
Appendix A

Current Highway Policies and Programs

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This section reviews existing agency policies and administrative rules with relevance for highway/bridge preservation, rehabilitation, and reconstruction. The following items have been included in this review:

- Long-Range Transportation Plan (LRTP);
- Strategic Planning – Performance Measures;
- Vermont State Roadway Design Standards;
- Pedestrian and Bicycle Design Manual;
- Level of Improvement Policy;
- Project Development Manual;
- Access management Program Guidelines;
- Safety Management System objectives;
- Smart Growth policies (transportation/land use linkage);
- Asset management policies; and
- State statutes related to aid for town highways.

■ Long-Range Transportation Plan

The 1995 Long-Range Transportation Plan (LRTP) and the 2002 LRTP update provide a framework for transportation planning, design, construction, operation and maintenance in Vermont. The updated plan states three key objectives which are consistent with the Vision and Mission Statement developed as part of the VTrans strategic planning effort:

- Manage the State’s existing transportation facilities to provide capacity, safety and flexibility in the most effective and efficient manner;
- Improve all modes of Vermont’s transportation system to provide Vermonters with choices; and
- Strengthen the economy, protect and enhance the quality of the natural environment, and improve Vermonters’ quality of life.

The plan update also includes the four principal questions that evolved from VTrans' strategic planning efforts:

1. Are you satisfied that the transportation system in Vermont is safe?
2. Are you satisfied that the financial investment in Vermont's transportation system is paying off?
3. Are you satisfied that Vermont's transportation solutions respect the natural environment?
4. Are you satisfied with the length of time that it takes to get yourself and your goods to another place?

A number of recommendations are made in the plan to support these objectives. Those most relevant to development of the Highway System Policy Plan include:

- **Maintenance** - Continue to use the pavement and maintenance management systems to maintain all facilities. Develop a program that over time upgrades those facilities that are currently below desired serviceability standards.
- **Safety** - Continue to develop and use tools such as the Safety Management System to promote a safe transportation system.
- **Access Management** - Develop access management guidelines to enable compatible land development while preserving traffic flow.
- **ITS** - Further examine the role that ITS can play to manage transportation issues.
- **Roundabouts** - Continue to study and implement roundabouts where appropriate.
- **Intermodalism** - Identify and enhance the State's key intermodal connections, and investigate the use of ITS tools to reinforce intermodal connections.
- **Park-and-Ride Lots** - Explore the use of shared facilities (those that are not solely owned or operated by VTrans such as churches, shopping centers, etc.) to expand the primary park-and-ride lot system.
- **Transportation Modes** - Continue to implement and update each modal policy and capital investment plan.
- **Traffic Calming** - Continue to implement traffic calming measures where and when appropriate.
- **Transportation and Land Use Connections** - Develop transportation projects that adhere to the State's emerging Smart Growth policy; do not support transportation projects that promote sprawl.

- **Air Quality** – Continue to play an active role to support other State agencies’ efforts to improve Vermont’s air quality.
- **Project Scoping: Process** – Continue to use and refine the project scoping process.
- **Project Backlog** – Continue to address the project backlog and implement “shelf projects.”

Performance Measures

As part of its strategic planning and budgeting process, VTrans has been working to establish a set of desired results, indicators, strategies and performance measures for each program area. This work is continuing to evolve and has been coordinated with the work done as part of the development of the HSPP.

Safety Management System

Goals and objectives for the Safety Management System (SMS) were developed in the Phase I VTrans Safety Management System Study, which was completed in 2001.¹ These are summarized in Table A.1.

¹ Wilbur Smith Associates, Safety Management System (SMS) Phase I Study, Final Report, May 2001.

