



US 7 Corridor Plan: Rutland Town and Clarendon, VT

Final Report

December 15, 2009

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Report Prepared for:

The Rutland Regional Planning Commission, the Vermont Agency of Transportation, the Towns of Clarendon and Rutland, the Corridor Technical Advisory Committee, local residents, and business owners.

Disclaimer:

This report was funded in part through grant[s] from the Federal Highway Administration [and Federal Transit Administration], U.S. Department of Transportation. The views and opinions of the authors [or agency] expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

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1.0 INTRODUCTION

This document presents a corridor plan for US Route 7 (US 7) in the municipalities of Rutland Town and Clarendon, Vermont. The study presents a comprehensive and coordinated list of transportation system and land use policy and planning recommendations that satisfy a vision statement and supporting goals.

This report contains the following four major sections:

- Existing Conditions – documents the development pattern and environmental resources in the corridor, evaluates relevant sections of local and regional land use plans and VTrans policies, and describes the characteristics and performance of the transportation system.
- Vision and Goals – describes the development of a vision statement and supporting goals. The vision and goals were informed by the analyses of existing transportation and land use conditions, and input from the Stakeholders Group.
- Future Conditions – presents a build-out estimate for the corridor and development of a 2030 land use scenario. Traffic projections are developed based on the 2030 land use scenario and the resulting impact on the operation of the highway system was evaluated. The results of the 2030 traffic analysis are considered in combination with other land use and transportation issues relative to the corridor goals. Issues and opportunities are identified and general strategies were outlined.
- Implementation Plan – presents specific recommendations organized into Transportation System and Land Use Planning/Administrative actions. Timing, costs, responsibility and next steps are identified.

A Study Summary has also been prepared and is available as a separate document.

1.1 Planning Process

The project was funded by the Rutland Regional Planning Commission (RRPC), which provides assistance on a range of community development activities and issues in Rutland County. The RRPC provides leadership and technical expertise to encourage cooperative planning within and among the region's communities and area wide interests.

The study was directed by RRPC staff and a Corridor Technical Advisory Committee (CTAC) consisting of officials from the municipalities of Rutland Town and Clarendon, the Vermont Agency of Transportation (VTrans) and RRPC commissioners from nearby towns. A larger Stakeholders Group consisting of CTAC members plus additional business owners, economic development officials, elected officials and residents met twice during the planning process. At the first meeting, the Stakeholders provided input on the vision and goals and the future land use scenario. At the second meeting, the Stakeholders provided comments on the transportation system and land use planning recommendations. A final public meeting was conducted in November 2009 to gather comments on the October 2009 Draft Report. This final report addresses comments received at the final meeting and throughout the process. Notes for the CTAC and Stakeholder meetings are contained in an Appendix E.

The consultant team was led by Resource Systems Group, Inc., (RSG) a transportation planning and engineering firm with offices in White River Junction and Burlington, VT. Front Porch Community Planning and Design consulted on land use planning and LandWorks, a landscape architecture firm, prepared visualizations of the future land use scenario.



1.2 About Corridor Plans

Corridor management is the “...practice of identifying and implementing a mutually supportive set of strategies to maintain and enhance access, mobility, safety, economic development, and environmental quality along [a] transportation corridor.”¹

A corridor plan provides a comprehensive assessment of issues and needs, and identifies potential projects, general strategies and land use planning methods that will help achieve an agreed upon vision statement and goals. It considers all modes, including automobile and commercial vehicle traffic, walking, cycling and transit. Lower-impact/cost projects and transit services are identified for early implementation and projects that involve new or reconstruction of roadways, pedestrian and bicycle facilities or significant expansion of transit service are suggested for the long-term.

The study also considers the interaction between land use and transportation. The effect of development patterns and growth is evaluated and land use planning and administrative strategies are included as an integral part of the recommendations.

The US 7 Corridor Plan has a twenty-year planning horizon and is conceptual and strategic in nature. Given the level of detail provided in a corridor plan, it does not recommend preferred alternatives for any location. Rather, the US 7 Corridor Plan identifies strategies that can help achieve the overall vision.

*A **Corridor** is defined as:*

“A broad geographic band...connecting population and employment centers...served by various transportation modes...within which passenger and freight travel, land use, topography, environment and other characteristics are evaluated for transportation purposes.”

1.3 Study Area Overview

Figure 1 shows the limits of the study corridor. The corridor is 4 $\frac{3}{4}$ miles long and extends from the town line between Rutland City and Rutland Town southward into Clarendon, and ends just south of the VT 103 intersection. The section of VT 7B from its northern intersection with US to VT 103 is also included in the study area, and is roughly 3 $\frac{3}{4}$ miles in length.

The study area includes all of US 7 and its major intersections as identified in Figure 1 and listed below:

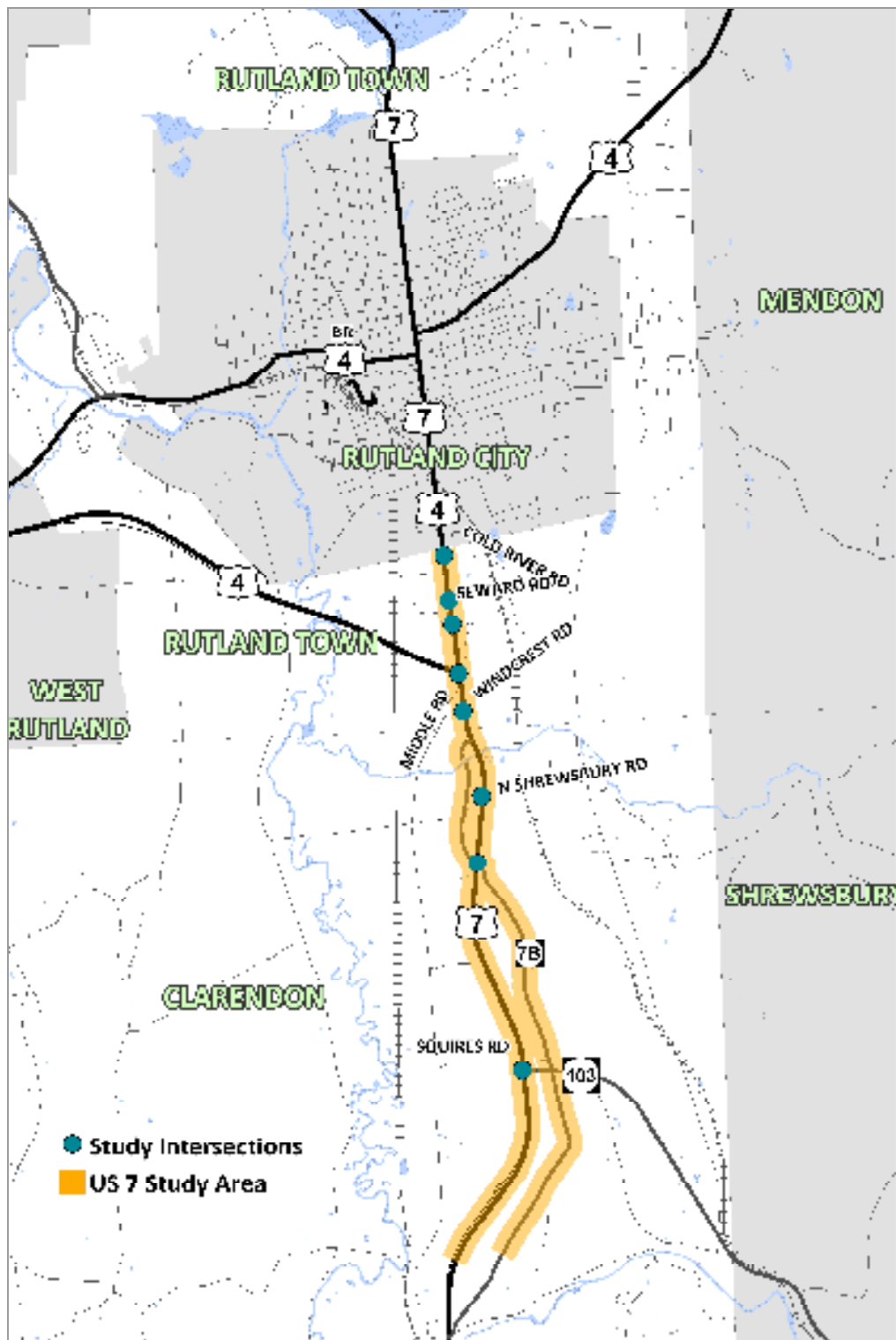
- US 7/Cold River Road (signalized)
- US 7/Green Mountain Plaza (signalized)
- US 7/Diamond Run Mall/Holiday Inn (signalized)
- US 7/US 4/Diamond Run Mall (signalized)
- US 7/Windcrest Road/Middle Road (signalized)
- US 7/North Shrewsbury Road² (signalized)
- US 7/ VT 7B (stop-controlled on the minor legs)
- US 7/VT 103/Squires Road (signalized)

A major retail development (Rutland Commons) has been permitted on the parcel of land on the northwest quadrant of the intersection of US 7 and US 4. Traffic from Rutland Commons and the associated roadway modifications have been incorporated into the plan.

¹ Vermont Corridor Management Handbook, Vermont Agency of Transportation, July 2005, p.3.



Figure 1: Project Study Area



1.4 Vision and Goals

The following vision statement establish the framework for identifying issues and developing strategies. They were informed by the analyses of existing transportation and land use conditions, and input from the Stakeholders Group as described in Section 1.4 *Vision & Goals*.

1.4.1 Vision Statement

Accessibility and mobility are balanced in the US 7 corridor through comprehensive land use/transportation policies that foster a moderate level of clustered mixed-use growth, multi-modal transportation, and rural land preservation.

1.4.2 Goals

Supporting this vision are the following goals, which have been identified by the project Stakeholders:

- Traffic Flow: Provide an appropriate balance between through vehicle mobility and local access with a slight focus on serving through traffic.
- Access Management
 - North of US 4: Limit and consolidate the number of new driveways on US 7.
 - South of US 4: Limit the number of new driveways on US 7 and encourage access onto VT 7B.
- Land Use: Promote mixed-use and nodal development.
- Environment: Find a balance between development opportunities and preserving the rural land with a slight focus on economic development.
- Multi-Modal Transportation: Promote all modes of transportation (auto, pedestrian, bicycle, air, rail, and transit).

2.0 EXISTING CONDITIONS

The existing conditions assessment documents the development pattern and environmental resources in the corridor, evaluates relevant sections of local and regional land use plans and VTrans policies, and describes the characteristics and performance of the transportation system.

2.1 Land Use Assessment

2.1.1 Existing Land Use along the Corridor

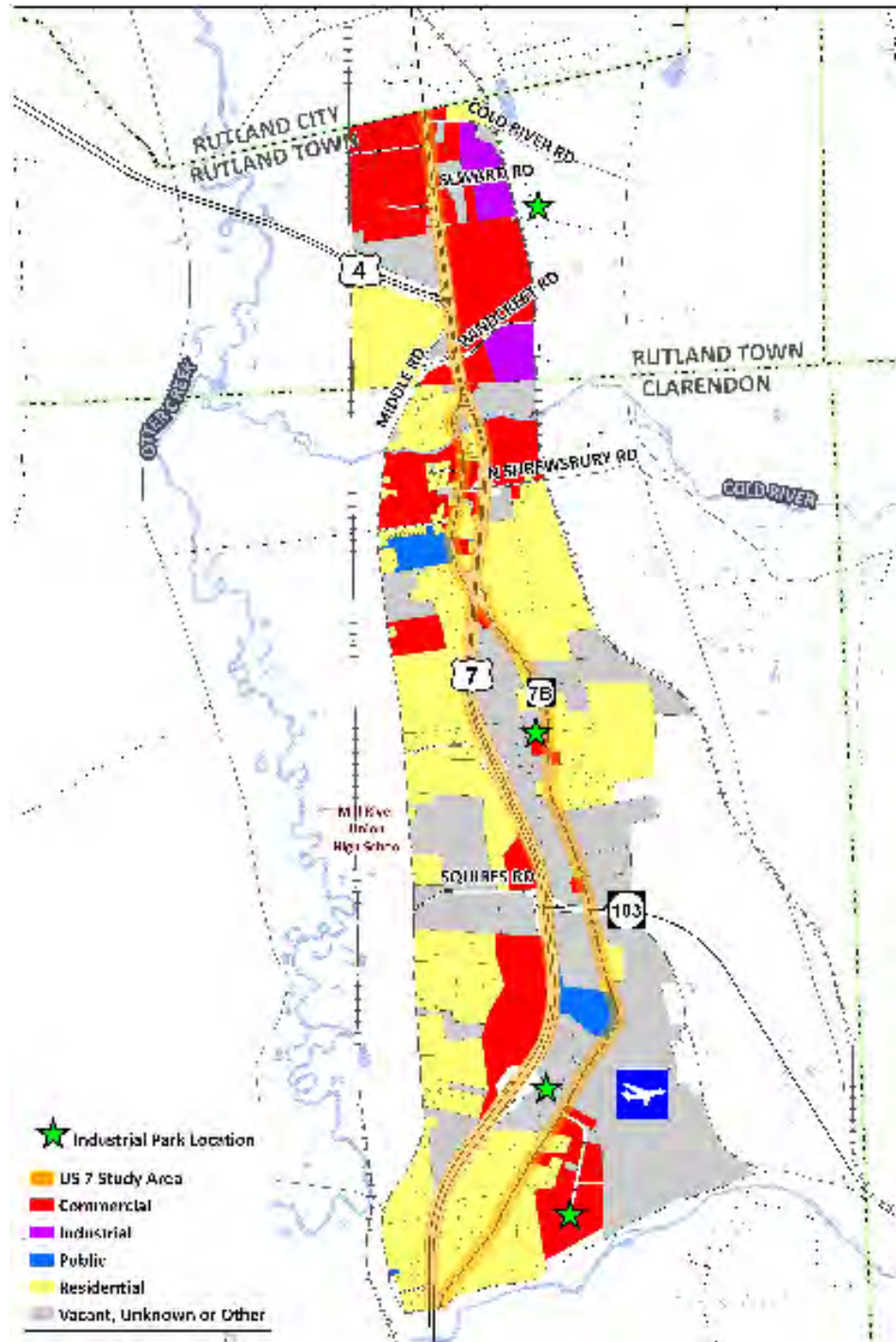
Figure 2 shows the existing land use for each parcel that fronts US 7 in the study area.¹ Existing land use in the Rutland Town portion of the study corridor is almost entirely commercial. The types of businesses that front US 7 include auto dealers and related services, restaurants, and hotels. Industrial and distribution businesses are located farther off the corridor with access to US 7 provided through mostly non-connected, local and private dead-end streets. The General Electric Company sits just north of the Clarendon town line in the Town of Rutland. Major retail areas include the Diamond Run Mall and the Green Mountain Plaza shopping center. Another shopping center, Rutland Commons, is proposed for a parcel directly north of US 4 and has been approved in the local and state permitting processes.

¹ Land use designation is based on E-911 point data.



In Clarendon, the existing land use is primarily rural residential with some exceptions. Notable exceptions include the J.P. Carrara concrete plant and administrative offices, and the Rutland Southern Vermont Regional Airport, at the southeast corner of US 7 and VT 103.

Figure 2: Existing Land Uses



2.1.2 Environmental Features along the Corridor

In addition to the Otter Creek and Cold River, the following environmental features are identified in this section:

- Agricultural soils – prime and statewide
- Slopes 25% and greater
- Deer wintering areas
- Wetlands
- Public lands
- Floodplain (100-Year Flood)

Prime Farmland is defined as land with soils that have the best combination of physical and chemical characteristics to produce food, feed fiber, forage, and oilseed crops. The land must also be available for these uses; it may be cropland, pasture, forestland, or other land uses, but cannot be urban, built-up or water. Statewide agricultural soils are lands, in addition to Prime Farmland, that are of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. The study area contains a significant amount of prime farmland and statewide agricultural soils (Figure 3).

Wetlands do not have a significant presence along the study corridor, though they do exist near the Otter Creek and the northeast corner of the VT 103/VT 7B intersection (Figure 4). A 100-Year Flood zone also exists primarily along Otter Creek (Figure 5). Slopes 25% and greater are all located outside of the study area.



Figure 3: Environmental Features – Agricultural Soils and Steep Slopes

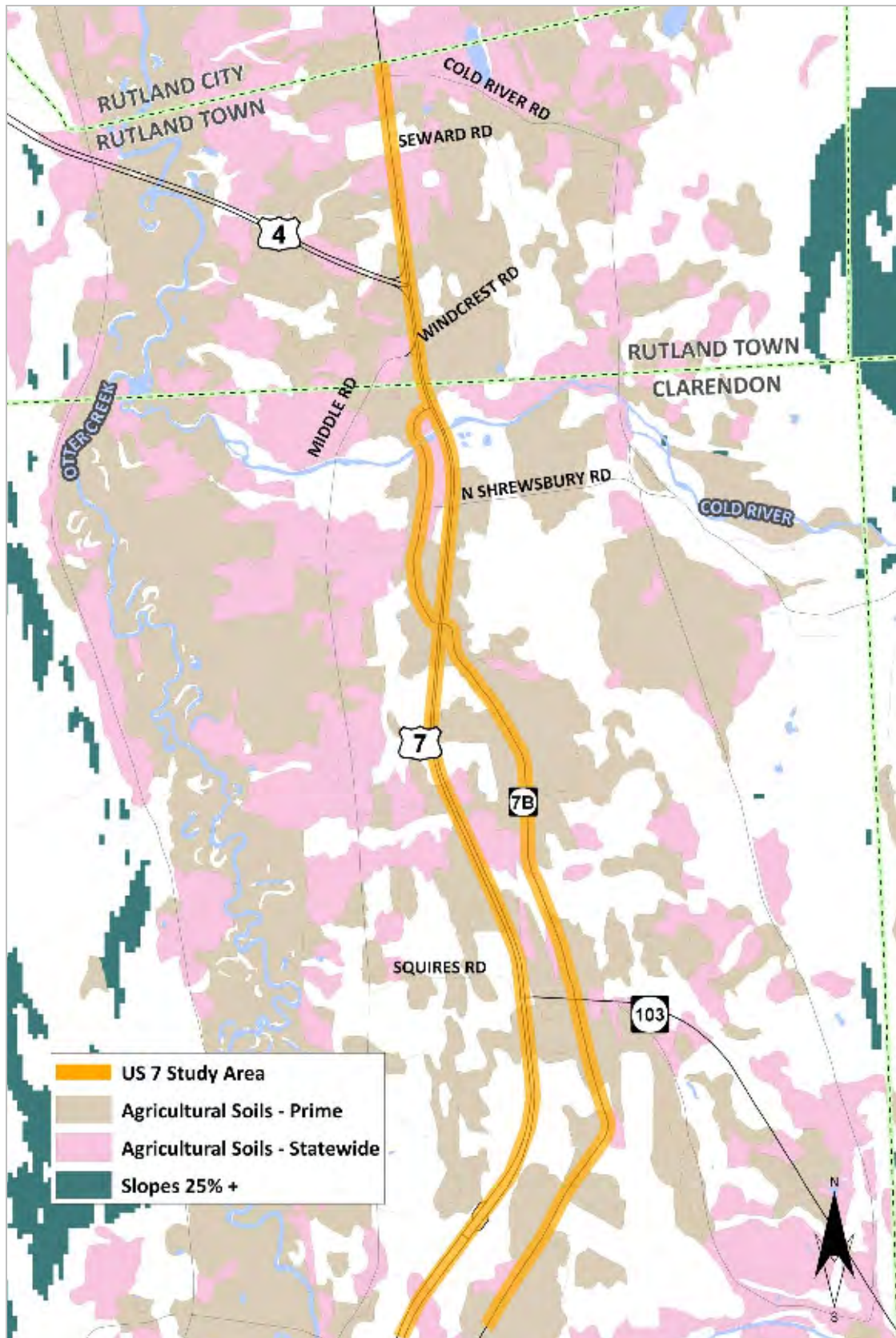


Figure 4: Environmental Features – Deer Wintering Areas, Wetlands, and Public Land

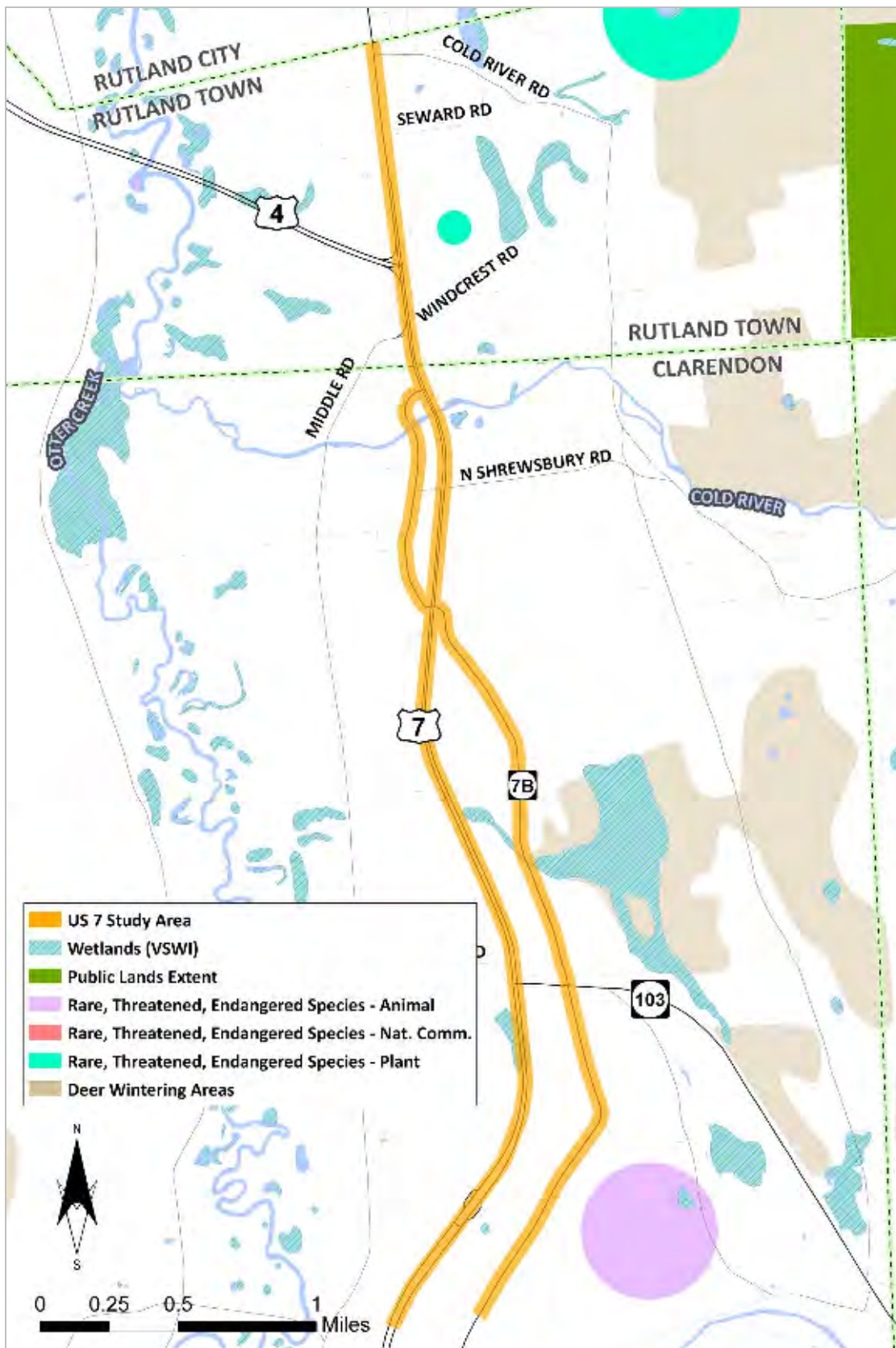
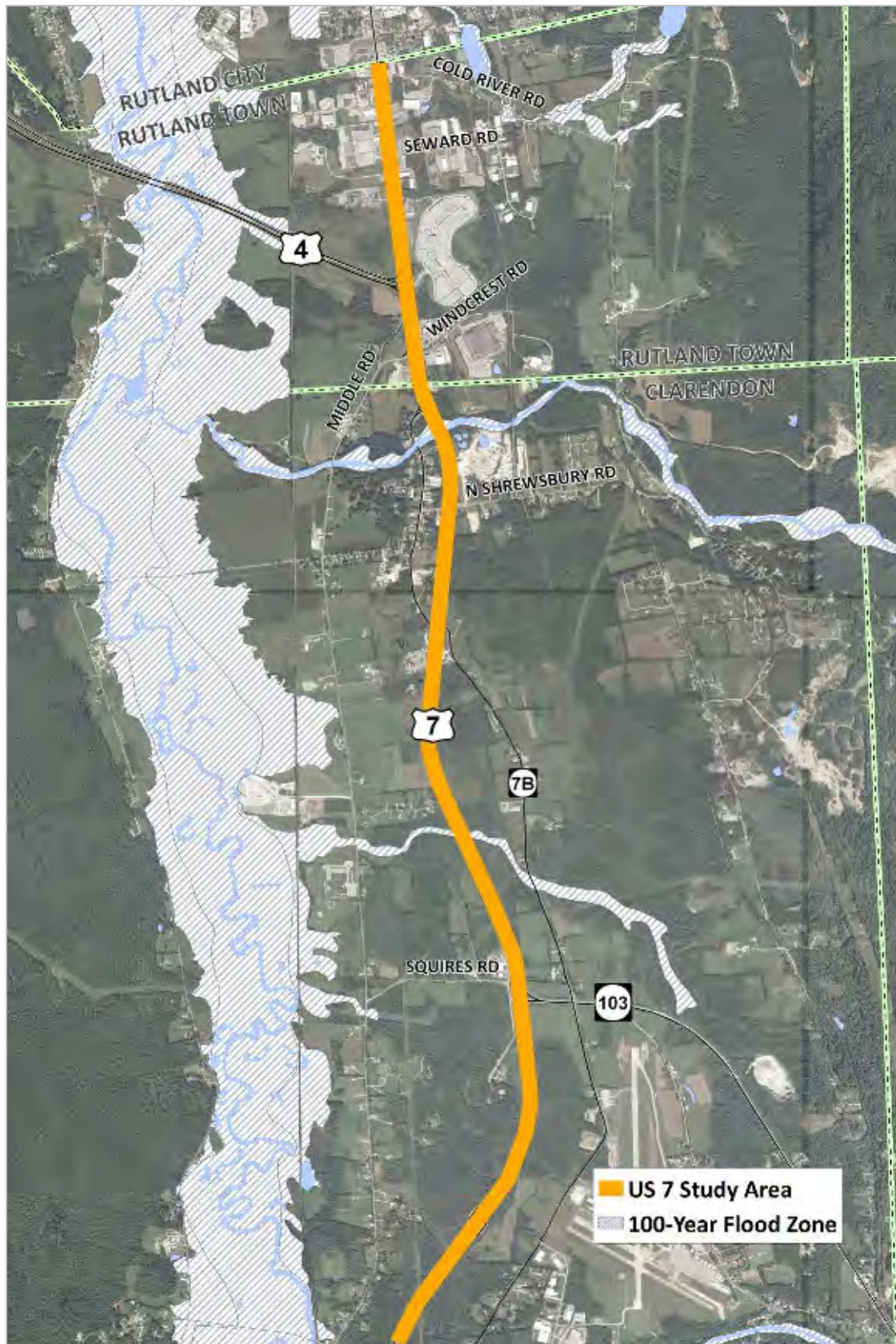


Figure 5: Floodplain Zone



2.1.3 Existing Corridor Management Policies and Practices

This section documents the current state of corridor management through the identification of management jurisdictions and a review of relevant plans, policies and regulations. The analysis is based in part on an assessment methodology recently developed by the Center for Urban Transportation Research, which includes the use of checklists and matrices to evaluate the current status of inter-jurisdictional coordination, public policies, and regulatory standards that apply within a particular corridor.¹

2.1.3.1 Inter-Jurisdictional Coordination

Table 1: Current Practice Matrix: Administrative Jurisdiction

● = Yes ● = Partial ○ = No

Jurisdictions	Notes	
Planning	●	Shared: VTrans, RRPC, Rutland Town, Clarendon
Development Regulation	●	Shared: State (Act 250), RRPC (Act 250), Rutland Town, Clarendon (municipal bylaws, ordinances, Act 250)
Access Approval	●	Shared: VTrans for US 7, Rutland Town, Clarendon for intersecting local roads
Coordination Requirements/Agreements/Protocols	●	<ul style="list-style-type: none"> No intergovernmental memoranda of agreement Internal application referrals at local level; no application referrals to state for review, comment New (2007) statutory requirement to refer applications to VTrans for variance requests on state roads Rutland Town, Clarendon member of RRPC planning, project development processes (Board, Transportation Council) RRPC supplies technical assistance (data analyses, studies, draft ordinances, development review) to members.

It is very common for more than one governmental entity or agency to share responsibilities for corridor management. For the US 7 corridor, which extends beyond municipal, regional and state boundaries, this is especially true. The following entities have jurisdiction over various, interrelated aspects of land and transportation planning and development along the US 7 corridor in Rutland Town and Clarendon:

- **Vermont Agency of Transportation (VTrans)** – for agency transportation planning, state highway access permits, and highway infrastructure maintenance and improvements. Because US 7 is a limited access (Category 2) highway along much of its length, direct access is strictly regulated under the agency’s adopted access management guidelines. VTrans, through interagency review, may participate in Act 250 proceedings and also may have standing as an “interested person” to participate in local development review hearings.
- **District #1 Environmental Commission (DEC)** – for Act 250 development review, including consideration of a project’s potential traffic and transportation infrastructure impacts and its conformance with municipal and regional plans.
- **Rutland Regional Planning Commission (RPC)** – for regional comprehensive and transportation planning programs, including the adoption of a Regional Plan that includes land use and transportation elements and also regional transportation development plans, studies and improvement programs that are prepared with participation and oversight from the Commission’s Transportation Council. The Regional Planning Commission also reviews and approves local plans, provides a variety of technical assistance to its member municipalities, and has standing in Act 250 proceedings.

¹ Williams, K. M. and Hopes, C. 2007. “Guide for Analysis of Corridor Management Policies and Practices” Center for Urban Transportation Research, Tampa, FL (www.cutr.usf.edu).



- **Towns of Rutland and Clarendon** – for comprehensive municipal planning, land use regulation, and town highway ordinances and access permits, including the adoption of municipal plans that include land use and transportation elements and implementing bylaws, regulations and programs. Local regulatory authority is shared between zoning administrators, planning commissions and/or zoning boards of adjustment, highway commissioners, and select boards. Both towns are members of the Regional Planning Commission, are represented on the Commission's Transportation Council, and have standing in Act 250 proceedings.

Each of these entities has different goals, objectives, and responsibilities for corridor management. While the State retains immediate control along and within the highway right-of-way, it has no authority outside of Act 250 to plan for and regulate patterns and densities of development that may affect highway function, safety, and efficiency.¹ This largely falls to the towns, under their municipal plans and land use regulations, and through local participation in Act 250 proceedings. The towns, however, have no authority to approve access to state highways, including US Route 7, or to independently require improvements within state rights-of-way.

The Rutland Regional Planning Commission serves largely in an advisory capacity to both its member municipalities and the state and as a technical resource to its members. It does, however, have a significant regional land use and transportation planning function and a role in Act 250 review – particularly for projects that may have “substantial regional impact” – defined by the Rutland Regional Planning Commission as “an impact that has considerable and ongoing impact on two or more municipalities.”²

Efficient and effective corridor management among multiple jurisdictions requires a level of coordination that often is lacking, to the detriment of the highway and the communities and development it serves. Avenues exist for voluntary cooperation, including limited opportunities to participate in planning and project review at all levels, but currently there are few formal mechanisms in place that mandate inter-jurisdictional cooperation – particularly between VTrans and the towns, who shoulder most regulatory responsibilities within the corridor. Their respective authorities meet, and divide, along the right-of-way (or property) line. Current state statutes governing both require only that:

- As a condition of highway access approval by the state (or towns for local roads), compliance with all local ordinances and regulations relating to highways and land use is required (19 VSA §1111).
- In no case shall “reasonable” access to a property be denied, except as necessary to be consistent with state planning goals, and to be compatible with state agency, regional, or regionally approved municipal plans (19 VSA §1111).
- Applications to the state for a driveway or access permit must include a proposed highway access plan for the entire tract of land, and the agency can condition its approval accordingly, to include limits on accesses, the construction of frontage roads and lanes, traffic control improvements, etc.
- No deed for the subdivision of land abutting a state highway can be recorded by a town unless all subdivided lots meet state access requirements, including but not limited to the requirement to install a frontage road (19 VSA §1111).³
- The town must provide notices of public hearing to the agency for any requests for variances from setback requirements along state highways (24 V.S.A. §4464 as amended in 2007).⁴



The need for better coordination between state and local government permitting processes that regulate development along state highways is a statewide concern. Legislation has been considered to improve notification and coordination requirements under both Title 19 (for highway access permits) and Title 24 (under local development review) but, until such legislation is enacted, better coordination will depend largely on voluntary cooperation between the municipalities, the Regional Planning Commission, and the State.

Internal coordination is also important at the local level – between those local officials (planning commissions, zoning and development review boards) who regulate land subdivision and development, and those who manage highway infrastructure and access. No formal internal review process is specified under Clarendon’s regulations. Under Rutland’s subdivision regulations the Planning Commission must determine, through subdivider certification, that all proposed streets and intersections comply with town highway policies and ordinances. There are also provisions for the Planning Commission to consult with the Select Board and Road Commissioner in its review of subdivisions.

¹ Of note, under Act 250, a project cannot be denied, rather only conditioned, with respect to its potential impacts on traffic congestion and highway safety. It can be denied based on its impacts to transportation infrastructure.

