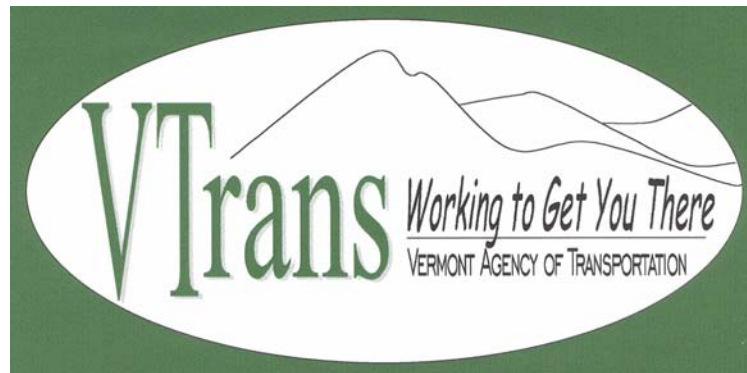


Vermont's Road to Affordability



Secretary Neale Lunderville

January 2007

Vermont Agency of Transportation Goals

- Safety
- Excellence
- Planning
- Preservation



New Goals

- **SAFETY:** Make safety a critical component in the development, implementation and maintenance of the transportation system.
- **EXCELLENCE:** Cultivate and continually pursue excellence in financial stewardship, performance accountability, and customer service.
- **PLANNING:** Optimize the future movement of people and goods with corridor and natural resource management, balanced modal alternatives, and sustainable financing.
- **PRESERVATION:** Protect the state's investment in its transportation system.

Reality of Affordability

- Vermont has an aging transportation infrastructure that demands greater and more costly attention than in the past.
- Bridge, culvert and road repair are competing with new roadway construction projects for limited funds.
- To maintain future budgets that can successfully include important new roadway projects, Vermont must first step back and preserve its existing assets so that they do not deteriorate to the point that they require major reconstruction and become a financial drain on the entire system.

Challenges

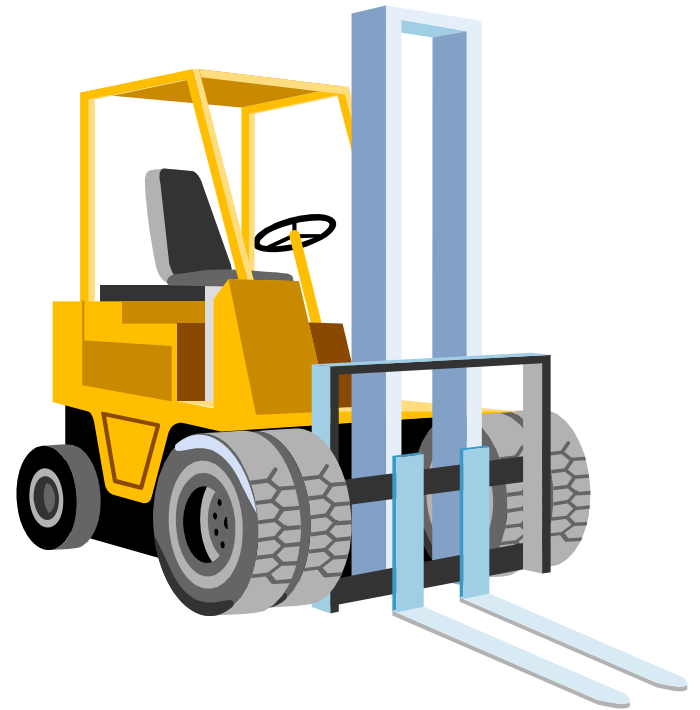
- Maintain the transportation network within already identified revenue sources.
- Upward pressures:
 - Major projects
 - Deferred Maintenance
 - Cost increases outpace revenue increases
 - Unprecedented demands on Public Transit
 - No dedicated federal funding for Rail

Vermont Per Capita Statistics

- Ranked 11th nationally for number of public highway bridges over 20 ft in length.
 - Ranked 14th nationally for number of public highway lane miles.
 - Ranked 11th in total transportation spending.
- 630,000 People
2,690 Bridges
29,538 Lane Miles
1,112 Large Culverts
40,000+ Small Culverts
- Note: Unlike many other states, Vermont deploys extensive snow & ice control operations – 30% of the maintenance appropriation.

Major Program Workload

- Total Roadway Program - \$900M projects under development. Average annual investment rate of \$60M puts delivery out minimum of 15 years.
- Total Structures Program – \$600M projects under development. Average annual investment rate of \$50M puts delivery out minimum of 12 years.
- No inflation factored in.