Table A.1 Safety Management System Goals and Objectives

Goal A. Create More Effective Process and Safety Management	
Objective A-1	Create a standing safety management system steering committee
Objective A-2	Establish clear policies for managing highway safety issues
Objective A-3	Provide appropriate resources to the Highway Safety unit
Objective A-4	Develop a clear process for identifying, prioritizing and implementing safety improvements
Objective A-7	Implement community-based safety programs to engage local partners in highway safety issues
Objective A-10	Produce an annual report
Objective A-11	Develop and implement prioritization techniques for highway safety projects
Objective A-16	Periodically review and update safety-related design standards
Goal B. Improve Information and Decision Support	
Objective B-1	Complete improvements planned in the ongoing accident record system project
Objective B-6	Develop road safety features management systems
Objective B-7	Conduct evaluations of the effectiveness of projects and programs
Goal C. Make Roadways Safer	
Objective C-1	Evaluate the safety implications of traffic calming techniques
Objective C-3	Insure safe driving surfaces
Objective C-4	Review winter maintenance policies
Goal D. Minimize the Consequences of Leaving the Road	
Objective D-1	Institute a program to upgrade roadside safety devices
Objective D-3	Review and revise utility permitting procedures
Goal E. Make Intersections Safer	
Objective E-3	Implement more effective access management policies
Goal F. Make Work Zones Safer	
Objective F-1	Require work zone traffic control training
Objective F-2	Ensure that all major work zones are reviewed
Goal G. Make Truck Travel Safer	
Objective G-1	Review truck inspection procedures
Goal H. Make Walking and Street Crossing Safer	
Objective H-1	Make both pedestrians and drivers more aware of pedestrian safety
Goal I. Improve Driver Performance	
Objective I-1	Reduce the frequency of crashes involving impaired younger drivers
Objective I-2	Remove repeat offenders as drivers
Objective I-3	Review older driver licensing issues and develop appropriate legislation

The following policy for safety management was established in 2001:²

“It is the policy of the Vermont Agency of Transportation to utilize the Agency Safety Management System to help minimize the occurrence and severity of accidents on the Vermont transportation network through safety education and promotion of practical and effective safety measures incorporated into the planning, design, construction, maintenance, and operation of network assets.

There is formed within the Agency a Safety Management Steering Committee that is responsible for ensuring that Safety Management System goals and objectives are reached by providing a continued focus on safety and encouraging agencywide involvement in the process.

The Safety Management System Steering Committee shall include the Deputy Secretary of Transportation, the Commissioner of Motor Vehicles, and the following Agency managers: the Directors of Policy and Planning, Project Development, Maintenance and Aviation, Rail, and Technical Services. The director of the Criminal Justice Services Division and a representative from the Federal Highway Administration (FHWA) also shall serve as members. The Deputy Secretary of Transportation shall act as committee chair.

The committee may appoint task forces to develop procedures, needs, and policies. The Agency’s Traffic Safety Unit will serve as full-time staff of the steering committee.”

Design Standards

The Vermont State Standards for Construction, Reconstruction and Rehabilitation of Roadways and Bridges were completed in 1997, and represent a flexible approach to establishing designs which provide access, mobility and safety for users but also consider the specific social and environmental context for the project. They were developed by a committee with representation from (then) VAOT engineering, planning and legal staff; the Agency of Natural Resources; the Division of Historic Preservation; Regional Planning Commissions; the Vermont Council on the Arts; the Preservation Trust of Vermont; the Federal Highway Administration; and private citizens.

The design standards vary by functional class (freeways, principal arterials, minor arterials, collectors, and local roads and streets). They cover level of service (LOS), design speed, lane and shoulder widths, bridge capacity and clearances and other geometric standards. Many of the standards are expressed as ranges in order to allow for flexibility to respond to specific situations. The standards also include considerations for bicycle and pedestrian accommodation, and special guidelines (including common tools) to ensure that the project is context sensitive and minimizes or avoids negative impacts.

Pedestrian and Bicycle Design Manual

This design manual was completed in 2002, and serves as the standard for development, design, construction and maintenance of pedestrian and bicycle facilities implemented by VTTrans – including on-road bicycle facilities (bicycle lanes, wide curb lanes, paved

² Vermont Agency of Transportation On-Line Policy Manual, <http://www.aot.state.vt.us/policies/>.

shoulders). The manual states that all highways, except limited access highways where cyclists are legally prohibited, should be designed and constructed under the assumption that they will be used by pedestrians and bicyclists. The manual also notes that special design consideration should be paid to areas where motorists and bicyclists will be in conflict with each other, including driveways, curb cuts, intersections and turning lanes.