² The regional plan currently does not reference regional infrastructure capacity, and does not use more detailed level of service or development thresholds, for determining substantial regional impact.

³ Many municipal clerks, who are responsible for recording deed and subdivision plats, are not aware of or have difficulty administering this requirement – as a result it is often ignored, as noted in a July 9, 2007 letter from the agency to municipal clerks.

⁴ A previous statutory requirement for municipalities to refer applications for development within 500 feet of an interchange ramp to the agency for review was repealed in 2004.



2.1.3.2 Plan Policies and Recommendations

The status of current regional and municipal plans, including related plan goals, policies and objectives that address development and transportation infrastructure along the US 7 corridor are summarized in Table 2 and Table 3, and are described in more detail below.

Table 2: Current Practice Matrix: Study Summary

● = Yes ● = Partial ○ = No

Planning		Notes
Plans	●	<ul style="list-style-type: none"> VTrans: state agency plans Vermont Western Corridor Transportation Management Plan (in progress) --VTrans, CCMPO, RPCs along western corridor Rutland RPC: Regional & Transportation Plan (2008) Rutland Town Plan (2007) – RRPC approved Clarendon Town Plan (2007) – not RRPC approved (as of 10/08)
Supporting Data/Analyses	●	<ul style="list-style-type: none"> VTrans: state highway datasets, ratings, route logs, etc. Rutland RPC: demographic (federal census, state), transportation (state data, studies), GIS/mapping, limited land use data Rutland Town: limited local data, mapping Clarendon: limited local data, mapping
Land Use/ Development	●	<ul style="list-style-type: none"> Rutland Regional Plan: future land use (Ch.3); density map Rutland Town Plan: future land use (p.49), 1999 land use map Clarendon Town Plan: future land use (pp.66, 67); map Municipal plans both note potential land use conflicts along shared border in vicinity of US 7 with regard to allowed industrial development
Transportation	●	<ul style="list-style-type: none"> VTrans: state agency plans (policy, modal) Rutland RPC: regional transportation plan (Chapters 21–28) Rutland Town Plan: transportation element Clarendon Town Plan: built environment (pp. 26–31), energy (p.45)
US 7 Corridor	●	<ul style="list-style-type: none"> VTrans: NHS/US Route, state truck network, arterial, limited access Rutland RPC: NHS, state truck route, major arterial, principal western N-S route; ref US 7/US4 upgrade study (Rutland City, Town); major concerns – identified for further corridor planning Rutland Town: Arterial; deficiencies (intersection, bridge); affecting local patterns of development, congestion and air quality Clarendon: Major arterial, limited access; deficiencies (US 7/RT103 intersection); rerouting has maintained historic settlement pattern
Corridor Management	●	<ul style="list-style-type: none"> VTrans: Corridor management planning manual, funding support Rutland RPC: corridor planning recommendations (Ch. 27) – “US 7/VT Railway/State Airport” identified as a primary corridor No regional corridor management plan – funded, under development No corridor access management plan Rutland Town: no specific corridor management policies Clarendon: no specific corridor management policies



Table 3: Current Practice Matrix: Study Policies and Recommendation

Policy Area	Rutland Regional Plan	Rutland Town Plan	Clarendon Town Plan
US 7 Corridor	<ul style="list-style-type: none"> US 7 major arterial –most heavily traveled route in region, especially north of US4. Conditions on US4 & US7 have most potential impact on traffic flow and safety and are of major concern. Traffic models predict worsening situation. Corridor encompasses Vermont Railway line, intersections of freight and passenger rail lines, major rail transfer site (Rutland Rail Yard), Rutland State Airport, fixed public transportation routes. 	<ul style="list-style-type: none"> US 7 important arterial for through and local traffic. Protect traffic-carrying function – important to limit congestion, declines in performance could have serious economic, social impacts. Transportation-related air quality impacts most problematic in US 4 and US 7 corridors where vehicles delays greatest. 	<ul style="list-style-type: none"> Arterial, major north-south highway of regional significance, limited access; highest traffic volumes, primary function to provide for through movement. North Clarendon has developed as “roadside center.” Recent rerouting of US 7 insulates villages of Clarendon from traffic, modern development. Hazardous intersection at US7/RT103. Rutland State Airport – master plan, access VT Railway line
Land Use/ Development	<ul style="list-style-type: none"> Transportation system greatly affects type, intensity, and location of development. Development affects operation, effectiveness of system. Provide communities with land use planning tools to concentrate growth in centers and develop settlement patterns that reduce demand on the transportation network. Towns should implement regulations that address this. Review land uses, zoning adjacent to transportation projects to address conflicts, opportunities Identify parcels along rail line for rail-related development 	<ul style="list-style-type: none"> Land use, transportation clearly influence each other. Transportation catalyst to development; example – e.g., along US 7 and US 4 entering Rutland. Proposed rail yard relocation – must consider impacts to properties in town, environment. Potential area of conflict– boundary area with Clarendon (industrial land uses) 	<ul style="list-style-type: none"> Transportation cannot be considered in isolation from land use. Concentrate development in villages and clusters near major routes to reduce energy, promote pedestrian travel and public transit. Maintain traditional development pattern of villages, neighborhoods surrounded by rural land Potential area of conflict – boundary area with Rutland Town (industrial land uses) Participate in Act 250
Growth Areas	<p><u>High Density (concentrated development):</u></p> <ul style="list-style-type: none"> Urban Center – Rutland City Business/Industrial Parks (4) Airport High to moderate density areas bordering Rutland City, extending south into Clarendon east of US7 <p><u>Moderate Density (mixed use)</u></p> <ul style="list-style-type: none"> Village – North Clarendon 	<ul style="list-style-type: none"> <u>Industrial/Commercial District</u>– Expand retail, industry in developed areas with good site conditions, sewer and water, access to arterial highways, rail <u>Commercial District</u> – on arterials suitable for commercial clusters, part of regional retail center 	<ul style="list-style-type: none"> <u>Commercial/Industrial District</u> – retail, businesses, light industry; includes industrial parks <u>Residential-Commercial</u> – retail, business, residential, no industrial



Policy Area	Rutland Regional Plan	Rutland Town Plan	Clarendon Town Plan
Transportation System	<p>US 7:</p> <ul style="list-style-type: none"> ▪ Pursue improvements to, upgraded maintenance of major travel and freight routes. ▪ Improve highway surface and safety, at grade crossings. ▪ Improve management of existing facilities– access management, shoulder improvements, signal synchronization beyond existing network. ▪ Traffic calming, bicycle, pedestrian facilities in densely developed areas. ▪ Improve rail system for freight movement and to expand public transportation services to reduce vehicle travel, benefit commercial activities in corridor. ▪ Support projects, improvements to rail facilities in region – particularly Western Gateway Pilot Project –with emphasis on re-location of Rutland Rail Yard. 	<p>US 7:</p> <ul style="list-style-type: none"> ▪ Construction of bypass not necessary given current, future traffic volumes; would not solve congestion problems on US 7. ▪ Improvements to existing Routes 4 and 7 should be further developed and completed. <p>General:</p> <ul style="list-style-type: none"> ▪ Develop within three years a transportation action plan/capital program that refines and advances the transportation, land use, and economic development aims of municipal plan. ▪ Participate in Rutland Transportation Council. 	<p>US 7:</p> <ul style="list-style-type: none"> ▪ Complete scheduled improvements (FY04) – US7/VT103/TH19 –monitor signalization, development around intersection. <p>General:</p> <ul style="list-style-type: none"> ▪ Maintain safe, efficient transportation system that serves all Clarendon residents. ▪ Repair paved highways. ▪ Support construction of/widen road shoulders (recreational lanes) for all projects on major high-ways. ▪ Establish bike/ pedestrian paths. ▪ Obtain transit service.
Access Management	<ul style="list-style-type: none"> ▪ Access management policies, standards and good land use planning promote compact development to achieve two fundamental goals– sound land development and enhanced mobility and safety. ▪ Implement access management programs in cooperation with communities, AOT, land-owners, developers and local officials. ▪ Consider adjacent land uses; identify good access management practices along major travel and freight routes. ▪ Prepare corridor management studies. ▪ While local control of access to state roads is limited, land use regulations can include supporting language. 	<ul style="list-style-type: none"> ▪ No specific policies, recommendations regarding access management. 	<ul style="list-style-type: none"> ▪ No specific policies, recommendations regarding access management.

2.1.3.3 Rutland Regional Plan

The Rutland Regional Plan, adopted by the Rutland Regional Commission in April 2008, serves as the policy basis for managing growth, development, and supporting infrastructure within the larger Rutland region. Regional plan policies and recommendations guide Commission programs – including technical assistance to its member municipalities – and also carry weight in state planning, project development, and permitting processes, including the identification and scheduling of transportation projects and the review of development under Act 250. The following sections summarize recommendations from the



current regional plan, which also includes the region's transportation plan (Chapters 21 – 28) regarding land use, development, and needed transportation improvements along the US 7 Corridor.

Corridor Planning

Chapter 27 of the regional plan specifically addresses and supports corridor planning, noting that: "By definition, a corridor encompasses several interacting transportation facilities serving many travel modes and functions, including statewide connectors, intraregional corridors, regional and local roadways, rail lines, and pedestrian and bicycle routes, airports, transit routes and freight facilities."

Corridor planning is intended to guide the "definition, prioritization and design attributes of future transportation projects" by establishing the function and vision for the corridor and, within this context, the mix of transportation improvements that will most effectively move people and goods. As stated in the plan, transportation improvements must be balanced with available funding and also neighborhood and community concerns.

For all corridors identified in the regional plan, adequately maintaining existing transportation facilities, including the elimination of existing design deficiencies, is identified as the region's highest priority.

The "US Route 7/VT Railway/Rutland State Airport Corridor" is identified as one of the primary corridors serving the region, and is generally described as follows (p.196):

As part of the designated National Highway System traversing Vermont from the southern to northern borders, US 7 is centrally located in the Region, passing through villages in the towns of Wallingford, Rutland, Pittsford and Brandon. It also functions as a rural principal arterial, facilitating longer distance trips as well as access to adjacent land uses in the most densely developed areas. The entire corridor encompasses the Vermont Railway line, the intersection of freight and passenger rail lines from all directions, the site for major rail transfers (Rutland Rail yard), Rutland State Airport, and public transportation fixed routes.

Key corridor improvements identified in this section of the plan include the following:

- Highway surface and safety improvements, including at-grade crossings,
- Improved management of existing facilities to include access management practices.
- Shoulder improvements, consistent shoulder and lane widths,
- Signal synchronization beyond the existing network in Rutland City,
- Traffic calming and bicycle and pedestrian facilities in densely developed areas,
- Rail system expansion and improvements for freight movement, and
- Expanded public transportation services to potentially reduce vehicle travel on US 7, which would also benefit commercial activities in the corridor.

Land Use and Development

The connections between emerging patterns of development and needed transportation improvements are addressed elsewhere in the regional plan. For example with regard to prevailing land use trends, it is observed that:

- US Routes 7 and 4, once mainly "inter-town transportation routes," are experiencing auto-oriented, commercial linear development, that is becoming larger – e.g., in the form of large-scale retail stores. This type of development affects the way in which people shop and travel,

Regional Definition of "Corridor Planning:" A process which examines the existing transportation systems within the corridor and identifies improvements to meet long-term needs. It includes reviewing existing and projected travel patterns and social, environmental, and economic issues, infrastructure improvements in combination with wise land use and systems-management actions. Corridor plans are the nexus between the long range plan and project development (Rutland Regional Plan, p.195).



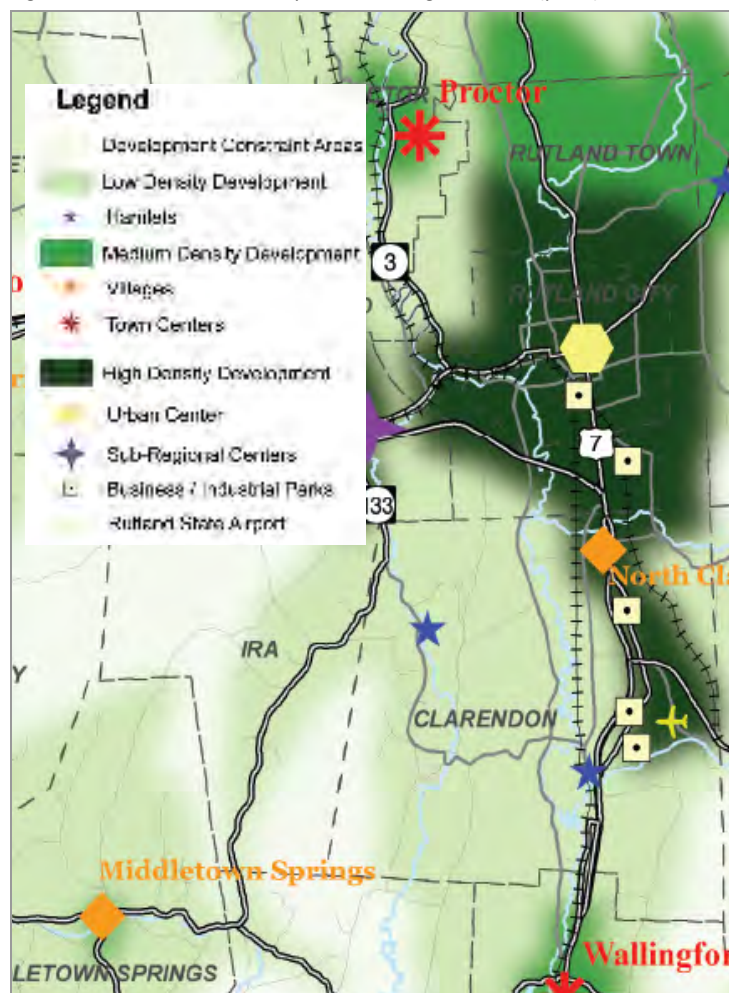
generates significant traffic flows, requires large parking areas, and has greater visual impacts than its predecessors. Stormwater runoff is also cited as a concern.

- Residential development is spreading outward, with the majority of new homes built in rural areas outside of traditional urban and village centers and rural hamlets.

Underlying regional land use issues is a concern that auto-oriented commercial linear development and low density residential development are eroding the character of the region. As a result, “Maintaining and enhancing the Region’s historic development pattern of compact villages and urban areas surrounded by a working landscape and protected natural resources is a primary goal of the *Rutland Regional Plan*” (p.16).

The proposed regional land use plan (p. 32) supports higher density mixed use development along segments of the US 7 corridor extending outward from Rutland City, the region’s urban center, and southward into Rutland Town and Clarendon. This area includes four existing business/industrial parks, the village of North Clarendon, and the Rutland State Airport. Low density residential development is anticipated south of this area, from the hamlet of Clarendon into Wallingford (Figure 6).¹

Figure 6: Future Land Use Map, Rutland Regional Plan (p. 32)



¹ The Rutland Regional Plan does not identify or designate bounded growth centers, but rather depicts intentionally blended areas “to underscore the regional nature of the map and to promote growth and development that is within and contiguous to existing villages, hamlets, town centers, and sub-regional centers” (p.28). Rutland City has received downtown designation from the state. There currently are no other state-designated growth, downtown, village or neighborhood centers along the US 7 in Rutland Town and Clarendon.



The plan's land use goals promote intensive land uses and development within in existing and future growth centers appropriate to the scale of the centers and direct the Commission to work with communities (p. 27) to:

- Develop plans and regulations that promote compact development, mixed use villages and town centers, and productive working landscapes, and to
- Successfully tie commercial and industrial uses into existing land use patterns.

Transportation impacts all aspects of the Rutland Region, from land use and economic development to aesthetics and quality of life. It is a key feature of the landscape and is also influenced by that landscape. Decisions regarding development must consider effects on both transportation infrastructure and the town (Rutland Regional Plan, p 165.

Transportation

The transportation overview includes an observation that traditional transportation planning sought to protect and enhance the capacity of the transportation network to meet growing traffic demands and to support economic development. However the types, intensity, and location of growth and development also, in turn, affect the capacity and function of the transportation network: "The systems must provide mobility through the Region while at the same time provide access to local destinations. Balancing these seemingly conflicting roles is the focus of the *Regional Transportation Plan*" (p.165).

Recognizing the significant financial, social, and environmental costs associated with system expansion, regional transportation planning has shifted its focus to a more sustainable approach – making the existing system safer and more efficient and integrating land use concerns.

The connections between land use and transportation are discussed in more detail in the transportation chapters of the plan.

Access Management

Access management is described, in association with other multi-modal considerations (Chapter 28), as a group of strategies or tools that integrate transportation planning with land use to better manage transportation infrastructure (p. 200):

Sound access management policies and standards, and concurrent good land use planning promoting compact development that supports the local character and natural environment provide opportunities to achieve two fundamental goals – sound land use development and enhanced mobility and safety.

It is also noted that, while local control of access to state highways (such as US 7) is limited, land use regulations can include supporting language. The plan recommends the following related actions (pp. 205, 206):

- Provide communities with land use planning tools and assistance to concentrate growth in centers and development settlement patterns that reduce the demand on the transportation network.
- Implement access management programs in cooperation with communities, AOT, landowners, developers and local officials.
- Consider adjacent land uses and identify good access management practices along major travel and freight routes.
- Prepare corridor management studies to comprehensively address land use and transportation.

The Rutland Regional Plan's goals, policies, and recommendations clearly support corridor management planning efforts currently underway for US 7. The corridor plan will provide more detailed data and information that can be used to effect plan policies and recommendations and support regional and local



efforts to manage development and infrastructure investments along the US 7 corridor in relation to the highways existing and planned capacity.

2.1.3.4 Rutland and Clarendon Town Plans

Rutland Town and Clarendon both have municipal plans in effect. The Rutland Town Plan, adopted in 2009, has been approved by the Rutland Regional Planning Commission, and therefore is considered to be consistent with state planning goals – including state land use and transportation planning goals – and to generally conform to the regional plan and other approved municipal plans in the region. The Clarendon Town Plan, also adopted in 2007, has not yet received regional approval (as of October 2008).

These municipal plans serve as the basis for the adoption and update of municipal land use regulations, including zoning and subdivision regulations, that control the pattern, type, and density of development along the US 7 corridor and for other municipal implementation programs, such as access management and corridor management plans, official maps, and capital budgets and programs that also can affect development and highway infrastructure capacity and improvements. Municipal plans are also considered under state Act 250 review (criterion 10) for larger residential and commercial developments proposed along the corridor.

Key municipal plan findings include the following:

- Both town plans identify US 7 as a major north/south arterial serving the Rutland region and beyond and that its primary function is to carry through traffic.
- The Rutland Town Plan notes, however, that the highway serves local as well as through traffic, and that protecting the highway's traffic-carrying function is important to prevent highway congestion and system deterioration and thereby avoid serious economic and social impacts. For example, as reported in the plan, transportation-related air pollution from traffic congestion is worst in the US 7 and US 4 corridors where vehicle delays are greatest.
- Both town plans identify scheduled infrastructure improvements along the US 7 corridor, including intersection, rail crossing and bridge improvements. The Rutland Town Plan specifically notes that the town has consistently opposed the construction of bypass, as unnecessary, given anticipated traffic volumes, and that any proposed relocation of the Rutland Rail Yard within the corridor must consider associated impacts on town property owners and the local environment.
- The Rutland plan also recommends that the town develop a transportation action/capital program that "refines and advances the transportation, land use and economic development aims of the municipal plan" which would apply to local transportation improvements.
- Both plans address the fact that land use and transportation clearly influence each other – that transportation is a catalyst to development – and that transportation systems cannot be considered in isolation from land use. Neither town plan, however, specifically identifies the need for better corridor or access management along highway corridors.
- As described in the Rutland Town Plan, highway access has promoted emerging development patterns along US 7 and US 4 entering Rutland. The Clarendon Town Plan includes the observation that historically North Clarendon developed as a "roadside center" served by US 7, but recent rerouting and access limitations have insulated the villages of Clarendon from more modern traffic and development pressures.
- Though neither town plan specifically addresses the impacts of sprawl or commercial linear development, the Clarendon Town Plan recommended that future development be concentrated in villages and clusters near major routes to reduce energy, promote pedestrian travel and public transit, and to maintain traditional development patterns of villages and neighborhoods surrounded by rural land.



- Neither town plan identifies specific “growth centers” in support of nodal development along the highway corridor – both include broader land use district designations that allow for higher densities of industrial, commercial, and residential development along segments of the corridor, especially in areas currently served by water and sewer infrastructure.
- Rutland Town Plan district designations include an “Industrial/Commercial District” intended to allow for industrial and retail expansion in developed areas with sewer and water and access to arterial highways and a “Commercial District” on arterials that are suitable for “commercial clusters” developed as part of the regional retail center.
- Clarendon Town Plan district designations include a “Commercial/Industrial District” that allows for retail, businesses and light industry, including existing industrial parks; and a “Residential/Commercial District” that allows for a mix of retail, business and residential development, but no industrial development.
- These land use districts appear to be more broadly defined, but generally consistent, with regional plan land use recommendations. Both town plans also note that there may be potential conflicts with regard to allowed types of development (commercial, industrial) along the corridor in the vicinity of their shared town boundary.
- Both town plans also address the multi-modal aspects of the US 7 corridor – including the fact that it serves fixed public transit routes, shares connections with the Vermont Railway line and related rail facilities, and also provides access to the Rutland State Airport in Clarendon. Both town plans support establishing bicycle and pedestrian paths; Clarendon’s plan recommends that shoulder widening for recreational lanes be incorporated in all projects on major highways.

Both town plans provide the basic policy framework for developing corridor management plans and regulations that meet local goals and objectives within a larger regional context. Some corridor management techniques, however – such as a corridor or access management overlay districts which are not identified in local plan recommendations – would require plan amendments to enact.¹

2.1.3.5 Development Regulations

The regulation of development along the US 7 corridor is largely the responsibility of the Towns of Rutland and Clarendon under their adopted land use regulations and highway ordinances. As noted earlier, VTrans retains jurisdiction over access to the highway right-of-way, which extends to the subdivision of adjacent parcels; and the towns, Regional Planning Commission, and agency also have party status in Act 250 proceedings for the review of larger developments along the corridor.

The Town of Rutland has subdivision regulations, initially adopted in 1980, which regulate the pattern of land subdivision within its borders, and supporting infrastructure – including highway access and infrastructure. The town does not have an adopted zoning bylaw (apart from a separately adopted flood hazard area bylaw). However, proposed zoning regulations (2008), currently in the hearing process, were reviewed for this analysis. The Town of Clarendon has zoning regulations, initially adopted in 1979 and amended through 2003, which regulate the type, density, and location of development in town but no subdivision regulations. These longstanding regulations have been updated and amended over the years but predate new state requirements for local bylaws enacted in 2004. As a result, they include references to previous statutes that have changed or may no longer be in effect.

¹ Changes to the Vermont Planning and Development Act (24 V.S.A. Chapter 117) enacted in 2004 now specifically require that local bylaws and other recommended implementation measures conform to the municipal – i.e., that they make progress toward attaining (or not interfere with) plan goals and policies, that they provide for proposed future densities and intensities of development identified in the municipal plan, and that they carry out any specific proposals for community facilities or other proposed actions contained in the plan.



A summary of local regulatory practices, existing and proposed, that are relevant to corridor management is presented in Table 4. Key findings include the following:

- None of the bylaws reviewed reference the need for state highway permits to access state highways, or related VTrans “Access Management Program Guidelines” (2005) that regulate land subdivision and highway access along state highways.
- Rutland Town’s subdivision regulations specify that all existing streets, highways, easements, sidewalks, and alleys be shown on subdivision plats and that the application include typical cross sections and bridge and culvert information. Before the Planning Commission can approve a subdivision, the applicant must also certify that all proposed streets meet town highway policies and ordinances. Clarendon’s regulations do not include specific application requirements.

Table 4: Current Practice Matrix: Development Regulations

● = Yes ● = Partial ○ = No

		Notes
Regulations	●	<ul style="list-style-type: none"> ▪ State: Act 250 (Criteria 5, 9K); highway access permits ▪ Rutland Town: subdivision (1980); no zoning (proposed) ▪ Clarendon: zoning (2003), no subdivision (recommended)
Application Requirements	●	<ul style="list-style-type: none"> ▪ VTrans/Act 250: site plans, traffic data, studies ▪ Rutland Town: Subdivision plat (streets, sidewalks, etc.), cross sections, bridge, culverts; zoning (proposed) – site plans (ROWS, etc.) traffic study for conditional use review ▪ Clarendon: No specific application requirements ▪ No specific coordination, application referral requirements
Zoning Districts	●	<ul style="list-style-type: none"> ▪ Clarendon: Four zoning districts along corridor, ranging from higher to lower densities of allowed development, including Commercial/Industrial, Residential Commercial, Ag/Residential and Conservation Districts (see map) ▪ Rutland Town: currently none – proposed include higher density commercial and commercial/industrial districts ▪ Potential industrial development conflicts along town border ▪ No access management, US7 overlay districts
District Standards	●	<ul style="list-style-type: none"> ▪ Clarendon: minimum lot area, frontage, yard requirements ▪ Rutland Town: none – proposing minimum lot area, frontage, setback requirements, vary by district, infrastructure ▪ No US7-specific access, frontage requirements (by district)
Frontage/ Access Standards	●	<ul style="list-style-type: none"> ▪ VTrans: access management guidelines (2005) ▪ Clarendon: statutory minimum lot width (101) and access to non-frontage lots (102); BOA may vary frontage for “unified residential development” (119); site distance requirement (126); gas stations – limit two accesses, max 40’ wide (135); minimum driveway width (20 ft) (140) ▪ Rutland Town – limited under subdivision, no zoning – as proposed statutory provisions, basic access considerations under site plan ▪ No municipal US 7-specific access, frontage requirements ▪ No references to state, local highway permit requirements
Site Plan Review	●	<ul style="list-style-type: none"> ▪ Clarendon: statutory site plan criteria (vehicular access, circulation); no specific access management standards ▪ Rutland Town: no zoning, site plan review regulations– as proposed to include access, site circulation, limited access management criteria
Conditional Use Review	●	<ul style="list-style-type: none"> ▪ References former statutory criteria (§4407), e.g., traffic on roads, no specific infrastructure, traffic standards ▪ Rutland Town: none; as proposed references traffic on roads and highways (statutory), no specific infrastructure standards
Planned Unit Development	○	<ul style="list-style-type: none"> ▪ Clarendon: Referenced (225), but no standards ▪ Rutland Town – none; as proposed, to protect natural and scenic features to include clustering, density bonus provisions



● = Yes ● = Partial ○ = No

Notes	
Subdivision Standards	<ul style="list-style-type: none"> ● Clarendon: no subdivision regulations (plan recommendation) ● Rutland Town: major subdivision if new road; connectivity, street and driveway standards, emergency vehicle access; ref town highway standards, highway ordinance (governs), basic access provisions ● No municipal level of service (LOS) thresholds, requirements
Required Improvements	<ul style="list-style-type: none"> ● State: upgrades as condition of approval ● Clarendon: none ● Rutland Town: installation, performance bonding

- There are no application referral requirements under local regulations that specify review by VTTrans for development along US 7 or other state highways prior to the issuance of a local permit – though Clarendon’s zoning regulations incorporate by reference a former statutory requirement (no longer in effect) to forward applications within 500 feet of an interchange/limited access ramp to the state for review.
- Rutland Town’s subdivision regulations include very specific street, intersection and driveway standards – including street extension and connectivity standards – but dead-end roads are also allowed. Minor subdivisions (up to 10 lots) must have access to public roads – but there are no provisions for shared access, which could result in each lot being served by a separate access point. Major subdivision review is required for subdivisions of more than ten lots or that include new roads. There are no provisions limiting or requiring the consolidation of accesses for re-subdivisions of land.
- Rutland Town’s regulations also reference the town’s highway policies and road ordinances, which control under the subdivision regulations. These ordinances were not reviewed for consistency with road standards included in the subdivision regulations. The regulations reference plan policies under the section on access management, though no specific access management policies were identified in plan review.
- The Rutland Town Planning Commission may require the installation of infrastructure or performance bonding prior to the issuance of a subdivision approval to ensure that required transportation improvements are installed as approved.
- Clarendon’s existing and Rutland Town’s proposed zoning bylaws both include statutory provisions that allow the Planning Commission to approve access to lots that lack frontage on a public highway or public waters (by a 20 feet easement or right-of-way) and that specify a minimum lot width of 40 feet for the development of a pre-existing small lot.
- Clarendon currently has few other specific access or road standards in its zoning regulations. There are standards for site clearance at intersections, for gas station access, and a minimum width for driveways (20 feet) that applies to all but single and two-family dwellings. Clarendon’s regulations also incorporate by reference traffic circulation considerations under site plan review (as applied by the Planning Commission) and traffic impact considerations under conditional use review (as applied by the Board of Adjustment) but do not include specific access management or improvement standards for either type of review.
- Rutland Town’s proposed zoning regulations also include statutory site plan and conditional use provisions (to be administered by a single development review board) and, in addition, basic access management “considerations” under site plan review (e.g., number of access points, shared access, sight distances, traffic flow) and the submission of traffic studies under conditional use review if safety issues are a concern. They do not, however, include specific requirements that limit the number of access points (e.g., by parcel or frontage), require shared access or cross-connections, or specify thresholds (e.g., levels of service) that may trigger required infrastructure improvements.



- Clarendon's current zoning regulations and Rutland Town's proposed zoning regulations include zoning district designations that generally conform to land use districts outlined in their municipal plans. These districts, as described above, generally allow for higher densities of industrial, commercial, and residential development along much of the corridor, especially in currently developed areas served by water and sewer. Existing and proposed zoning districts include minimum lot area, lot road frontage (or width), and front setback requirements which control the pattern and density of development immediately adjacent to the corridor. Neither set of regulations include standards specific to the US 7 corridor – e.g., an overlay district, or corridor-specific access management or separation distance criteria.

Local bylaws and highway ordinances should be further reviewed to ensure that standards of review, as applied by the state, local planning commissions, zoning or development review boards, and town highway officials are consistent and consistently applied. It is also recommended that a full range of access management tools be considered in preparing future bylaw updates, to more effectively address development impacts on transportation infrastructure capacity, as recommended in local and regional plans.

2.2 Transportation System Assessment

The surface transportation system consists of the highway network, limited pedestrian and bicycle facilities, transit service, and rail roads. This section describes each mode and summarizes its performance.

2.2.1 Highway System Characteristics and Performance

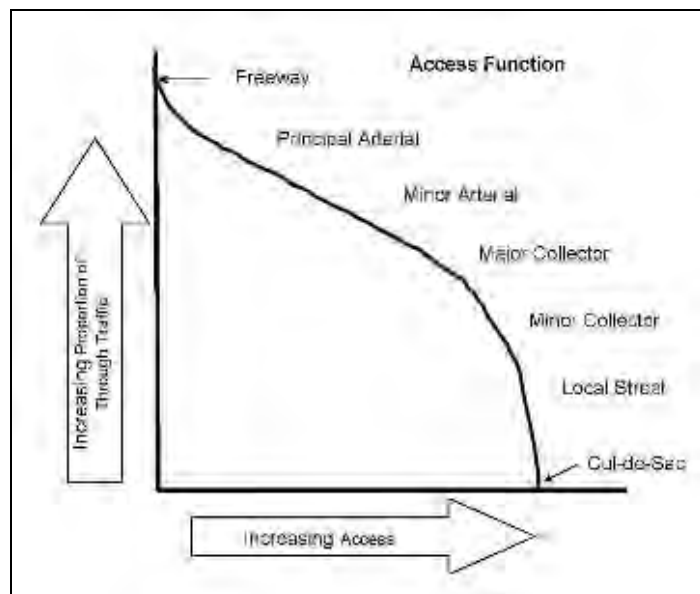
2.2.1.1 Highway System Classifications

As an important north/south route through Vermont, US 7 plays a critical role in both the statewide and regional transportation network. On the local level, US 7 provides business and residential access through the towns of Rutland and Clarendon. Some of the important classifications for US 7 are as follows:

- Functional Classification: Principal Arterial - Rural (Clarendon) and Urban (Rutland Town)
- Roadway Jurisdiction: US Route – under State jurisdiction for maintenance
- Designated part of the National Highway System
- Designated part of the National and State Truck Networks:
 - Vermont State Truck Network – No Permit (up to 72 foot limit) – north of US 7/US 4 intersection
 - National Truck Network – Limited Access (no overall length limit) –south of US 7/US 4 intersection



Figure 7: Conceptual Roadway Functional Hierarchy



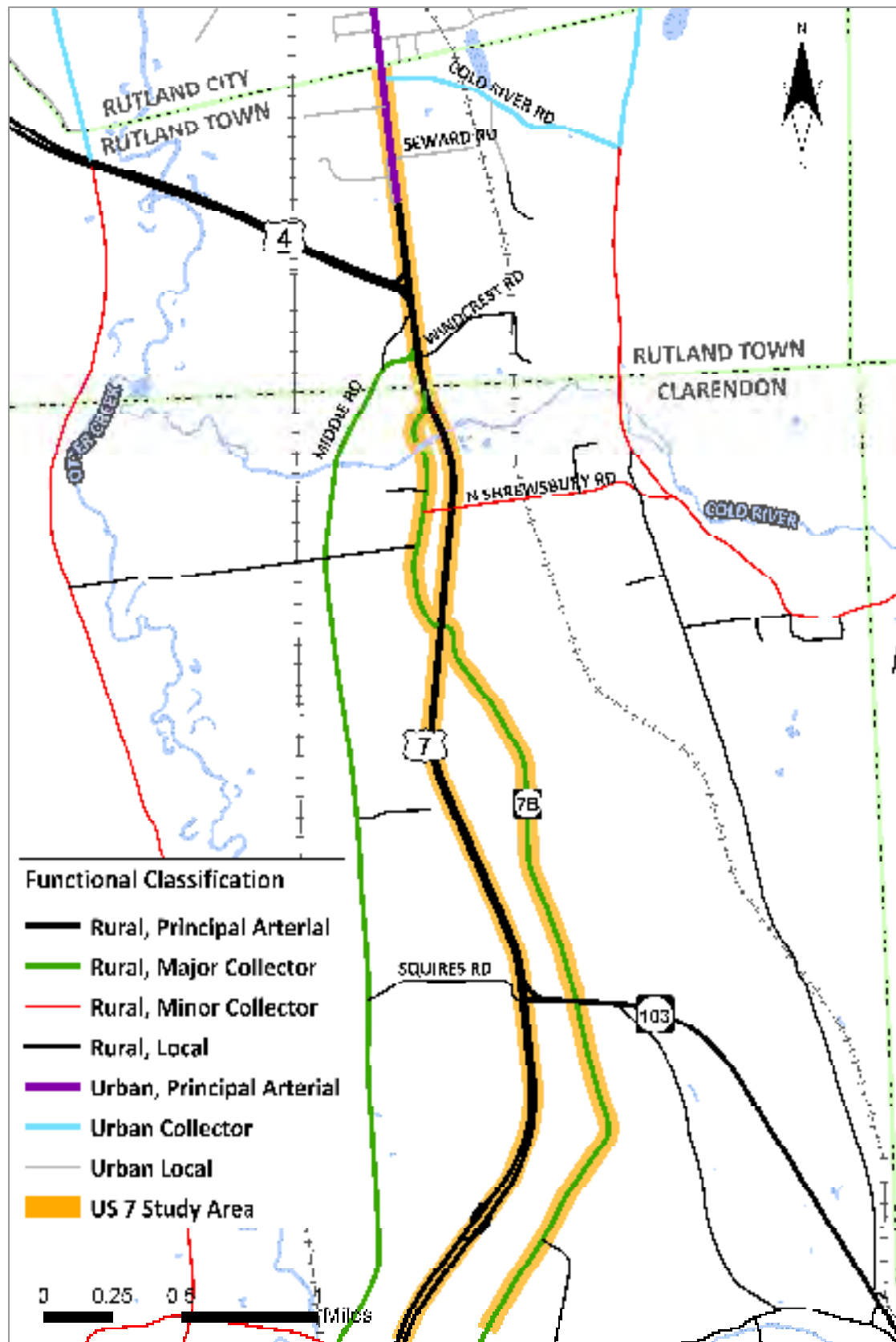
The Federal Highway Administration's roadway functional classification system, depicted in Figure 7, is organized as a hierarchy of facilities, based on the degree to which the roadway serves mobility and access to adjacent land uses. Freeways and interstate highways, at the top of the hierarchy, are devoted exclusively to vehicle mobility with no direct access to adjacent land. Arterials and Collectors provide both mobility and access to adjacent land uses. The local road system is devoted exclusively to providing local access, with limited capacity and relatively slow speeds.