Major Program Upward Pressures



System Preservation

- Culverts
- Bridges
- Roadway
- Safety



Culvert Failure in Sunderland on US7

Culvert Facts

- 1,112 “large” culverts (6’ to 20’ span) with 88% being 30 years old or older. Inspected once every 5 years.
- 89 large culverts are in serious condition and are inspected at least once every two years – many inspected much more frequently.
- If we did nothing and waited to replace the 89 serious culverts when they completely fail, the estimated cost would be at least \$100 million.
- Additionally there are 40,000+ “small” culverts (less than 6’ span) the Agency is presently cataloging; they will require a similar investment in years to come.

Culvert Rehabilitation



What Is The Problem?

Numerous aging culverts, many of which are in critical condition.

Why Is This A Problem?

Deteriorating culverts result in locations where roadbed material can be eroded away, creating voids beneath the traveled way.

How To Fix This Problem?

Culverts must be monitored to determine their condition. Site specific solutions would then be designed for individual projects.

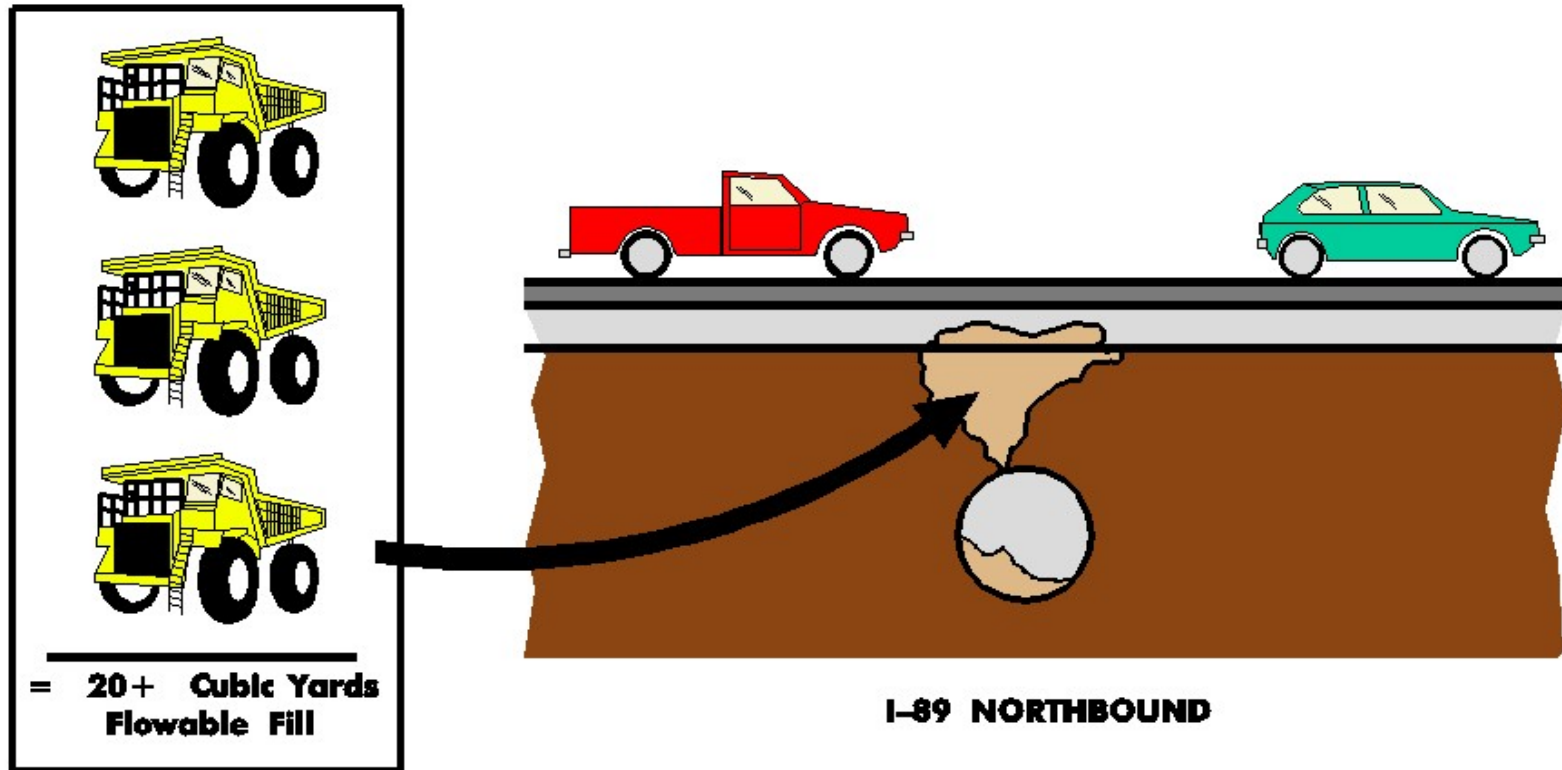
Advantages Of Pro-Active Culvert Rehabilitation