Level of Improvement

The Level of Improvement (LOI) concept is incorporated as part of the Vermont State Design Standards, and is used as a way to focus limited state and Federal transportation resources on the portions of the system that are most important to statewide mobility. LOI establishes three investment categories: Reconstruction, Rehabilitation and Preservation. Each segment of the SHS is assigned to one of these categories and based on functional class, average daily traffic (ADT), and Equivalent Single-Axle Loadings (ESALS).

Interstates/freeways, other principal arterials and high volume minor arterials are eligible for reconstruction, rehabilitation or preservation treatments. Lower volume minor arterials without significant levels of truck traffic are eligible for rehabilitation or preservation. Collectors - i.e., roadways whose function is primarily one of providing local access - are not eligible for reconstruction (involving Federal and state funds), and are only eligible for rehabilitation if they have over 2,500 ADT or carry significant truck traffic (>0.5 million ESALS for a major collector; >1.5 million ESALS for an urban collector).

Additional criteria are defined in the LOI policy to address system continuity, safety, structural deterioration, pedestrian/bicycle accommodation, and land use. Determination of LOI occurs during the project scoping process.

Project Development Process

Roles and responsibilities, procedures and considerations for each phase of highway project development are documented in a Project Development Manual. A summary of the key activities in each of the phases are as follows:

- **Project Selection** - SHS improvement projects in areas without a metropolitan planning organization (MPO) are selected via the Transportation Planning Initiative (TPI) process, which is a cooperative effort between VTrans and the Regional Planning Commissions (RPC) and their member jurisdictions. The Chittenden County MPO is responsible for selecting projects in the Burlington metropolitan area. State pavement and bridge projects are identified by VTrans based on inspection data and management system analysis. Town highway bridge projects are selected based on deficiencies identified in inspections and requests from municipalities. Enhancement projects are nominated by towns and recommended by the Transportation Enhancement Advisory Council (TEAC) for approval by the Secretary of Transportation and the Legislature. Maintenance projects including bridge deck rehabilitation, bridge

painting, culvert replacement, and guardrails are selected by VTrans maintenance personnel.

- **Project Authorization** - This phase includes assignment of projects to appropriate Program Managers, checking for adequate funding, verification that the projects are on the approved State Transportation Improvement Program (STIP) and/or metropolitan TIP (where applicable), establishing Expenditure Account and Subjob numbers in the State Transportation Accounting and Reporting System (STARS), and making formal requests for authorization to proceed from FHWA where Federal funding is involved.
- **Project Definition** - This involves development of a formal Purpose and Need Statement, a detailed scoping report, and (for major projects involving acquisition of land or rights) a conceptual design. The scoping process involves developing and evaluating a set of alternatives consistent with the design standards and the Level of Improvement category for the facility, including a “no-build” option. The manual states that intermodal/multimodal possibilities are to be explored during the alternative development process. The project definition phase involves extensive data collection and review, and meetings and coordination with affected agencies and groups. Where applicable, this phase also involves application for Act 250 permits, informational or 502 public hearings, and National Environmental Policy Act (NEPA) documentation.
- **Project Design** - This phase includes development of preliminary, semifinal and final plans, obtaining permits, acquiring right-of-way, executing utility agreements, and assembling the plans, specifications and estimate (PS&E) package for advertising the project.
- **Project Construction** - During the construction phase, specific procedures are defined for the preconstruction conference, establishment of material supply and disposal areas, staging areas, mitigation work, inspections, change orders, right-of-way changes and storm water runoff permits and staging areas.