The functional classification of all roads along and adjacent to the study corridor is shown in Figure 8. The US 7 study corridor is designated as an urban principal arterial from the Rutland City line to the Rutland Town

line and a rural principal arterial through the remainder of the study area in Clarendon. The principal arterial designation places a higher priority on mobility than accessibility along the corridor. As a primary north/south route through Vermont, the US 7 corridor serves a regional role to provide adequate mobility for through vehicles. However, the proximity of Rutland City and the cluster of commercial and retail uses along the northern section of the corridor indicate that some level of access has been provided.



Figure 8: Functional Classification



In addition to being classified as a rural principal arterial, US 7 across the state is designated as part of the National Highway System (NHS). The 160,000-mile National Highway System (NHS) was established in 1995 by Congress and consists of roadways judged to be important to the nation's economy, defense, and mobility. It consists of the Interstate system, the Strategic Highway Network (STRAHNET), nationally designated intermodal connectors, and principal arterials that serve both interstate and interregional travel and provide important intermodal connections. Vermont's NHS consists of 320 miles of Interstate Highways (which coincide with the STRAHNET system), 9.5 miles of intermodal connectors, and 374 miles of principal arterials.¹

US 7 is also classified as part of the statewide commercial vehicle network. The commercial vehicle network is established by Title 23 V.S.A. Section 1432, which contains the definition of the network and establishes limits on the lengths of vehicles that can operate on different portions of the highway network. The statewide truck network is divided into the following four categories which identify limits on truck length:

1. National Network (no overall length limit)
2. Truck Network (72 foot length limit)
3. US 4 (permit required)
4. Remaining state highways (68 foot limit without a permit)

On US 7, trucks have no overall length limit south of the intersection with the US 4 West and have a 72-foot length limit north of this intersection.²

2.2.1.2 Traffic Volumes Assessment

Historic Traffic Volume Trends

Since 1998, the Average Annual Daily Traffic (AADT) volume on US 7 just north of the intersection with US 4 West has declined on average by a modest -0.4% annually (Figure 9).³ This is slightly lower than the statewide average for similar roadways which declined -0.2% per year between 2002 and 2007.⁴

¹ Vermont Highway System Policy Plan, VTrans, 2004.

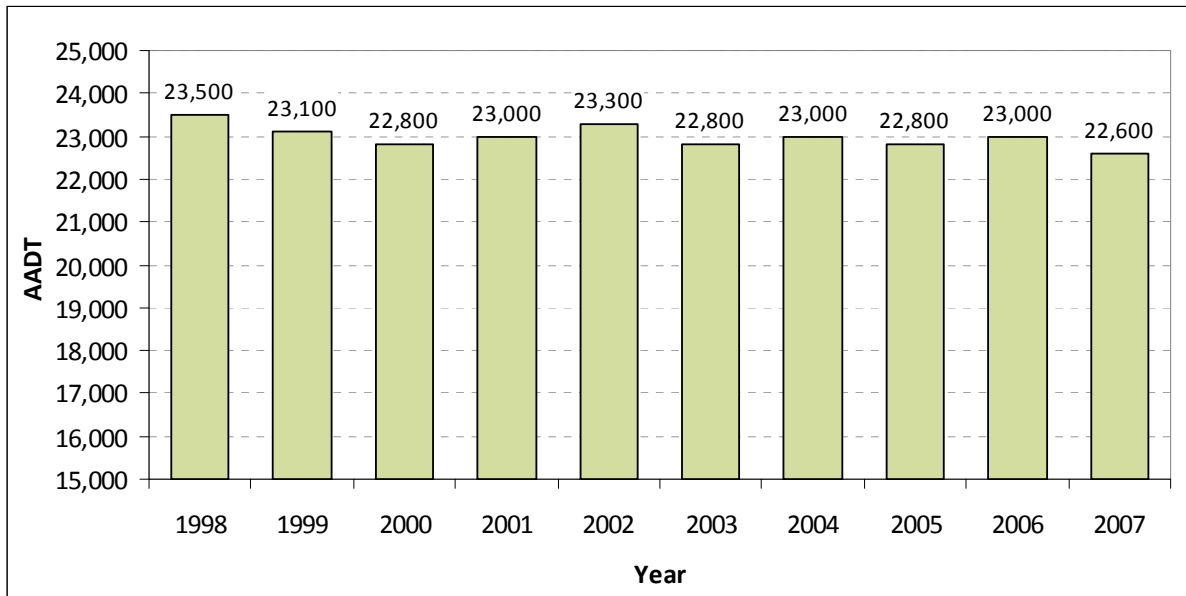
² Ibid.

³ From VTrans CTC P6R022 and S6R022, located on US 7, 0.2 miles North of US 4 West.

⁴ VTrans, 2007 Continuous Traffic Counter Grouping Study and Regression Analysis Report ("The Red Book"), Short Term Growth Factors for Urban Continuous Traffic Counters.

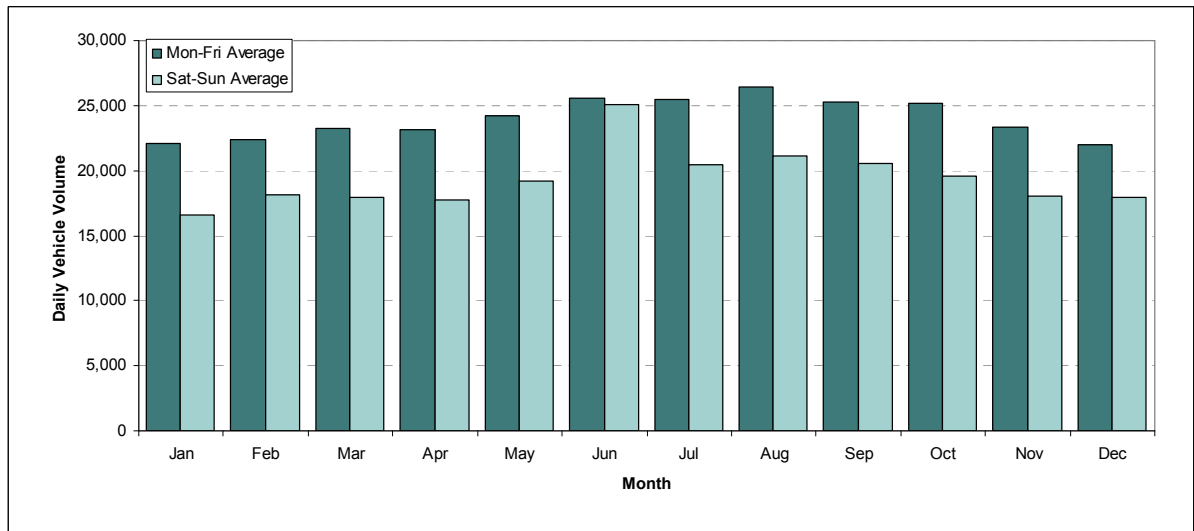


Figure 9: AADT (1998-2007)



In the study area, traffic volumes tend to be highest in the late summer months and during fall foliage season. With the exception of June, average weekday daily traffic volumes are appreciably greater than average weekend daily traffic volumes, which indicate the influence of commuters in the corridor (Figure 10).

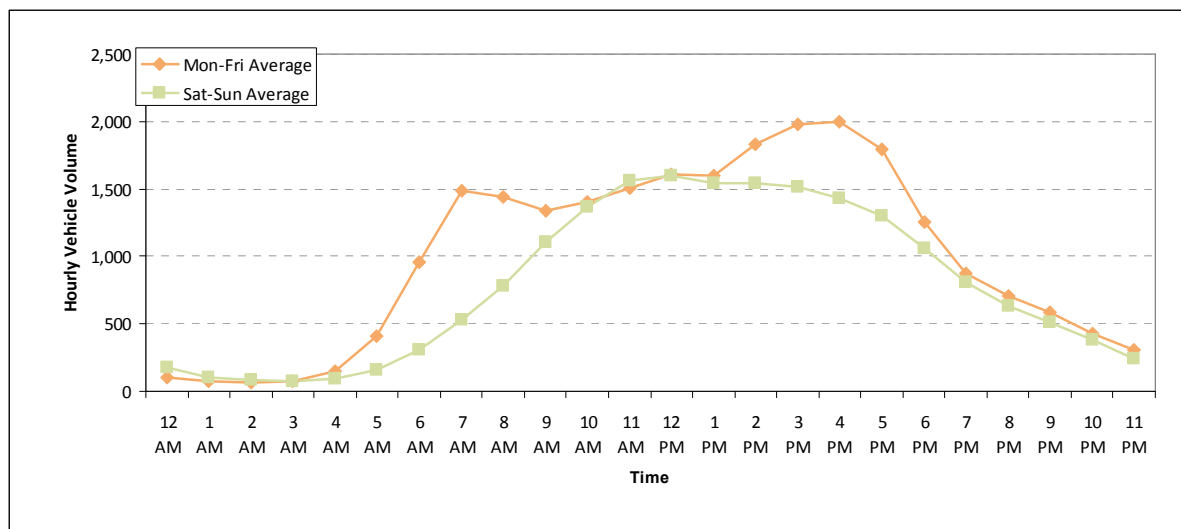
Figure 10: 2007 Seasonal Traffic Volume Fluctuations on US 7 just north of the US 4 Intersection



In 2007, hourly volume fluctuations follow a typical pattern, with clear weekday AM and PM peak hours reflecting the workday cycle and a Saturday/Sunday midday peak reflecting retail traffic (Figure 11).



Figure 11: 2007 Hourly Traffic Volumes



AADTs were obtained from VTrans for some of the secondary roads off of US 7 in the study area. These volumes are shown below in Table 5.

Table 5: AADT on Secondary Roads

Secondary Road	AADT	Location	Source
Cold River Road	2,300	US 7 to Stratton Road	VTrans, 2005
US 4	11,100	W Rutland Town Line to US 7	VTrans, 2006
Middle Road	1,400	Length of Middle Road	VTrans, 2007
VT 7B	370	N Shrewsbury Rd to US 7 (North Section)	VTrans, 2006
VT 7B	850	US 7 to North Shrewsbury (Central Section)	VTrans, 2006
VT 103	6,600	US 7 to VT 7B	VTrans, 2006

Turning movement counts were compiled from a variety of sources at the following intersections with US 7 in the study area on the following dates:¹

- Cold River Road – 27 and 28 June 2008
- Randbury Road – 8 and 12 November 2008
- Green Mountain Plaza/Seward Road – 8 and 12 November 2008
- Holiday Inn/Diamond Run Mall North – 8 and 12 November 2008
- US 4/Diamond Run Mall South – 27 and 28 June 2008
- Windcrest Road/Middle Road – 21 October 2006 and 7 June 2005
- North Shrewsbury Road – 6 June 2005
- VT 7B – 29 September 2008
- VT 103/Squires Road – 4 June 2008 and 10 January 2009

Volumes are adjusted to represent the 2009 design hour volume (DHV) using two adjustment factors:

¹ Turning movement volume sources include VTrans, Greenman-Pedersen Incorporated, the Rutland Regional Planning Commission and RSG.



1. The design hour adjustment factor: The design hour volume is the 30th highest hour volume of traffic for a year at a given location. In the study area, DHV adjustments increase raw volumes between 4-60%.¹
2. The annual adjustment factor: The annual adjustment factor represents general background traffic growth and is based on estimated growth in the area. Based on VTrans Continuous Traffic Counter P6R022, located on US 7 just north of the intersection with US 4, volumes are increased by 0-20% depending on the location and the year the count was conducted.²

In addition to these adjustments, estimated traffic volumes were included for development projects that are permitted but not yet built when the ground counts were conducted. The projects include a 5,000 square foot office building for the Vermont State Employees Credit Union on Seward Road, the IHOP supermarket and an expansion to Alderman Toyota. Although Rutland Commons also has its permits, construction is not anticipated for a few years. Therefore, traffic from Rutland Commons is included in the future year scenario, but for the 2009 base year scenario.

Figure 12 represents the resulting 2009 PM and Saturday peak hour turning movement volumes by intersection. Ground counts and all adjustments are contained in Appendix D.

¹ DHV adjustments are based on VTrans continuous traffic counter P6R022, VTrans automatic traffic counter S6R014, and VTrans automatic traffic counter S6R105.

² Between 2005 and 2009 a factor of 1.000 (urban) and 1.018 (rural) is applied. Between 2006 and 2009 a factor of 1.000 (urban) and 1.020 (rural) is applied. Between 2008 and 2009 a factor of 1.004 (urban) and 1.011 (rural) is applied.



Figure 12: 2009 PM and Saturday Peak Hour Volumes

PM Peak Hour					Saturday Peak Hour				
US 7					US 7				
Car Dealership	0	1381	49	Cold River Rd	3	1206	43	Cold River Rd	
	10		66		10		59		
	4		1		3		3		
	5		125		7		72		
3,100					2,663				
Green Mtn Plz	4	1368	87	Seward Rd	5	1182	70	Seward Rd	
	107	1037	104		140	1088	124		
	252		116		335		118		
	5		11		8		13		
3,013					3,831				
Holiday Dr	121	924	59	Diamond Run Mall	202	1406	76	Diamond Run Mall	
	24	1102	191		29	744	446		
	35		177		51		384		
	7		11		50		21		
2,755					2,675				
US 4	83		27	Diamond Run Mall	89		28	Diamond Run Mall	
	39	1036	23		35	784	15		
	512	698	37		290	539	31		
	283		63		239		44		
2,809					2,293				
Middle Rd	37		56	Windcrest Rd	60		51	Windcrest Rd	
	102		50		138		32		
	194	724	53		180	607	82		
	80	575	181		84	673	107		
2,036					1,911				
N Shrewsbury Rd	117		323	N Shrewsbury Rd	78		135	N Shrewsbury Rd	
	19		12		8		8		
	5		58		7		31		
	3	614	50		8	757	15		
1,651					-				
VT 7B	29	681	77	VT 7B	8			VT 7B	
	39		38						
	22		28						
	2		51						
1,659					-				
Squires Rd	1	646	37	Squires Rd	10			Squires Rd	
	10	730	43						
	10		28						
	3		5						
1,387					1,568				
US 7					US 7				



2.2.1.3 Traffic Congestion

Methodology

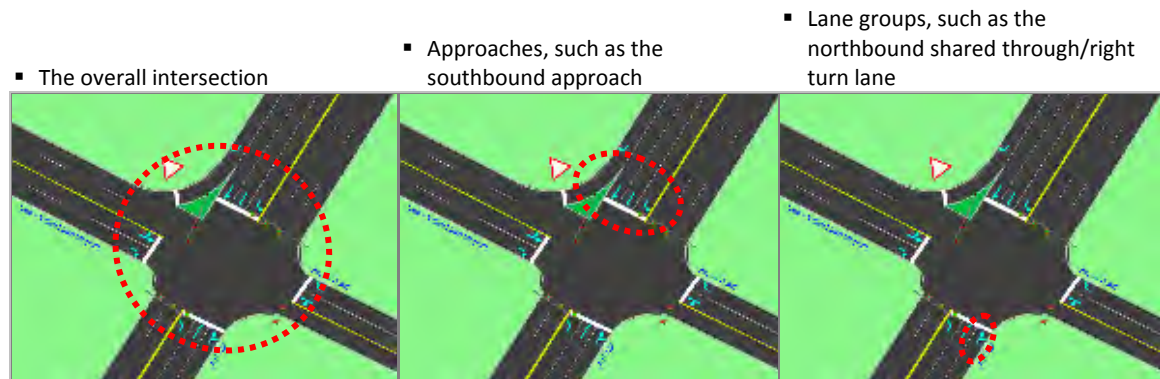
A Level of Service (LOS) analysis is a tool used to estimate congestion at intersections. LOS is a qualitative measure rating the operating conditions as perceived by motorists driving in a traffic stream. The *Highway Capacity Manual*¹ (HCM) defines six grades of LOS at an intersection based on the control delay per vehicle. Table 6 shows the various LOS grades, qualitative descriptions, and quantitative definitions for unsignalized and signalized intersections.

Table 6: LOS Criteria for Signalized and Unsignalized Intersections

LOS	Characteristics	--Unsignalized--	--Signalized--
		Total Delay (sec)	Total Delay (sec)
A	Little or no delay	≤ 10.0	≤ 10.0
B	Short delays	10.1-15.0	10.1-20.0
C	Average delays	15.1-25.0	20.1-35.0
D	Long delays	25.1-35.0	35.1-55.0
E	Very long delays	35.1-50.0	55.1-80.0
F	Extreme delays	> 50.1	> 80.1

LOS can be calculated for three different groups, as show in Figure 13.

Figure 13: LOS Groups



VTrans policy on level of service is:

- Overall LOS C should be maintained for state-maintained highways and other streets accessing the state's facilities
- Reduced LOS may be acceptable on a case-by-case basis when considering, at minimum, current and future traffic volumes, delays, volume to capacity ratios, crash rates, and negative impacts as a result of improvement necessary to achieve LOS C.
- LOS D should be maintained for side roads with volumes exceeding 100 vehicles/hour for a single lane approach (150 vehicles/hour for a two-lane approach) at two-way stop-controlled intersections.

In addition to Level of Service, the volume to capacity (v/c) ratio is frequently used to understand how much capacity exists at a given intersection or approach. This metric is a simple ratio of the total number

¹ Transportation Research Board, National Research Council, *Highway Capacity Manual: Special Report 209*, Washington DC, 2000.










of vehicles to the total capacity, where a value of 1.0 indicates that volume equals capacity. In this instance, long delays and queues are typically also symptoms of a capacity shortage.

Level of Service Results

Table 7 presents the average vehicle delay, corresponding Level of Service grade, and volume-to-capacity ratios at the signalized study intersections under 2009 PM and Saturday design hour conditions. The US 7/Green Mountain Plaza/Seward Road intersection during the Saturday peak hour is the only intersection below VTrans Standards at overall LOS F.

Table 7: PM and Saturday Peak Hour Overall LOS and Volume-to-Capacity Ratios

		PM Peak Hour 2009			SAT Peak Hour 2009		
		LOS	Delay	v/c	LOS	Delay	v/c
US 7/Cold River Road		B	12	0.66	A	8	0.53
US 7/Green Mountain Plz/Seward Rd		D	43	0.73	F	>100	0.99
US 7/Holiday Dr/Diamond Run Mall		B	19	0.53	D	35	0.74
US 7/US 4/Diamond Run Mall		C	28	0.63	C	26	0.56
US 7/Windcrest Rd/Middle Rd		B	17	0.59	B	13	0.61
US 7/North Shrewsbury Rd		B	13	0.46	-	-	-
US 7/VT 103/Squires Rd		B	20	0.52	C	20	0.59



The only stop-controlled study intersection, the US 7/VT 7B intersection, operates acceptably with LOS C on the minor legs.¹

Although VTrans does not provide LOS guidelines for LOS at signalized approaches, Table 8 highlights the approaches at the two study intersections that have approaches operating at LOS E or LOS F.

¹ The US 7/VT 7B intersection was analyzed during the PM peak hour only, as the RPC determined it was not essential for the Saturday analysis.



Table 8: PM and Saturday Peak Hour Approach LOS and Volume-to-Capacity Ratios – LOS E/F

		PM Peak Hour 2009			SAT Peak Hour 2009		
		LOS	Delay	v/c	LOS	Delay	v/c
 US 7/Cold River Road	Overall	B	12	0.66	A	8	0.53
	EB, exiting Driveway	D	46	-	D	47	-
	WB, exiting Cold River Rd	E	57	-	D	53	-
	NB, from Clarendon	B	11	-	A	5	-
	SB, from Rutland City	A	8	-	A	6	-
 US 7/Green Mountain Plz/Seward Rd	Overall	D	43	0.73	F	>100	0.99
	EB, exiting GMP	F	>100	-	F	>100	-
	WB, exiting Seward Rd	E	64	-	F	>100	-
	NB, along US 7 toward Rutland City	B	16	-	E	62	-
	SB, along US 7 toward Clarendon	D	35	-	C	20	-

The locations of these approaches are shown in Figure 14.

Figure 14: LOS E and LOS F Approaches



Queuing Analysis

SimTraffic (v7) was used to assess queues for the 2009 PM and Saturday peak hours.¹ In the 2009 PM and Saturday scenarios, three queue locations were identified as extensive.

1. Eastbound left turns out of Green Mountain Plaza during both the PM and Saturday peak hours
2. Northbound left turns into Green Mountain Plaza during the Saturday peak hour
3. Southbound left turns into Diamond Run Mall during the Saturday peak hour

Figure 15 shows the locations of the three queues as well as what percentage of the peak hour the queue is greater than the available storage space. Queues longer than the available storage space can spill out of their lane and negatively affect through traffic flow. For example, the northbound left turn queue is estimated to be greater than 210 feet for 32% of the Saturday peak hour.

Figure 15: PM and Saturday Queuing Results for Key Turning Movements



2.2.1.4 Safety Assessment

In the period from 2003 to 2007, there were a total of 222 reported crashes along the US 7 study corridor – the locations of which are shown in Figure 16. Reportable crashes generally involve a fatality, injury, and/or property damage in excess of \$1,000.

¹ Queues represent the average of the maximum queue for every 2-minute period.



These crashes included 48 collisions with injuries (76 injuries total) and one fatality; the fatality was a single vehicle crash in Clarendon. Local observations suggest that the majority of accidents in Rutland Town can be described as minor low-speed accidents¹.

In order to be classified as a High Crash Location (HCL), an intersection or road section (minimum 0.3 mile section) must meet two conditions:

1. It must have at least 5 accidents over a 5-year period
2. The actual crash rate must exceed the critical crash rate

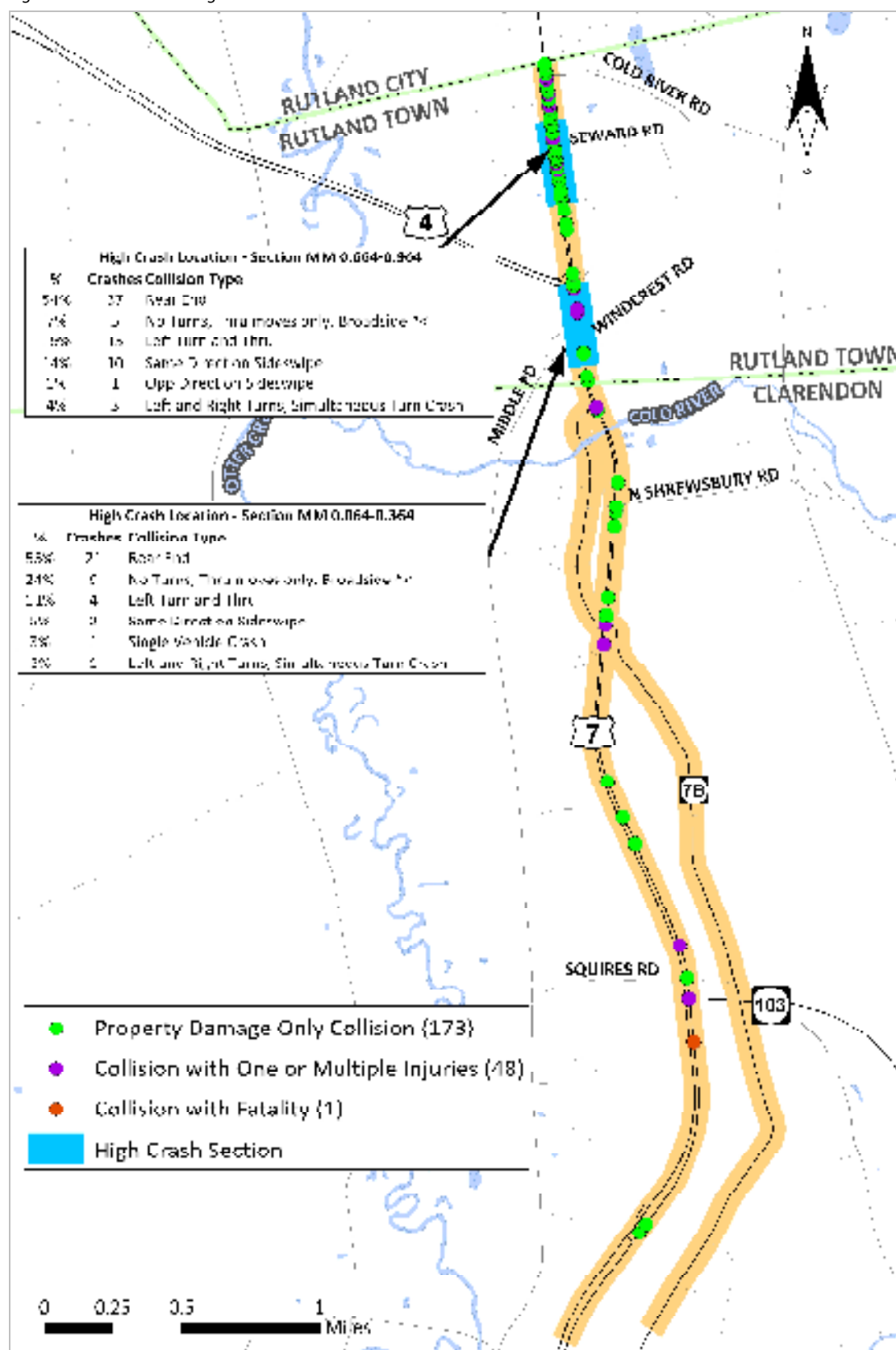
The actual crash rate is calculated based on the number of crashes and traffic volume at a given location. The critical crash rate is calculated based on the average crash rate (the average number of crashes per million vehicles, distinguished by roadway functional class) and traffic volume.

The most recent VTrans High Crash Location Report (2001-2005) identifies 616 High Crash Location road segments and 131 High Crash Location intersections statewide. There are two High Crash Location sections (Figure 16) within the study area and no High Crash Location intersections. The HCL section from mile marker (MM) 0.064-0.364 ranks number 58 statewide and the MM 0.664-0.964 section ranks number 28. Both are located in Rutland Town.

¹ Per Joe Zingale Rutland Town Manager, November 25, 2009 email to Susan Schreibman, Rutland Regional Planning Commission



Figure 16: Crashes and High Crash Sections



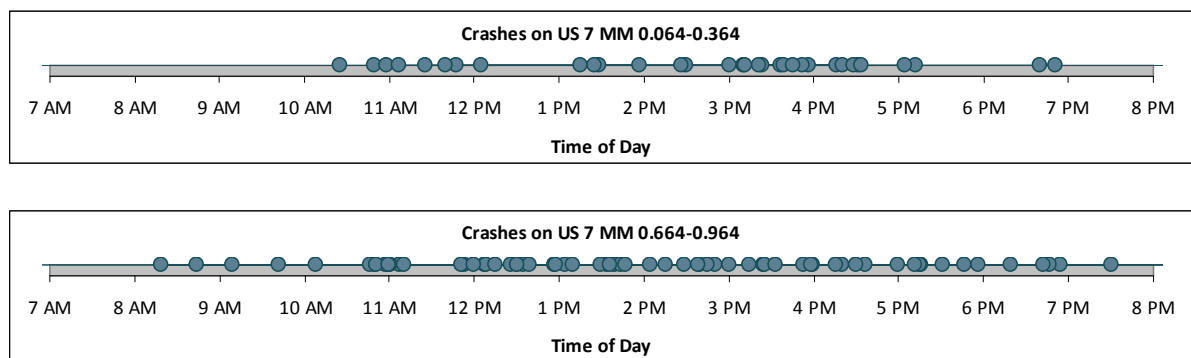
Weather is not a likely contributing factor, as nearly 87% of crashes occurred in clear or cloudy conditions.

Table 9: Crash Conditions

Percent	Crashes	Weather
57%	127	Clear
30%	66	Cloudy
5%	12	Rain
4%	8	Snow
1%	3	Unknown
1%	3	Not Reported
1%	2	Sleet, Hail (Freezing Rain or Drizzle)
0%	1	Fog, Smog, Smoke

For both of the High Crash Sections the time of day appears to be a significant contributing factor, as 45% of all crashes cluster between 3 PM and 6 PM at MM 0.064-0.364 and 38% occur between 12 PM and 3PM at MM 0.664-0.964.

Figure 17: Crashes by Time of Day



At the MM 0.064-0.364 section, the most common types of crashes were rear ends (55%) and broadsides (24%). At the MM 0.664-0.964 section, the most common types of crashes were rear ends (54%) and left turn and through collisions (19%). The prevalence of rear-end collisions is often correlated with locations where vehicular moves are unanticipated (e.g. mid-block left turns without separate turn lane) and high congestion levels.

Field observations indicate no sight distant deficiencies along the corridor with the exception of snow banks that sometimes obscure the sightlines for vehicles exiting minor roads onto US 7.

2.2.1.5 Access Management Assessment

This section presents an overview of the VTrans Access Management Program and summarizes the results of an inventory of existing driveways along the corridor.

State's Access Management Design Standards Overview

VTrans has development design and construction standards to “preserve the public investment in the highway infrastructure, protect levels of service, protect public safety, and preserve the functional

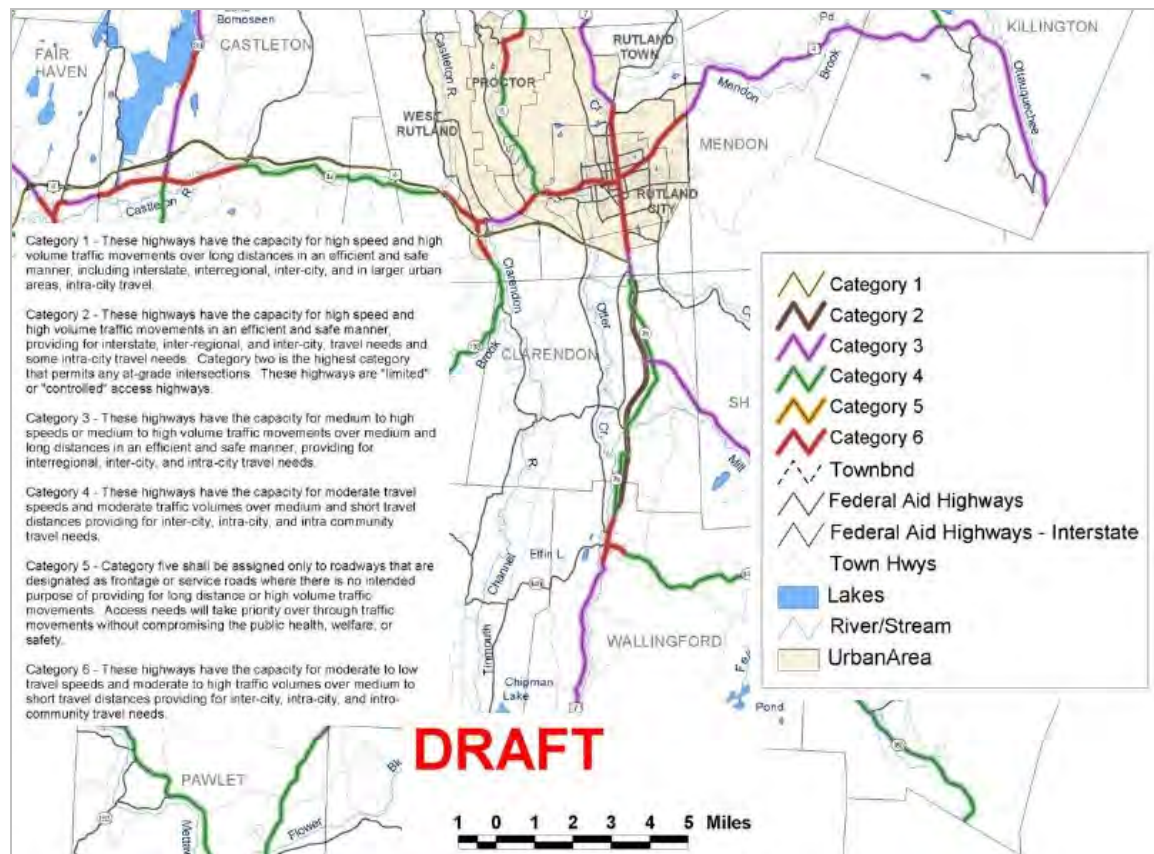


integrity of public highways.”¹ The standards cover the following topics: reference sources, data requirements, access width, access radii, access surfacing and pavement markings, speed change lanes, corner sight distance, access spacing, corner clearance at intersections, and other design elements.

