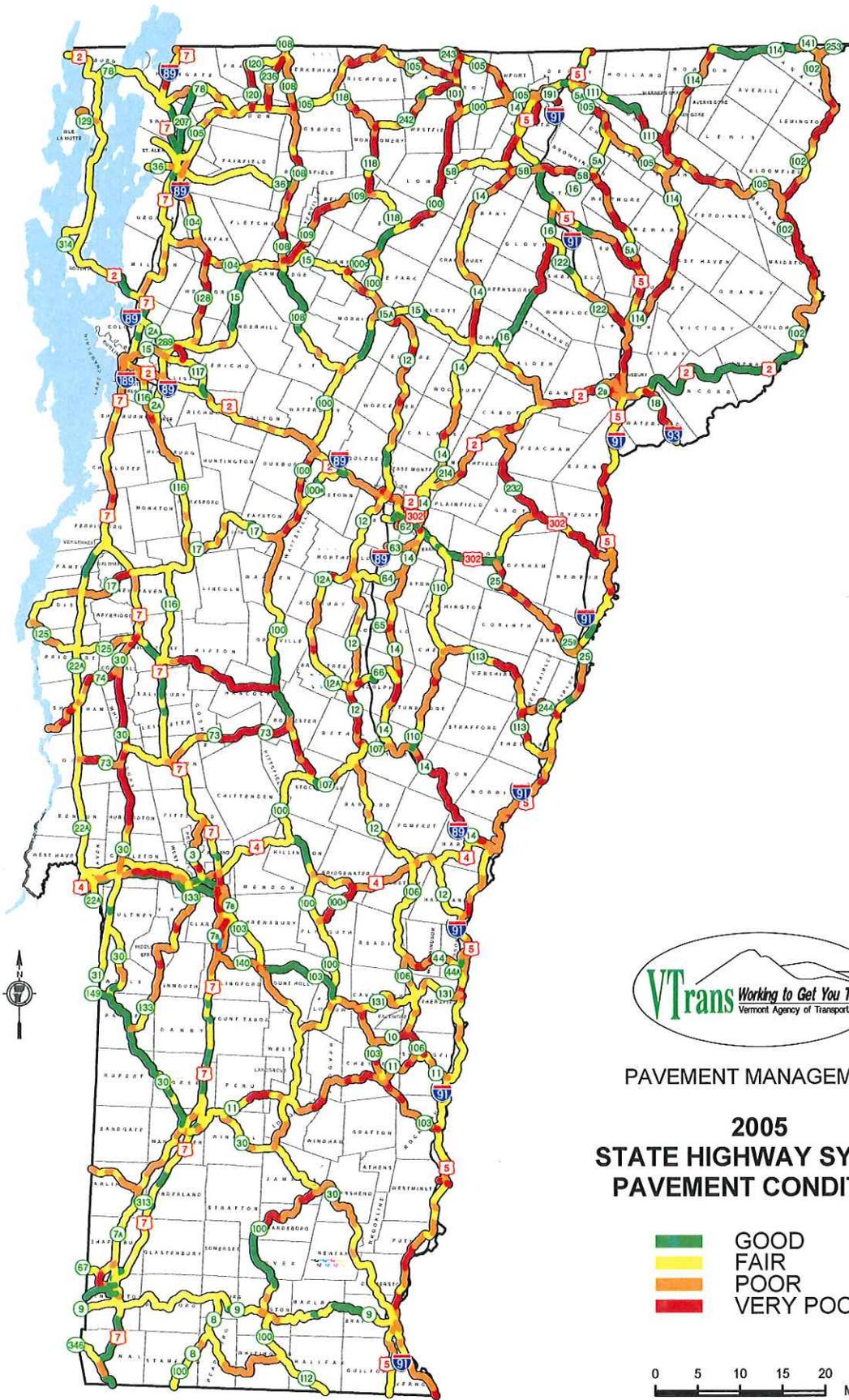


PAVEMENT MANAGEMENT

**2005  
NATIONAL HIGHWAY SYSTEM  
PAVEMENT CONDITION**

- GOOD
- FAIR
- POOR
- VERY POOR



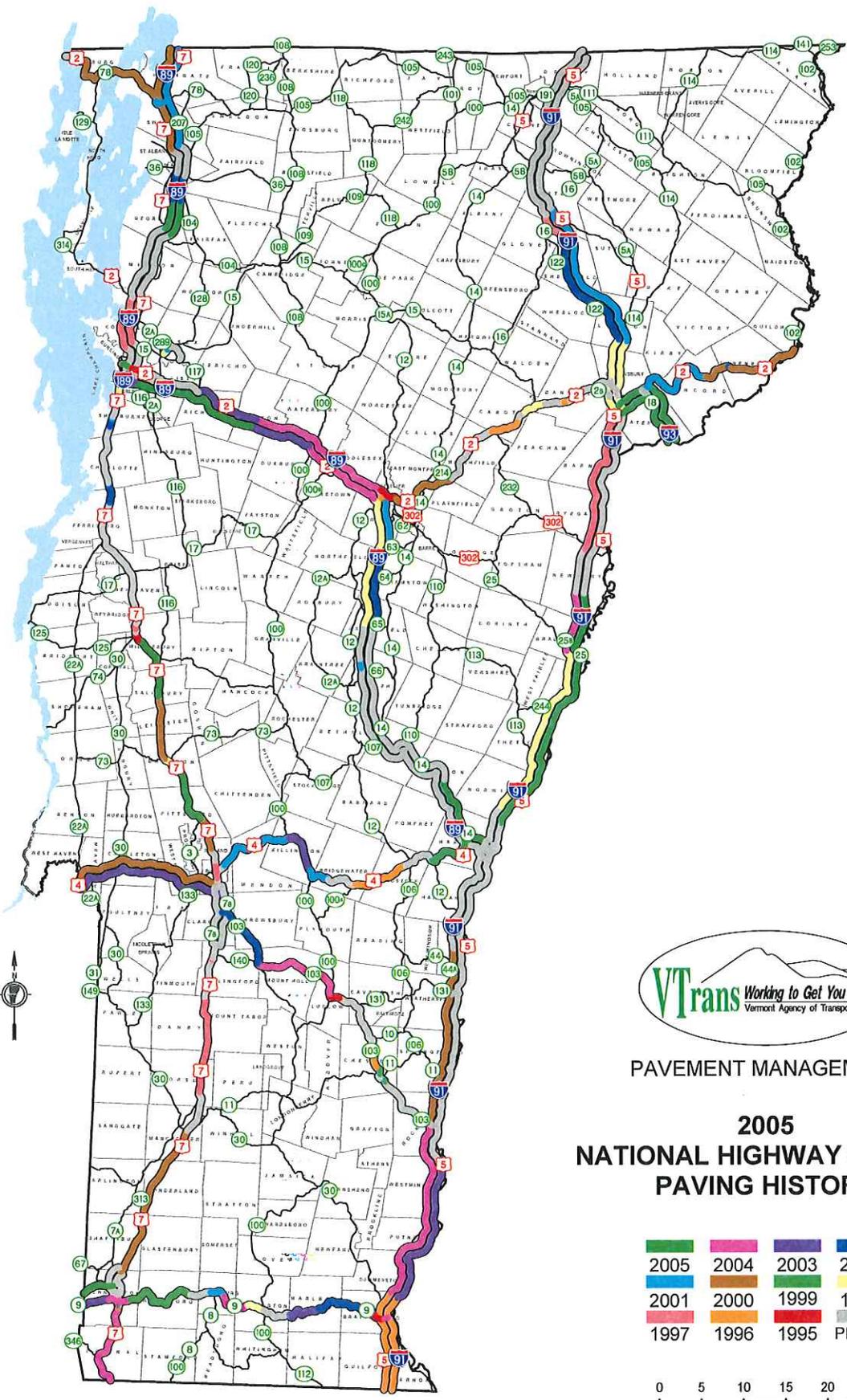


PAVEMENT MANAGEMENT