Access Management Policies

Title 19 V.S.A. Section 1111 provides the statutory basis for controlling access to state and town highways in Vermont. The law requires that VTrans consider access permit applications based on “safety, maintenance of reasonable levels of service on the existing highway system, and protect the public investment in the existing highway infrastructure.” It also allows for conditions on access permits for developments contributing 75 or more peak-hour trips to state or Class 1 town highways in order to protect service levels on these facilities. In 1998, criteria for granting access permits were broadened to include consistency with state land use goals, state agency plans, and regional and local land use plans.

In addition, 19 V.S.A. 1703-1708 gives VTrans the authority to designate “limited access facilities” - where “reasonable access” to abutters may be denied - in order to protect existing or future businesses or traffic conditions.

VTrans published Access Management Program Guidelines in 1999. They establish an access classification system and associated standards in order to ensure consistency in the access permitting process for the SHS. The stated objectives of the Access Management standards are to 1) protect and promote public safety of the traveling public, 2) provide for the mobility of people and goods by preserving reasonable LOS, and 3) preserve the functional integrity of the SHS by protecting the public investment in the existing highway infrastructure. Standards cover criteria for granting direct accesses and for allowing right and left turns, spacing of accesses that are or may become signalized, and separation of opposing traffic movements. They also include design standards and specifications for accesses.

The Guidelines establish six categories of highways:

- **Category One** includes facilities serving high-speed and high-volume traffic movements over long distances. The Interstate system and certain “other principal arterials” are included in this category. Access on these facilities is limited to grade-separated interchanges with public highways.
- **Category Two** includes highways with the capacity for high speed and high volume traffic movements. These facilities are typically other principal arterials and major collectors. This category includes ramps and access roads to the Interstate system. For this category, direct access to abutting land is subordinate to serving through traffic movements. Access consists of at-grade or grade-separated intersections with public highways at one-half to one-mile intervals.
- **Category Three** includes facilities serving medium to high speed and medium to long-distance travel. These facilities are generally NHS routes, falling into the “other principal arterials” functional class – though minor arterials and major collectors with greater than 5,000 ADT also are included. A single point of direct access from a parcel (or contiguous parcels under the same ownership or control) is generally allowed unless other reasonable access alternatives are already present. The standard for spacing of signalized intersections or accesses is one-quarter mile for urban and one-half mile for rural segments. Turning movements may be limited, and left and/or right turn lanes are required.
- **Category Four** includes facilities serving moderate travel speeds and moderate traffic volumes over medium and short-travel distances. Direct access is allowed for these facilities where it will not be unreasonably detrimental to the safety and operation of the highway, and multiple access points from a single parcel may be allowed. Spacing of signals is the same as for Category Three. Turning movements may be limited.
- **Category Five** includes roadways designated as frontage or service roads with no long distance or high volume traffic movements. This category has the least restrictive access standards. The minimum spacing for signals is 500 feet.
- **Category Six** includes urban highway sections serving moderate to low travel speeds and moderate to high traffic volumes over short to medium-travel distances. This category of facility typically has a density of 40 accesses (including both sides) per mile

or greater, and a posted speed of 25 to 40 mph. Direct access for this category is granted if no other reasonable opportunities for access exist, unless denial of access would create unacceptable traffic or safety problems at other locations. The minimum spacing for signals is the same as for Category Five. Turning movements may be limited.

The guidelines state that the categories will be determined on an interim basis based on functional class and ADT, but in the long term, categories will be assigned based on additional criteria including potential land development characteristics (in zoning and land use plans), regional growth patterns, and existing density of accesses.

Access Management Public Outreach

VTrans also recognizes that education of town officials, developers, business owners and the general public on the numerous benefits of Access Management is paramount to the success of the agency's access management program and policies. The agency, in partnership with the RPCs and the CCMPO, hired a consultant to develop marketing material to promote and educate local officials and the public on the benefits of access management. Following are the overall goals of this project:

- Achieve public support from our target audiences for our access management program and have well educated citizens that understand why access management is a good thing – even when it affects their own property; and
- Develop additional tools for local officials to implement good access management policies.

