VERMONT
VTrans

Highway Safety & Design Engineering Instructions (HSDEI)

Distribution: Assistant Director of Program Development, Chief of Contract Administration, Consultants, Director of Operations, Director of Policy, Planning and Intermodal Development, Director of Program Development, District Administrators, District Project Managers and Technicians, Highway Safety & Design Project Managers, Local Transportation Facilities Project Managers, Maintenance Administrator, Program Development Section Managers, Structures Project Managers

Approved: Kevin S. Marshia **Date:** 4/2/12
Kevin S. Marshia,
Highway Safety and Design Program Manager

Subject: **Complete Streets Guidance**

Administrative Information:

Effective Date:	HSDEI 12 - 001 shall be effective from the date of approval.
Superseded HSDEI:	Not applicable.
Exceptions:	Not applicable.
Disposition of HSDEI Content:	The content of HSDEI 12 - 001 will be incorporated into a future revision to the Roadway Design Manual and/or other applicable design guidance documentation.

Purpose:

"An act relating to a transportation policy that considers all users" (Act 34 of 2011) became effective July 1, 2011 and requires that the needs of all transportation users, regardless of their age, ability, or preferred mode of transportation be considered, regardless of the project's funding source in state and municipal transportation projects and project phases including but not limited to: planning, design, construction, and maintenance. The goal of HSDEI 12 – 001 is to distribute applicable guidance to VTrans personnel to ensure that Complete Streets practices and principles are considered on all applicable projects.

Technical Information:

See "Transmitted Materials"

Implementation:

The content of HSDEI 12 – 001 is to be implemented beginning immediately for all state and municipal transportation projects.

Transmitted Materials:

- "Complete Streets Guidance" March 2012

COMPLETE STREETS GUIDANCE

March 2012

Prepared by:

Vermont Agency of Transportation

COMPLETE STREETS
GUIDANCE

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INTRODUCTION:

"An act relating to a transportation policy that considers all users" (Act 34 of 2011) became effective July 1, 2011 and requires that the needs of all transportation users, regardless of their age, ability, or preferred mode of transportation be considered, regardless of the project's funding source in state and municipal transportation projects and project phases including but not limited to: planning, design, construction, and maintenance.

PURPOSE:

Nationally, Complete Streets represents a paradigm shift in traditional road construction philosophy. In Vermont, Complete Streets builds upon the flexibility in design and context sensitive solution practices that have been implemented since 1997 when the Vermont State Standards were established. It was once common practice to reactively attempt to accommodate bicycle and pedestrian friendly practices into projects. While this methodology would often result in a final product that contained benefits to bicyclists and pedestrians it did not allow the designer to consider all alternatives and consult with applicable stakeholders to determine what, or if, improvements would be of true value. Complete Streets principles require designers to consider how a project will incorporate the needs of all facility users, throughout a project's planning, design, construction, and maintenance phases. This methodology may result in additional benefits including: improving safety for all users, improving connectivity, improving human health, enhancing quality of life and livability, providing an aesthetically pleasing surrounding, supporting current and future economic vitality, and the reduction of pollutants into the environment.

ENGINEERING AND PLANNING CONSIDERATIONS:

The concept of Complete Streets is broad and wide ranging, meaning that a single set of rules or practices cannot be applied and/or implemented on all projects. This document and its contents are to be used as a reference or guidance document only. Its' purpose is to ensure that the project design teams[1] consider Complete Streets practices and principles on applicable projects.

Complete Streets intends to build upon current practices and it is recognized that feasible Complete Streets practices and principles are often site or project specific. This document outlines concepts to consider however it cannot detail all potential project characteristics. The design team must consider the contents of this document in combination with project specific contributing factors including but not limited to:

[1] Note that the position titles used in this document are typical Program Development terminology. Applicable alternate VTrans Division titles may be substituted as necessary.

- **Existing/Future Standards / Policies / Guidance Documents:** This document and its contents are to be used as a reference or guidance document only. It does not supersede standards, policies, or guidance documents. Documents such as the "Enhancements to Transportation Projects" policy and the VT State Standards may, in specific situations, conflict with potential Complete Streets practices and principles. The design team must consider and implement Complete Streets practices and principles that comply with existing standards, policies, and guidance documents.

- **Right-Of-Way (ROW) Constraints:** The Complete Streets practices and principles described in this document may require the acquisition of permanent rights or easements. The design team must consider the project scope, understanding that ROW impacts may limit the feasibility of certain practices and principles.

- **Environmental Constraints:** The Complete Streets practices and principles described in this document may result in additional impacts to environmental resources. The design team must consider the project scope, understanding that environmental impacts may limit the feasibility of certain practices and principles.

- **Maintenance Requirements & Responsibilities:** Many of the Complete Streets practices and principles require additional maintenance that is beyond the responsibilities of VTrans. In order for such practices as sidewalks, street furniture, shared use paths, etc. to be considered on a project, coordination with the applicable Town or City must occur. A Finance & Maintenance Agreement, acceptable to all parties must be in place detailing payment and maintenance responsibilities.

EXEMPTIONS:

It is the responsibility of the VT Agency of Transportation (VTrans) to consider Complete Streets principles for all projects unless one of the three exceptions listed below is met. The design team should document all corresponding decisions throughout the design process. Note that the "Complete Streets Project Compliance Form" and associated checklists must be completed and retained in the project's design file.

1. **Use of the facility by pedestrians, bicyclists, or other users is prohibited by law.** This exemption would apply to the interstate system and any other limited access roadways that restrict use as described above. However, when an interstate project also includes the ramps and their intersection with other roadways, it is possible that minor work could be accomplished that meet Complete Streets principles. For example, on a paving project where the intersecting roadway has parallel sidewalks, the curb ramps, signage and pavement markings could be upgraded to meet current ADA standards.