Figure 18 shows the draft access management categories developed by the Vermont Access Management program. US 7 is designated as Access Management Category 3 in Rutland Town and Category 2 in Clarendon.²

- Category 2 – These highways have the capacity for high speed and high volume traffic movements in an efficient and safe manner, providing for interstate, inter-regional, and inter-city travel needs and some intra-city travel needs. Category two is the highest category that permits any at-grade intersections. These highways are “limited” or “controlled” access highways. Direct access is not permitted. Appeals may be made to the Transportation Board.
- Category 3 – These highways have the capacity for medium to high speeds or medium to high volume traffic movements over medium and long distances in an efficient and safe manner, providing for interregional, inter-city, and intra-city travel needs. VTrans may deny or restrict access (for example – restricting access to right-in/right-out only) if reasonable alternatives exist to direct access. Reasonable access may be available on a side street, or through an adjacent lot.

Figure 18: Rutland Regional Planning Commission Access Management Categories³



¹ Vermont Agency of Transportation, *Access Management Program Guidelines* (22 July 2005).

² <http://www.vtaccessmanagement.info/Documents/RutlandCountyRPC.pdf>

³ <http://www.vtaccessmanagement.info/Documents/RutlandCountyRPC.pdf>



Inventory and Assessment of Existing Driveways

Driveways along the corridor were evaluated for conformance to access management guidelines in terms of driveway width and spacing.

The VTrans access management guidelines for driveway widths are as follows:

- Driveway widths should be 24-30 feet for two-way access with less than 5 single unit vehicle peak hour trips
- Driveway widths should be 30-40 feet for two-way access with more than 5 single unit vehicle peak hour trips
- Driveway widths should be 18-24 feet for one-way access

The access management guidelines for access spacing are as follows:

- For a posted design speed of 40 mph, accesses should be spaced at least 305 feet apart.
- For a posted design speed of 45 mph, accesses should be spaced at least 360 feet apart.
- For a posted design speed of 55 mph, accesses should be spaced at least 495 feet apart.

Additionally, each parcel is recommended under access management guidelines to have only one driveway.

Figure 19 shows the locations of parcels whose driveways fall under the following four categories:

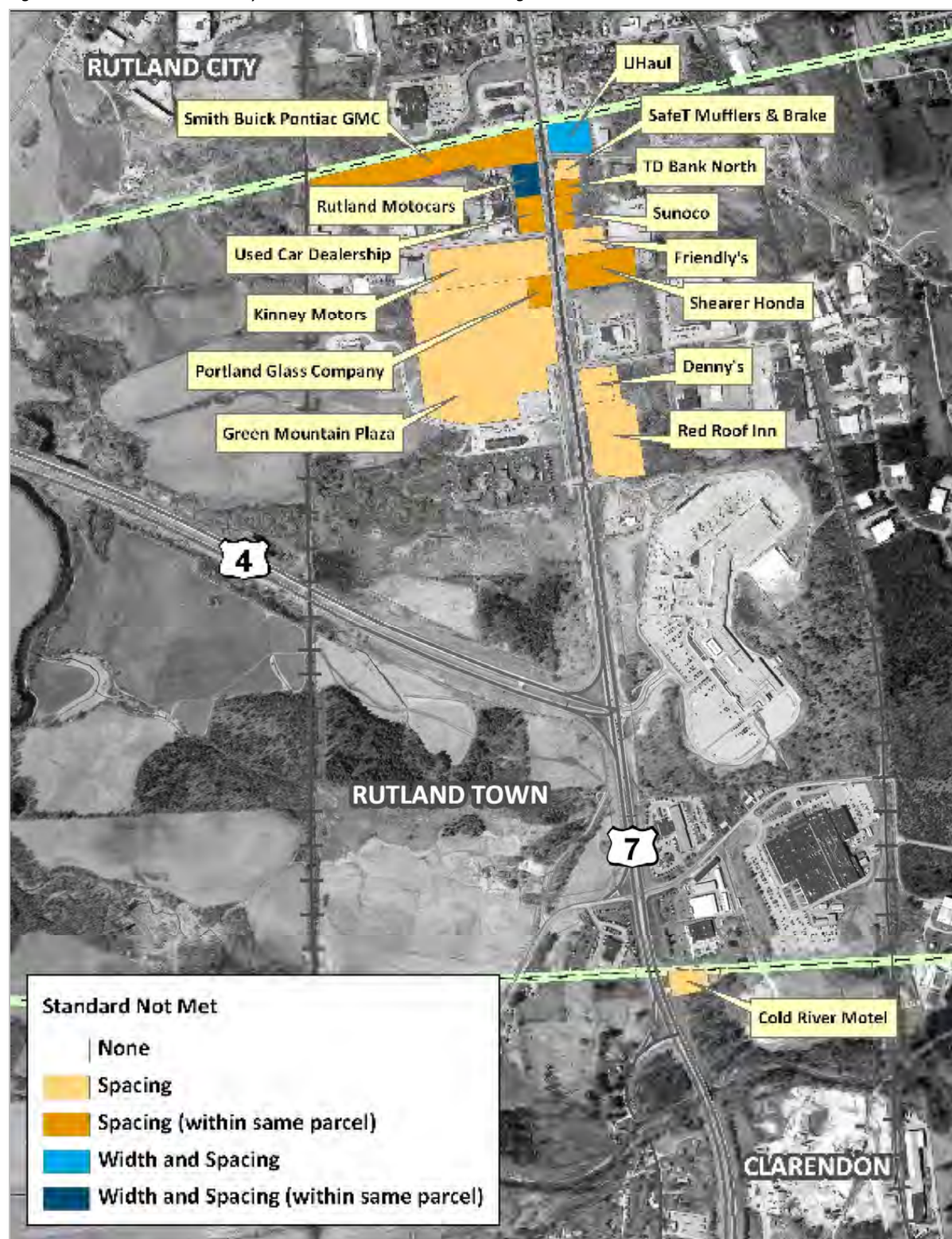
- Spaced too closely to adjacent driveways in an adjacent parcel
- Spaced too closely to adjacent driveways within the same parcel
- Both less than the recommended driveway width and spaced too closely to adjacent driveways in an adjacent parcel
- Both less than the recommended driveway width and spaced too closely to adjacent driveways within the same parcel

Parcels not highlighted in Figure 19 meet the recommended access management standards.

In general, existing access management issues are concentrated along US 7 north of US 4 where most of the intense commercial development is located. Short of reconstructing the entire roadway, these types of issues will be addressed over time as parcels are redeveloped. Because VTrans has jurisdiction over US 7, all future development and redevelopment projects will need to comply with the state's access management program and guidelines. While compliance with the VTrans program will eventually improve access management, the process could be made more efficient by including appropriate coordination and design guidelines in local subdivision and zoning regulations. Specific recommendations are provided in Sections 4.0 and 5.0 of the plan.



Figure 19: Parcels with Driveways That Do Not Meet Access Management Guidelines



2.2.1.6 Infrastructure Assessment

The corridor infrastructure assessment considers three aspects of transportation facilities: the geometric features (road and lane widths and grades), bridges and culverts (age and condition), and pavement condition.

Roadway Geometric Assessment

On rural principal arterials with a DHV greater than 400 vehicles, lanes should be 11 feet in the 35 and 40 mph zones and 12 feet in the 50 mph zone. Shoulder widths should be 8 feet in all speed zones.¹ The maximum grade for rural principal arterials will be 7% for the 35 mph zone, 6% in the 40 mph zone, and 5% in the 50 mph zones.

On urban principal arterials, lanes should be between 10–12 feet. Shoulder widths should be 2 feet at an absolute minimum where bicycles and pedestrians are prohibited.

Typical cross-sections of US 7 in the study area were defined using the 2006 VTrans Highway Sufficiency Rating reports and supplemented with field verification (Figure 20).

In the study area, lanes along US 7 are all 12 feet in width and grades are within acceptable limits. Shoulders in the urban areas are 2–4 feet, which is acceptable when pedestrians and bicycles are prohibited. In the rural areas, shoulder widths are 12–14 feet, which meets the minimum standard.

Bridge and Culvert Assessment

Based on the VTrans Bridge Inventory System, there is one bridge of note in the study area.² This bridge is owned by VTrans and spans 132 feet across Cold River. It is a stringer/multi-beam or girder style bridge and is made of steel. Originally built in 1968 with no major repairs since, there are no quality control issues with the bridge. The bridge's current condition is not identified. However, the repair cost is listed at \$2,708,000, and the cost of replacement is estimated at \$2,858,000.³

There are also three culverts on US 7 in the study area. They are located 2.0, 1.4, and 0.7 miles north of the VT 103 intersection, respectively. All three are owned by VTrans, made of steel, and were built in 1967-1968 with no repairs since. They range in length from seven to 19 feet, and all are listed to be in satisfactory or good condition.

Pavement Assessment

Pavement condition is identified by multiple indexes that assess various aspects of the road condition, including road roughness, structural cracks, average depth of ruts, and condition of the ride. The indexes are based on a scale of 0 to 100, where 0 is very poor and 100 is good. These indexes are then compiled to create an Overall Condition Index, which is used to identify pavement condition of the road section.⁴

The VTrans goal is for 25% or fewer of statewide lane miles to be classified in 'very poor' condition. VTrans has estimated that a nearly 100% increase in pavement management funding (from \$56 million per year to \$100 million per year) is needed to adhere to this goal.

While US 7 is categorized as Good or Fair in the study area, sections of VT 7B are categorized as Poor and Very Poor. These ratings are shown in Figure 21.

¹ These shoulder widths are considered necessary for adequate safety and service for this class of highway and may exceed the minimum paved widths needed solely to provide bicycle safety.

² The VTrans Bridge Inventory System (BIS) stores data for all VTrans-owned bridges as well as some information that is supplemented by towns and RPCs.

³ Cost estimates based on VTrans' last inspection on April 20, 2005.

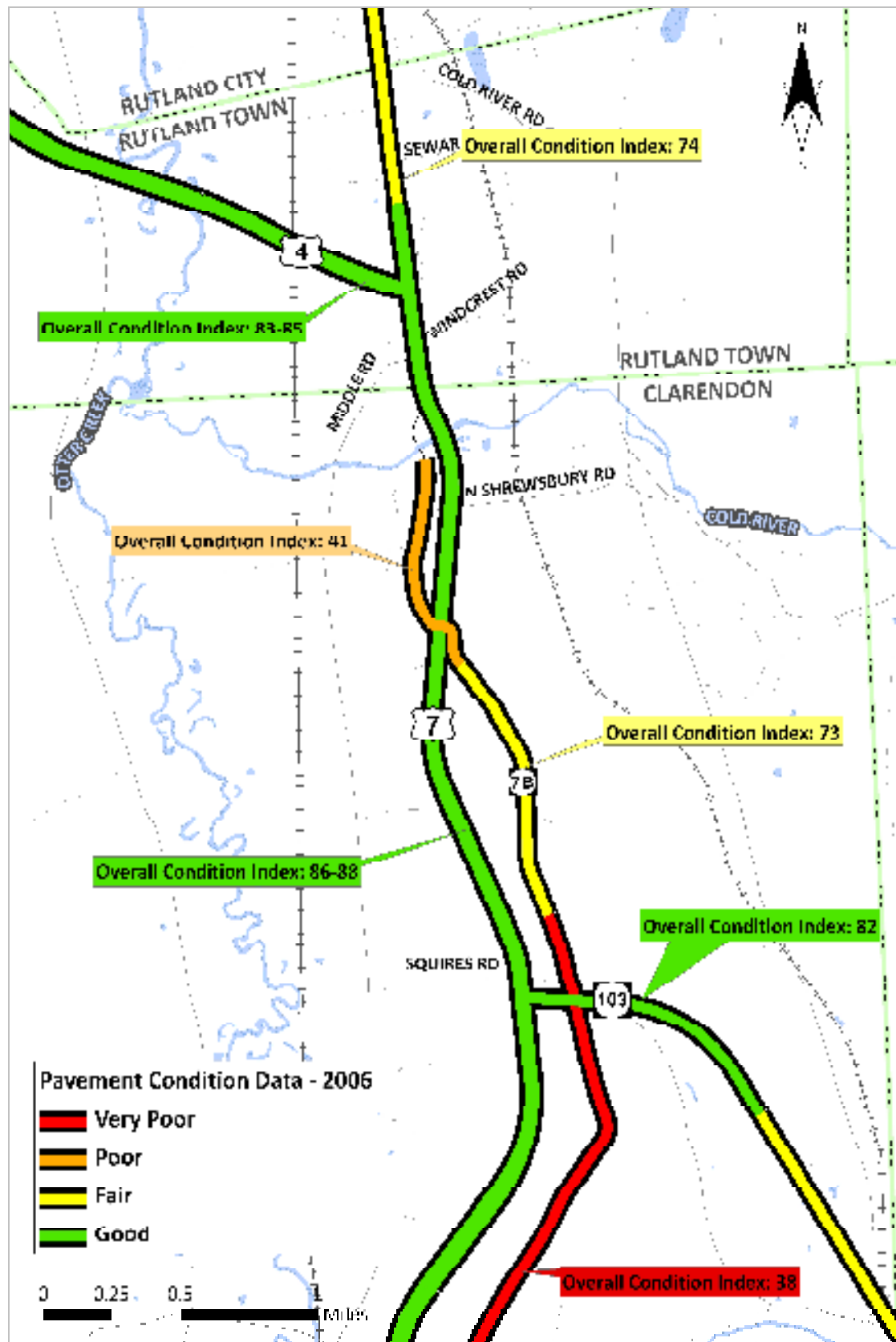
⁴ Condition ratings were assessed by VTrans in 2006.



Figure 20: Typical Roadway Cross-Sections



Figure 21: Pavement Condition on US 7



2.2.2 Multi-Modal Transportation Facilities Assessment

In addition the highway system, travel for people and freight is also served to different degrees by pedestrian facilities, limited bicycling facilities, transit services and rail. The Rutland Regional Airport is located in the southern end of the corridor. The airport is an important land use and destination in the corridor, but this plan does not address air travel as a mode.

These facilities are shown in Figure 23.

2.2.2.1 Pedestrian and Bicycle Facilities

Sidewalks exist in the northern section of US 7 along the east side of US 7 from Diamond Run Mall past Cold River Road, and along the west side of US 7 from Green Mountain Plaza through Cold River Road (Figure 24). A crosswalk is provided across US 7 at the Green Mountain Plaza/Seward Road intersection. The sidewalks do not extend into the local streets that access US 7 (such as Cold River Road, Randbury Road and Seward Road). In general, there is a lack of connectivity between the existing sidewalks and the buildings in this area. To reach a building from sidewalks on US 7, pedestrians have to walk across parking lots or along access roads without a sidewalk. A notable gap in the sidewalk system exists between the Holiday Inn and Green Mountain Plaza and between the Holiday Inn and Diamond Run Mall. Sidewalks do not exist south of Green Mountain Plaza and are not necessary due to the rural nature of that section of the US 7 Corridor.

There are no designated bicycle facilities in the study corridor. As noted in the Rutland Regional Commission's transportation plan, bicycle facilities in the Region are extremely limited. It is legal for cyclists to travel along state routes such as US 7. However, north of US 4, shoulders are not wide enough and the numerous driveways create multiple conflict points that make biking uncomfortable even for experienced cyclists. South of US 4, shoulders are more than adequate (12-24 feet), but a higher speed, multi-lane divided highway is not attractive to less experienced cyclists.

2.2.2.2 Transit Facilities

The Marble Valley Regional Transit District has five routes that run through the study area (Figure 25):

1. Rutland Killington Commuter
2. Rutland City Fixed Route – South Route
3. Bridgewater Valley Nights
4. Okemo Amtrak Connection¹
5. Rutland Manchester Commuter

The MVRTD's South Route is a fixed route service between the Transit Center in Rutland City to Diamond Run Mall, Holiday Inn and Green Mountain Plaza. The South Route connects with all other MVRTD routes at the Transit Center. There is one bus shelter in the study area located in Green Mountain Plaza. All other stops are informal and not well signed. The South Route provides a key link between downtown Rutland and the Diamond Run Mall, the region's largest shopping center. As a result, it has the largest ridership in the MVRTD system and is one of the most productive routes measured by such factors as fare box recovery and operating costs per passenger. The South Route travels "off-route" into several shopping plazas, including Green Mountain Plaza, Holiday Inn and the Diamond Run Mall within the study corridor. These diversions from the main highway increase ridership but also sometimes cause the bus to run late. The off-route configuration is due in part to a lack of pedestrian connections from these locations to US 7.

¹ The Okemo Amtrak connection is a seasonal route operating during the winter season.



The corridor is also served by two commuter bus services. The Manchester-Rutland connector stops within the corridor at Green Mountain Plaza and the Rutland Airport Industrial Park. The Rutland to Bellows Falls Commuter (a service provided by Connecticut River Transit and MVRTD) stops in the corridor at Rutland Airport, Airport Industrial Park and Holiday Inn.

2.2.2.3 Rail Facilities

There are two railroads that run through the study area: Green Mountain Railroad and Vermont Railway (Figure 26). Both rail lines are state-owned and privately operated with a long-term lease with the State of Vermont. The Green Mountain Railroad provides freight service between Rutland and Bellows Falls while Vermont Railway provides both freight and passenger service along portions of its route from Burlington to North Bennington. Neither company provides passenger service along the tracks in the study area.

Amtrak provides two intercity passenger trains per day, one in each direction, and services passengers at the Rutland Station in Rutland City (Figure 26). The route runs from New York City through Whitehall (NY) to Rutland where it turns around and returns to New York City. This passenger service does not run through the study area

A proposed plan would eliminate passenger service between Rutland and New York City and replace it with bus service running from Albany (NY) through Rutland to Burlington. This change would save \$1.4 million of the state's transportation budget.¹

The Vermont Western Corridor Study indicates several alternatives to the Ethan Allen and Vermonter passenger rail services. In particular, one of the alternatives considers extending the Ethan Allen passenger rail line from Rutland to Burlington, as shown in Figure 22.² Service between Rutland and Bennington is also under consideration.

There are plans to relocate the existing rail yard from its current location in downtown Rutland to an area north of the US Route 4 Bypass, almost completely in the City of Rutland and with a couple of sets of tracks in Rutland Town.³

2.2.2.4 The Rutland Southern Vermont Regional Airport

Rutland Southern Vermont Regional Airport is located roughly 2.5 miles south of US 4 at the southeast corner of the US 7/VT 103 intersection. Access to the airport is via Airport Road off of VT 103.

The State of Vermont Agency of Transportation owns and operates this airport with passenger service provided by CapeAir/JetBlue to and from Boston's Logan Airport. Columbia Air Services also operates a fixed base operation (FBO) offering "comprehensive aircraft support to the general and corporate aviation communities."⁴

Both FedEx and UPS utilize this airport, and FedEx has a distribution center in an industrial park adjacent to the airport. A large number of area businesses also use the airport. There were 29,224 total operations in 2006 with 1,456 commuter airline operations.

A federal safety rule excludes larger corporate and charter planes from using Rutland Southern Vermont Regional Airport due to the fact that it does not meet the minimum runway length requirement. Lengthening Runway 1/19, the main runway, from 4,000 to 6,000 feet is estimated to cost \$40 million.

¹ "Rutland fights elimination of train service." Vermont Public Radio. 2009. Associated Press. 4 February 2009 < http://www.vpr.net/news_detail/83627>.

² National Railroad Passenger Corporation, *Report to Congress: Vermont Western Corridor Study*, January 28, 2000

³ Per Joe Zingale, Rutland Town Administrator, in an email "Re: US 7 Study" dated 11/25/09.

⁴ Columbia Aviation Companies. http://www.columbiaairservices.com/About_Us/index.html



Figure 22: Proposed Passenger Rail Service from Rutland to Burlington



Figure 23: Summary of Existing Multi-Modal Transportation Facilities

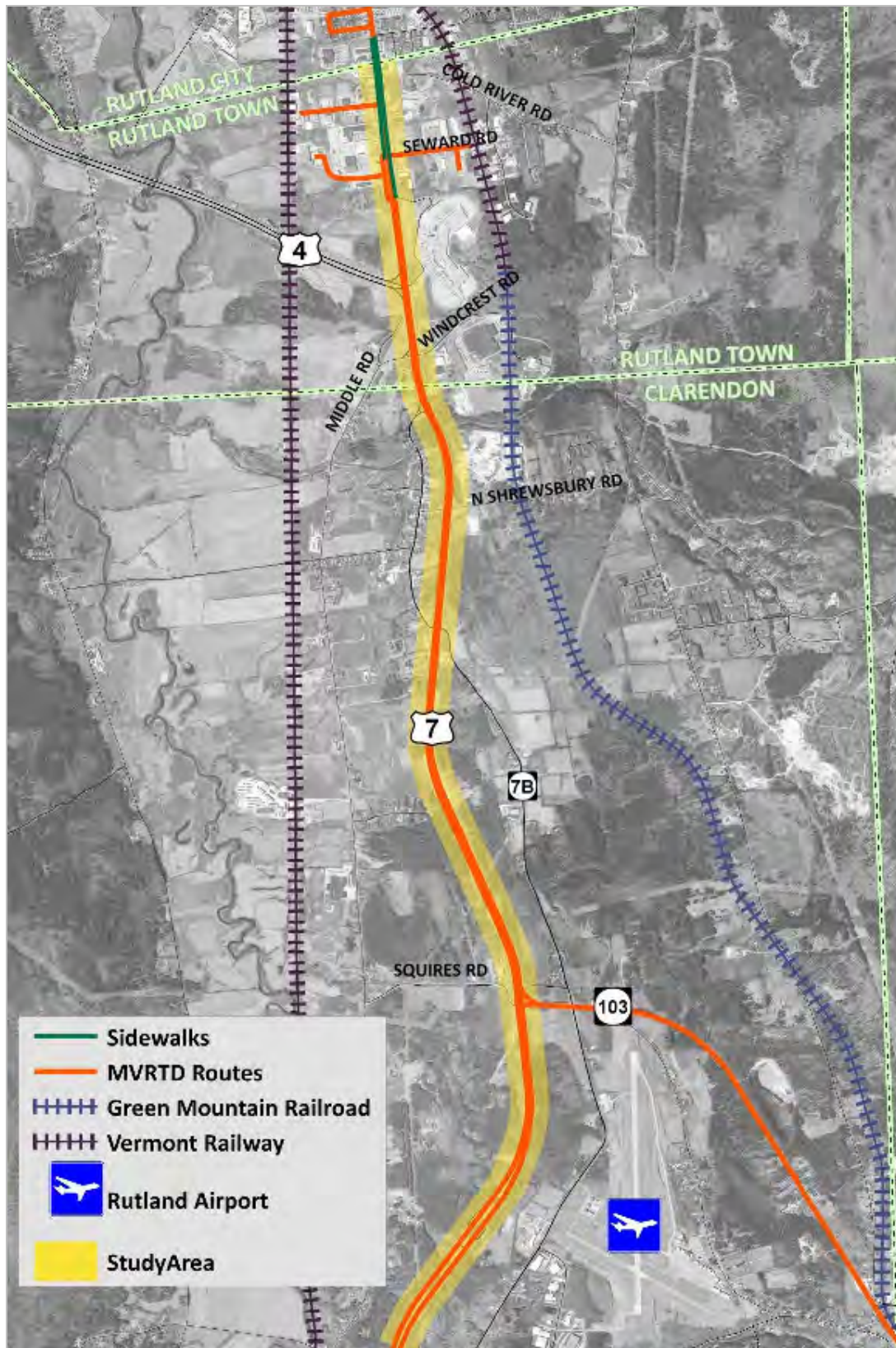


Figure 24: Existing Pedestrian Facilities



Figure 25: Existing Marble Valley Regional Transit District Routes

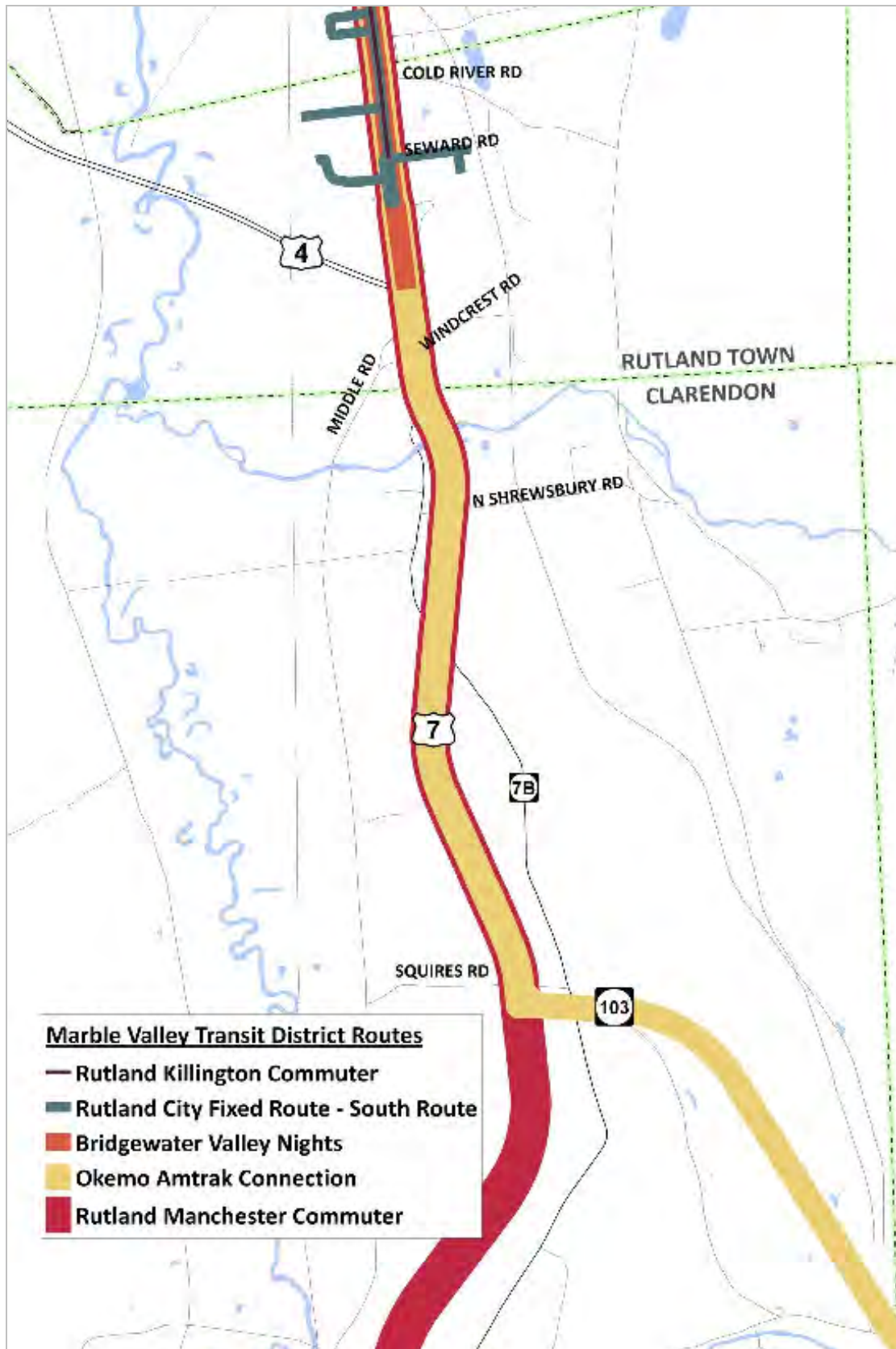
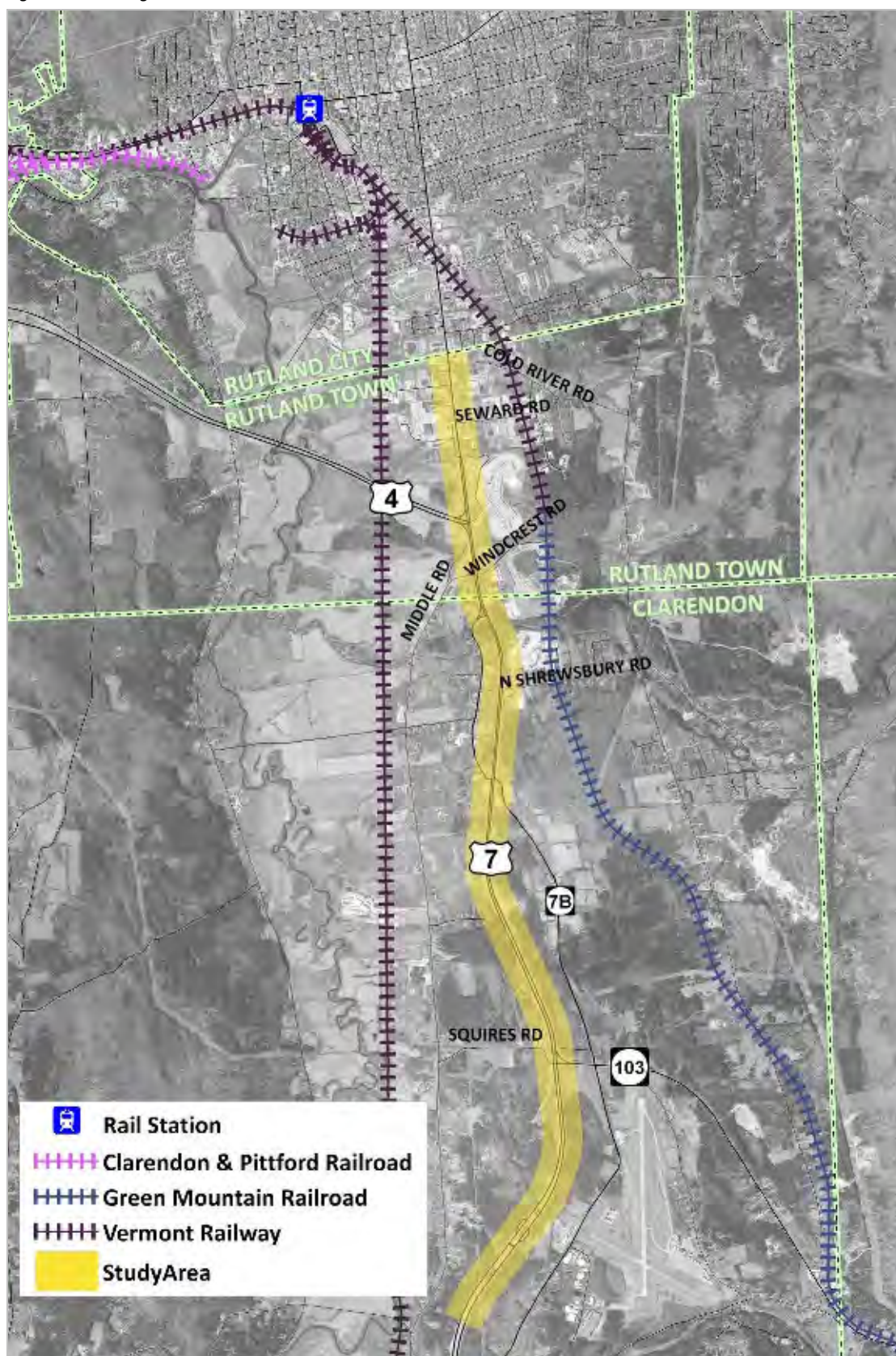


Figure 26: Existing Railroad Facilities



2.3 Existing Conditions Summary

Existing land use in the Rutland Town portion of the study corridor is almost entirely commercial while land use in Clarendon is primarily rural/residential with some exceptions. Like most corridors in Vermont, there are multiple jurisdictions that exercise some level of control over land use and transportation. The municipalities have the ability to manage the type and intensity of development within the corridor which affects overall transportation demand. This control is somewhat limited due to the lack of zoning regulations in Rutland Town and subdivision regulations in Clarendon. VTrans owns and regulates the highway system. The RRPC provides land use and transportation planning. Coordination and cooperation between all of these entities is necessary to achieve the vision for the corridor.

The surface transportation system consists of the highway network, limited pedestrian and bicycle facilities, transit service, and rail roads. The Rutland Regional Airport is located in the southern end of the corridor. The airport is an important land use and destination in the corridor, but this plan does not address air travel as a mode.