- Reduces the chance of roadway failure.
- Increases the traveling public's **safety**.
- Extends life and reduces maintenance operations and costs.
- Significant project cost savings vs. awaiting replacement



Example of pro-active culvert rehabilitation

Milton I-89 Summer/Fall 2006



NY I-88, Exit 10 – June 28, 2006



Bridge Maintenance

What is the problem?

Several bridges statewide are encountering failing expansion joints and waterproof membrane systems, often at the same time.

Why is this a problem?

Joint and membrane failures allow water, mixed with dirt and salt, to infiltrate areas of the bridge and deterioration begins.

How to fix this problem?

Stop the leaks by instituting a preventative maintenance program to replace joints and membrane on a defined cycle rather than based on need. Once a problem is seen, deterioration is generally advanced.

Advantages of proactive expansion joint and waterproofing membrane work?

Limits the opportunity for water infiltration and its adverse effects.

- Reduction in maintenance operations and cost.
- Provides the traveling public with a safe infrastructure, smoother joints and reduction in the number of potholes.
- Preventative maintenance work realizes or increases service life.





Underside of a concrete bridge deck – full depth holes on the horizon.

Bridge Inventory & Structural Deficiency

Structural Deficiency –In general, a bridge is deficient when a rated component, deck, superstructure, substructure, receives a field assessment of four or less (out of a possible 0 to 9). It means only that curative action is warranted and does not mean that a structure is unsafe for public use or that load restriction is necessary.

- 193 (**18%**) of the 1,077 state owned bridges are structurally deficient.
- 260 (**16%**) of the 1,598 town owned bridges are structurally deficient.
- Year 2005 inspection data.

Pavement Preventive Maintenance

What Is The Problem?

Keeping roads already in good condition in good condition.



Why Does This Become A Bigger Problem?

Many roads have reached a condition that can no longer be effectively treated with low cost preventive maintenance treatments. This requires a significant investment in order to preserve the pavement structure. The state funded district leveling program is only designed to address a "worst tolerable condition."

The Solution To The Problem

The key to cost-effective pavement management is the timely application of relatively low-cost preventive maintenance treatments.

Some Types Of Solutions

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 modest investment.

Some parts of our Interstates are prone to the development of wheelpath ruts that could lead to dangerous hydroplaning. Many such ruts can be addressed at low cost through our rut filling program.

Other new surface treatments are being used to provide extended life to good pavements.



An ounce of prevention...

- A \$100,000 investment in a culvert under 20 feet of fill on the Interstate today will save over \$1 million for replacement construction and detours tomorrow.
- A \$100,000 investment in a new membrane today will save over \$1 million for deck replacement tomorrow.
- A \$1 million investment in the pavement of a good roadbed today will save over \$5 million in costly reconstruction in the future.
- Preventative maintenance done today also eliminates future aggravation and delays for the traveling public and freight haulers.

CY2005 & CY2006 District Culvert Expenditures

EMERGENCY EXPENDITURES 2005 – 2006

- District 1
 - VT 100, BR 29 \$58,601
 - VT 100, BR 30 \$7,531
 - VT 9, BR 17 \$13,000
 - VT 7A, Culvert Install \$11,421
 - VT 67, Culvert Replace \$20,880
- District 2
 - US 5, BR 20 \$18,800
 - US 5, Springfield Slide/Culvert \$11,652
 - VT 123, Culvert Replace \$7,796
- District 3
 - VT 103, BR 50A \$74,381
- District 4
 - US 4, Culvert Collapse \$19,888
- District 5
 - I-89 Landfill Culvert \$12,719
 - VT 30, Culvert Replace \$46,395
- District 7
 - East Ryegate RR Box \$30,946
 - US 2, Culvert Replace \$79,212