2. **Outside the scope of the project because of its very nature.** There are a number of VTrans activities, especially maintenance activities that are limited in their scope that would not afford an opportunity to incorporate Complete Streets principles. VTrans will not document each of these individual projects in the same manner as other projects. In place of that documentation the following list of activities serves as a "blanket" exemption for this type of activity:

   - Crack sealing
   - Culvert replacement
   - Emergency repairs
   - Guardrail replacement
   - High risk rural road (HRRR) projects
   - Ledge/slope projects
   - Pothole repair
   - Preventative maintenance, bridge maintenance projects
   - Projects with pre-approved scopes of work*
   - Roadside mowing
   - Road/shoulder sweeping
   - Shim/leveling projects
   - Sign replacement
   - Traffic signal equipment upgrades
   - Other miscellaneous maintenance activities

   *Often funded through grant programs such as Transportation Enhancements, Scenic Byways, Public Lands Highways or earmarks with a specific purpose.

3. **The cost of incorporating Complete Streets principles is disproportionate to the need or probable use.** This exception will require analysis by planners and project design teams because it is a decision based on judgment, considering a variety of factors. Factors that must be considered include but are not limited to: land use, current and projected user volumes, population density, crash data for all users, historic and natural resource constraints, and maintenance requirements. Local and regional plans shall be consulted to aid in assessing these and other factors.

   As project design teams evaluate the extent to which Complete Streets principles should be included in a project's design, one key factor to consider is the land use context in which the project is located. Pedestrian, bicycle, and transit use is heavily dependent on the types and density of land uses adjacent to a roadway. There are two extremes of land use that should lead to clear decisions about whether there is a need or probable use by

pedestrians and bicyclists. Related to this factor are contributing roadway characteristics such as intersection spacing and desired travel speed.

One end of the spectrum is what would be characterized as urban (i.e. village center, growth center, or downtown), where the development density is high, there is a mix of land uses and the buildings are in close proximity to the street. In an urban land use, there is more of a focus on pedestrian and bicyclist activity and the streets must work for all users. The transportation emphasis is on access rather than mobility. Community involvement and input should be sought by the design team in urban locations. The opposite end of the spectrum is rural or natural land use with a very low development density and a surrounding environment that contains primarily natural features such as farm fields or forests. In this setting, pedestrian use is minimal and the transportation emphasis is on mobility.

Between these two extremes is a continuum of land use contexts that will need to be evaluated. Some of the items that a Project Manager should consider in these instances are:

- Consider both the existing conditions and the future plans, recognizing that the transportation facility often lasts longer than adjacent buildings and land uses.
- Review local and regional plans, as well as zoning codes, corridor plans or mode-specific plans such as a bike/pedestrian master plan or transit plan.
- Pay particular attention to residential densities and proximity of residential areas to nearby schools, recreational facilities, government services or places of employment.
- Identify current levels of pedestrian, bicycle and transit activity or estimate future levels based on the type, mix and proximity of land uses.
- Consider the existing and potential future intersection/driveway spacing along the corridor.
- What is the desired operating speed of the road, considering and balancing the needs of all transportation users?
- What are the current and projected traffic volumes and the feasibility of meeting the needs of all transportation users?

IMPLEMENTATION:

Complete Streets must be considered throughout all project stages. The project's design team must use engineering judgment and engage the necessary resources in order to consider Complete Streets practices that are of value while still fitting within the situational context of the area. The following will assist the design team in collecting appropriate data and implementing Complete Streets practices.

- **Evaluation Matrix:** The evaluation matrix details potential Complete Streets practices that may be applicable for projects, dependent on the type of work being performed, land use context, and the functional classification of the roadway. Designers should consult the evaluation matrix to gain an initial sense of what type of features should be considered within the design of their project. Note that the practices and principles detailed by the matrix are most applicable to full roadway or bridge reconstruction projects.

    - For projects that have a more limited scope, such as a paving project or bridge rehabilitation project, designers should strive to incorporate Complete Streets practices and principles that fit within a project's scope. An example of this would be a paving project where existing aggregate shoulders are paved to gain additional shoulder width. In this instance however, adding sidewalks, even within an urban area may be outside of the scope of the project. If the project were considered a full roadway reconstruction project, full shoulder width and sidewalks would be considered.

- **Checklists:** The checklists recommend specific information that should be collected at different project phases. These checklists should be completed and retained in the project's design file. There are two checklists, one to be completed during the planning phase and one to be completed during the design phase, included in Appendix B of this document. Note that Project Managers should consult with the Planning Division, Regional Planning Commissions, and Towns to see if there are any corridor studies or other planning documents developed by VTrans or in partnership with the Regional Planning Commissions (RPCs) that may provide input on the purpose and need for a project.

PRACTICES AND PRINCIPLES:

The following lists Complete Streets practices and principles that may be utilized on applicable VTrans projects. Note that the list below is not exhaustive, and additional practices and principles may be utilized to satisfy Complete Streets. The descriptions associated with each individual practice or principle should be considered a general description and does not provide detailed information or criteria for their use. This list should be utilized as a reference only and not as a checklist, the practices and principles discussed are not required elements of a project. Complete Streets intends to build upon current practices and the design team must therefore consider these practices and principles in combination with factors including but not limited to; project scope, roadway classification, compliance with existing VTrans

Standards/Policies/Guidance Documents, maintenance requirements and responsibilities, environmental constraints, Right-Of-Way constraints, etc.

- **Access Management:** Access management ensures reasonable access to a highway. Improvements may include modifications to the location and dimensions of a driveway or modifications to curbed islands (definition of highway entry and exit points). Access management may reduce crashes and crash potential, preserve roadway capacity, decrease travel time and congestion, and improve access to properties.

- **ADA Compliant Curb Ramps:** Access for all users is critical for all highways. Per ADA guidelines, wheelchair ramps with detectable warning strips should be installed wherever a sidewalk crosses a curb, and existing ramps should be upgraded to meet current ADA guidelines.