Smart Growth Policies

Vermont's emerging Smart Growth policies and programs support a coordinated approach to land use and transportation decisions, and promotes efficient, compact mixed-use development patterns. As noted above, the 2001 LRTP contained recommendations for VTrans to play a support role in Smart Growth, which is necessarily a cooperative effort on the part of many agencies and groups across the State. The VTrans access management program and the flexible design standards discussed above are important supporting elements that work to preserve the capacity and safety of existing facilities, control the need for costly highway investments, and ensure that highway improvements are made in a context-sensitive fashion.

Some of the other key laws and programmatic initiatives related to Smart Growth (as it pertains to highway transportation) are as follows:

- Vermont's Land Use and Development Law (Act 250) was passed in 1970 to ensure that new development would occur in a well-planned, controlled fashion that was sensitive to environmental and natural resource considerations. Act 250 established a process for regulatory review of large development projects according to 10 criteria. These criteria consider the impacts of proposed developments on infrastructure needs

(including roads) and traffic conditions, and require that projects conform with adopted local and regional plans. Act 250 does not address the kind of sprawl created by small-scale strip development – commercial and industrial projects on less than 10 acres are not generally affected.

- Act 200 was passed in 1988 to ensure that regional and local plans are consistent with a set of statewide goals, including maintaining “the historic settlement pattern of compact village and urban centers separated by rural countryside.” The Agency of Commerce and Community Affairs assists municipalities in preparing plans in accordance with Act 200. However, lack of funding and enforcement mechanisms have been cited as factors which have limited the impacts of this legislation.
- Involvement of the RPCs in the TPI since 1992 has promoted coordinated land use and transportation planning, since the RPCs also are responsible for preparing Act 200 compliant regional plans.
- The Interstate Executive Order was signed in 2001 to promote planning for Interstate interchanges that supports conservation and appropriate development. This executive order includes objectives that interchange development does not exacerbate traffic congestion and increase need for roadway infrastructure improvements, and that the social and economic vitality of downtowns and villages are not adversely affected. The Vermont Department of Housing and Community Affairs (DCHA) developed an inventory of the Interstate interchanges that is designed as a reference for state officials in implementing the executive order. It includes information on existing land uses, local planning and regulatory status, public infrastructure availability, and conservation efforts. The DCHA was awarded a Sustainable Development Challenge Grant from the U.S. EPA which funded proactive community planning projects at four interchanges and development of a design guidelines manual.
- Passage of the Development Cabinet Law (Act 112) in 2000 created a mechanism to ensure collaboration and coordination among state agencies on land use issues. The Development Cabinet includes the secretaries of the Agencies of Administration, Natural Resources, Commerce and Community Affairs, and Transportation, key entities on planning efforts to discourage scattered development and encourage downtown revitalization and compact growth centers.
- The 1998 Downtown Development Act provided incentives and funding for downtown revitalization. In 2002, the downtown program was expanded to include benefits for new town centers and village centers.

Asset Management Policies

In 2001, the Vermont General Assembly required VTrans to develop an asset management plan which identifies all infrastructure assets and their condition, and determines the annual funds necessary to fund infrastructure maintenance at the recommended performance level. It also required that a plan be developed for assets constructed within the last 10 years which includes activities to be undertaken, the associated costs, and

documentation of the comparative cost differential between maintaining the infrastructure, utilizing a preventive maintenance program versus deferring those maintenance costs (19 V.S.A. Sections 24 and 25).

In response, VTrans developed an Asset Management Vision and Work Plan³. The goals of VTrans' asset management efforts are to:

- Operate, maintain and/or upgrade infrastructure assets with appropriate performance and cost-effectiveness;
- Deliver to VTrans' customers the best value for the dollar spent; and
- Enhance VTrans' accountability and credibility.

The work plan laid out a number of initiatives to fully implement asset management at VTrans, including:

- Assign a lead role for asset management, and form a committee with representation from various sections and divisions;
- Incorporate asset management principles into the performance measure initiatives;
- Institute a phased approach to compliance with Sections 24 and 25, starting with currently available data in the pavement, bridge, maintenance, and airport runway management systems, master plans, and other sources; and
- Enhance the practice of performance-based planning and programming, with emphasis on strengthened project evaluation criteria, guidelines to assist decisions as to appropriate treatments (replacement, rehabilitation, preventive maintenance), and cross-program resource allocation and prioritization methods.