**2005  
STATE HIGHWAY SYSTEM  
PAVEMENT CONDITION**

- █ GOOD
- █ FAIR
- █ POOR
- █ VERY POOR

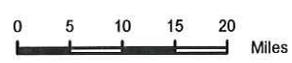


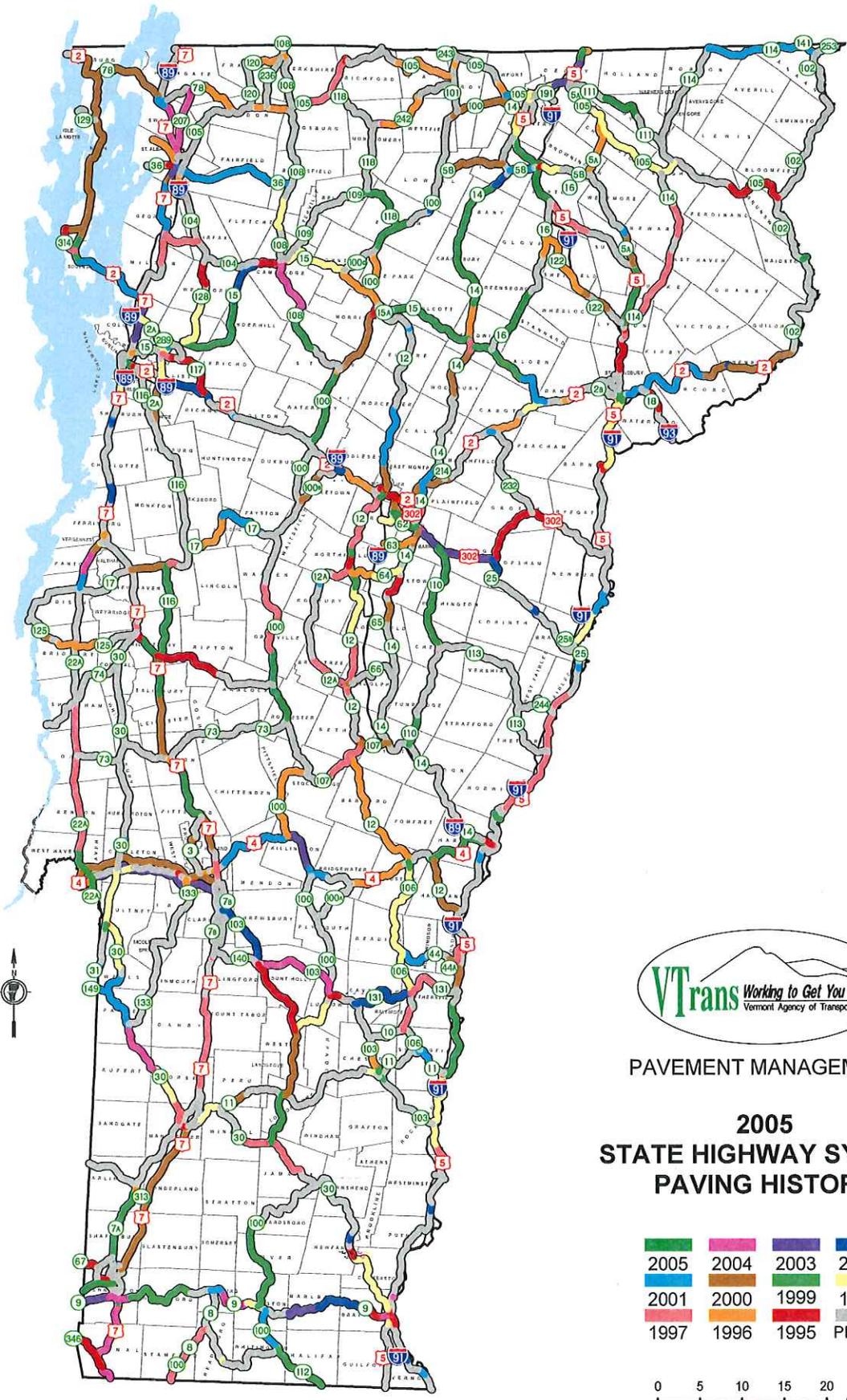


PAVEMENT MANAGEMENT

**2005  
NATIONAL HIGHWAY SYSTEM  
PAVING HISTORY**

2005	2004	2003	2002
2001	2000	1999	1998
1997	1996	1995	PRIOR





PAVEMENT MANAGEMENT

**2005  
STATE HIGHWAY SYSTEM  
PAVING HISTORY**

2005	2004	2003	2002
2001	2000	1999	1998
1997	1996	1995	PRIOR