- **Bike Lanes:** In downtown areas, village centers, and other more "urban" locations, designated bike lanes delineate space specifically intended for bicycle use. This is especially important where there are multiple turning movements, on-street parking, and other potential instances of motor vehicle-bicycle conflict.

- **Crosswalks:** Crosswalks should generally be installed at controlled intersections where there are existing sidewalks and should be placed to minimize crossing distances and conflicts between pedestrians and vehicles. Midblock crosswalks on arterials and collector roads will be considered as required, subject to traffic studies and engineering judgment. All crosswalk installations should comply with the latest version of the Vermont Agency of Transportation "Guideline For The Installation Of Crosswalk Markings And Pedestrian Signing At Marked And Unmarked Crossings."

- **Curb Extensions:** Curb extensions are an expansion of the curb line into the adjacent roadway either at a corner or midblock. Curb extensions have such benefits as; slowing vehicle speeds of turning vehicles, shortening pedestrian crossing distance, reducing potential conflicts between vehicles and pedestrians, making pedestrians more visible to motorists, highlighting the presence of a crosswalk, and discouraging illegal parking within a crosswalk.

- **High Visibility Treatments at Mid-Block Crosswalks:** The visibility and design of mid-block crosswalks may be improved by installing various pavement markings and signage. Examples include block style pavement markings, rectangular rapid flashing beacon, and pedestrian hybrid beacons.

- **Horizontal & Vertical Alignment:** A roadway's horizontal and vertical alignments ensure that a vehicle can safely navigate a roadway at an anticipated speed. Modifications to a roadway's horizontal and vertical alignments, in combination with modifications to superelevation, may result in safety benefits such as; improved corner sight distance, improved stopping sight distance, and improved roadway drainage.

- **Landscaping:** Street trees and other landscaping not only provide aesthetic enhancements to a street, but also help mitigate air pollution and provide opportunities for better stormwater control.

- **Pavement Maintenance:** Pavement maintenance corrects localized pavement deficiencies. Pavement maintenance ultimately helps to keep motorists in their respective travel lanes, and may also eliminate or reduce loose debris, which can become a hazard to both drivers and pedestrians.

- **Pavement Markings:** A variety of pavement markings can be installed to improve roadway safety and functionality for all users. Examples include directional arrows, school zone markings, and stop bars. Pavement markings should follow the guidelines set forth in the Manual of Uniform Traffic Control Devices (MUTCD).

- **Pedestrian Signals and Timing:** Signalized pedestrian crossings may be improved by providing sufficient time for pedestrians to safely cross the roadway. Signal faces must be visible and pedestrian pushbuttons must be accessible to all users. Pedestrian signals and timings should follow the guidelines set forth in the MUTCD.

- **Public Transit Facilities:** To provide for public transit, features such as bus shelters, bus pullouts, signage, pavement markings, connections to pedestrian facilities and bicycle parking should be considered.

- **Refuge Islands:** Refuge islands enhance pedestrian safety and accessibility on roadways with two way traffic by reducing crossing distances and providing refuge for pedestrians to cross one direction of travel at a time. Refuge islands also serve as a visual barrier to motorists, often resulting in slower vehicle speeds.

- **Roadway Reconfiguration ("Road Diets"):** Roadway reconfiguration involves modifying how an existing roadway is used to improve safety and mobility. An example of this would be taking an existing roadway with two lanes of traffic in both directions, with a high number of driveways and dense land use and reconfiguring this to one travel lane in both directions with a continuous two way left turn lane, with bike lanes or widened roadway shoulders in each direction.

- **Roundabouts:** The use of a roundabout as an intersection improvement helps to reduce vehicle speeds, vehicle delay, and vehicle idling. Roundabouts allow for simple and safe use by bicyclists. Pedestrians may navigate a roundabout using crosswalks and refuge islands.

- **Shared Use Paths:** Shared use paths provide a separate travel way designated for non-motorized uses. Bicycles, pedestrians, etc. may use these paths for commuting or recreational purposes with minimal conflicts with vehicles.

- **Shoulders:** In rural or less developed locations, adequate paved shoulder width provides a location on the roadway that bicyclists can safely utilize. This is especially important on roadways with higher traffic volumes, higher speeds, and high percentages of truck traffic. Adequate shoulders would also provide a location that an occasional pedestrian can utilize.

- **Sidewalk Surface Treatments:** Sidewalks are typically constructed using concrete or asphalt; however alternative materials such as brick or stone pavers can be used for aesthetic enhancements that would contribute to a pleasant walking environment. This practice may also provide stormwater benefits by promoting infiltration. Proper construction and maintenance is essential, as some materials can lift or settle over time.

- **Sidewalk Widening/Construction:** ADA standards specify a minimum of five feet clear path width to accommodate two wheelchairs passing each other. Additional sidewalk width should be considered based on the need and applicable site and project characteristics.

- **Sight Distance:** Sight distance is the length of roadway that is visible to a driver, and is important since it allows the driver to see vehicles, pedestrians, and bicyclists. Improvements to sight distance can be made by; modifying a roadway's horizontal and vertical alignment, clearing brush and vegetation, and removing and resetting obstructions such as commercial or roadway signs.

- **Street Furniture:** Functional and aesthetically pleasing street furniture contributes to a pleasant walking environment and supports the use of the roadway as a public space. Examples of street furniture include benches, lighting, bike racks and shelters, bus stop shelters, informational signs, and waste receptacles. Proper design and application is essential to maintain functionality and accessibility.

- **Street Lighting:** Street lighting may be appropriate on projects in order to improve the visibility of the roadway, increase sight distance, and make pedestrians more noticeable to the driver. Street lighting also serves to provide a sense of safety to pedestrians and bicyclists, making it more likely that they will utilize the facility.

- **Superelevation:** The superelevation, or roadway banking, can be modified based on vehicle speeds, horizontal curvature, traffic distribution, and climate. Superelevation can provide a driver with a properly banked roadway allowing a vehicle to safely remain in its travel lane.