Asset Management Activities

Since the completion of the "Asset Management Vision and Work Plan," the agency has moved swiftly to implement a number of the plan's recommendations. A committee representing a diverse group of interests and expertise within the agency was formed and a lead role for asset management was assigned to form a vision on how asset management practices would be incorporated into the way the agency does business. Some of the achievements from this ongoing effort are listed below:

- During the summer and fall of 2003, the agency developed strategic performance measures that focus on programs and asset classes rather than individual projects. In

³ Cambridge Systematics, Inc., VTrans Asset Management Vision and Work Plan, prepared for Vermont Agency of Transportation, January 15, 2002.

January, 2004 the legislature agreed that the agency should use that approach for the FY'06 budget process.

- The Agency must first practice good asset management principles within individual programs before making comparisons between programs. To that end, meetings were held with each program manager to determine current practices and to define ways to improve.
- The Agency is also developing operational performance measures that will provide feedback to Agency program managers. The measures are being developed in conjunction with managers responsible for asset classes and services.
- Agency staff are in the early planning phases of a Consolidated Asset Database that will facilitate project comparisons and selection.

Town Aid for Highways

The following discussion summarizes Vermont's aid programs for town highways, as well as Vtrans' responsibilities with respect to town highways.⁴

Federal-Aid Town Highway Grants - Funds are provided for reconstruction of Class 1, 2, and 3 town highways on the Federal-aid system. These require a 10 percent match. Projects are recommended by RPCs as part of the VTrans TPI planning process.

Local Transportation Facilities and Enhancements - Funds are available for enhancement projects, park-and-ride facilities, scenic byways, re-use of historic bridges and other "local" projects. This program is managed by the VTrans Local Transportation Facilities section.

Town Highway Grants - Annual state appropriations (19 V.S.A. Section 306(a)) are distributed by formula based on mileage of Class 1, 2, and 3 highways. Grants may be used for town highway construction, improvement and maintenance or for the local match of public transit assistance. Municipalities must submit annual plans detailing how the grant will be spent.

Town Highway Bridge Program - Annual state appropriations (19 V.S.A Section 306(b)) are provided for rehabilitation and reconstruction projects on bridges with a span of six feet or more on Class 1, 2, and 3 highways. Project eligibility is based on VTrans inspection information which is used to identify critical defects. A five to 10 percent local match is required. VTrans is responsible for preliminary design on many of these projects.

Town Highway Structures Program - Grants are provided for repair, reconstruction or replacement of bridges, culverts and retaining walls on Class 1, 2, or 3 town highways. Improvements must extend the useful life of the structure and be of a permanent nature. A 10 to 20 percent local match is required - the lower match is provided for towns that

⁴ VTrans Handbook for Local Officials, 2004.

have adopted town highway codes and standards, and that have conducted a highway infrastructure study to identify all structures, roadway deficiencies/condition and estimated repair costs within the past three years. Towns submit annual applications for these funds with a limit of \$150,000 per project. Funds are allotted to VTrans Maintenance Districts, and projects within each district are selected by the District Transportation Administrators.

Town Highway Class 2 Roadway Program - Grants are provided for resurfacing or reconstruction of Class 2 highways. A local match of 20 to 30 percent is required (with the same requirements as noted above for the lower match). The funding limit and application process matches that of the Town Highway Structures Program.

VTrans Participation in Town Highway Maintenance - VTrans has the authority to designate Class 1 town highways, and assumes responsibility for scheduled surface maintenance or resurfacing, and center line pavement markings. VTrans is responsible for center line pavement markings on Class 2 highways, which are designated by municipalities and approved by VTrans. VTrans bears no responsibility for maintenance or upkeep of Class 3 or Class 4 town highways.