Congestion, safety and access management issues are concentrated north of US 4 where most of the intense commercial development is located. High crash locations were identified along US 7 between Middle Road and US 4 and between the Holiday Inn Drive/Diamond Run Mall Intersection to just south of Randbury Road. Local observations suggest that the majority of these crashes are minor low-speed accidents. Specific congestion hot spots are located as follows:

- US 7-Cold River Road Intersection: Delays were moderate on the Cold River Road approach to US 7 during the weekday PM peak hour. All other approaches operated with minimal delay.
- US 7-Green Mountain Plaza-Seward Road Intersection: Delays were significant during the weekday PM peak hours for the Green Mountain Plaza and Seward Road approaches. During the Saturday mid-day peak hour delays were significant on the US 7 northbound, Green Mountain Plaza, and Seward Road approaches. Vehicle queues on turn lanes occasionally spill back beyond the available storage on the US 7 northbound approach and the Green Mountain Plaza approach.
- US 7-Holiday Inn Drive-Diamond Run Mall Intersection: Average delays are acceptable on all approaches but vehicle queues on the southbound US 7 left-turn lane occasionally spill back beyond the available storage.

There are sidewalks located along most of US 7 north of the Holiday Inn/Diamond Run Mall intersection. In general, there is a lack of connectivity between the existing sidewalks and the buildings in this area. A notable gap in the sidewalk system exists between the Holiday Inn and Green Mountain Plaza and between the Holiday Inn and Diamond Run Mall. Sidewalks do not exist south of Green Mountain Plaza.

Short of reconstructing the entire roadway, the access management issues identified will be addressed over time as parcels are redeveloped. Because VTrans has jurisdiction over US 7, all future development and redevelopment projects will need to comply with the state's access management program and guidelines. While compliance with the VTrans program will eventually improve access management, the process could be made more efficient by including appropriate coordination and design guidelines in local subdivision and zoning regulations.

There are no designated bicycle facilities in the study corridor. Shoulders along many sections of US 7 are wide enough for cyclists. However, the combination of traffic volumes, speeds, and driveways create a poor cycling environment, for all but the most experienced cyclists.

The corridor is well served by both fixed route transit service (the South Route) and two commuter services to Bellows Falls and Manchester. The South Route is one of the most productive services for MVRDT but it must divert off US 7 to provide access for transit riders. The off-route configuration is due



in part to a lack of pedestrian connections from these locations to US 7 and can sometimes cause delays. Delays are also caused by congestion; a recently additional bus is now alleviating the problem.

The two rail lines that pass through the corridor are Green Mountain Railway from Bellows Falls and Vermont Railway from Bennington. Within the study corridor, both railroads move freight but do not provide passenger service. The freight moved by the railroads is bridge traffic (through traffic) and does not currently serve any businesses in the study corridor

3.0 VISION AND GOALS

This section of the report describes how the vision statement and goals were developed.

3.1 Process

At the 9 February 2009 Stakeholder Meeting, participants were asked to consider various scenarios for the future of the corridor. These scenarios covered a range of transportation-related topics, including traffic flow, access management, land use, environmental preservation, economic development, and multi-modal transportation.

The group was in agreement on some topics, including:

- Limiting the number of driveways on US 7 south of US 4 by encouraging access on VT 7B, and
- Promoting all modes of transportation.

For other topics, the group had different but compatible opinions, such as:

- Limiting new driveways on US 7 and consolidating existing driveways north of US 4, and
- Concentrating future development in nodes and promoting mixed-use development.

The group was evenly divided on other topics, such as:

- Prioritizing through traffic versus finding a balance between local and through traffic, and
- Promoting economic development opportunities versus finding a balance between development and rural land preservation.

Table 10 summarizes the number of votes for each potential scenario. Any scenario that received at least 5 votes is highlighted in green.



Table 10: Goals Summary

US 7 Corridor Management Plan Goals Summary	
Votes	Traffic Flow
6	Prioritize through traffic flows.
2	Coordinate Signals
2	Create Time of Day Signal Timing Plans
2	Prioritize local access from sidestreets.
1	In Specific Areas
7	Balance through traffic and local access.
	Access
	<i>North of US 4</i>
10	Limit the number of new driveways on US 7.
7	Consolidate the number of existing driveways on US 7.
1	No additional driveways onto US 7.
1	No restrictions on new driveways.
	<i>South of US 4</i>
7	Limit the number of new driveways on US 7 (encourage access onto VT 7B).
3	No additional driveways onto US 7 (all access onto VT 7B).
1	No restrictions on new driveways on either US 7 or VT 7B.
1	Develop US 7 between Windcrest Rd and VT 103 with Right-in/Right-out access
	Land Use
7	Concentrate future development in nodes.
3	Allow the market to determine where development happens.
3	Keep commercial development and residential development separate.
6	Promote mixed-use development.
1	Focus on Industrial Development in Designated Parks
1	Build new sewer and water infrastructure in Clarendon
1	No additional development on 7B
	Environmental Preservation vs. Economic Development
2	Preserve rural land.
5	Promote economic development opportunities.
0	Promote residential development opportunities.
9	Find balance between development opportunities and preserving rural land.
1	Develop US 7/VT 103 intersection
	Multi-Modal Transportation
10	Promote all modes of transportation (auto, pedestrian, bicycle, air, rail, transit)
4	Focus on a specific mode(s) of transportation:
2	Rail
3	Road/Auto
1	Truck
1	Transit
1	Air

The preferred scenarios (as characterized by the stakeholders and highlighted in green, above) were used to shape the goals of this plan for the US 7 corridor.

The participants of the Stakeholder Meeting also commented on issues, strengths, and weaknesses of the corridor (Appendix E). These comments or concerns for the study area are summarized as follows:

- Improve signal coordination and off-peak timing schedules north of US 4
- Improve capacity issues, particularly at signalized (and some unsignalized) locations north of US 4
- Improve existing access and manage future access effectively
- Unify local coordination between Rutland Town and Clarendon and improve coordination with the State (particularly as it pertains to the permitting process)



Participants generally felt that the problems north of US 4 and south of US 4 were vastly different, and concern over differences between the two towns – including planning and infrastructure capabilities – emerged.

3.2 Vision Statement

The vision statement is based on the analysis of existing conditions and the assessment of Stakeholder comments:

Accessibility and mobility are balanced in the US 7 corridor through comprehensive land use/transportation policies that foster a moderate level of clustered mixed-use growth, multi-modal transportation, and rural land preservation.

3.3 Plan Goals

The following goals are based on the preferences indicated by Stakeholders ,above:

- Traffic Flow: Provide an appropriate balance between through vehicle mobility and local access with a slight focus on serving through traffic.
- Access Management
 - North of US 4: Limit and consolidate the number of new driveways on US 7.
 - South of US 4: Limit the number of new driveways on US 7 and encourage access onto VT 7B.
- Land Use: Promote mixed-use and nodal development.
- Environment: Find a balance between development opportunities and preserving the rural land with a slight focus on economic development.
- Multi-Modal Transportation: Promote all modes of transportation (auto, pedestrian, bicycle, air, rail, and transit).

4.0 FUTURE CONDITIONS

The future conditions assessment includes a build-out land use estimate for the corridor and development of a 2030 land use scenario. Visualizations are presented to demonstrate the intensity and pattern of the 2030 land use scenario. Traffic projections are developed based on the 2030 land use scenario and the resulting impact on the operation of the highway system is evaluated. The results of the 2030 traffic analysis are considered in combination with other land use and transportation issues relative to the corridor goals. Issues and opportunities are identified for each goal followed by identification and evaluation of applicable Transportation System and Land Use Planning/Administrative strategies.

4.1 Future Land Use

4.1.1 Build-out Analysis

The Rutland Regional Planning Commission staff developed a future build-out estimate based on an interpretation of the existing zoning regulations in Clarendon and the zoning regulations under consideration at the time in Rutland Town. The tools used to actually perform the analysis included the Geographic Information System (GIS) and Community Viz software.

The resulting build-out projections were a collaborative effort between the RRPC and the towns of Rutland and Clarendon, respectively. The first step was to understand maximum potential build-out. Under the current proposed zoning regulations, this analysis showed that there is the potential for



12,891,966 total square feet of floor area available in Clarendon, and 1,962,167 total square feet of floor area available in Rutland Town. This translates into 1483 new buildings including 1221 new dwelling units in Clarendon and a total of 66 new buildings and no new dwelling units in Rutland Town.

The next step was to understand how much of this potential development is likely to occur by the year 2030. The timescope tool in Community Viz was used to determine the answer to this question. This analysis projected that 61 new buildings are expected to be built in Clarendon, and 8 new buildings in Rutland. The locations of these new developments are shown in Figure 27 and Figure 28; blue squares represent residential developments and green squares represent commercial or industrial developments.

Figure 27: RRPC 2030 Build-out Analysis: Rutland Town

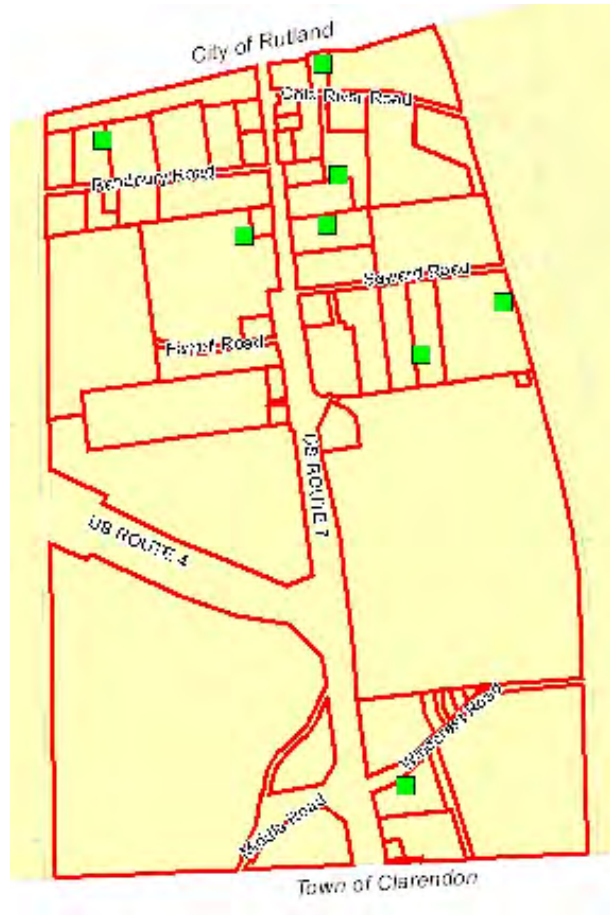
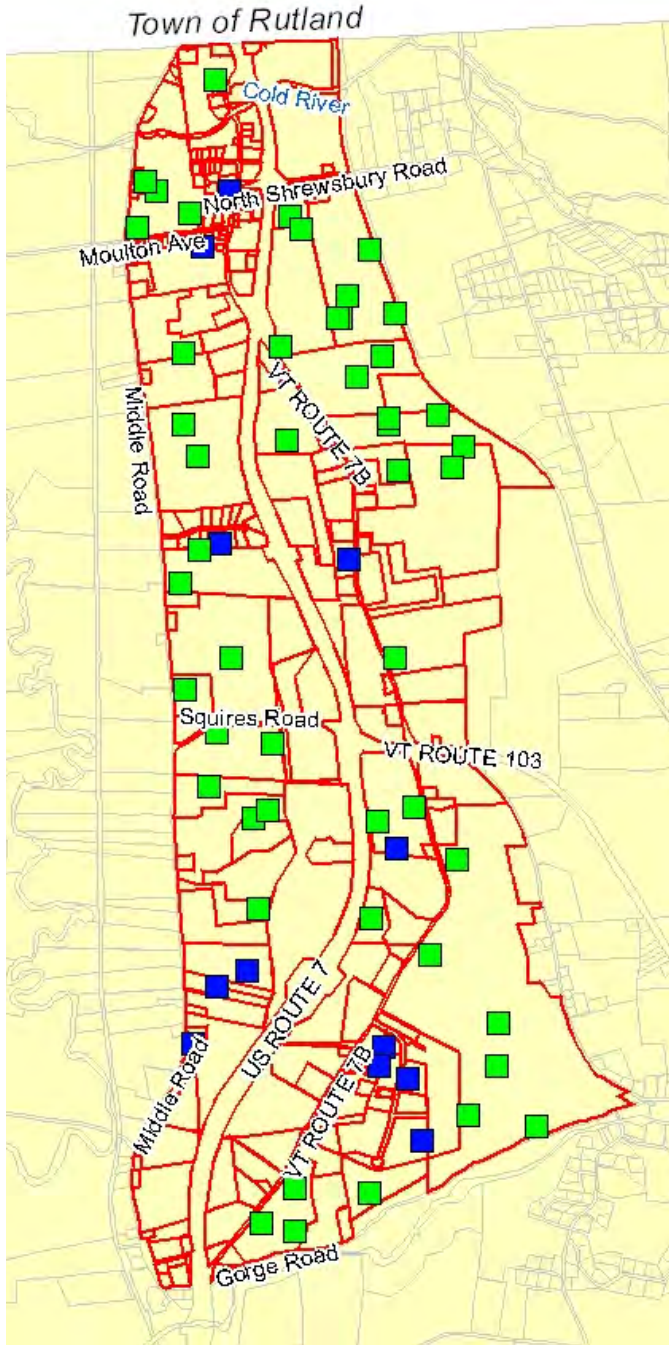


Figure 28: RRPC 2030 Build-out Analysis: Clarendon

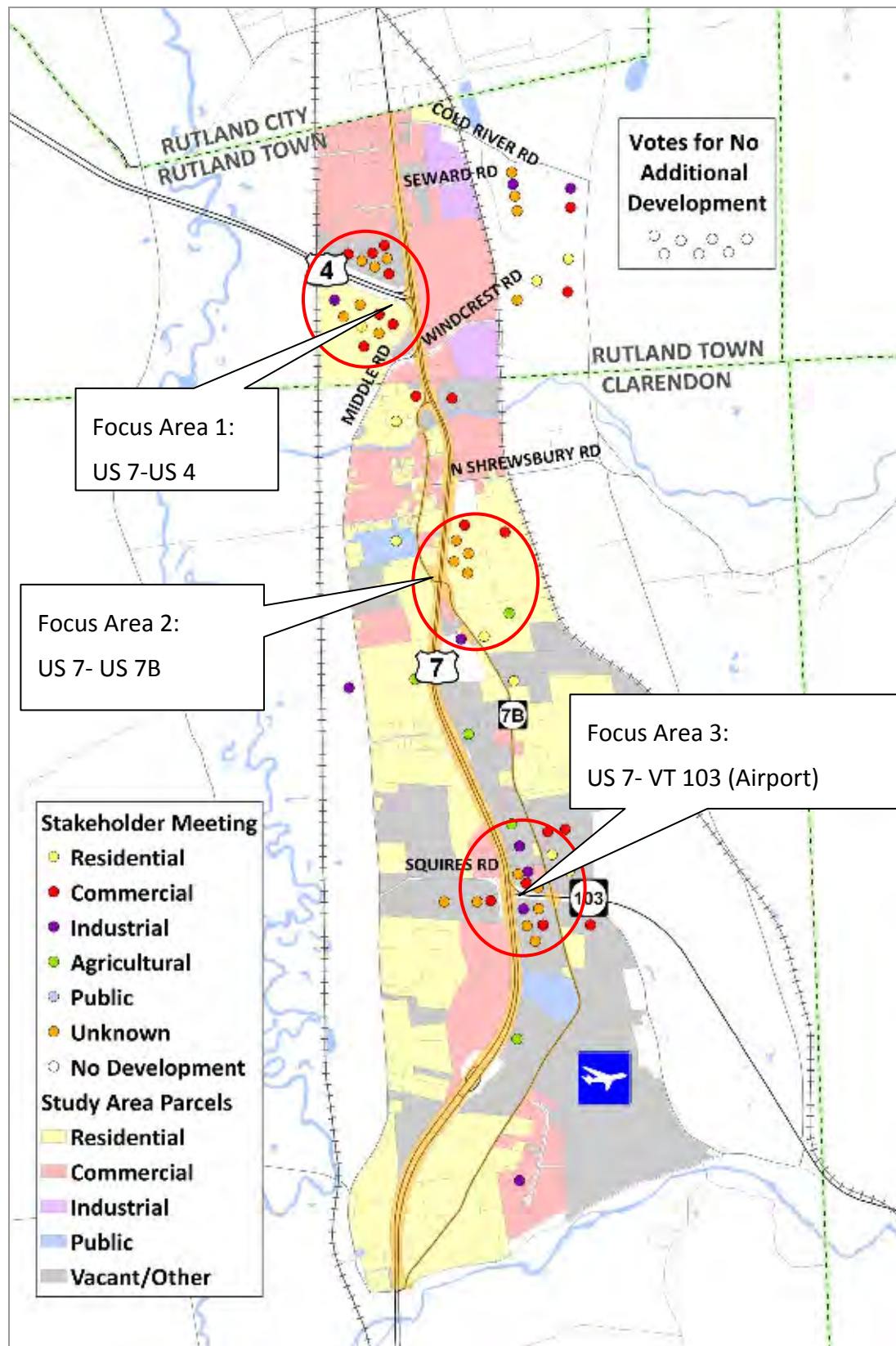


4.1.2 2030 Land Use Scenario

At the 9 February 2009 Stakeholders Meeting, attendees were asked to identify desirable locations for future development over the next twenty years along the corridor (or to recommend that no development should occur). Attendees were also asked to identify the type of land use development they would like to see (for instance, residential or commercial). Figure 29 summarizes this input from the Stakeholder Meeting.



Figure 29: Future Development Summary



In general, stakeholders concentrated development in three areas:

1. At the US 7/US 4 intersection
2. At the US 7/VT 7B intersection
3. At the US 7/VT 103 intersection

Based on the interest in focusing development in these three areas, they are designated as Focus Areas 1, 2, and 3 for the remainder of this study.

4.1.3 2030 Land Use Scenario Visualizations

LandWorks, a landscape architecture, planning, and graphic design firm, created existing and proposed visualizations for each of the focus areas. The existing visualizations show the buildings and structures that are currently standing (shown in green) on high-resolution orthophotos (aerial views of the corridor). The future visualizations include everything on the existing layouts, and add projected potential development (shown in orange) to each of the focus areas. The future sketches are conceptual in nature, and should be used to understand what *could* happen in these areas and the general scale, intensity and pattern of development. While they do attempt to consider elements such as wetlands and steep slopes, they are not meant to be taken as final recommendations on what *should* be developed, or where this development should occur. The level of development indicated will also require water and sewer service. There should be no assumption that water and sewer service is available from the City of Rutland. Lastly, reasonable assumptions were made as to how these land uses would develop, with regard to access management and circulation.

The visualizations are presented in Figure 30 through Figure 35.

Figure 30: US 7-US 4 Focus Area 1: Existing Condition



Figure 31: US 7-US 4 Focus Area 1: Future Condition



Figure 32: US 7-VT 7B Focus Area 2: Existing Condition



Figure 33: US 7-VT 7B Focus Area 2: Future Condition



Figure 34: US 7-VT 103 Focus Area 3: Existing Condition



Figure 35: US 7-VT 103 Focus Area 3: Future Condition



4.2 Traffic Projections

The 2030 traffic volumes consist of the 2009 traffic volumes as documented in section 2.0 *Existing Conditions*, background growth, and traffic generated by the housing units and commercial/industrial development assumed in the 2030 land use scenario. This section documents the background growth and describes the trip generation estimates for the 2030 land use scenario.

4.2.1 2009 – 2030 Background Growth

Background growth accounts for anticipated increases in through traffic on US 7 even if no additional development occurs in the study corridor. Background growth between 2009 and 2030 on US 7 has been projected as the following percentages:

- 8.3% from Cold River Road to Middle Road/Windcrest Road, based on analysis of historical traffic data at a VTrans count station (number P6R022) located on US 7 just north of US 4; and
- 22.6% south of Middle Road/Windcrest Road based on the statewide average growth rate for rural primary and secondary highways.

4.2.2 2030 Land Use Trip Generation

Table 11 summarizes the total amount of development assumed to occur within each focus area between 2009 and 2030. The development assumptions are based on the 2009-2030 time scope analysis¹

¹ Build-out projections are not associated with a specific time frame. A Build-out analysis is simply the maximum amount of development possible given current zoning regulations and other constraints. The time-scope analysis provides a projection of land development for a



completed by the Rutland Regional Planning Commission as part of the corridor's build-out assessment, input from stakeholders at the 9 February 2009 meeting, and comments from the CTAC at its April 13, 2009 meeting. As indicated in Table 11, Rutland Commons – a recently permitted large commercial development - will account for approximately 83,000 square feet of the total development estimated for the US 7/US 4 focus area of 222,944 square feet. The specific types of land uses assumed for the balance of 140,369 square feet are described below.

Table 11: 2009-2030 Development Assumptions

Focus Area	Commercial / Industrial (Square Feet)	Residential Units	Notes
US 7/US 4	82,575	0	Rutland Commons
	140,369	0	
	222,944	0	Totals
US 7/VT 7B	194,286	22	
US 7/VT 103	582,857	27	

To estimate the amount of traffic that would be generated by the assumed development, the generalized land uses listed in Table 11 were organized into the following categories as defined by the Institute of Transportation Engineers (ITE):

- **Residential:** Although residential growth in the study area may contain a mix of housing types, this study assumes that all of the units will be developed as single family, detached houses (ITE Land Use Code 210). Single family detached houses generate about 1.0 vehicle trips per hour in the PM peak hour and 9.6 trips per day, about twice the rate for condominiums and apartments. However, since the land use scenario assumes only 50 new housing units between 2009 and 2030, the total difference in trip generation is not significant.
- **Commercial/Industrial:** The total amount of commercial/industrial development has been organized into the following retail, office and industrial land use categories:
 - **Shopping Center (ITE Land Use Code 820) for retail.** ITE provides numerous retail categories. However, the exact type and mix of retail businesses is difficult to predict. The shopping center category was selected because it reflects a variety of store types and sizes, and incorporates related services such restaurants, banks, hair salons, florists and an occasional office.
 - **General Office (ITE Land Use Code 710) for office.** A general office building may contain multiple tenants including professional services, insurance companies, engineering firms, investment brokers, etc. Tenant services such as a cafeteria, ATM, or small retail services may sometimes be included.
 - **General Industrial (ITE Land Use Code 110) for industrial.** These facilities are free standing buildings devoted to a single use. Example activities include printing, material testing and assembly of data processing equipment. By comparison, the primary purpose of the ITE Manufacturing Category (Land Use Code 140) is to convert raw materials or parts into finished products. For the purpose of this study, General Industrial was selected because the trip generation rates are somewhat higher than the Manufacturing category.

specific time period. Refer "Build Out Analysis, The US 7 Corridor Plan Rutland and Clarendon, Vermont", prepared by the Rutland Regional Planning Commission in March 2009.



The mix of retail, office, and industrial land uses has been assumed in each focus area based on a review of permitted and conditional uses in the proposed zoning regulations and comments from CTAC members during review of the preliminary visualizations. Table 12 through Table 17 present the assumed mix of land use types, and the associated weekday PM peak hour and Saturday peak hour trip generation. Intersection traffic volumes are presented in the Appendix.

Table 12: Weekday PM Peak Hour Trip Generation for US 7 - US 4 Focus Area¹

ITE LU Code	Land Use Description	Assumed Share of Commercial / Industrial Land Use	Size	Trip Generation Rate ¹			Trip Generation (Vehicles per Hour)		
				Total	In	Out	In	Out	Total
820	Shopping Center	20%	28,074 Sq. ft	3.73	1.83	1.90	51	53	105
710	General Office	40%	56,148 Sq. ft	1.49	0.25	1.24	14	69	84
110	General Industrial	40%	56,148 Sq. ft	0.97	0.12	0.85	7	48	54
210	Single Family Homes	Not Applicable	0 Units	1.01	0.64	0.37	0	0	0
Focus Area Total							72	171	243
Internal Trips							-3	-2	-5
Total Trips Added to Network							69	169	238

Notes:

(1) Per 1,000 sf for commercial/industrial uses

(2) Rutland Commons is not included in this table

Table 13: Saturday Peak Hour Trip Generation for US 7 - US 4 Focus Area

ITE LU Code	Land Use Description	Assumed Share of Commercial / Industrial Land Use	Size	Trip Generation Rate ¹			Trip Generation (Vehicles per Hour)		
				Total	In	Out	In	Out	Total
820	Shopping Center	20%	28,074 Sq. ft	4.89	2.54	2.35	71	66	137
710	General Office	40%	56,148 Sq. ft	0.41	0.22	0.19	12	11	23
110	General Industrial	40%	56,148 Sq. ft	0.14	0.07	0.07	4	4	8
210	Single Family Homes	Not Applicable	0 Units	1.01	0.64	0.37	0	0	0
Focus Area Total							88	81	168
Internal Trips							-3	-4	-7
Total Trips Added to Network							84	77	161

Notes:

(1) Per 1,000 sf for commercial/industrial uses

(2) Rutland Commons is not included in this table

¹ Trip generation for Rutland Commons is estimated separately in the traffic impact study prepared by GPI in August 2008. Traffic volumes from Rutland Commons are included in the traffic analysis.



Table 14: Weekday PM Peak Hour Trip Generation for US 7 – VT 7B Focus Area

ITE LU Code	Land Use Description	Assumed Share of Commercial / Industrial Land Use	Size	Trip Generation Rate ¹			Trip Generation (Vehicles per Hour)		
				Total	In	Out	In	Out	Total
820	Shopping Center	20%	38,857 Sq. ft	3.73	1.83	1.90	71	74	145
710	General Office	50%	97,143 Sq. ft	1.49	0.25	1.24	25	120	145
110	General Industrial	30%	58,286 Sq. ft	0.97	0.12	0.85	7	50	57
210	Single Family Homes	Not Applicable	22 Units	1.01	0.64	0.37	14	8	22
Focus Area Total							116	252	368
Internal Trips							-13	-13	-25
Total Trips Added to Network							104	239	343

Notes:

(1) Per 1,000 sf for commercial/industrial uses

Table 15: Saturday Peak Hour Trip Generation for US 7 – VT 7B Focus Area

ITE LU Code	Land Use Description	Assumed Share of Commercial / Industrial Land Use	Size	Trip Generation Rate ¹			Trip Generation (Vehicles per Hour)		
				Total	In	Out	In	Out	Total
820	Shopping Center	20%	38,857 Sq. ft	4.89	2.54	2.35	99	91	190
710	General Office	50%	97,143 Sq. ft	0.41	0.22	0.19	22	18	40
110	General Industrial	30%	58,286 Sq. ft	0.14	0.07	0.07	4	4	8
210	Single Family Homes	Not Applicable	22 Units	0.93	0.49	0.44	11	10	20
Focus Area Total							135	123	258
Internal Trips							-13	-13	-27
Total Trips Added to Network							122	110	232

Notes:

(1) Per 1,000 sf for commercial/industrial uses

Table 16: Weekday PM Peak Hour Trip Generation for US 7 – VT 103 Focus Area

ITE LU Code	Land Use Description	Assumed Share of Commercial / Industrial Land Use	Size	Trip Generation Rate ¹			Trip Generation (Vehicles per Hour)		
				Total	In	Out	In	Out	Total
820	Shopping Center	5%	29,143 Sq. ft	3.73	1.83	1.90	53	55	109
710	General Office	40%	233,143 Sq. ft	1.49	0.25	1.24	59	288	347
110	General Industrial	55%	320,571 Sq. ft	0.97	0.12	0.85	37	274	311
210	Single Family Homes	Not Applicable	27 Units	1.01	0.64	0.37	17	10	27
Focus Area Total							167	627	794
Internal Trips							-13	-13	-26
Total Trips Added to Network							154	614	768

Notes:

(1) Per 1,000 sf for commercial/industrial uses



Table 17: Saturday Peak Hour Trip Generation for US 7 – VT 103 Focus Area

ITE LU Code	Land Use Description	Assumed Share of Commercial / Industrial Land Use	Size	Trip Generation Rate ¹			Trip Generation (Vehicles per Hour)		
				Total	In	Out	In	Out	Total
820	Shopping Center	5%	29,143 Sq. ft	4.89	2.54	2.35	74	68	143
710	General Office	40%	233,143 Sq. ft	0.41	0.22	0.19	52	44	96
110	General Industrial	55%	320,571 Sq. ft	0.14	0.07	0.07	21	24	45
210	Single Family Homes	Not Applicable	27 Units	0.93	0.49	0.44	13	12	25
Focus Area Total							160	148	308
Internal Trips							-14	-14	-28
Total Trips Added to Network							146	134	280

Notes:

(1) Per 1,000 sf for commercial/industrial uses

4.2.3 2030 Operational Analysis

This section provides Level of Service analysis results for 2030, and compares them to the results obtained in the Existing Conditions analysis for 2009. The analysis assumes the following intersection modifications are implemented:

- Traffic signal cycle lengths have been optimized. In general, the cycle lengths have been decreased.
- Intersection lane changes at the intersections of US 7/Holiday Inn Drive, Holiday Inn Drive/Cop John Drive, Holiday Inn Drive/Rutland Commons Access Road and Green Mountain Plaza/Cop John Drive as recommended in the joint mitigation plan prepared by GPI (see attached plan)¹. The joint mitigation plan was requested by the District Environmental Commission. Its purpose is to reduce traffic congestion and improve safety for all businesses located on Cop John Drive.

While evaluating these results, the following US 7 Corridor Plan goal should be considered: *Provide an appropriate balance between through vehicle mobility and local access with a slight focus on serving through traffic.*

To accommodate this goal, the following performance measures are suggested to define the “appropriate balance” between through traffic and local access:

- Maintain LOS C for through traffic on US 7
- Maintain LOS D for side road approaches to US 7

As a point of reference, the current VTrans Level of Service policy for state roads is:

- Overall LOS C should be maintained for state-maintained highways and other streets accessing the state’s facilities.
- Reduced LOS may be acceptable on a case-by-case basis when considering, at minimum, current and future traffic volumes, delays, volume to capacity ratios, crash rates, and negative impacts as a result of improvement necessary to achieve LOS C.

The LOS D performance measure suggested for side road approaches to US 7 is less restrictive than the VTrans LOS C policy for roads accessing state facilities. Establishing a less restrictive LOS for the side

¹ Memo from James Winn, Greenman-Pedersen, Inc re: Response to Second Act 250 Recess Order Proposed Rutland Commons Development Route 4/7, Rutland, Vermont; January 29, 2009



street approaches will allow capacity to be transferred to through movements on US 7 without necessarily adding overall capacity to the road system.

Table 18 presents LOS results for the overall intersection and each approach. Shaded areas indicate where the US 7 Corridor suggested LOS performance measure targets are not satisfied. Specific locations are as follows:

2030 PM Peak Hour:









- US 7/Holiday Inn Drive/Diamond Run Mall – LOS D is projected for the northbound and southbound approaches;
- US 7/VT 7B – LOS F is projected for the eastbound and westbound approaches.

2030 Saturday Peak Hour:

- US7/Green Mountain Plaza/Seward Road – LOS F on the eastbound, westbound, and northbound approaches
- US 7/Holiday Inn Drive/Diamond Run Mall – LOS F on the northbound approach and LOS E on the southbound approach.



Table 18: 2030 Weekday PM and Saturday Intersection LOS Results – Overall Intersection and Approaches

		PM Peak Hour 2009			SAT Peak Hour 2009			PM Peak Hour 2030			SAT Peak Hour 2030		
		LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
	US 7/Cold River Road												
	Overall	B	12	0.66	A	8	0.53	B	11	0.85	A	7	0.67
	EB, exiting Driveway	D	46	-	D	47	-	C	28	-	D	35	-
	WB, exiting Cold River Rd	E	57	-	D	53	-	D	38	-	D	39	-
	NB, from Clarendon	B	11	-	A	5	-	B	10	-	A	4	-
	SB, from Rutland City	A	8	-	A	6	-	A	9	-	A	6	-
	US 7/Green Mountain Plz/Seward Rd												
	Overall	D	43	0.73	F	>100	0.99	C	30	0.88	F	>100	1.18
	EB, exiting GMP	F	>100	-	F	>100	-	D	50	-	F	>100	-
	WB, exiting Seward Rd	E	64	-	F	>100	-	C	26	-	F	>100	-
	NB, along US 7 toward Rutland City	B	16	-	E	62	-	C	29	-	F	>100	-
	SB, along US 7 toward Clarendon	D	35	-	C	20	-	C	27	-	C	33	-
	US 7/Holiday Dr/Diamond Run Mall												
	Overall	B	19	0.53	D	35	0.74	D	39	0.69	E	68	0.88
	EB, exiting Holiday Inn	D	54	-	D	51	-	C	27	-	C	29	-
	WB, exiting Diamond Run Mall	D	52	-	D	38	-	D	46	-	D	35	-
	NB, along US 7 toward Rutland City	B	18	-	C	25	-	D	39	-	F	97	-
	SB, along US 7 toward Clarendon	B	12	-	D	39	-	D	42	-	E	73	-
	US 7/US 4/Diamond Run Mall												
	Overall	C	28	0.57	C	34	0.42	C	30	0.73	B	18	0.64
	EB, from US 4	E	56	-	D	49	-	D	52	-	D	37	-
	WB, from Diamond Run Mall	D	53	-	D	51	-	C	34	-	D	39	-
	NB, from Clarendon	C	23	-	C	24	-	C	21	-	B	15	-
	SB, from Rutland City	B	19	-	C	33	-	C	31	-	B	10	-
	US 7/Windcrest Rd/Middle Rd												
	Overall	B	17	0.59	B	13	0.61	C	20	0.83	B	17	0.62
	EB, from Middle Rd	C	28	-	C	26	-	D	55	-	D	48	-
	WB, from Windcrest Rd	C	22	-	C	23	-	C	22	-	C	31	-
	NB, from Clarendon	B	16	-	B	12	-	B	16	-	B	15	-
	SB, from Rutland City	B	14	-	A	10	-	B	13	-	B	10	-
	US 7/North Shrewsbury Rd												
	Overall	B	13	0.46	Not Analyzed			B	15	0.75	Not Analyzed		
	EB, from N Shrewsbury Rd	C	34	-				C	32	-			
	WB, from N Shrewsbury Rd	D	42	-				D	51	-			
	NB, from Clarendon	A	10	-				B	10	-			
SB, from Rutland City	A	10	-	B				13	-				
	US 7/VT 7B												
	EB Left/Through/Right, from 7B	C	24	0.18	Not Analyzed			F	>100	>1.0	Not Analyzed		
	WB Left/Through/Right, from 7B	C	17	0.10				F	>100	>1.0			
	NB Left, from Clarendon	A	10	0.05				B	11	0.60			
	SB Left, from Rutland City	A	10	0.05				B	14	0.29			
	US 7/VT 103/Squires Rd												
	Overall	B	20	0.52	C	20	0.59	C	29	0.76	C	30	0.70
	EB	C	28	-	C	31	-	D	42	-	D	47	-
	WB, from VT 103	C	24	-	C	25	-	C	34	-	D	37	-
	NB, from Clarendon	C	22	-	C	23	-	C	29	-	C	29	-
	SB, from Rutland City	B	15	-	B	15	-	C	24	-	C	27	-

4.3 Goal Assessment: Issues and Strategies

This section repeats each corridor goal, identifies and discusses issues related to the goal, and presents strategies to achieve that goal. The issues are based on the analyses and research presented in the Existing Conditions section of the report, the 2030 traffic analysis presented above, and comments from stakeholders and CTAC members. The assessment also incorporates some findings from the *Western Corridor Transportation Management Plan*.