- **Traffic Patterns:** Traffic patterns can be modified to assist vehicle traffic flow. Traffic patterns can also be modified to provide safety improvements or increase transportation mode options. Examples of this work would be the addition of a turning lane, and the installation of a traffic signal or other traffic control device. When this work is accompanied by a new crosswalk such devices increase circulation options and safety for pedestrians.

APPENDIX A

COMPLETE STREETS EVALUATION MATRIX

The treatments shown in this matrix are most likely to be considered in full depth construction projects that serve to reconstruct or construct new infrastructure. These projects often contain changes to the horizontal and vertical alignments, extensive earthworks, and impacts to adjacent resources and landowners. Examples of this work include; bridge replacement, roadway reconstruction, and intersection reconstruction. On other projects with a more limited scope, designers are expected to consider treatments to the extent feasible within that scope.

Land Use Context/Roadway Functional Class	Shoulder	Median	Bike Lane*	Sidewalk / Shared Use Path	Transit	Intersections
Limited Access	Shoulders for all limited access roadways should be paved and delineated using appropriate pavement markings. The shoulders should be widened to comply with the State of VT Design Standards as well as the guidance found in HSDEI 11-004.	Medians are common on limited access roadways. Improvements to medians may include; curb work, signage, and landscaping.	Not applicable, bike lanes are not installed on limited access roadways.	Sidewalks and shared use paths are typically not installed on limited access roadways. Associated ramps may intersect with state or local roads. Work at these locations may include; sidewalk repair, curb repair, installation of appropriate sidewalk ramps, and installation of a crosswalk and detectable warning surfaces. Pedestrian paths may cross limited access roadways as an overpass or underpass. These facilities should be upgraded to comply with the American with Disabilities Act (ADA). Proper drainage and facility cross slope must be installed/constructed to prevent ponding water and the potential for freezing. These facilities must be adequately protected from errant vehicles, as well as debris and snow removal. The limited access roadway in these locations must also be protected from debris and snow removal from the pedestrian facility.	While transit providers may use limited access roads as part of their routes, transit stops would not be permitted on a limited access roadway.	Most limited access roads intersect with other roads via interchanges that include a system of ramps on and off the roadway. Where Complete Streets principles apply to the intersecting road, the design of those intersections should consider use by all users. Free flowing off-ramps (slip ramps) may be problematic for bicyclists or pedestrians because of the higher vehicle speeds that are achieved.
Rural Arterials & Collectors	Shoulders for all rural arterials and collectors should be paved and delineated using appropriate pavement markings. The shoulders should be widened to comply with the State of VT Design Standards as well as the guidance found in HSDEI 11-004. Additional widening of shoulders should be considered in locations identified as primary corridors for bicyclists as well as those locations where the Town or Regional Plan indicate a future use. The roadway horizontal alignment, vertical alignment, and superelevation should meet the requirements of the AASHTO "A Policy on Geometric Design of Highways and Streets." All drainage structure grates located within the shoulder shall be "bicycle-safe."	Medians are not generally provided on rural stretches of roadway.	Not applicable, bike lanes are not installed on rural arterials & collectors.	Truly rural roads typically do not include sidewalks as there is unlikely to be significant pedestrian demand to justify their installation. If there are clear origins and destinations within project limits or a defined Town/Regional Plan and a shared use path is sought by the community to connect those origins and destinations, designers should consider the inclusion of the shared use path in the project.	It is possible that public transit routes travel over rural roadways. A transit stop on a rural road would most likely consist solely of a sign, with no changes to the roadway typical section.	Rural roadway intersections should be designed to ensure that adequate sight distance from side roads is provided. If the side road has a bicycle or pedestrian facility on it, the intersection design should consider the interaction of the bike or ped facility with the roadway being designed. If intersections are signalized and there are pedestrian facilities on the side roads, appropriate pedestrian signals should be included.
Transitional Zone Arterials & Collectors	Shoulders for transitional zone arterials and collectors should be paved and delineated using appropriate pavement markings. The shoulders should be widened to comply with the State of VT Design Standards as well as the guidance found in HSDEI 11-004. Additional widening of shoulders should be considered in locations identified as primary corridors for bicyclists as well as those locations where the town or regional plan indicate a future use. The roadway horizontal alignment, vertical alignment, and superelevation should meet the requirements of the AASHTO "A Policy on Geometric Design of Highways and Streets." All drainage structure grates located within the shoulder shall be "bicycle-safe."	Medians should be considered for certain situations on arterials and collectors in transition zones. If a more "suburban" land use pattern is present where there may be some demand for pedestrian crossings, a median refuge can be used to make this safer.	Designers may consider the use of a bike lane on a transitional zone roadway as the zone approaches a more urban/village center context. This would be most appropriate in areas where the speed limit is transitioning to a lower speed. In the more rural character areas, bike lanes would not typically be appropriate.	Generally, sidewalks would not be found in transitional zones, except where the speed limit is lower and on the outskirts of more densely developed urban/village centers. If there are clear origins and destinations within project limits or a defined Town/Regional Plan and a shared use path is sought by the community to connect those origins and destinations, designers should consider the inclusion of the shared use path in the project. A shared use path may be more appropriate along higher speed, lower land use density areas within transitional zones.	It is possible that public transit routes travel over roadways in transitional zones. A transit stop on a transitional road would most likely consist solely of a sign, with no changes to the roadway typical section. A shelter may be applicable for this situation.	Transitional roadway intersections should be designed to ensure that adequate sight distance from side roads is provided. If the side road has a bicycle or pedestrian facility on it, the intersection design should consider the interaction of the bike or ped facility with the roadway being designed. If intersections are signalized and there are pedestrian facilities on the side roads, appropriate pedestrian signals should be included.
Urban/Village Arterials & Collectors (Downtowns, village centers, growth centers)	Shoulders for all urban/village arterials and collectors should be paved and delineated using appropriate pavement markings. The shoulders should be widened to comply with the State of VT Design Standards as well as the guidance found in HSDEI 11-004. Additional widening of shoulders should be considered in locations with heavy bicycle volumes as well as those locations where the town or regional plan indicates a future use. Additional widening should also be provided in urban and village settings that contain on-street parking. The roadway horizontal alignment, vertical alignment, and superelevation should meet the requirements of the AASHTO "A Policy on Geometric Design of Highways and Streets." All drainage structure grates located within the shoulder shall be "bicycle-safe."	Median improvements should be considered on projects with existing sidewalks and crosswalks, or projects with high bicycle traffic. Median improvements may include; curb repair, signage, landscaping, and refuge island curb openings. New medians may be considered at or near intersections to provide refuge islands for pedestrians. New medians may also be applicable where access management is required. Existing crash data and safety reviews should be utilized to determine applicability.	Existing bike lanes should be repaved, and delineated using appropriate pavement markings. Bike lanes should be considered in downtown/village center locations. Paved shoulders would be utilized by bicyclists in all other instances. With existing and proposed bike lanes, signage can be upgraded to designate the presence of a bike lane in addition to the required pavement markings. On roads where a "shared lane" is used because of limitations of space, consider the use of shared lane markings to show where bicyclists should ride and to indicate to drivers that they should expect bicycle traffic.	For projects with existing sidewalk or shared use path, the design team should include widened sidewalks where necessary to comply with ADA or increased demand. Additional work at these locations may include; sidewalk repair, curb repair, installation of appropriate sidewalk ramps, installation of crosswalks and detectable warning surfaces, access management, improved signage, and clearing to improve sight distance and visibility at crossings. Proper drainage and facility cross slope must be installed/constructed to prevent ponding water and the potential for freezing. New sidewalks should be considered in all urban and village settings. Pedestrian counts as well as the Town and Regional Plan will provide an estimate of current and future use. Existing crash data and safety reviews should be studied to identify safety concerns. Discontinuous pedestrian facilities are discouraged, however if future installation is possible including the future sidewalk in the project footprint is recommended.	Urban/village projects have the highest likelihood that provisions for transit providers will be applicable. This may include bus pullouts, bus shelters or other features. There should be close integration with adjacent pedestrian features.	Intersection design in urban/village centers must balance the needs of all users. If pedestrian facilities are present, then signals or roundabouts must include adequate crossing opportunities. This includes the timing of signalized crossings and the consideration of the use of pedestrian refuge islands for multi-lane cross-sections. Designers should also consider the use of leading pedestrian intervals and advanced stop bars for bicyclists. Video detection can make the signal more responsive to pedestrians waiting to cross and can add time to the pedestrian phase by detecting pedestrians in a crosswalk.