- District 8
 - VT 118, Belvidere Box \$18,472
 - VT 105, Culvert Liner \$38,217
 - US 7, Box Culvert \$5,270
 - I-89, MM 103.75 N&S \$244,919*
 - I-89, MM 103.95 N&S \$211,101*
 - VT 105, Swanton Culvert \$24,465
 - I-89, Highgate Invert Repair \$20,118
- District 9
 - VT 58, Culvert \$5,386
 - VT 14, Coventry Culvert \$3,824
 - VT 105, BR 52 Culvert Liner \$69,777
 - VT 105, Charleston Box \$10,225

Total District **Emergency** Work 2005 – 2006
\$1,064,993

STATEWIDE **PLANNED** EXPENDITURES 2005 -2006

- DWR Activity 4610 – Maintaining Culverts \$1,022,295
- DWR Activity 4620 – Installing Culverts \$1,876,472
- DWR Activity 4640 – Maintaining Drainage Structures \$117,391

Total Statewide **Planned** Expenditures 2005 – 2006
\$3,016,158

Other Challenges

- Public Transit
- Rail

VTrans' Strategic Approach

1. Realignment of priorities
2. Rethink project focus
3. Continue commitment to safety and the environment



Lead Up To Realignment

- **2002**
 - Act 141: asset management and performance measures; first set of asset performance measures established.
- **2003**
 - Instituted asset management framework and expanded performance measures.
 - Initiated collaborative effort to develop plan to address concerns with large culverts.
- **2004**
 - Began dialogue with ANR on cost-effective culvert repairs that meet environment regulations for Aquatic Organism Passage
- **2005**
 - Bridge Maintenance category created in FY06 budget
 - Used Asset Management and RPC/MPO input for project prioritization and to develop the FY'07 Budget
- **2006**
 - Developed a new set of performance measures based on user feedback and experience with system.
 - Expanded project prioritization used for FY'08 budget.
 - Move to realign Agency prioritizes using more scientific approach that recognizes future cost savings by applying the “right treatment at the right time.”

Public Input

- 2006 Public Survey Results – 70 percent suggested spending greater share of the budget on bridge repair/replacements and highway road repair and repaving.
- Yearly regional Transportation Advisory Council meetings called for trading new roadway segment investments for preservation of existing systems.

Realignment of Priorities

- Primary investment in traveler safety and the preservation of existing infrastructure.
- Optimize resource performance by focusing attention on a practical number of large projects.
- Set realistic timetables for large projects and new roadway segments and balance funding within the Roadway Program to reflect priority on system preservation.

Rethink Project Focus

- ***Just in time delivery*** of Design, ROW, & Permitting
- ***Back to Basics*** – Where design status allows, develop project scopes that limit the addition of project amenities not related to preservation and environmental protection. (Example: undergrounding of utilities, streetscapes)
- ***Innovative Finance*** - Any proposed new roadway-segment project not presently in the D&E portion of the capital program will require an innovative financing approach acceptable to the Agency prior to being considered for inclusion in the capital program.

Safety

- Safety is one of VTrans most important goals. More than 750 people annually are seriously injured or killed in over 400 major crashes on Vermont roads. The Agency recently completed a Strategic Highway Safety Plan that, in part, calls for improvements to existing highways so we can reduce the occurrence and severity of crashes.
 - Keep vehicles on the roadway
 - Minimize consequences of leaving the roadway
 - Improve design and operation of highway intersections

Environmental Stewardship

- VTrans in all of its projects will continue to employ an *Agency-wide environmental stewardship ethic*, guided by principles and practices supporting environmental quality and Vermont's unique sense of place while still making responsible decisions based upon safety, cost, and resource availability.
 - Amtrak DMU
 - Public Transit
 - Stormwater
 - Other Environmental Initiatives

Vermont's Stakeholders in Transportation

- *Taxpayers* – expect safe smooth open roads, integrated with alternative modes.
- *Legislature* – stretch available funds across the state and towns.
- *ACCD* – transportation systems for economic advantage.
- *Construction Firms* – higher percentage of funds for construction.
- *Freight haulers* – trucking, air, & rail.
- *Environment* – clean air and water.
- *Public Safety* – safe facilities for safe users.

Healthy Economy via Mobility

- The Interstate System's 50th anniversary is not an ending, it is a beginning.
- The Interstates in Vermont are critical to our local, regional, and global economic competitiveness.
- FHWA, by federal law, has a say in how we maintain our Interstate.
- Vermont is not an island