Strategies are not recommendations. Rather, they are options for consideration by the CTAC. Some of the strategies are specific and have been analyzed in detail, while others are broad and have been discussed in more general terms.

4.3.1 Goal: Traffic Flow

Goal Statement: *Provide an appropriate balance between through vehicle mobility and local access with a slight focus on serving through traffic.*



4.3.1.1 Issues

- Congestion projected for the 2030 PM peak hour is manageable.
 - The poor level of service projected for the VT 7B approaches is noteworthy. However, the intersection is stop-controlled and there are several options available to address the congested side road approaches.
 - The LOS D projected for the northbound and southbound approaches of US 7 to Holiday Inn Drive/Diamond Run Mall does not satisfy the target performance measure of LOS C. However, having just one location throughout the corridor where LOS C is not satisfied may be acceptable.
- Congestion projected for the 2030 Saturday peak hour along US 7, from US 4 south, is acceptable.
- During the 2030 Saturday Peak hour, congestion will be focused at the US 7 intersections with Holiday Inn Drive/Diamond Run Mall and Green Mountain Plaza/Seward Street. Some reasonable options exist to add lanes at the US 7/Green Mountain Plaza intersection. However, possibilities for adding lanes are limited at the US 7/Holiday Inn/Diamond Run Mall intersection.

4.3.1.2 Strategies

Land Use Strategies. The 2030 land use scenario and resulting traffic projections are based upon assumed amounts of growth and a mix of retail, office, industrial and residential land uses types as presented in Section 4.2.2 (page 61). Traffic generated by the assumed 2030 land use scenario contributes to the congestion summarized above. One way to address this congestion is to plan for different land use scenarios that generate less traffic. Other scenarios could be considered that assume less total growth and different mixes of land uses that have lower trip generation rates.

To test the viability of this strategy, traffic projections were developed that include background growth but assume no additional commercial or industrial development between 2009 and 2030 with the exception of projects such as Rutland Commons and IHOP which have permits but are not yet built. The residential units (approximately 50 in Clarendon) are included. This “no new commercial/industrial” scenario is an extreme example, but it provides a useful boundary for testing the potential effect land use planning could have in addressing congestion specifically and transportation in general. This analysis is presented in the next section, 4.3.1.3 *Strategy Assessment*.

Traffic Engineering and Design Strategies. These strategies focus on modifying the roadway and generally include adding or reconfiguring turn lanes, installing a traffic signal or roundabouts.

New Local Roads. This strategy focuses on the study corridor north of US 4-West. The Town of Rutland provided a sketch that showed conceptual locations of local roads that would connect parcels along the west side of US 7 between the Rutland City line and Green Mountain Plaza. For the purpose of this study, the local road concept has been expanded to the east side of US 7 as well. A conceptual plan of the local road network is shown in Figure 36. New connections should be evaluated within the general areas circled in Figure 36. Final alignments need to be coordinated with a more detail assessment of land owner operations and plans and other constraints.

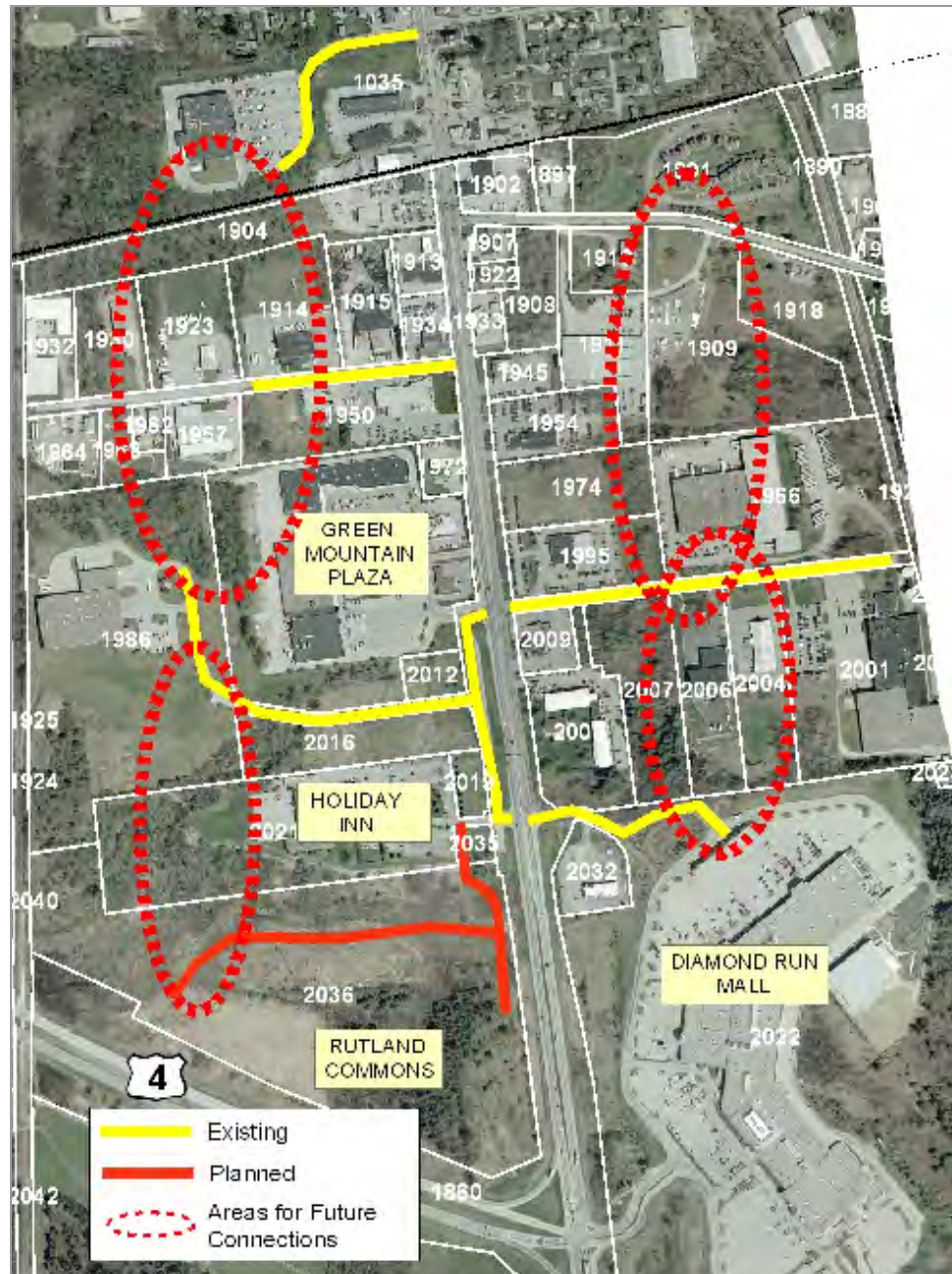
The local roads would provide an alternate route to US 7 for vehicles traveling to, from and between businesses. The function of these roads is to provide local circulation and access, helping to preserve the capacity on US 7 for through traffic. This strategy helps achieve the goal of balancing mobility for through traffic with access to adjacent parcels. These roads would provide an opportunity to expand a local network of sidewalks and bicycle facilities, and could facilitate redevelopment and infill of under-utilized parcels. The strategy also supports access management. As parcels are redeveloped, the local roads would create an opportunity for rear access and can funnel left turning traffic to traffic signal controlled intersections. For the purpose of this analysis, the following assumptions have been made regarding the amount of traffic diverted to the local roads:



- 50% of the vehicles turning left from Holiday Inn Drive and Green Mountain Plaza. This movement experiences the most delay and would encourage a higher percentage of motorists to seek alternate routes to destinations in the north;
- 25% of southbound vehicles turning right into Holiday Inn Drive and Green Mountain Plaza;
- 25% of southbound vehicles turning left into Diamond Run Mall; and
- 25% of vehicles turning right from Diamond Run Mall with a destination to the north.

Traffic volume adjustments are presented in Appendix D.

Figure 36: Local Road Concept



4.3.1.3 Strategy Assessment

This section analyzes the effect of the different strategy options on the specific intersections projected to have congestion issues with traffic generated by the 2030 land use scenario.

US 7-Green Mountain Plaza-Seward Road

- **Land Use.** The critical time period for this intersection is the Saturday peak hour. If no additional development occurred in the three focus areas beyond projects that are already permitted, overall intersection LOS in 2030 is projected at F and three of the four approaches would operate at LOS F (northbound US 7, westbound Seward Road, and eastbound Green Mountain Plaza would operate at LOS F). Southbound US 7 would operate at LOS C.
- **Traffic Engineering.** Additional lanes appear to be feasible at this intersection. The corridor performance goals of LOS C for US 7 and LOS D for side roads could be achieved at this intersection with the following lane change modifications (also indicated in a conceptual plan contained in Appendix B):
 - US 7 Northbound – The existing configuration includes an exclusive left turn lane, a through lane and a shared through/right turn lane. The proposed configuration includes an exclusive right turn lane, an exclusive left turn lane, and a double through lane.
 - Seward Road Westbound – The existing configuration consists of a single lane approach. Change the single lane approach to a shared right/through lane and an exclusive left turn lane;
 - Green Mountain Plaza Drive – The existing configuration consists of a shared through/left lane and an exclusive right turn lane. The proposed configuration includes a double left turn lane and a shared through/right turn lane.
- **Local Roads.** During the 2030 Saturday peak hour, LOS on northbound and southbound US 7 would improve to C. LOS on the side street approaches would remain at LOS F. Turning lanes could be added to the Green Mountain Plaza and Seward Road approaches as described above to mitigate the congestion. Or, as a matter of policy, no additional changes would be made to the side streets to encourage the diversion of more traffic to the local road network. During the 2030 PM peak hour, all approaches would operate at LOS C.

US 7-Holiday Inn Drive-Diamond Run Mall Intersection

- **Land Use.** If no additional development occurred in the three focus areas beyond projects that are already permitted (including Rutland Commons which uses this intersection as its primary access point), there would be an improvement in level of service, but congestion would still be an issue at this intersection. During the 2030 weekday PM peak hour, the US 7 northbound approach would operate at LOS C and the US 7 southbound at LOS D. During the 2030 Saturday peak hour, US 7 northbound would operate at LOS D and southbound at LOS E. The side road approaches would operate at LOS D or better during the weekday PM and Saturday peak hours.
- **Traffic Engineering.** The only lane that could be added to this intersection without requiring significant reconstruction is an exclusive right turn lane on the US 7 southbound approach. The projected 2030 LOS on the southbound approach with the existing lanes is E. The additional lane would not improve this LOS, because right-turning vehicles typically do not incur delay.
- **Additional Local Roads.** During the 2030 Saturday peak hour, level of service on US 7 northbound would improve from F to D and level of service on US 7 southbound would improve from E to D. While the performance does not achieve the LOS C goal, the improvement is significant. The Holiday Inn Drive approach would operate at LOS C and the Diamond Run Mall approach at LOS D. During the 2030 PM peak hour, the US 7 approaches would operate at LOS B, the Holiday Inn Drive approach at LOS D, and the Diamond Run Mall approach at LOS C.



US 7-VT 7B Intersection

- Land Use. If no additional commercial/industrial development occurred in the three focus areas beyond projects that are already permitted, projected 2030 level of service on the eastbound and westbound approaches of VT 7B to US 7 are F and E, respectively. Therefore, even of no additional development occurred in the corridor, some modifications would be necessary to address the congestion.
- Traffic Engineering
 - Traffic Signal installation. A traffic signal, without any additional turning lanes, is projected to provide LOS B for the overall intersection in 2030. Northbound and southbound US 7 are projected to operate at LOS A, eastbound VT 7B at LOS C and westbound VT 7B at D.
 - Roundabout. A preliminary capacity assessment indicates that a two lane roundabout would be required to accommodate the significant amount of US 7 northbound and southbound through traffic. The VT 7B intersection is similar in many ways to the VT 103 intersection where a roundabout was rejected for a variety of reasons.

4.3.2 Goal: Access Management

Goal Statements:

- *North of US 4-West: Limit and consolidate the number of new driveways on US 7.*
- *South of US 4-West: Limit the number of new driveways on US 7 and encourage access onto VT 7B.*

4.3.2.1 Issues

Overall Administrative and Coordination

As described thoroughly in section 2.0 *Existing Conditions*, the challenge to implementing best practices in access management is overlapping jurisdiction and coordination between VTrans and the Towns, and lack of access management policies and standards at the local level.

VTrans has the authority to manage access to all state highways and has a comprehensive access management program. Rutland Town and Clarendon have the authority to regulate subdivision of land, types and density of development, and site plan design, all of which affect the location and design of access points as well as the amount of traffic added to the network.

Municipal plans in Rutland Town and Clarendon do not include policies and recommendations related to access management. None of the existing or proposed bylaws reference the need for state highway permits to access state highways or the related VTrans Access Management Program Guidelines. More important, existing and proposed subdivision and zoning regulations do not include specific requirements for access management.

North of US 4

Existing access management issues are limited to the section of the corridor north of the Holiday Inn Drive/Diamond Run Mall intersection. The types of issues identified include driveways that are spaced too closely together, multiple driveways per parcel, and excessive driveway widths. Short of reconstructing the roadway, these types of issues will have to be addressed over time as parcels are redeveloped, reinforcing the need for consistent access management practices and coordination between VTrans and the municipalities.

Between the Rutland Town/City line and Seward Road, US 7 has been designated by VTrans as Access Management Category 6, which covers urban sections of highways. Between Seward Road and US 4, US 7 has been designated as Access Management Category 3, which covers principal arterials. The categories are similar in that VTrans may deny direct access to the highway if reasonable and safe access is available on a side street. VTrans may also regulate the design of the access point (width, turning radii, number of



access points, need for turn lanes or a traffic signal, etc). These types of requirements should be incorporated local subdivision and zoning bylaws.

The local road network suggested above could provide a systems role for access management along this section of the corridor. By providing alternative access points, direct access to US 7 could be limited or restricted to certain movements (such as right-in and right-out only).

South of US 4

There are no existing access management issues south of US 4. Between US 4 and its northern intersection with VT 7B, US 7 has been designated by VTrans as Access Management Category 3. This category permits direct access to the highway from abutting property, if no reasonable and safe access location is available on a side road. VTrans can regulate the design of the access point (width, turning radii, number of access points, need for turn lanes or a traffic signal, etc) but may not deny access. There are a couple of smaller parcels with direct access to US 7 along this segment. The larger parcels have direct access on side roads and can access the highway at the signalized intersection of US 7/Middle Road/Windcrest Road.

South of the northern VT 7B intersection, US7 has been designated as Access Management Category 2, which is a limited access facility. Private direct access is not permitted unless access to a property was reserved when the limited access facility was established.¹

VTrans also regulates access to VT 7B and has designated it as Access Management Category 3. As noted above, direct access is permitted as long as reasonable and safe alternative access points on a side road are not available.

The second component of this goal, to limit direct access to US 7 south of US 4 and to encourage access on VT 7B, is for the most part already satisfied. Coordination issues between Clarendon and VTrans is still an issue relative to access on VT 7B.

4.3.2.2 Strategies

- **Consider executing a memorandum of understanding – an “Intergovernmental US 7 Corridor Management Memorandum of Understanding”** – between VTrans, the regional planning commission, and towns, that references the US 7 Corridor Plan. The memorandum should outline joint notification requirements, coordinate state and local permitting processes, and address needed access and infrastructure improvements within and along the US 7 Corridor in conformance with plan recommendations.

Intergovernmental corridor management agreements have long been used to coordinate access management along state highways in rapidly developing states such as Florida, and are currently being instituted for use in New Hampshire. They have also been proposed, if not yet enacted, for consideration elsewhere in Vermont. Typically, such agreements at minimum require that:

The state and RPC must provide information and technical assistance to the town in developing acceptable access management standards, and site- or parcel-specific access management plans for parcels along the highway corridor.

- All corridor or site/parcel specific access management plans must be filed with the state and the RPC.
- The town must adopt and administer access management standards acceptable to the state for development that accesses state highways. At minimum, these should be consistent with accepted state access management guidelines.

¹ An appeal process is available through the Vermont Transportation Board.



- The town must notify the state (e.g., the District Transportation Administrator or Utilities and Permits Unit) and RPC when it receives a development proposal that requires a state access permit, and request input on access location and design.
- The town must require that all access points comply with adopted access management standards and any applicable site specific access management plans.
- The town must inform the state of any waivers or variances from the access management standards or plans prior to local approval and provide appropriate notice for comments.
- The state will defer final action on a driveway access permit until the town has had a reasonable opportunity to review any related development application.
- The state must give the town and regional commission 30 days notice, and opportunity for written comment, if it is required under state law and associated management guidelines to allow for reasonable access to a project that differs from that approved by the town.
- In accordance with 19 VSA §1111, the state must require compliance with all local ordinances and regulations relating to highways and land use as a condition of any state highway access approval.

VTrans is understandably wary of entering into individual management agreements with every municipality in the state but, in the absence of other statutory coordination mechanisms (as proposed but not yet enacted under 19 VSA §1111), the agency must consider this option for municipalities such as Rutland Town and Clarendon that regulate development along major state highways (e.g., the National Highway System) and interchange areas. The towns also may be reluctant to adopt state guidelines and associated notification requirements that could compound or extend the local permitting process but, in doing so, may avoid inter-jurisdictional conflicts that could further delay or ultimately supersede locally approved development. There is also a role for the regional planning commission, as the major source of technical assistance to the town for both planning and development review, and as a statutory party to Act 250 proceedings for major development along the corridor.

- **Separate Strategies:** The following strategies are intended to affect the terms of a corridor management agreement, but may also be implemented separately even if an MOU is not established:
 - **Incorporate state agency application referral and notification requirements under zoning and subdivision regulations for all land development proposed along state highways, including US 7 and V 7B.** The regulations should specify that the administrative officer (zoning administrator) will refer all applications for development that fronts on or accesses state highways to VTrans and the RPC for review, and that no local permit or approval will be issued until comments are received from the state, or 30 days have elapsed from the date of referral.¹ The regulations should also specify that applications for development on town highways – especially town highways that intersect the US 7 corridor – be referred to the town’s highway superintendent for review and comment under the town highway ordinance, in accordance with local practice. An application for development on an intersecting town highway that will affect or require modifications to a state highway corridor or intersection also should be referred to VTrans and the regional commission for review and comment. Towns should refer to this document to see if the proposal is consistent with this corridor plan.
 - **Update and adopt local development regulations and highway ordinances to reference or incorporate applicable state access management standards,** to ensure that local, regional and state access management policies and standards for development on state

¹ The Vermont Planning and Development Act included a similar application referral requirement for any proposed development located within 500 feet of an interstate ramp, but this requirement was repealed in a 2004 update of the statutes and no longer applies. It also is not referenced under the town’s current regulations, which have since been updated, but is still referenced in the state’s permitting handbooks.



highways are consistent. At minimum these should incorporate or reference Vermont Agency of Transportation Access Management Program Guidelines (rev. 2005) as used by the state in issuing state highway access permits and also, as applicable:

Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads and Streets (1997), ¹and

State design and construction standards – e.g., Standard A-76 (Town and Development Roads), Standard B-71 (Residential and Commercial Drives), etc. – to include standards that supplement, or may be more restrictive, than current town highway standards – particularly for town and development roads that intersect state highways.

- **Incorporate comprehensive access management policies, standards and review procedures into local development regulations.** Table 19 presents a list of commonly recommended access management techniques and the applicable regulation.
- **VTrans Access Management Categories.** Consider changing the access category on US 7 between the northern VT 7B intersection and the Holiday Inn/Diamond Run Mall intersection from category 3 to category 2. With this change, no new direct access points would be permitted on that section of US 7 without approval of the Vermont Transportation Board. Existing and permitted access points would be grandfathered.

Table 19: Regulatory Corridor and Access Management Options

Regulatory Access Management Options	May be Defined or Applied Under:					
	Zoning Map	Zoning District Standards	General Zoning Standards	Site Plan Review	Conditional Use Review	Subdivision Review
Zoning District Designations						
1. Avoid “ribbon” or “linear” zoning along road corridors	Y					
2. Define compact development districts –nodes, villages, growth centers – in appropriate locations (e.g., adjacent to existing centers, major intersections)	Y					
3. Define “Interstate Interchange District” to regulate development, access management within interchange areas.	Y					
4. Define “Access Management Overlay District(s)” to apply access management criteria to a particular corridor or intersection	Y					
Land Uses (by Zoning District)						
1. Consider allowed uses in relation to context, trip generation, transit		Y				
a. Rural: agriculture, forestry, low density residential		Y				
b. Village/Growth Center: mixed commercial, residential, civic		Y				
c. Interchange: limited mixed use (travel, highway-oriented uses)		Y				
Densities of Development (by Zoning District)						
1. Limit scale, density of development along undeveloped sections		Y				
a. Rural: low overall density, large lots, wide frontage, deep setbacks and/or clustered development off the road		Y				

¹ As recommended for update in the current Vermont Highway System Policy Plan.



Regulatory Access Management Options	May be Defined or Applied Under:					
	Zoning Map	Zoning District Standards	General Zoning Standards	Site Plan Review	Conditional Use Review	Subdivision Review
b. Village/Growth Center: high density, small lots, reduced frontage and setbacks, increased height, coverage		Y				
c. Interchange: planned, low-moderate overall density, clustered, limited access		Y				
General Access Standards						
1. Limit access (curb cuts) to one per lot, or one per specified length of road frontage, consistent with access separation guidelines			Y	Y	Y	Y
2. Require access from a secondary road where feasible			Y	Y	Y	Y
3. Require that new or relocated driveways be aligned with facing driveways where feasible			Y	Y	Y	Y
4. Allow driveway and parking areas within side yard setbacks			Y	Y	Y	
5. Separate curb cuts and road intersections; set minimum distances			Y	Y	Y	Y
6. Define access and driveway design standards (e.g., width, length, alignment, grade) which may vary by the type of use			Y	Y	Y	
7. Limit access and driveway widths to the design width, require curbing or other access control features			Y	Y	Y	
8. Require adequate driveway length for storage and stacking			Y	Y	Y	
9. Require driveway turn around areas; prohibit direct parking that requires backing into rights-of-way (except for on-street parking)			Y	Y	Y	
10. Specify access requirements for Class IV (seasonal) roads			Y			
Site Layout Standards						
1. Rural: minimize the linear density of development along roads, maximize internal site circulation (access to outparcels)				Y	Y	Y
2. Village/Growth Center: maximize connectivity, create or maintain a pedestrian scale and orientation				Y	Y	Y
Site Layout Standards, continued						
3. Village/Growth Center: reduce or eliminate on-site parking requirements (e.g., based on the availability of on-street, shared or public parking, or the use of parking or transit credits)				Y	Y	Y
4. Require shared access and interconnected parking with adjoining properties and uses (joint and cross access) where feasible; or access easements that connect to adjoining parcels in the event they are developed or redeveloped.				Y	Y	Y
5. Require pedestrian sidewalks or paths between buildings, parking areas, and where feasible to adjoining parcels.				Y	Y	Y
6. Require the installation of mid-block pedestrian crossings where appropriate				Y	Y	Y
7. Require the installation of public transit facilities, where served.				Y	Y	Y



Regulatory Access Management Options	May be Defined or Applied Under:					
	Zoning Map	Zoning District Standards	General Zoning Standards	Site Plan Review	Conditional Use Review	Subdivision Review
8. Require the installation of bicycle racks for commercial, industrial, civic, multi-family and recreational uses.				Y	Y	Y
Multi-Property Standards						
1. Allow for or require planned unit (and planned residential development); to include requirements for clustering					Y	Y
2. Require the submission of a master plan for phased development, showing planned access points, road and pedestrian extensions						Y
3. Require that the pattern of subdivision ensures proper access and street layout in relation to existing or proposed roadways						Y
4. Discourage or prohibit the creation of flag and other irregularly shaped lots that do not meet access or frontage requirements						Y
5. Require that newly subdivided parcels be served by existing or planned accesses; limit the creation of new accesses associated with re-subdivisions						Y
6. Require access to individual lots from internal/service roads						Y
7. Define road and road intersection standards						Y
8. Discourage the creation of dead-end roads, including cul-de-sacs						Y
Infrastructure Requirements						
1. Require traffic impact analyses for larger projects, to be paid for by the developer, to determine traffic and infrastructure impacts associated with a proposed development					Y	Y
2. Require the installation of on- and/or off-site access, road and/or traffic management improvements necessitated by the development, to be paid for by the developer				Y	Y	Y

4.3.3 Goal: Promote Mixed Use and Nodal Development

Goal Statement: *Promote mixed-use and nodal development.*

4.3.3.1 Issues

Current plans and bylaws that direct the location, type, pattern and density of development were reviewed for policies and standards that either support or discourage envisioned patterns of mixed use, nodal development along the highway corridor – particularly in the three focus areas identified by stakeholders for future growth and development. These areas, located at key intersections, have been evaluated as potential locations for mixed commercial, industrial and limited residential development, as addressed in the above build-outs, projected trip generation rates, and associated visualizations for each area. As visualized, these areas include a new “village” center at the intersection of US7 and VT7B (Focus Area #2). Related issues and opportunities are highlighted as follows.

- The proposed type and pattern of development is generally consistent with, though not specifically supported by, current regional and municipal plan policies and recommendations.



- The Rutland Regional Plan and the municipal plans for Clarendon and Rutland Town include general policies to concentrate development in growth centers or commercial clusters near major routes, including US7 and US4.
 - The Rutland Regional Plan calls for settlement patterns, including concentrated growth in centers, to reduce demand on the transportation network.
 - The Rutland Town Plan recommends that commercial and industrial development be allowed in areas served by infrastructure with access to arterial highways and rail.
 - The Clarendon Town Plan calls for concentrated development in villages and clusters near major routes.
- Current plans, however, do not necessarily limit commercial or mixed use development to nodes or focus areas identified by stakeholders.
 - The Regional Plan includes the entire US7 corridor south of Rutland City, into Rutland Town and Clarendon, in an area proposed for moderate to higher density mixed use development, but also specifically targets North Clarendon, existing business parks and the airport for concentrated development. The US7/VT103 focus area, in the vicinity of the airport, is generally consistent with this recommendation.
 - Two of the three focus areas – the US7/US4 and VT7B/VT103 intersection areas – generally coincide with areas identified for development in municipal plans – including Rutland Town’s proposed Industrial/Commercial District which extends beyond the US7/US4 intersection to adjoining town lines, and Clarendon’s Commercial-Industrial Districts at the intersections of US7/VT103 and VT7B/VT103 near the airport.
 - Municipal plans, however, also anticipate commercial development along the entire length of the US7 corridor, in association with residential or industrial development. There are no specific policies in either plan that discourages linear development along major routes. Development may be limited to state-approved access points on US7 and US4 as limited access highways, but can extend along intersecting routes.
 - The proposed type and pattern of development is not supported by current municipal land use and development regulations.
 - The Town of Rutland should adopt zoning bylaws that regulate the type, location and density of development along the US 7 corridor. The town has adopted fairly detailed subdivision regulations; however these do not apply if a proposed development does not involve the subdivision of land. As a result, any proposed use – including concentrated or nodal mixed use development – may occur, but only at the discretion of the developer.
 - The Town of Clarendon should adopt subdivision regulations to regulate the pattern of development, including the design and layout of new lots and access roads along the corridor and intersecting routes – for example that could promote or require a village street grid pattern as envisioned for the US7/VT7B focus area.
 - Regulations should be in place to encourage or require nodal or clustered development – through zoning district designations and associated dimensional standards, or through provisions for integrated, planned unit development. Current and proposed zoning bylaws allow for a variety of commercial development along the length of the corridor – both within and outside of proposed growth nodes. Zoning districts specify similar minimum lot area and frontage requirements. Clarendon has not adopted PUD standards. Rutland is considering PUD standards, but only for residential development.
 - There should be provisions for, or categories of, mixed use development in either set of regulations. The “mix” of uses allowed under both Clarendon’s current zoning and the Town of Rutland’s proposed zoning is limited largely to commercial and industrial uses. As depicted in visualizations, residential use in Clarendon’s Residential-Commercial District – which covers most of the corridor area, including all or a portion of the three focus areas – is limited to single family dwellings on lots with a minimum area of one acre.



- Multifamily units must be listed as permitted or conditional uses to be allowed in the vicinity of the corridor – precluding the type of “village” development depicted for Focus Area #2. Residential uses are generally listed (but according to the town plan not allowed) in Clarendon’s Commercial-Industrial District, and also are not allowed in Rutland Town’s proposed Industrial/Commercial District.
 - On-site parking and height restrictions also limit densities of development – there should be provisions to reduce or modify dimensional or parking requirements to accommodate taller buildings, or shared or off-site parking (e.g., under site plan review standards) as generally required for more concentrated, mixed use development.
 - There are few provisions to address the impacts of proposed development on adjoining properties and infrastructure – including traffic and highway infrastructure. As noted, current and proposed zoning district designations along the corridor allow for a variety of commercial and industrial uses – largely as “permitted” uses subject only to site plan review. Like conditional use review, site plan review should include consideration of the potential impacts of development on adjoining properties and uses, or traffic and highway infrastructure in the vicinity of proposed development. Rutland Town’s subdivision regulations include provisions for assessing the impacts of proposed subdivisions on town highways, and associated infrastructure improvement standards.
- Within the larger planning context, proposed nodes or growth areas should be considered in relation to their potential impacts on established settlements and uses in the vicinity of and served by the corridor – including existing downtown and village centers, established industrial parks and commercial areas, and the airport. New growth areas should complement, and not detract from, the area’s historic village centers and downtowns, and other areas targeted for substantial public investment.
 - Of particular note, consideration should be given to land use and development in the vicinity of the airport, especially in relation to proposed airport expansion. Airport zoning should be proposed to protect approaches and to limit incompatible land uses within the vicinity of the airport.
- As discussed earlier, access to proposed nodes or growth areas, especially from US7, is limited. More specific access management plans and connectivity requirements under subdivision and site plan review should direct/limit the development capacity and build-out of parcels that lack direct or alternative access to highway corridors.

4.3.3.2 Strategies

Mixed use development within designated areas along the US7 corridor can be promoted through specific plan policies and recommendations that are then implemented locally through supporting plans, programs and regulations – in particular zoning regulations that govern the location, type and overall density of development, subdivision regulations that govern the overall pattern and context of development, and capital or transportation improvement programs that allow for the scheduling and phasing of development in relation to available infrastructure capacity and planned improvements. Potential planning and regulatory strategies are highlighted as follows.

Plans

- Incorporate US7 Corridor Plan recommendations in regional and municipal plans as the basis for corridor plan implementation. This is especially important now that, under state law, local implementation strategies – including adopted regulations and capital improvement programs – must conform to and implement adopted municipal plans.
- Evaluate proposed development nodes along the corridor, including proposed uses and potential impacts to established types and patterns of development in the vicinity.



- Develop specific plan policies that promote concentrated, mixed use development in targeted areas along the corridor, to be served by existing or planned access, infrastructure and services, and to avoid commercial linear and scattered development outside of these areas.
- Update land use, transportation and facility plans as appropriate within the larger planning context, to:
 - Incorporate recommendations for rezoning along the corridor as necessary to achieve concentrated, mixed use development in designated locations.
 - Target public investment for highway improvements recommended in the corridor plan, and other infrastructure improvements needed to support concentrated mixed use development in planned growth nodes or areas.
- Include recommended transportation infrastructure improvements to be financed in whole or part through public funding in regional transportation and municipal capital improvement programs. Utilize impact fees or other private/public partnership models such as Tax Increment Financing Districts, to help finance projects
- Develop specific interchange/intersection access management plans to ensure adequate access to all parcels within proposed development nodes.

Bylaws

- Consider developing unified land use regulations that integrate zoning and subdivision regulations and allow for the application of consistent standards in the entire corridor – including consistent access and highway standards – under all applicable development review processes.
- Develop/update subdivision standards pertaining to lot and road layouts, and highway access, capacity and infrastructure improvements as needed for consistency with state and municipal best practices/access management requirements and to provide for interconnected “context sensitive” subdivision design within higher density, mixed use developments.
- Establish limited mixed use zoning districts that more clearly define, limit and regulate areas proposed for higher density, mixed use development in designated locations along the corridor (e.g., focus areas), consistent with municipal plan policies and recommendations.
- Consider airport zoning (e.g., an airport overlay district) to support airport operations and expansion, and to limit incompatible development within the vicinity of the airport.
- More specifically identify, differentiate and define residential, commercial and industrial uses allowed within mixed use districts, and limit the number, types and density of uses allowed outside these areas.
- Provide for higher density multifamily development in mixed use districts with a residential component.
- Also consider a category of “mixed use” that allows more than one type of principal use (e.g., first floor commercial, second floor residential) within a structure or on a lot, as a conditional use, and associated use standards.
- Consider trip generation rates, potential traffic impacts, and infrastructure capacity in developing lists of allowed uses – and require conditional use review for any use that may impact traffic, highways, or adjoining properties, and require impact studies where appropriate.
- Develop/update access and driveway standards under zoning to manage access and maintain the functional capacity of roads and intersections within subdivision and higher density areas, consistent with state highway access management standards and town ordinances, and to reference any adopted access management plans. Also see related access management strategies under 4.3.2 above.