* "**Bike Lane**" refers to a portion of the roadway that has been designated by signs and pavement markings for preferential or exclusive use by bicyclists.

APPENDIX B

COMPLETE STREETS - PLANNING PHASE CHECKLIST

PLANNING PHASE DESCRIPTION: A project in the planning phase is conceptual in nature and contains limited detail. The primary function of the planning phase is the identification and analysis of site and project characteristics and constraints.

PLANNING PHASE GOAL: To determine if complete street principles are appropriate for the corresponding project.

PLANNING PHASE REQUIRED INFORMATION:

1. DETERMINE ROADWAY FUNCTIONAL CLASSIFICATION

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

2. OBTAIN CURRENT TRAFFIC VOLUMES

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

3. DETERMINE PROJECTED TRAFFIC VOLUMES

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

4. IDENTIFY CURRENT PEDESTRIAN / BICYCLIST USE

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

5. DETERMINE PROJECTED PEDESTRIAN / BICYCLIST USE

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

6. IDENTIFY EXISTING TRANSIT SERVICE FEATURES

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

7. DETERMINE PROJECTED TRANSIT SERVICE FEATURES

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

8. OBTAIN EXISTING CRASH DATA

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

9. IDENTIFY EXISTING NATURAL RESOURCE CONSTRAINTS

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

10. IDENTIFY EXISTING HISTORIC RESOURCE CONSTRAINTS

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

11. IDENTIFY MAINTENANCE REQUIREMENTS

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

12. OBTAIN THE TOWN / REGIONAL PLAN

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

13. OBTAIN EXISTING LAND USE TYPE & DENSITY

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

14. IDENTIFY FUTURE LAND USE TYPE & DENSITY

☐ COMPLETED

☐ NOT APPLICABLE

NOTES:

COMPLETE STREETS - DESIGN PHASE CHECKLIST

DESIGN PHASE DESCRIPTION: A project in the design phase is under development. Proposed project components, characteristics, and cost estimates are being defined.

DESIGN PHASE GOAL: To review data collected in the planning phase in an effort to make a final determination regarding the applicability of Complete Streets. Applicable practices should be identified and designed during this phase.

DESIGN PHASE COMPLETE STREETS ANALYSIS:

1. REVIEW ALL DATA COLLECTED DURING THE PLANNING PHASE - IDENTIFY CHANGES

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

2. WILL ADDITIONAL RIGHTS OR EASEMENTS BE PURCHASED AS PART OF PROJECT

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

3. PERFORM CONSTRUCTABILITY REVIEW

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

4. IDENTIFY POTENTIAL COMPLETE STREETS PRACTICES

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

5. DEVELOP TEMPORARY TRAFFIC CONTROL PLAN

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

6. ENSURE TRAFFIC CONTROL PLAN MAINTAINS SAFE ACCESS FOR ALL USERS

☐ COMPLETED
☐ NOT APPLICABLE

NOTES:

7. ENSURE TRAFFIC CONTROL PLAN ADEQUATELY WARNS ALL DETOURS AND CLOSURES
☐ COMPLETED ☐ NOT APPLICABLE
NOTES:

APPENDIX C

VERMONT

State of Vermont *Agency of Transportation*

TO: **PROJECT FILE**

FROM: ***PROJECT MANAGER, SECTION***

DATE: ***MONTH DATE, YEAR***

SUBJECT: **COMPLETE STREETS PROJECT COMPLIANCE FORM**
PROJECT NAME PROJECT NUMBER

Act 34 became effective July 1, 2011 and requires that the needs of all transportation users, regardless of their age, ability, or preferred mode of transportation be considered in state and municipal transportation projects and project phases. This project compliance form and attached checklists serve to document that Complete Streets practices and principles were considered and implemented where applicable for the project listed below. This project compliance form (to be completed after preliminary plans) and attached checklists should be completed and retained in the project's design file.

Project Name:

Project Number:

Is the use of the transportation facility by pedestrians, bicyclists, or others users prohibited by law? Y/N

Is the cost of incorporating complete streets principles disproportionate to the need or probable use? Y/N

Is incorporating complete streets principles outside the scope of the subject project because of its very nature? Y/N

If the answer to any of the three questions listed above is yes, justification supporting that yes determination shall be drafted, attached to this document, and retained in the project's design file. For all other instances a brief description of the Complete Streets practices and principles that have been incorporated into the subject project's design shall be included in the text box below. If Complete Streets practices are not incorporated a description of practices considered and the justification for not including them should be drafted, attached to this document, and retained.

Completed:_____ Date:_____
Project Manager

Approved:_____ Date:_____
Program Manager

APPENDIX D

VERMONT AGENCY OF TRANSPORTATION	ORIGINAL POLICY ADOPTED 11/02/2002	ORIGINAL POLICY IDENTIFIER 6013
POLICY MANUAL	EFFECTIVE DATE 12/06/2007	IDENTIFIER 6013.1
	RESPONSIBLE SECTION PDD	SUPERSEDES
SUBJECT: Enhancements to Transportation Projects	SCREEN/PAGE 1 OF 7	

STATUTORY REFERENCE/OTHER AUTHORITY: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), as amended.

APPROVAL DATE: December 6, 2007

APPROVED BY: Neale F. Lunderville, Secretary of Transportation

PURPOSE/COMMENT: To establish Agency of Transportation policy on enhancements to transportation projects.

POLICY STATEMENT: This policy defines the use limits of VTrans-administered funds (including both state and federal non-earmark funds) to support enhancements or amenities to transportation projects. The policy applies to projects administered or developed by VTrans, as well as municipal projects administered under a cooperative agreement between VTrans and the municipality. This policy is part of VTrans' effort to conserve funding and resources for preservation of transportation facilities in keeping with "Road to Affordability" priorities.

1. Q. What are VTrans' priorities under the "Road to Affordability" as they pertain to enhancements and amenities?

A. Under the "Road to Affordability," VTrans will give priority to projects that:

- Preserve the functionality of existing transportation infrastructure;
- Minimize the need to acquire additional rights-of-way;
- Minimize the need for utility adjustments;
- Minimize impacts on environmental and historic resources;
- Incorporate designs which provide safe and efficient transportation;
- Promote economic opportunities for Vermonters;
- Foster the best use of the state's natural and economic resources consistent with the planning goals listed in 24 V.S.A. § 4302 as amended by Act No. 200 of the Acts of the 1987 Adj. Sess. (1988) and Act No. 115 of the Acts of the 2003 Adj. Sess. (2004); and
- Give appropriate consideration of local, regional and state agency plans.

2. Q. How will VTrans determine what elements are included in a project's scope?

A. To accomplish the goals of the "Road to Affordability" initiative, VTrans will financially support (with state and federal non-earmark transportation funds allocated to Vermont) only project elements that are functionally necessary to carry out the core purpose of a transportation project. Municipalities can add elements to a project as long as the municipality is willing to pay for their cost. See question 10 for details about adding elements to a project.

3. Q. What is meant by "functional necessity?"

A. **"**Functional necessity" means features, components, elements, or materials of a transportation project that are required by:

- State or federal law;
- Permit requirements;
- The "Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads, and Streets;"
- Other adopted Vermont state design policies and manuals;
- Vermont Standard Construction Drawings; and
- Other applicable industry standard design manuals that are essential to safely construct, operate, and maintain the project.

These items are essential to the performance and integrity of the roadway or structure in question, and should result in the lowest life-cycle cost of the project.

4. Q. How is "functional necessity" analyzed when there is a specific goal or purpose associated with earmarked funds?

A. Work elements needed to accomplish the specific goals or purposes for which specific federal (usually termed "earmarks") or state funds have been granted are considered to be functionally necessary only if that work is required by one or more of the above-noted documents, or if the project elements are part of the core project.

5. Q. What is the "core project"?

A. The "core project" means those features or elements of a project that are:

- Functionally necessary;
- Preexist the current project and/or are subject to a preexisting finance and maintenance agreement between VTrans and a municipality; and
- Need to be disturbed as a result of the project.

Generally for roadways, the core dimensions are the "curb-to-curb" or "ditch–to-ditch" width of the existing roadway. For bridges, this width is generally the width of the deck and the existing width of the pavement and shoulders on the roadway approaches. The core of a project also extends vertically downward to the extent of any excavation required for construction of the pavement and drainage structure, or upward to accommodate traffic signals, signs, and clearance of overpasses.

Features required by state or federal permits and/or mitigation required by a federal environmental document also are considered to be part of the core project, even though they may be physically outside the boundaries of the “curb-to-curb” or “ditch-to-ditch” limits. Features or components added to the project to comply with state law, federal law, grant approvals (in the case of earmarked projects), or updates in design standards or procedures (for example, ADA compliance) are considered part of the core project.

6. Q. Are elements such as benches, under grounding of utilities, landscaping, ornamental lighting, ornamental fences, etc. considered functionally necessary?

A. These elements generally are not considered functionally necessary. However, these elements could be considered core to a project or functionally necessary if they are specified in the language of an earmark.