- Develop/update parking standards under zoning to include provisions for shared and off-site (e.g., on-street) parking in support of compact, mixed use development.
- Develop/update site plan review standards under zoning (development review regulations) to more specifically address and regulate site layout, building orientation, parking and circulation in support of concentrated, mixed use development – including provisions for shared access, parking and cross connections between adjoining parcels where appropriate.
- Develop planned unit development (PUD) provisions and associated standards that provide for higher density, clustered, mixed use development in appropriate locations (e.g., by district and/or the type and magnitude of proposed project), to be applied in association with subdivision or conditional use review as specified in the regulations.
 - Consider incentives (e.g., density bonuses) to promote higher density, clustered, mixed use development.
 - Consider requiring mixed use PUDs within specified zoning districts and/or for development over a certain size.
- Evaluate maximum building height limitations as necessary to allow for proposed densities of development within mixed use districts.

4.3.4 Goal: Balance Economic Development and Rural Land Preservation

Goal Statement: *Find a balance between development opportunities and preserving the rural land (with a slight focus on economic development.)*

This goal in many ways complements the previous goal to promote mixed use development that supports economic growth in concentrated nodes or growth areas along the corridor served by highway access and infrastructure; and to limit development outside these areas – e.g., to preserve rural lands, associated farming and forestry operations, and scenic areas that also support the local economy. Many of the issues and proposed strategies for each goal are in effect the same. Finding the right “balance” between land development and preservation is the real challenge, at the heart of the planning process, and extends beyond the scope of this study. This balance also varies by community, based on market conditions, development capacity and constraints, and community and landowner goals and objectives. Related issues and opportunities are highlighted as follows:

- Preserving rural agricultural lands along the corridor – by limiting the location, type and density of development outside of designated growth nodes or areas, also limits the need for additional highway access, and helps preserve the functional capacity of highways and intersections.
- As noted, the proposed type and pattern of concentrated, mixed use development described under 4.3.3 above can also support rural lands preservation outside of focus areas identified development; however this pattern of development, though generally consistent with regional and municipal plans, is not currently supported by specific plan policies and recommendations.
 - While current plan policies generally support concentrated or clustered commercial and industrial development, they do not necessarily limit commercial or mixed use development within the corridor to nodes or focus areas identified by stakeholders. A wide variety of uses, at consistent or similar densities of development, are currently allowed along the length of the US7 corridor and intersecting routes.
 - The Rutland Regional Plan and both municipal plans recognize the importance of rural lands, particularly farm and forest lands that help define rural character and contribute to the local economy; however rural lands within the vicinity of the corridor (e.g., between rail lines) are not currently identified for preservation. Both towns’ designated conservation, agricultural and rural residential areas generally lie outside of the corridor.
 - Regional and municipal plans all reference the need to limit development on primary (prime and statewide) agricultural soils and steep slopes (as identified in Figure 3 of section 2.0), on



productive forestland, and to preserve open space and scenic resources where appropriate. Many of these resources found in the vicinity of the corridor are currently undeveloped, but are not afforded specific protections under proposed land use (zoning district) designations or protection strategies.

- Rural lands preservation within the vicinity of the corridor is not supported by current municipal land use and development regulations.
 - Under state statutes, farming and forestry as defined by the state are protected (allowed) uses in all zoning districts, including existing and proposed corridor zoning districts, but there currently are no other specific bylaw provisions in effect to promote or preserve these uses along the corridor.
 - The Town of Rutland currently lacks zoning to regulate the location, type and density of development, or to protect rural resources and scenic viewsheds along the corridor. Under proposed zoning “vacant” land within the corridor is zoned for commercial and industrial development. Rutland’s subdivision regulations include a general statement that subdivisions should conform to town plan policies and recommendations regarding primary agricultural soils. Proposed planned unit development provisions also include required set asides of open space, but these apply only to residential development within proposed zoning districts outside of the corridor.
 - Clarendon also has zoned land along the corridor for commercial, industrial and moderate densities of single family residential development. There are no specific subdivision or siting standards or restrictions in effect to protect identified agricultural soils or other natural, cultural and scenic resources in the vicinity of the corridor.

4.3.4.1 Strategies

Plans

- Develop supporting open space plans that identify and map rural lands or open space areas, including natural and scenic resources for protection, and for reference in the development review process and other land conservation initiatives.
- Develop specific plan policies that promote concentrated, mixed use development in targeted areas along the corridor, to be served by existing or planned highway access, infrastructure and services, and to concomitantly preserve rural lands – including identified natural, cultural and scenic resources. Growth center and preserved rural lands should not overlap.
- Update municipal resource protection and land use plans to:
 - Incorporate recommendations for rezoning (or overlay zoning) along the corridor as necessary to preserve rural lands or resources (outside of areas designated for concentrated, mixed use development).
 - Support additional open space or resource protection strategies, including but not limited to subdivision standards, development siting and clustering standards, and associated buffer, landscaping and screening standards under local regulations that could be applied to land subdivision and development along the corridor.
- Target public investment for highway improvements recommended in the corridor plan and other planned infrastructure improvements, to support development in planned growth nodes or areas and to avoid impacts to mapped open space and resources outside of these areas.

Bylaws

- Consider adopting open space or resource protection overlay zones that would apply to identified resources within all districts where such resources exist, outside of designated growth nodes or areas.



- Incorporate open space or resource protection standards – including subdivision and siting standards – to be applied in association with subdivision, site plan and/or conditional use review.
- Include planned unit development provisions for areas along the corridor that preserve contiguous, functional open space areas, including natural and scenic resources, within commercial, industrial and mixed use developments as well as residential developments. These could include associated clustering, open space set asides, buffering and use standards, and incentives (e.g., density bonuses, waivers) for the protection of open space areas beyond any minimum requirements.

4.3.5 Goal: Promote All Modes of Transportation

Goal Statement: *Promote all modes of transportation (auto, pedestrian, bicycle, air, rail, and transit)*

4.3.5.1 Issues

The study area has an emerging multi-modal transportation system. Facilities exist within the corridor for the following modes: highway, walking, fixed route bus transit, and rail for freight. Issues related to each mode are discussed below.

Highway

- Issues related to this mode include congestion, safety and access, and are addressed above.

Walking

- Sidewalks exist on the east side of US 7 from the north to Diamond Run Mall and on the west side of US 7 to Green Mountain Plaza. A cross-walk exists from Green Mountain Plaza to Seward Road.
- There is a notable gap on the west side of US 7 between Green Mountain Plaza and Holiday Inn Drive. A sidewalk should be provided to connect guests at the Holiday Inn with Green Mountain Plaza. Similarly a cross-walk over US 7 should provide access for Holiday Inn guests to walk to the Diamond Run Mall.
- There are generally no sidewalks along US 7 south of Diamond Run Mall. Sidewalks may not be necessary along this section of US 7, but should be provided within developments assumed in the nodal growth focus areas at US 7-VT 7B and US 7-V 103.

Biking

- There are no dedicated bicycle facilities in the study corridor such as marked and striped bike lanes along highways or separated multi-use paths. As noted in the Rutland Regional Commission's transportation plan, bicycle facilities in the Region are extremely limited. It is legal for cyclists to travel along state routes such as US 7. However, north of US 4, shoulders are not wide enough given traffic volumes and numerous driveways, which create multiple conflict points that make biking uncomfortable even for experienced cyclists. South of US 4, shoulders are more than adequate (12-24 feet), but higher speed, multi-lane divided highways may not be attractive to less experienced cyclists.
- The City of Rutland prohibits the riding of bicycles for rider safety along various sections of South and North Main Street. In these areas, many of which abut the study area, cyclists are required to ride on the sidewalk.
- Cycling could provide a reasonable transportation alternative for travel between the 2030 land use focus areas. The distance between the US 7-VT 103 and US 7-VT 7B focus areas is about 1.5 miles. The distance between the US 7-VT 7B focus area and Green Mountain Plaza/Seward Road (approximate center of the existing built-up area) is about 1.7 miles. If safe bike facilities were



available, even basic cyclists¹ (as opposed to experienced recreational cyclists) would find the distances manageable.

- The VT 7B corridor provides a more bike-friendly connection between the US 7-VT 103 and US 7-VT 7B focus areas. Cycling between the US 7-VT 7B and US 7-US 4 focus areas will be more challenging because VT 7B merges with US 7 and US 4 creates a barrier.

Transit

- The corridor is currently served by regular city fixed route service (Marble Valley Regional Transit District's - MVRTD South Route) between the Transit Center in Rutland City to Diamond Run Mall, Holiday Inn and Green Mountain Plaza. The South Route connects with all other MVRTD routes at the Transit Center in the City of Rutland.
 - If development occurs in the parcel directly south of US 4 (as assumed in the 2030 land use assumptions and shown in the visualizations) the South Route should be extended to serve that area.
- The corridor is served by two commuter bus services. The Manchester-Rutland connector stops within the corridor at Green Mountain Plaza and the Rutland Airport Industrial Park. The Rutland to Bellows Falls Commuter (a service provided by Connecticut River Transit and MVRTD) stops in the corridor at Rutland Airport, Airport Industrial Park and Holiday Inn.
 - The existing commuter routes are well situated to serve the US 7-VT 7B focus area (which would justify a new stop with the level of development assumed) and the US 7-VT 103 focus area (which is already served). Development in these two focus areas would further support transit by providing additional transit riders. Streets in the focus areas should be designed to accommodate busses and sidewalks should be provided to all bus stops.
- The two rail lines that pass through the corridor are Green Mountain Railway from Bellows Falls and Vermont Railway from Bennington. Within the study corridor, both railroads move freight but do not provide passenger service.
 - Passenger rail along the corridor is proposed and land development should be oriented towards the future service.
- Any development within the growth nodes should be oriented to serve transit, passenger and freight rail and bicycle and pedestrian travel.

Freight²

Statewide, the amount of tonnage shipped to, from and within Vermont is projected to increase by 73% between 2006 and 2030. The value of freight shipped is projected to increase by 160% during the same time period. Freight is moved by truck, rail, air, pipeline and water. In the US 7 corridor, the primary modes are trucks and rail.

- Truck
 - Most freight moves through and to destinations in the study area on trucks using the highway system. US 4, US 7 and VT 103 are designated routes on the state's Commercial Vehicle Network. The study corridor is where east-west truck traffic (traveling between VT 103 and US 4-west) meets north-south traffic along US 7. The confluence of these two truck routes suggests a need for trucker services.

¹ There are three general types of bicycle user groups: Advanced, Basic and Children. A basic cyclist is a casual or teenage rider, is less comfortable riding in traffic than an advanced cyclist, and prefers low-speed, low traffic streets of bike lanes (VTrans Pedestrian and Bicycle Facility Planning and Design Manual, 2002)

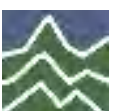
² This section of the report relies heavily on data presented in the [Western Corridor Transportation Management Plan, Future Conditions Report, Draft, March 2009](#).



- According to data presented in the Western Corridor Transportation Management Plan, truck traffic along the US 7 corridor is projected to increase between 40 and 60% from 2006 to 2030. By comparison, general traffic volumes are projected to increase by 20-30% over the same time period. As noted in the Western Corridor Transportation Management Plan, the increase in truck traffic is "...consistent with national trends in freight traffic and a result of increasing economic output as well as changes in shipping patterns".
 - According to the Western Corridor Transportation Management Plan, trucks will continue to dominate freight transportation over the next couple of decades. Statewide, trucks will continue to carry about 87% of freight by weight in 2030. Trucks carry about 82% of freight by value in 2006. That share is projected to drop to 78% in 2030. As the value of freight shipped increases, higher value products with time sensitive deliveries will shift to other modes such as air cargo and parcel service. Some of the higher value freight may also shift to smaller trucks which is a contributing factor to the projected increase in overall truck traffic.
 - Despite its dominance, shipping freight by truck faces some challenges such as: increasing fuel costs, a shortage of qualified truck drivers, and increasing congestion. Therefore, it is important that other modes, particularly rail, remain viable.
- **Rail**
 - The two rail lines that pass through the corridor are Green Mountain Railway from Bellows Falls and Vermont Railway from Bennington. Within the study corridor, both railroads move freight but do not provide passenger service. The freight carried by the railroads helps reduce truck traffic. The freight moved by the railroads is bridge traffic and does not currently serve any businesses in the study corridor.
 - Rail's share of the state's freight shipping market is projected to remain about the same between 2006 and 2030. Rail's share of freight by weight is 8% and its share by value is 2%. Rail's speed and capacity is better suited for heavier, lower value commodities such as construction products, wood products, agriculture/farm/food, and paper. Although its mode share is projected to remain about the same, the amount of freight shipped by rail is projected to increase by about 63% between 2006 and 2030.
 - The railroads pass through or near the three focus areas. Efforts should be made to promote industrial development within the focus areas that can benefit from proximity to the railroads. The Western Corridor Transportation Management Plan notes that improved rail service may also help attract businesses to the corridor.
 - Passenger rail along the corridor is proposed and development should be oriented towards this as it evolves.
 - As noted in the Western Corridor Transportation Management Plan, trends in the railroad industry suggest significant growth, particularly for long-haul Class I railroads. These rail lines are particularly competitive for products shipped over 800 miles between major intermodal hubs. In Vermont the growth is somewhat limited because the railroads are short-line, "last mile" operations. These railroads may provide better customer service to shippers and receivers. However, a new and large intermodal facility proposed for Albany, NY and upgrades to an existing terminal in Ayer, MA could result in greater use of trucks to serve the same market as Vermont's short-line railroads.

Intermodal Connections

- Although the corridor is served at varying levels by autos, transit, and sidewalks, these modes are not connected in any planned, orderly way.
- There are no park-and-ride lots within the study corridor. A park-and-ride lot exists in Wallingford to the south of the study corridor.



4.3.5.2 Strategies

Walking

- Provide for pedestrian travel between the Holiday Inn and Green Mountain Plaza, Rutland Commons and Diamond Run Mall by completing sidewalks on the west side of US 7 and providing a cross-walk and pedestrian signal equipment across US 7 to the Diamond Run Mall.
- Sidewalks on the local road network between Cold River Road and US 4 is suggested as a strategy to address local circulation and access (see Figure 36 in Section 4.3.1.2).
- Design and build the focus areas for pedestrians. Include sidewalks on each side of streets with cross-walks where required, include a network of streets with pedestrian scaled blocks (300-400 ft between intersections), pedestrian scaled lighting, greens strips and street trees, street furniture and other amenities.

Biking

- Connect the focus areas with bike facilities designed for basic cyclists. The facilities should utilize VT 7B where possible with on-road facilities such as wider shoulders or dedicated bike lanes. North of VT 7B, a separate bike facility/multi-use path should be provided so that cyclists do not have to travel along US 7. Alternatives to crossing the US 4/US 7 intersection need to be evaluated. Alternative concepts are presented in Appendix B.
- Design the local road network suggested above to accommodate bicycle travel.

Transit

- Extend regular fixed route service to the southwest parcel in the US 7-US 4 focus area when development occurs in that location (Rutland Commons).
- Continue to provide commuter service along the corridor with an additional stop at the US 7-VT 7B focus area when development occurs in that location.
- Design and build the focus areas to support easy access to transit service.
- Consider using VT 7B rather than US 7, as development on VT 7B exceeds that on US 7.

Freight

- Encourage development of a travel plaza within the corridor.
- Locate industrial development in the focus areas to take advantage of rail for freight. Use rail as a recruiting tool to attract businesses to the focus areas.

Intermodal Connections

Project Strategies

- Provide access for pedestrians with sidewalks and crosswalks to existing MVRTD South Route transit stops in the northern part of the study corridor.
- Provide a park-and-shuttle intercept facility with access to the MVRTD South Route. Consider incorporating this park-and-shuttle facility at a location close to but south of US 4.
- Incorporate a small scale intermodal facility within each of the mixed-use concentrated developments envisioned in the US 7-VT 7B and US 7-VT 103 focus areas. These facilities would be the only transit stops for the Rutland-Manchester and Rutland-Bellows Falls commuter services within the two focus areas. Because all destinations within the focus areas would be within walking distance, only one transit stop would be necessary per focus area. The facility would include some parking to serve people in surrounding rural areas that choose to use the



commuter shuttle. Amenities such as seating, wireless internet service, and restrooms should be included.

Operational Strategies

Use Travel Demand Management (TDM) to support use of the corridor's existing and emerging multimodal transportation system. TDM refers to programs that reduce single occupancy vehicle trips between home and work such as ridesharing, siting of park and ride lots, encouraging walking and biking, telecommuting and employer subsidized transit passes. An active TDM program depends on and supports a multimodal transportation system and could be used to increase use of alternative modes in the US 7 Corridor.

The most effective TDM programs are managed by transportation management associations (TMA). TMAs are non-profit organizations established by private and public employers in a particular geographic area such as a downtown, mall, hospital, or industrial park. They provide an institutional framework for implementing TDM programs and are usually more cost effective than programs managed by individual employers. By pooling resources, TMAs allow smaller businesses and organizations to offer more TDM options for their employees. Success stories published by the Victoria Transport Policy Institute show TDM programs reducing commuter trips by 10-25%¹.

A Vermont example is the Campus Area Transportation Management Association (CATMA), the TMA for the Hill Institutions in Burlington (Fletcher Allen Health Care, UVM, Champlain College and the Red Cross). CATMA is a nonprofit, employer-based organization formed in 1992 to enable its members to share resources as well as jointly plan, develop, and manage all transportation and parking programs, infrastructure, and associated facilities. CATMA's TDM programs include rideshare matching services and guaranteed ride home, subsidized and free transit passes, bike/walk reward program, incentives to park off-site, and flex time policies. CATMA tracks the success of its programs with surveys twice a year. As shown in Table 20, the programs that CATMA manages have significantly reduced single occupancy vehicle use while increasing use of other modes.

Table 20: CATMA and State of Vermont Journey to Work Mode Shares

	Drive Alone	Carpool	Public Transit	Bike / Walk	Work at Home	Park & Ride Intercept ¹	Bus and Bike	Other Means ²
CATMA 2007 Survey	42.9%	12.2%	9.3%	12.6%	0.0%	5.5%	0.7%	6.0%
Vermont 2000 Census	75.8%	11.0%	0.9%	5.3%	5.5%	N/A	N/A	1.6%

Notes

1. Off-site intercept facilities with shuttle service to the main campus
2. A large number of survey respondents that chose "Other Means" are in fact carpools

The target market for TDM programs are employees. Table 21 provides an approximation of the potential market for TDM in each focus area. It presents an estimate of the number of employees and PM peak hour trip generation estimates for each focus area. The non-residential development shown in the US 7-US 4 focus area includes the projected increased between 2009 and 2030 plus existing development.² The number of employees is based on a standard of one employee per 500 square feet used in RSG's travel demand modeling work. Although an approximation, the employment numbers provide an order of magnitude estimate on the potential TDM market in the corridor. With over 3,000 employees, the US 7-US 4 focus area would be the anchor of any TDM/TMA program established in the corridor. Programs could be initiated to serve the existing critical mass of employment and then expanded as the corridor grows.

¹ <http://www.vtpi.org/tdm/tdm71.htm>

² Existing square footages for the US 7-US 4 focus area were provided by the Rutland Town Administrator.



Table 21: US 7 Study Corridor 2030 TDM Market

Focus Area	US 7-US 4	US 7 - VT 7B	US 7-VT 103
2030 Non-Residential Development	1,567,245	194,286	582,857
2030 Estimated Employment	3134	389	1166
Weekday PM Peak Hour Trip Generation	4627	346	767

4.4 Future Conditions Summary

The build-out analysis conducted by the RRPC showed that there is potential for approximately 12.9 million square feet of floor area in Clarendon, and 1.9 million square feet of floor area in Rutland Town above existing conditions. While the build-out analysis provides a useful upper ceiling to potential growth, it does not provide a reasonable estimate for a 20-year planning horizon.

The RRPC used the build-out potential, in combination with recent historical growth trends, to develop a land use scenario for the 2030 planning horizon. In Rutland Town, the 2030 land use scenario includes approximately 223,000 square feet of new commercial space and no new dwelling units. In Clarendon, the 2030 land use scenario includes approximately 777,000 square feet of new commercial development and 49 new dwelling units. At a visioning workshop, the Stakeholder group further refined the land use scenario to concentrate all projected development within three focus areas/nodes generally centered on the intersections of US 7/US 4, US 7/VT 7B and US 7/VT 103.

The projected congestion resulting from the 2030 land use scenario is manageable. Several strategies, including an expansion of the local road network and spot modifications at specific intersections, were suggested to address the projected congestion. A comprehensive list of transportation system and land use planning/administrative strategies was also developed to address the issues identified for each goal. The strategies have been organized into an implementation plan in the next section of the report.

5.0 IMPLEMENTATION PLAN

This section presents an implementation plan for transportation project and land use planning/administrative recommendations. The issues and strategies described above were presented at a Stakeholders meeting on June 6, 2009. The following implementation plan considers comments from the Stakeholders and is organized into Transportation System and Land Use Planning/Administrative recommendations. The specific recommendations were reviewed by the CTAC at meetings held on August 31, 2009 and September 10, 2009.

The implementation plan is presented in two matrices which are provided at the end of this section. Table 12 presents transportation system recommendations and Table 13 presents the land use planning and administrative recommendations. The contents of each table are described further in this section.

5.1 Transportation System Recommendations

Table 12 presents a list of transportation system recommendations. The table identifies a new local road network, reconfiguration of intersections, pedestrian and bicycle facilities, transit and multi-modal facility recommendations. The components of the implementation table are described below.

5.1.1 Recommendation Description

The location and a brief description of the recommendation are provided. The "Purpose and Need" column provides a brief explanation of the issue(s) to be addressed by the recommendation. Recommendations funded with state and federal transportation funds need to proceed through the VTrans project development process which begins with identification of issues and a purpose and need



statement. The purpose and need presented in the implementation table therefore also provides a starting point for recommendations that may be paid for with state and federal transportation funds.

Short-term (1-5 year time frame) recommendations for the US 7 intersections with Green Mountain Plaza and Holiday Inn Drive incorporate roadway design modifications as proposed in the January 26, 2009 Technical Memorandum prepared by Greenman-Pedersen, Inc. in response to a recess order issued during the Act 250 permitting process for Rutland Commons. The recess order required the submission of a joint traffic mitigation plan (JMP) to address traffic issues along Cop John Drive from its intersections with Holiday Inn Drive and Green Mountain Plaza. A concept plan, prepared by GPI, can be found in Appendix B.

5.1.2 Implementation Time Frame

This column provides an approximation of when a recommendation should be constructed or put into service. The timing considers the effort necessary for engineering, public outreach, right-of-way acquisition, permitting and environmental documentation, and construction. The timing of recommendations associated with Rutland Commons will be implemented in conjunction with construction of the project which is assumed to occur between 1-5 years.

5.1.3 Order of Magnitude Cost Estimates

Cost estimates are based on unit costs applied to approximate quantities of construction items, plus percentage allowances for right-of-way acquisition (15%–20% depending on location), traffic control during construction (10%–40%), storm water management and drainage (maximum of 30%), engineering design and permitting (25%), and a 20% contingency. Where costs are listed as “to be determined,” details of the project need to be defined through further study before reasonable cost estimates can be prepared.

5.1.4 Potential Funding Sources

Recommendations may be funded with state or federal transportation funds, municipal funds and/or private sources. Each recommendation may be paid for using one or more sources. Additional information on each source is provided below.

5.1.4.1 Federal and State Transportation Funds

Federal transportation funds are provided through several standard programs administered by VTrans, and typically require a non-federal match. The match is most often covered with state funds (approved by the Legislature) and local funds (in municipal capital budgets approved by the voters). Non-federal match could also be provided from private sector sources. Federal/state programs that may fund some portion of the recommendations include the following:

- Surface Transportation Program/VTrans Capital Program (STP). Projects on the federal aid highway system can be funded through the Surface Transportation Program. STP funds have the most flexible uses of any federal transportation funds and may be used for highway, transit, park and ride lot, and non-motorized facility construction and improvements. STP funds are distributed to a variety of transportation programs by VTrans and the State Legislature. The non-federal match is 20%. For projects that are completely on the state system (highway projects along US 7, VT 103 and VT 7B are on the state system), the state typically provides the 20% match for roadway related projects. The non-federal match for stand alone sidewalk and bicycle facility projects along state routes is often provided by the municipality. When local roads or bridges are involved, a local match of 10%–20% may be required depending on the classification of the highways involved and other factors. Projects using STP funds must be included on the state’s Transportation Capital Program approved by the Legislature each year.



- *Transportation Enhancement Program (TE)*. Transportation enhancements include several types of projects, such as bicycle and pedestrian facilities; landscaping and other scenic beautification projects; and rehabilitation of historic transportation buildings, structures, and facilities.¹ This competitive grant program provides a maximum of 80% federal funds with the non-federal match often funded by the applicant.
- *Congestion Mitigation and Air Quality (CMAQ)*. VTrans uses most of its CMAQ funds to support public transit. These funds have a three year time limit for specific projects and could be applied toward capital or operational costs for initiating transit recommendations in the plan.
- *Federal Transit Authority Program (FTA)*. The Federal Transit Authority (FTA) provides funding for Vermont's transit systems through numerous programs under authorization of SAFETEA-LU. Those programs included:
 - Metropolitan & Statewide Transportation Planning Program (Section 5303 & 5304)
 - Large Urban Cities program (Section 5307)
 - Bus and Bus Facilities Allocation Program (Section 5309)
 - Transportation for Elderly Persons and Persons with Disabilities (Section 5310)
 - Rural and Small Urban Areas (Section 5311 & 5340)
 - Rural Transit Assistance Program (RTAP) (Section 5311 ((b)(3)))
 - Job Access and Reverse Commute Program (JARC) (Section 5316)
 - New Freedom Program (Section 5317)

SAFETEA-LU authorizes specific grant amounts annually for each program, which are provided through legislative formulas or discretionary authority. While FTA provides 80 percent of the funds, the 20 percent balance is matched with state and local funds for these transit programs. However, since the state does not have a dedicated fund source, generating revenues to support public transit is a challenge since transit competes for funds provided from the General Fund and local property taxes.

5.1.4.2 Local Funds

Local funds can be used to match federal or state funded projects or to finance the complete cost of a project. Smaller projects, such as construction of a short segment of new sidewalk, may be wholly funded in the capital program in the annual municipal budget. Property taxes are the primary source of local funds, but other sources, such as local option sales taxes and impact fees, may also be available to help pay for transportation projects.

- *Local Option Sales Taxes*. A municipality may adopt a local options sales tax (LOST) if it satisfies at least one of three criteria established in 24 V.S.A. § 138. Refer to the statute for the specific criteria which attempts to provide alternate funding sources for municipalities that were affected a certain way by Act 60 and Act 68. The statute allows a municipality to levy a 1% sales tax, 1% meals and alcoholic beverages tax, and/or a 1% room tax. Rutland Town established local option sales, meals, and room taxes (1% each) in April 2009. However, the Town of Rutland allocates all LOST funds to the general fund at this time; therefore this source is not currently available in Rutland Town.
- *Transportation Impact Fees*. Through impact fees, new developments pay a "fair-share" of the costs related to updating and improving infrastructure based on the amount of "impact" the development would have on that infrastructure. Impact fees must be calculated to pay for a specific list of projects that are identified in adopted ordinances. Transportation Impact Fees have helped to pay for roadway widening projects (e.g., Shelburne Road, Kennedy Drive in South Burlington), intersection improvements (e.g., I-89 Exit 12, in Williston), new local streets (e.g.,

¹ Visit the VTrans transportation enhancement website for a complete listing of eligible activities.

<http://www.aot.state.vt.us/progdev/Sections/LTF/Enhancements%20Program/EnhancementsHomePage.htm>



Market Street and new grid streets around Taft Corners also in Williston), as well as sidewalks, bike paths, buses, and ride share programs. Impact fees can not be used to cover the costs of maintenance or rehabilitation of existing infrastructure. The impact fee must be based on the cost of new infrastructure required to accommodate new development.

- **Municipal Bonds.** Municipalities often use municipal bonds to fund larger infrastructure projects. Local governments have several options available to raise revenue for paying back a bond. Bond payments are included in annual budgets and covered by the municipal property taxes or by other revenue sources. Some of the more common revenue options are briefly described below. Careful review of the advantages of each method, including reliable estimates on how these options affect local tax rates, is necessary before selecting an appropriate funding mechanism.
 - ***Special Assessment Tax District.*** A special assessment district can be created where property owners, who presumably benefit from the investment, pay a special tax to cover the cost of bond payments. Special assessment districts could be established for a designated area of a municipality or could be distributed across an entire municipality.
 - ***Tax Increment Financing District.*** A tax increment financing district (TIF) can be established that dedicates the non-school taxes generated by increased property values to pay off the bond. A TIF is most appropriate where property values are expected to increase significantly. For most municipalities, only the municipal portion of the property tax can be retained (the balance goes to the state education tax pool), significantly reducing the amount of revenue that can be generated from a TIF.
 - ***Transportation Impact Fees.*** Impact fees, as described above, can also be used to pay for a bond.
 - ***Local Option Sales Tax.*** LOST, as described above, can also be used to pay for a bond.
- **Private Funds.** Developers often pay for and implement modifications to the transportation system. These contributions are negotiated through the development review process. For example, the developers of Rutland Commons are responsible for the cost and implementation of changes to the Holiday Inn Drive intersections with Cop John Drive and US 7. Similarly, the owners of Green Mountain Plaza are responsible for the cost and implementation of changes to the northern end of Cop John Drive.

5.1.5 Project Lead

This column identifies the entity that should lead the effort to implement the project.

5.1.6 Project Partners

This column identifies other agencies, institutions, and public- or private-sector organizations that will support and/or have some stake in implementation of a project. These organizations may provide oversight and review functions (e.g., VTrans), technical assistance and programming of funds (e.g., RRPC, VTrans), financial and implementation assistance (e.g., MVRTD, private developers), or assistance with public outreach and support (e.g., RRPC).

5.1.7 Next Steps

These are the first steps, or actions, that should be initiated by the project leaders. With the following exceptions, the actions described under next steps are self explanatory:

- **Official Town Map** – The official map is a bylaw, supported with a map of the municipality, which reserves land for streets, drainage, schools, and other public facilities. The Local Roads recommendations for Rutland Town should be identified on an official town map. Inclusion on



town maps creates an opportunity to preserve the future connections through the development review process.

- ***Project Development and Scoping*** – Projects that use federal funds need to follow the VTrans project development process, which includes development of a purpose and need statement, evaluation of alternatives, selection of a locally preferred alternative, and a public input process. Following approval of the locally preferred alternative by the VTrans project definition team, a project moves through various design phases and environmental documentation.

5.1.8 Relevance to Corridor Plan Goals

All of the recommendations were developed as described in Section 4.3 to address specific corridor plan goals. These columns identify which goals are addressed by a recommendation. Recommendations that are directly related to a goal are indicated by the word “Primary”. The word “Related” indicates that the recommendation supports a goal to some lesser degree.

5.2 Land Use Planning and Administrative Recommendations

Achieving the Access Management, Land Use and Environmental goals will rely heavily on implementation of land use planning and administrative recommendations. Table 13 lists each specific recommendation, and identifies actions by Rutland Town, Clarendon, the Rutland Regional Planning Commission and VTrans for implementation. It suggests a prioritization for each recommendation and references the supporting material contained in Appendix A. Each component of the table is discussed below.

5.2.1 Recommendation

This column provides a general description of the recommendation. Each recommendation was described previously in section 4.3 *Goal Assessment: Issues and Strategies*.

5.2.2 Implementation Action

For Rutland Town and Clarendon, the recommendations will be implemented primarily through amendments, updates and/or adoption of comprehensive plans, subdivision regulations, and/or zoning regulations. The actions suggested in Table 13 recognize that Rutland Town has been working on, but does not currently have zoning regulations and that Clarendon does not have subdivision regulations. Full implementation of the recommendations will require adoption of zoning regulations in Rutland Town and subdivision regulations in Clarendon.

The Rutland Regional Planning Commission can support implementation of the land use and administrative recommendations through amendments to the regional plan and by continuing to provide technical and planning assistance to Rutland Town and Clarendon. VTrans has a limited but important role especially related to access management coordination, approval for airport zoning, and the relationship of project prioritization and concentrated development.

5.2.3 Priority

Rather than assign a specific time frame to the land use planning and administrative recommendations, Table 13 suggests a three tier priority system:

- ***First Priority:*** Recommendations that are relatively easy to implement and are likely to have immediate benefits (such as minor language changes to plans or regulations regarding access management coordination). Recommendations may be considered administrative amendments to existing plans and recommendations.



- Second Priority: The recommendation may involve simple language or an ordinance change. However, the proposed change may have larger policy implications, could involve agreements between multiple jurisdictions, and should include more public involvement.
- Third Priority: These recommendations need to be supported with more detailed planning work, data gathering and analysis, design and public input.

5.2.4 Supporting Land Use Planning and Regulatory Material

This column references supporting information contained in Appendix A. The information includes:

- Draft US 7 Corridor Management Memorandum of Understanding
- Draft Language for a US 7 Access Management Overlay District
- Model Language for Access Management related to coordinated review and local access management standards
- Model language for municipal and regional plans
- Guidance on facilitating concentrated (nodal) development in municipal plans, subdivision regulations and zoning regulations.
- Guidance on airport zoning

5.3 Summary

This section of the report presents an implementation plan for transportation project and land use planning/administrative recommendations. The recommendations have been reviewed and refined by the project Steering Committee and CTAC members.