7. Q. Are pedestrian and bicycle facilities considered to be functionally necessary?

A. In keeping with the VTrans Policies on Pedestrians and Bicycles, appropriate accommodation of pedestrians and bicycles will be incorporated into all transportation projects. Appropriateness will be determined by the VTrans
Project Manager in consultation with his/her Program Manager and the VTrans Bicycle and Pedestrian and Safe Routes to Schools Managers.

8. Q. Who makes the determinations of functional necessity or core project?

A. Determinations as to functional necessity and core project are the responsibility of the VTrans project manager.

9. Q. Is there a process for reviewing such determinations?

A. A municipality can request that a project manager’s determination be reviewed by the VTrans program manager. A municipality can request further review by the Secretary of Transportation, whose determination is final.

10. Q. What if a municipality wishes to incorporate non-functional or non-core elements to a VTrans project?

A. If a municipality desires to have elements included in a project that are not determined to be functionally necessary, it can do so as non-participating costs if the municipality agrees by a Finance and Maintenance Agreement to fund 100 percent of the construction cost of those items as well as agree to maintain those items with 100 percent locally secured funds. However, for new projects or projects in the early design stage, VTrans must be notified of the municipality’s desire to include additional elements no later than the Conceptual Design phase of project development. Once

notified, the VTrans project manager will arrange for development of a Finance and Maintenance Agreement or an amendment to an existing Finance and Maintenance Agreement which will be sent to the municipality for review, approval and execution before VTrans moves forward with inclusion of the additional elements. The estimated costs of these elements will be included in the project's estimated costs for determining a project's benefit/cost ratio in the VTrans project prioritization system.

For projects currently in the design process or "pipeline" that have attained the level of accepted/approved "Preliminary Plans," the project manager will review the most current plan for consistency with this policy's definitions of Core Project and Functional Necessity. Those features determined by the project manager to be inconsistent with those definitions will be incorporated into a detailed listing. This listing will then be reviewed with VTrans' Program Management before being reviewed with appropriate municipal officials and before VTrans determines which features no longer will be eligible for VTrans' financial support.

After this review, VTrans may elect to continue its financial support for some items or elements that might otherwise be considered functionally unnecessary had the project not already been in the "pipeline." In these cases, the Agency's financial support will continue through construction only if the municipality agrees to pay for the amenity's future maintenance and/or replacement.

Those features which remain a part of the project either with VTrans financial support or at 100 percent municipal cost will be specifically listed in the Finance and Maintenance Agreement by amendment subsequent to the joint VTrans/municipal review as either financially supported by VTrans and maintained by the municipality or financially supported and maintained by the municipality.

The Finance and Maintenance Agreement will be modified subsequent to the joint VTrans/municipal review to include a provision that specifically indicates that non-functionally necessary or non-core project elements will be maintained for their useful life by the municipality at 100 percent municipal cost. Further project development will be suspended until the Finance and Maintenance Agreement is signed by the municipality.

11. Q. What does "financial support" mean?
A. "Financial support" means payment with non-earmarked funds. Earmarks are made by either the U.S. Congress or the Vermont State Legislature specifically for an amenity or enhancement. The Vermont Legislature simply including funding for a project in the annual Transportation Bill or Budget Adjustment Bill is not considered an earmark unless the legislation specifically specifies that the amenity or enhancement must be included in the overall project appropriation.

12. Q. Will inclusion of non-functional or non-core elements have an effect on a project's priority in the VTrans' prioritization systems?

A. The estimated costs of the non-functional or non-core elements that might remain in a project financially supported by VTrans will be included in the project's estimated costs for determining a project's benefit/cost ratio. Such inclusion could lower a project's priority.

The estimated costs of non-functional or non-core elements that will be borne entirely by the municipality will not be included in the project's estimated costs for determining a project's benefit/cost ratio in the VTrans project prioritization system. Excluding these costs will raise the project's benefit/cost ratio and could raise a project's priority.

13. Q. What is the effect of element inclusion in the Finance and Maintenance Agreement?

A. Upon inclusion in the Finance and Maintenance Agreement, only those elements specifically listed will be eligible for VTrans financial support. The assumed cost of these elements will also be included in the project's estimated cost for determining a project's benefit/cost ratio or cost in the VTrans Project Prioritization systems.

Additional non-functional or non-core elements that are subsequently desired by the municipality will only be included in a project if the municipality agrees to pay for the construction, maintenance and replacement of the elements.

14. Q. How does this policy relate to VTrans' Project Definition Team (PDT)?

A. Projects which have not advanced to the accepted/approved Preliminary Plans at the time of adoption of
this policy – including projects that have been processed through the PDT – will be reviewed by the VTrans project manager who will determine the functional necessity and core project elements for the project. The project manager will notify the municipality in which the project is located about his/her determination
and how that determination limits financial support. The project manager will inquire about the municipality's desire and ability to pay for and maintain work elements not determined to be functionally necessary. Finance and Maintenance Agreements will be appropriately modified to reflect the municipality's decision.

The project manager will also advise the municipality as to those projects that are to be scheduled for PDT review. The PDT process will be bound by this policy. Any amenities or enhancements that are deemed functionally unnecessary or not part of the core project are subject to the same financial constraints as any other VTrans project. The PDT has no authority to make its own financial decisions.

15. Q. How does this policy affect the freestanding Enhancement Program?

A. This policy does not affect the freestanding Transportation Enhancement Grant Program described in 19 V.S.A. § 38.

POLICY HISTORY
ORIGINAL POLICY ADOPTION DATE: 11/22/2002

REVISION NO: 1	**EFFECTIVE DATE: 12/06/2007**	**REASON: Affordability/Funding shortfall**
REVISION NO:	**EFFECTIVE DATE: __/__/____**	**REASON:**
REVISION NO:	**EFFECTIVE DATE: __/__/____**	**REASON:**

APPENDIX E

No. 34. An act relating to a transportation policy that considers all users.

(H.198)

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. PURPOSE

The purpose of this bill is to ensure that the needs of all users of Vermont's transportation system—including motorists, bicyclists, public transportation users, and pedestrians of all ages and abilities—are considered in all state and municipally managed transportation projects and project phases, including planning, development, construction, and maintenance, except in the case of projects or project components involving unpaved highways. These "complete streets" principles shall be integral to the transportation policy of Vermont.

Sec. 2. 19 V.S.A. § 10b is amended to read:

§ 10b. STATEMENT OF POLICY; GENERAL

(a) The agency shall be the responsible agency of the state for the development of transportation policy. It shall develop a mission statement to reflect:

(1) that state transportation policy ~~encompassing, coordinating, and integrating~~ shall be to encompass, coordinate, and integrate all modes of transportation~~,~~ and to consider "complete streets" principles, which are principles of safety and accommodation of all transportation system users, regardless of age, ability, or modal preference; and

(2) the need for transportation projects that will improve the state's economic infrastructure, as well as the use of resources in efficient, coordinated, integrated, cost-effective, and environmentally sound ways.

(b) The agency shall coordinate planning and education efforts with those of the Vermont climate change oversight committee and those of local and regional planning entities:

(1) to assure that the transportation system as a whole is integrated, that access to the transportation system as a whole is integrated, and that statewide, local, and regional conservation and efficiency opportunities and practices are integrated; and

(2) to support employer or local or regional government-led conservation, efficiency, rideshare, and bicycle programs and other innovative transportation advances, especially employer-based incentives.

~~(b)~~(c) In developing the state's annual transportation program, the agency shall, consistent with the planning goals listed in 24 V.S.A. § 4302 as amended by No. 200 of the Acts of the 1987 Adj. Sess. (1988) and with appropriate consideration to local, regional, and state agency plans:

(1) Develop or incorporate designs that provide integrated, safe, and efficient transportation ~~and promote~~.

(2)(A) Consider the safety and accommodation of all transportation system users—including motorists, bicyclists, public transportation users, and

pedestrians of all ages and abilities—in all state and municipally managed transportation projects and project phases, including planning, development, construction, and maintenance, except in the case of projects or project components involving unpaved highways. If, after the consideration required under this subdivision, a state-managed project does not incorporate complete streets principles, the project manager shall make a written determination, supported by documentation and available for public inspection at the agency, that one or more of the following circumstances exist:

(i) Use of the transportation facility by pedestrians, bicyclists, or other users is prohibited by law.

(ii) The cost of incorporating complete streets principles is disproportionate to the need or probable use as determined by factors including land use, current and projected user volumes, population density, crash data, historic and natural resource constraints, and maintenance requirements. The agency shall consult local and regional plans, as appropriate, in assessing these and any other relevant factors.

(iii) Incorporating complete streets principles is outside the scope of a project because of its very nature.

(B) The written determination required under subdivision (A) of this subdivision (2) shall be final and shall not be subject to appeal or further review.

(3) Promote economic opportunities for Vermonters and the best use of the state's environmental and historic resources.

~~(2)~~(4) Manage available funding to:

(A) give priority to preserving the functionality of the existing transportation infrastructure, including bicycle and pedestrian trails regardless of whether they are located along a highway shoulder; and

(B) adhere to credible project delivery schedules.

~~(c)~~(d) The agency of transportation, in developing each of the program prioritization systems schedules for all modes of transportation, shall include the following throughout the process:

(1) The agency shall annually solicit input from each of the regional planning commissions and the Chittenden County metropolitan planning organization on regional priorities within each schedule, and those inputs shall be factored into the prioritizations for each program area and shall afford the opportunity of adding new projects to the schedules.

(2) Each year the agency shall provide in the front of the transportation program book a detailed explanation describing the factors in the prioritization system that creates each project list.

Sec. 3. 19 V.S.A. § 309d is added to read:

§ 309d. POLICY FOR MUNICIPALLY MANAGED TRANSPORTATION PROJECTS

(a) Except in the case of projects or project components involving unpaved highways, for all transportation projects and project phases managed by a municipality, including planning, development, construction, or maintenance, it is the policy of this state for municipalities to consider "complete streets" principles, which are principles of safety and accommodation of all transportation system users, regardless of age, ability, or modal preference. If, after the consideration required under this section, a project does not incorporate complete streets principles, the municipality managing the project shall make a written determination, supported by documentation and available for public inspection at the office of the municipal clerk and at the agency of transportation, that one or more of the following circumstances exist:

(1) Use of the transportation facility by pedestrians, bicyclists, or other users is prohibited by law.

(2) The cost of incorporating complete streets principles is disproportionate to the need or probable use as determined by factors such as land use, current and projected user volumes, population density, crash data, historic and natural resource constraints, and maintenance requirements. The

municipality shall consult local and regional plans, as appropriate, in assessing these and any other relevant factors.

(3) Incorporating complete streets principles is outside the scope of a project because of its very nature.

(b) The written determination required by subsection (a) of this section shall be final and shall not be subject to appeal or further review.

Sec. 4. REPORTING AND TRANSITION RULE

(a) By March 15, 2012, the agency of transportation shall report to the house and senate committees on transportation on its activities to comply with this act.

(b) The agency shall make available to the public upon request and in an easily understandable format a list of all state and municipally managed projects that have incorporated complete streets principles, accompanied by a description of each project and its location.

(c) The agency shall make available to the public upon request and in an easily understandable format a list of all state and municipally managed projects that have not incorporated complete streets principles pursuant to an exemption of Sec. 2, 19 V.S.A. § 10b(c)(2)(A), or Sec. 3, 19 V.S.A. § 309d(a), of this act. This list shall specify which exemption applied.

(d) The agency and municipalities shall be exempt from the requirement to assign exemptions pursuant to Sec. 2, 19 V.S.A. § 10b(c)(2)(A), or Sec. 3,

19 V.S.A. § 309d(a), of this act and from the reporting requirements of this section with respect to any project for which preliminary engineering is complete as of the effective date of this act.

Sec. 5. EFFECTIVE DATE

This act shall take effect on July 1, 2011.

Approved: May 18, 2011