Table 22: Transportation System Implementation Plan

Description			Time Frame			Funding		Implementation			Relevance to Corridor Management Plan Goals				
Location	Recommendation	Purpose and Need	1 - 5 Years	5-10 Years	More Than 10 Years	Cost	Potential Funding Source(s)	Project Lead	Project Partners	Next Steps	Traffic Flow	Access Mgt.	Nodal, Mixed Use Land Use	Open Space / Econ Dev.	Multi - Modal
1 Trans	Expand and connect the local road network	Provide for local circulation and access, improve pedestrian and bicycle access, support redevelopment through improved access		X	X	\$1,760,000	Cost share between Rutland Town and property owners	Town of Rutland Planning Commission	Landowners	Include in Municipal Plan	Primary	Primary	Related		Related
2 US 7-Green Mountain Plaza-Seward Road Intersection & GMP-Cop John Drive Intersection.	Prohibit left turns between Cop John Drive and Green Mountain Plaza Drive per the <i>GMP As-Built Traffic Study</i> and subsequent Rutland Commons/GMP Joint Mitigation Plan (From Joint Mitigation Plan. See concept plan in Appendix B.)	Reduce conflicts, queues and blocking that occur between closely spaced intersections. Improve access from a principal arterial to a side street.	X			\$29,000	Private	Green Mountain Plaza	VTrans	Approval from Rutland Town on Joint Mitigation Plan	Primary	Related			
3 US 7-Green Mountain Plaza-Seward Road Intersection	Provide additional lanes on Seward Road, US 7 Northbound and Green Mountain Plaza Drive approaches	The intersection operates at LOS F in 2009.		X		\$240,000	Federal and State Transportation Funds	VTrans	Regional Planning Commission, Green Mountain Plaza	Traffic may have reduced due to a reduction in employment on Seward Road. Monitor intersection.	Primary	Related			
4 US 7-Holiday Inn Drive-Diamond Run Mall & Cop John Drive	Modifications as recommended in the Rutland Common Traffic Impact Study (Aug 2008) and subsequent Joint Mitigation Plan. Additional lanes on Holiday Inn Drive and Cop John Drive. Installation of traffic signal at Cop John Drive/Holiday Inn Drive that is integrated with US 7-Holiday Inn Drive intersection. (From Joint Mitigation Plan. See concept plan in Appendix B)	Accommodate traffic from proposed development.	X			\$220,000	Private	Rutland Commons Developer	VTrans	Will be implemented in conjunction with Rutland Commons development.	Primary	Related			
5 Clarendon: US 7-VT 7B	Monitor for potential future modifications.	Address projected congestion. LOS E and F are projected on the VT 7B approaches in 2030 with and without assumed development.		X		\$300,000	Federal and State Transportation Funds	VTrans	Regional Planning Commission	Monitor intersection operations (traffic count, crash assessment, LOS analysis).	Primary	Related			
6 US 7 west side from Green Mountain Plaza to Holiday Inn Drive	Construct a sidewalk. Provide cross-walk and pedestrian equipment at the Holiday inn-US 7 intersection.	Improve pedestrian access and safety.	X			\$80,000	Federal Funds - Transportation-Enhancement programs and 20% Local Match	Rutland Town	Rutland Commons and Green Mountain Plaza	Project Scoping. Prepare conceptual plans and identify ROW, Utility and other potential implications.					Primary
7 Holiday Inn Drive from Holiday Inn to US 7	Construct a sidewalk.	Improve pedestrian access and safety.	X			\$50,000	Federal Funds - Transportation-Enhancement programs and 20% Local Match	Rutland Town	Holiday Inn	Project Scoping. Prepare conceptual plans and identify ROW, Utility and other potential implications.	Primary				Primary

Table 22: Transportation System Implementation Plan - Continued

Description			Time Frame			Funding		Implementation			Relevance to Corridor Management Plan Goals				
Location	Recommendation	Purpose and Need	1 - 5 Years	5-10 Years	More Than 10 Years	Cost	Potential Funding Source(s)	Project Lead	Project Partners	Next Steps	Traffic Flow	Access Mgt.	Nodal, Mixed Use Land Use	Open Space / Econ Dev.	Multi - Modal
8 Holiday Inn to Hampton Inn	Construct a sidewalk.	Improve pedestrian access and safety.	X			\$50,000	Federal Funds - Transportation-Enhancement programs and 20% Local Match	Rutland Town	Holiday Inn	Project Scoping. Prepare conceptual plans and identify ROW, Utility and other potential implications.	Primary				Primary
9 VT 103 to North Clarendon	Construct Multi-use, non-motorized facility. Several alternatives possible (on-road widen shoulder, on-road bike lanes, separate multi-use path). See concept plan in Appendix B	Provide for safe, non-motorized travel option between future growth areas			X	\$750,000 for on-road bike lane, \$3.0 million for separate multi-use path	Federal Funds - Transportation-Enhancement programs and 20% Local Match	Rutland Regional Commission	Clarendon	Prepare a conceptual alignment study to evaluate and select a preferred alternative.			Related		Primary
10 North Clarendon to the US 7-US 4 Commercial Area	Construct Multi-use, non-motorized facility. Several alternatives possible (on-road widen shoulder, on-road bike lanes, separate multi-use path). See concept plan in Appendix B.	Provide for safe, non-motorized travel option between future growth areas			X	\$700,000 - \$1.5 million	Federal Funds - Transportation-Enhancement programs and 20% Local Match	Rutland Regional Commission	Clarendon and Rutland Town	Prepare a conceptual alignment study to evaluate and select a preferred alternative.			Related		Primary
11 Parcels just south of the US 7-US 4 intersection.	Extend the MVRTD "South Route", a fixed route service, in conjunction with future development just south of US 4 and/or establishment of a park-and-ride facility.	Provide alternate travel choices to new development and connect to proposed park-and-ride facility.		X		To Be Determined	To Be Determined	Marble Valley Regional Transit District	Rutland Town	Incorporate recommendation in MVRTD planning	Related				Primary
12 Transit general	Add all-day commuter bus service stops to focus development areas at US 7-7B and US 7-VT 103.	Provide travel choices in conjunction with development projects			X	To Be Determined	Include in development proposals	Marble Valley Regional Transit District	Rutland Town, Clarendon	Include provisions for transit vehicle access and circulation and transit stops in PUD standards			Related		Primary
13 Between VT 103 and US 4	Locate and develop a travel plaza	Improve efficiency and safety for commercial vehicles by providing an accessible service center. The access to/from the road network should be safe and be able to accommodate commercial vehicles.	X			To Be Determined	Developer	Developer, Rutland Economic Development Corporation	Rutland Regional Commission	Site identification and feasibility analysis. Add language to Town Plan	Related		Related		Related
14 Transit general	Provide Bus Shelters at all Transit Stops in corridor	Improve access to transit.	X			\$22,000 per bus stop	FTA Grant	Marble Valley Regional Transit District	Rutland Town	Incorporate recommendation in MVRTD planning					Primary
15 Just south of US 4	Plan for the construction of a park-and-ride/ park-and-shuttle facility - 100 spaces	Provide travel choices, reduce single occupancy vehicle use, support future Transportation Demand Management programs and provide an orderly means to transfer between modes.		X		\$350,000	Federal and State Transportation Funds	Rutland Town, Clarendon	VTrans, Regional Planning Commission, MVRDT	Prepare a scoping study to identify and evaluate sites.	Related				Primary
16 Corridor/Regional	Establish a coordinated TDM (travel demand management) program	Provide travel choices and reduce single occupancy vehicle use.		X		\$50,000 for plan; Operations To be Determined	Planning funded in RRPC work program, Implementation and operation funded by employers	Rutland Regional Commission	Rutland Town, Clarendon, Employers	Develop a TDM/TMA organizational plan. Conduct survey to establish baseline.	Related		Related		Primary

Table 23: Land Use Planning and Administrative Implementation Plan

Administrative Recommendation	Implementation Actions				Priority	Supporting Material in Appendix A
	Rutland Town	Clarendon	Rutland Regional Planning Commission	VTrans		
1 Consider executing a memorandum of understanding – “Intergovernmental US 7 Corridor Management Memorandum of Understanding”	- Meetings w/ other parties to review and refine draft - Adopt MOU	- Meetings w/ other parties to review and refine draft - Adopt MOU	- Meetings w/ other parties to review and refine - Adopt MOU	- Meetings w/ other parties to review and refine - Adopt MOU	First	Intergovernmental US 7 Corridor Management Agreement
2 Incorporate state agency application referral and notification requirements under zoning and subdivision regulations for all land development proposed along state highways, including US 7 and VT 7B.	- Amend subdivision regulations - Incorporate into draft zoning regulations	- Amend zoning regulations	Not Applicable	Not Applicable	First	Access Management Recommendations and Access Management Overlay District
3 Reference applicable state access management standards for development along state highways.	- Review and adopt where applicable - Incorporate into draft zoning regulations	- Amend zoning regulations	Not Applicable	Not Applicable	First	Access Management Recommendations and Access Management Overlay Districts
4 Target public investment for highway improvements recommended in the corridor management plan, and other infrastructure improvements needed to support concentrated mixed use development in planned growth nodes or areas.	- Add supporting policy language to municipal plan - Use support for concentrated development in capital program funding decisions.	- Add supporting policy language to municipal plan - Use support for concentrated development in capital program funding decisions.	- Add supporting policy language to regional plan - Use support for concentrated development in regional prioritization process	Use support for concentrated development in VTrans prioritization process	Second	Concentrated (Nodal) Development Recommendations
5 Consider airport zoning (e.g., an airport overlay district) to support airport operations and expansion, and to limit incompatible development within the vicinity of the airport.	Not applicable	- Prepare ordinance language specific to the Rutland Airport - Need VTrans and VT Transportation Board Approval	- Incorporate in Regional Transportation Plan	Review of Airport Zoning District ordinance when submitted by Town	Second	Airport Zoning Southern Vermont Regional (Rutland State) Airport
6 Develop specific plan policies that promote concentrated, mixed use development in targeted areas along the corridor, to be served by existing or planned highway access, infrastructure and services, and to concomitantly preserve rural lands – including identified natural, cultural and scenic resources. Growth center and preserved rural lands should not overlap.	- Amend Town Plan to include suggested language	- Amend Town Plan to include suggested language	- Amend regional plan to include suggested language - Assist local communities as requested	No action necessary	Second	Concentrated (Nodal) Development Recommendations

Table 23: Land Use Planning and Administrative Implementation Plan - Continued

Administrative Recommendation	Implementation Actions				Priority	Supporting Material in Appendix A
	Rutland Town	Clarendon	Rutland Regional Planning Commission	VTrans		
7 Develop planned unit development (PUD) provisions and associated standards that provide for higher density, clustered, mixed use development in appropriate locations (e.g., by district and/or the type and magnitude of proposed project), to be applied in association with subdivision or conditional use review as specified in the regulations.	<ul style="list-style-type: none"> - Prepare ordinance language specific to the Rutland Town - Amend Subdivision regulations - Include in draft zoning regulations. 	<ul style="list-style-type: none"> - Prepare ordinance language specific to the Clarendon - Need to develop and adopt subdivision regulations to implement PUD 	<ul style="list-style-type: none"> - Assist local communities as requested 	<ul style="list-style-type: none"> No action necessary 	Second	<ul style="list-style-type: none"> Concentrated (Nodal) Development Recommendation Concentrated (Nodal) Development Recommendation
8 Incorporate comprehensive access management polices, standards and review procedures into local development regulations. Comprehensive revisions to zoning districts, standards, site plan review, conditional use review and subdivision review.	<ul style="list-style-type: none"> - Amend subdivision regulations - Incorporate into draft zoning regulations 	<ul style="list-style-type: none"> - Amend zoning regulations - Need to develop and adopt subdivision regulations 	<ul style="list-style-type: none"> - Assist local communities as requested 	<ul style="list-style-type: none"> Not Applicable 	Second	<ul style="list-style-type: none"> - Access Management Overlay district sample language
9 Incorporate US7 Corridor Management Plan recommendations as appropriate in regional and municipal plans as the basis for corridor plan implementation	<ul style="list-style-type: none"> - Amend Town Plan to include suggested language 	<ul style="list-style-type: none"> - Amend Town Plan to include suggested language 	<ul style="list-style-type: none"> - Amend regional plan to include suggested language 	<ul style="list-style-type: none"> Not Applicable 	First	<ul style="list-style-type: none"> Municipal and Regional Plan Recommendations
10 Develop specific interchange /intersection access management plans to ensure adequate access to all parcels within proposed development nodes.	<ul style="list-style-type: none"> - Prepare access management plans for US 7 north of US 4 and for the area south of US 4 	<ul style="list-style-type: none"> Prepare access management plans for the US 7-VT 7B and US 7-VT 103 focus areas 	<ul style="list-style-type: none"> - Provide technical assistance. 	<ul style="list-style-type: none"> Not Applicable 	Third	<ul style="list-style-type: none"> - None
11 Develop/update parking standards under zoning to include provisions for shared and off-site (e.g., on-street) parking in support of compact, mixed use development.	<ul style="list-style-type: none"> - Incorporate recommendations in draft zoning regulations 	<ul style="list-style-type: none"> - Amend zoning regulations to include recommendations 	<ul style="list-style-type: none"> - Provide technical assistance. 	<ul style="list-style-type: none"> Not Applicable 	Third	<ul style="list-style-type: none"> - None
12 Evaluate maximum building height limitations as necessary to allow for proposed densities of development within mixed use districts. Consider impacts to municipal services such as the Fire Department.	<ul style="list-style-type: none"> - Incorporate recommendations in draft zoning regulations 	<ul style="list-style-type: none"> - Evaluate zoning regulations to include recommendations 	<ul style="list-style-type: none"> - Provide technical assistance. 	<ul style="list-style-type: none"> Not Applicable 	Third	<ul style="list-style-type: none"> - None

Table 23: Land Use Planning and Administrative Implementation Plan - Continued

Administrative Recommendation	Implementation Actions				Priority	Supporting Material in Appendix A
	Rutland Town	Clarendon	Rutland Regional Planning Commission	VTrans		
13 Incorporate recommendations for rezoning along the corridor as necessary to achieve concentrated, mixed use development in designated locations.	- Develop nodal zoning districts specific to Rutland Town and incorporate into zoning regulations.	- Develop nodal zoning districts specific to Clarendon and amend zoning regulations.	- Provide technical assistance.	No action necessary.	Third	Concentrated (Nodal) Development Recommendations
14 Consider developing unified land use regulations that integrate zoning and subdivision regulations and allow for the application of consistent standards in the entire corridor – including consistent access and highway standards – under all applicable development review processes.	- Long term effort that would require complete reorganization of current zoning and subdivision bylaws	- Long term effort that would require complete reorganization of current zoning and development of subdivision regulations	- Provide technical assistance.	No action necessary.	Third	- None
15 Provide for interconnected “context sensitive” subdivision design within higher density, mixed use developments.	- Develop nodal zoning districts specific to Rutland Town and incorporate into zoning regulations.	- Develop nodal zoning districts specific to Clarendon and amend zoning regulations.	- Provide technical assistance.	No action necessary.	Third	Concentrated (Nodal) Development Recommendations
16 Establish limited mixed use zoning districts that more clearly define, limit and regulate areas proposed for higher density, mixed use development in designated locations along the corridor (e.g., focus areas), consistent with municipal plan policies and recommendations.	- Develop nodal zoning districts specific to Rutland Town and incorporate into zoning regulations.	- Develop nodal zoning districts specific to Clarendon and amend zoning regulations.	- Provide technical assistance.	No action necessary.	Third	Concentrated (Nodal) Development Recommendations
17 Incorporate recommendations for rezoning (or overlay zoning) along the corridor as necessary to preserve rural lands or resources (outside of areas designated for concentrated, mixed use development)	- Develop nodal zoning districts specific to Rutland Town and incorporate into zoning regulations.	- Develop nodal zoning districts specific to Clarendon and amend zoning regulations.	- Provide technical assistance.	No action necessary.	Third	- None
18 Identify and map rural lands or open space areas, including natural and scenic resources for protection, and for reference in the development review process and other land conservation initiatives.	- Prepare an open space study. - Incorporate in Town Plan.	- Prepare an open space study. - Incorporate in Town Plan.	- Provide technical assistance. - Incorporate in Regional Plan.	No action necessary	Second	- None

Table 23: Land Use Planning and Administrative Implementation Plan - Continued

Administrative Recommendation	Implementation Actions				Priority	Supporting Material in Appendix A
	Rutland Town	Clarendon	Rutland Regional Planning Commission	VTrans		
Support additional open space or resource protection strategies, including but not limited to subdivision standards, development siting and clustering standards, and associated buffer, landscaping and screening standards under local regulations that could be applied to land subdivision and development along the corridor.	- Implement in zoning and subdivision regulations based on results of open space planning effort	- Implement in zoning and subdivision regulations based on results of open space planning effort	- Provide technical assistance.	No action necessary.	Third	- None.
Consider adopting open space or resource protection overlay zones that would apply to identified resources within all districts where such resources exist, outside of designated growth nodes or areas.	- Implement in zoning and subdivision regulations based on results of the open space planning effort	- Implement in zoning and subdivision regulations based on results of the open space planning effort	- Provide technical assistance.	No action necessary.	Third	- None
Incorporate open space or resource protection standards – including subdivision and siting standards – to be applied in association with subdivision, site plan and/or conditional use review	- Implement in zoning and subdivision regulations based on results of the open space planning effort	- Implement in zoning and subdivision regulations based on results of the open space planning effort	- Provide technical assistance.	No action necessary.	Third	- None

6.0 SUMMARY

This document presents a corridor plan for US Route 7 in the municipalities of Rutland Town and Clarendon, Vermont. The report presents an assessment of existing land use and transportation conditions, develops a Vision statement and supporting Goals, develops a 2030 land use scenario, evaluates issues relative to goals, and presents an implementation plan that consists of transportation system and land use planning/administrative recommendations.

The plan was funded by VTrans through the Rutland Regional Planning Commission. It was directed by RRPC staff and a Corridor Technical Advisory Committee consisting of officials from the municipalities of Rutland Town and Clarendon, the Vermont Agency of Transportation and RRPC commissioners from nearby towns. A larger Stakeholders Group consisting of CTAC members plus additional business owners, economic development officials, elected officials and residents provided valuable input on the land use scenario, vision statement and goals, and selection of strategies.

The information presented in the plan may be used as a resource to support on-going planning work at the local and regional levels. The plan, or portions of it, should also be adopted or incorporated by reference in municipal plans and bylaws and the Regional Plan.



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APPENDIX A

Land Use Planning and Regulatory Information



INTERGOVERNMENTAL US 7 CORRIDOR MANAGEMENT AGREEMENT

BY AND BETWEEN THE... (Parties to be determined)

THIS AGREEMENT is entered into this ____ day of _____ 20__, by and between the State of Vermont, Agency of Transportation (hereafter referred to as the “Agency”), the Rutland Regional Planning Commission (hereinafter referred to as the “Region”) and the Towns of **(TO BE BETERMINED)** (hereafter referred to as the “Towns”).

WHEREAS, US 7 extending through the Towns of Rutland and Clarendon, from the southern Rutland City line to the southern Clarendon town line (hereafter referred to as “the Corridor”) is a state highway that is part of the National Highway System (NHS); and

WHEREAS, US 7 is designated as a Principal Arterial under the Agency’s Access Management Program Guidelines, with limited access segments in the Town of Clarendon; and

WHEREAS, the Agency under 19 V.S.A. §1111 is responsible for regulating access to adjoining properties along the Corridor, for state transportation planning and improvement programming; and

WHEREAS, the Region under 24 V.S.A. Chapter 117 (Vermont Planning and Development Act) is responsible for regional land use and transportation planning, regional transportation improvement programming, and for providing technical assistance to the Towns; and

WHEREAS, the Towns under 24 V.S.A. Chapter 117 (Vermont Planning and Development Act) have adopted municipal plans, zoning and/or subdivision bylaws, and are responsible for regulating land subdivision and development along the Corridor; and

WHEREAS, the Agency, Region and Towns are parties to Act 250 proceedings for the review of major development along the Corridor; and

WHEREAS, the parties agree that regulation of development and vehicular access along the Corridor, and identified infrastructure improvements, are necessary to promote and provide for the safe flow of traffic, to reduce the potential for traffic accidents, to preserve a reasonable level of service and to protect the highway infrastructure along the Corridor; and

WHEREAS, the parties desire to achieve comprehensive, coordinated and mutually acceptable management of the Corridor for the purposes of meeting current and future capacity demands and public safety criteria while also providing, to the extent feasible, reasonable access for locally planned and approved development;

NOW, THEREFORE, for and in consideration of the mutual promises herein contained, the parties hereto agree as follows:

NOTE: The agreements, bylaw language, planning policies and other strategies presented in this Appendix are for reference only and may need to be modified for specific circumstances. The fact that the concepts are presented in the US 7 Corridor Plan should not be construed to suggest a commitment or endorsement by Rutland Town, Clarendon, Rutland Regional Planning Commission, VTTrans or other stakeholders that participated in the planning process.

1. The parties, within their respective jurisdiction, shall plan for and regulate development and access to the Corridor in conformance with the 2009 *US 7 Corridor Management Plan* that is attached hereto and incorporated as Exhibit(s) _____ (hereinafter referred to as the “Management Plan”).
2. Actions taken by the parties with regard to land use and transportation planning, infrastructure improvements, and traffic operations and management within and along this Corridor shall be consistent with this Agreement and conform to the Management Plan.
3. Vehicular access to the Corridor shall be permitted only when such access is in compliance with this Agreement and conforms to the attached Management Plan.
 - a. Private accesses in legal existence prior to the adoption of this Agreement may continue in existence until such time as development, redevelopment or a change of use is proposed through a local bylaw or Act 250 process which triggers review regarding conformance with this Agreement.
 - b. When closure, modification, or relocation of a private access is required, appropriate processes of the Towns and State will be followed to provide alternative access, purchase of access rights or other solutions meeting the intent of the Management Plan.
 - c. Parcels created after the effective date of this Agreement which adjoin the Corridor shall not be provided with direct access to the Corridor, unless the access location, use and design are consistent with the Agency’s Access Management Program Guidelines and conform to the Management Plan.
4. The Towns agree to adopt or incorporate by reference in their bylaws and ordinances Agency Access Management Program Guidelines as they apply to development along the Corridor [and other/intersecting state highways in the Towns].
5. The Towns agree to refer all applications under municipal bylaws for development that has frontage on or requires access to the Corridor to the Agency and Region for review and comment under the Agency’s Access Management Program Guidelines and Management Plan. No municipal permits or approvals shall be issued until written comments are received from the Agency and Region, or 30 days have elapsed from the date of referral, whichever is sooner. Agency and Regional recommendations shall be considered in municipal findings and conditions of approval.
6. The Agency and Region agree to review applications received from the Towns for proposed development along the Corridor, and to provide written comments within 30 days of receipt, as staffing allows.
7. The Agency agrees to require, prior to the issuance of a state highway access permit, documentation that a proposed development plan has received municipal approval, including a copy of the site development plan or subdivision plat as approved by the Town; and to notify the Town in writing if it will require any modifications of the plan as approved by the Town.

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8. The Region agrees to provide technical assistance to the Towns, upon request, to implement Management Plan recommendations, and to assess the potential impacts of proposed development along the Corridor on traffic and highway infrastructure.
9. The parties, through appointed representation, agree to jointly participate in corridor management planning and project development activities, coordinated through the Region, in conformance with Management Plan recommendations.
10. The parties agree to coordinate their review of development along the Corridor that is subject to Act 250 review for conformance with the Management Plan, but may maintain separate party status in associated Act 250 proceedings.
11. This Agreement is based upon and is intended to be consistent with Vermont Access Management Program Guidelines as most recently revised, 19 V.S.A Section 1111 and 24 V.S.A. Chapter 117, all of which may be amended. Any access decision made along the Corridor must be consistent with any amendment to referenced statutes.
12. This Agreement supersedes and controls all prior written and oral agreements and representations of the parties regarding the Corridor and is the complete integrated agreement of the parties regarding the subject matter of this Agreement.
13. This Agreement may not be amended except by written agreement of all parties.
14. By signing the Agreement, the parties acknowledge and represent to one another that all procedures necessary to validly contact and execute this Agreement have been performed and the persons signing for each of the parties have been duly authorized to do so.

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IN WITNESS WHEREOF, the parties to this agreement have been executed the same this _____ date of _____ A.D. 20__, the STATE, by its Secretary of Transportation and Duly Authorized Agent, the REGION by its Authorized Agent, and the TOWNS by their Authorized Agents.

TOWN OF (TO BE DETERMINED):

BY: _____
(AUTHORIZED REPRESENTATIVE)

(TITLE)

Town/City of _____ Clerk's Office
Received _____ at _____ a.m./p.m.
and recorded in Book _____ on Page _____
of the town land records.

Attest: _____
Assistant Town/City Clerk

TOWN OF (TO BE DETERMINED):

BY: _____
(AUTHORIZED REPRESENTATIVE)

(TITLE)

RUTLAND REGIONAL COMMISSION:

BY: _____
(AUTHORIZED REPRESENTATIVE)

(TITLE)

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

BY: _____
SECRETARY OF TRANSPORTATION
IN WITNESS WHEREOF:

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APPROVED AS TO FORM:

Dated: _____

ASSISTANT ATTORNEY GENERAL

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RECOMMENDATIONS: ACCESS MANAGEMENT

Overview

The purpose of access management is to provide reasonable access to public highways from adjoining properties without sacrificing highway efficiency, safety or function. Benefits include improved highway access, reduced accident rates, decreased congestion and travel times, and extended highway life. The benefits of access management are addressed in the Rutland Regional Plan, but not yet in town plans. It is the Commission's policy to work with the state, local communities, and affected landowners to develop and implement access management programs. This generally involves:

- **Functional classifications** – Classifying roads based on their primary function (e.g., interstates, arterials, collectors, local roads) within the extended road network, their geometry, the amount and type of traffic they carry, and adjoining development patterns. To date this has been done by the Regional Commission and state for state and Class 1 town highways, but not for other town highways in the corridor.
- **Access management standards** – Adopting access management standards for each type, or category, of road for consideration under both development review proceedings (e.g., subdivision, site plan, or conditional use review) and for municipal or state highway access permitting.



US 7 is a principal arterial intended to serve high volumes of inter-regional traffic, as identified in both regional and town plans – all three plans highlight the need to protect the primary function of the US 7 corridor to carry through traffic, in part to limit traffic congestion and hazards at key intersections (US 4, VT 7B and VT 103). As described in more detail in the accompanying management plan, three access management categories apply to US 7 through Rutland Town and Clarendon:

- #2 – Principal arterial, limited access (Clarendon)
- #3 – Principal arterial (Rutland Town)
- #6 – Urban arterial, also serving local traffic (Rutland Town)

VT 7B, which parallels US 7 and has also been considered in corridor management planning, falls under Access Management Category #4. Recommended access management standards for each category are included in VTran's "**Access Management**

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Program Guidelines” (revised 2005), and are considered by the Agency when issuing state highway access permits.

Coordinated Review

Effective access management requires coordinated land use and highway corridor management – ideally the same access management considerations and standards should apply in both state (highway) and local (land use) permitting processes. Coordinated review of development along the highway corridor can avoid potentially conflicting municipal and state permit requirements, and thereby expedite the permitting process to the benefit of everyone involved.

Memorandum of Agreement. Coordination strategies highlighted in the US 7 Corridor Management Plan include a “US 7 Corridor Management Memorandum of Understanding” executed between VTrans, the Rutland Regional Commission and the Towns of Clarendon and Rutland, that establishes the basis for inter-jurisdictional coordination. A draft agreement, which reflects similar agreements currently under review by the agency, is attached for local consideration.

The Town of Rutland is not in favor of entering into an agreement with VTrans but is willing to enter into an agreement with the Town of Clarendon and the RRPC.

Coordinated Review Requirements. The draft agreement specifies in part that the towns shall notify VTrans when development is proposed along the highway corridor, and give agency staff the opportunity to review and comment on applications under the state’s access management guidelines. Prior to 2004, such referrals were required for development in the vicinity of highway interchange areas, but this is no longer specified in statute.¹ Similar referral language, however, could be incorporated where appropriate (e.g., application requirements) under updated zoning and subdivision bylaws:

Section ____. *Access Management.*

(A) Coordinated Review. *Access to town highways is subject to the approval of the [Town Highway Official] and, for properties that front on or directly access state*

¹ Though towns are now required send hearing notices to VTrans for requests to vary setback required setback distances from state routes (24 V.S.A. §4464).

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highways, the Vermont Agency of Transportation. Applicants are encouraged to meet with town and state highway officials to incorporate relevant access management requirements in project design. As a condition of town or state highway access approval, compliance with these regulations also is required. Accordingly:

- (1) The Zoning Administrator shall refer all applications for land subdivision or development on state highways to the Vermont Agency of Transportation and, for land subdivision or development on town highways, to the Town [highway official], within 30 days of receipt. No municipal permits or approvals under these regulations shall be issued until written recommendations from state and/or town highway officials have been received or 30 days have elapsed from the date of referral, whichever is sooner. Recommendations shall be incorporated in relevant municipal findings and conditions of approval.*
- (2) All highway accesses and corridor improvements shall be designed to meet the requirements of these regulations and relevant state and municipal access management requirements. Where the requirements of these regulations differ from other state or town access management requirements, the more restrictive shall apply. [Note: see related language below].*
- (3) In the event that municipal subdivision, site plan or conditional use review is required, a state or town highway access permit shall be obtained following the issuance of such approval(s) by the appropriate municipal panel, and shall comply with any conditions of approval.*
- (4) A municipal or state highway access permit must be obtained prior to the issuance of a municipal zoning permit [certificate of occupancy]. The Zoning Administrator may consult with town or state highway officials in determining whether a proposed access meets all relevant access requirements prior to the issuance of a zoning permit [certificate of occupancy].*

Access Management Standards

Access management standards, as applied to roads by functional classification or access management category, typically limit the number of allowed access points, and include requirements for access spacing and design, shared (joint) access and cross connections between parcels, development (service or frontage) roads to serve new subdivisions, and highway improvements (e.g., medians, turning lanes, signalization). Local bylaws commonly incorporate accepted access management and design standards by reference – for example:

- *Vermont Access Management Program Guidelines (2005 rev).for state highways,*
- *Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads and Streets (1997), and*

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- State design and construction standards – e.g., Standard A-76 (Town and Development Roads) and Standard B-71 (Residential and Commercial Drives).
- Town highway ordinance standards, as adopted by the Select Board.

State Guidelines. The proposed MOU suggests that towns consider the *Vermont Access Management Program Guidelines* in their review of development on state highways, so that the standards applied by the towns are consistent with those used by the state. State standards, at minimum, can be incorporated by reference under those sections of the zoning and subdivision bylaws that address highway access requirements – for example under general regulations pertaining to frontage and access, or more specifically under subdivision, site plan and/or conditional use standards.

A corridor or “**Access Management Overlay District**” adopted under local zoning bylaws that more specifically maps and identifies the access management categories of state highway segments in town, and associated management guidelines, is another option that offers more guidance to local applicants and review panels. The use of an overlay district also limits the scope of access management review to those highway corridors included in the overlay district. Model language for a “US 7 Corridor Management Overlay District” is attached.

Local Standards. Communities are encouraged to also adopt local access management standards that apply to town highways. Such standards can be incorporated under local zoning and subdivision bylaws or town highway ordinances but, as with state standards, are most effectively applied when incorporated or referenced under both types of regulations, under a coordinated review process. The following model language includes access management provisions commonly found under local bylaws. More detailed requirements are included in the model “US 7 Corridor Management Overlay District” which also could be adapted for more general use.

(B) Access Management Standards.

- (1) *A lot shall be served by no more than one (1) access (curb cut) [per ____ feet of road frontage] to a state or town highway except for:*
- (a) *A temporary or permanent access used only for farming or forestry purposes, as approved by the [Town Highway Official/Select Board].*
 - (b) *A temporary access used for construction purposes or special events, as approved by the [Town Highway Official/Select Board];*
 - (c) *A lot or use for which it has been determined, subject to subdivision, site plan or conditional use review by the Planning Commission or Board of Adjustment*

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[Development Review Board], in consultation with town and state highway officials, that an additional access is necessary to ensure vehicular and pedestrian safety, to improve traffic circulation or reduce traffic congestion or, that given physical site constraints (e.g., streams, wetlands, or steep slopes), strict compliance with this requirement would result in a less functional site layout.

- (2) No additional access rights to a public highway shall result from the subdivision or re-subdivision of existing lots, nor for the development or redevelopment of contiguous parcels under common ownership and control. Such lots shall be accessed from a shared access and driveway, a cross connection to an adjoining lot, or a development road, unless otherwise approved by the Planning Commission [Development Review Board] in consultation with state or town highway officials².*
- (3) Access to town highways shall at minimum meet the requirements of the [Town] Highway Ordinance and these regulations [including B-71 standards for driveways and A-76 standards for development roads]. Access to state highways shall meet Vermont Access Management Program Guidelines in effect at the time of application. Where these standards differ, the more restrictive shall apply.*
- (4) For land subdivision and development subject to review by the Planning Commission or Board of Adjustment [Development Review Board] – including the re-subdivision, redevelopment or change in use of an existing lot – the Commission or Board may require, in consultation with town and state highway officials, the elimination, consolidation and/or relocation of existing accesses to meet the requirements of these regulations, the town highway ordinance or state access management guidelines.*
- (5) The width of an access shall be limited to the width as approved, and shall not extend along the length of road frontage. The installation of curbing, landscaping, or other edge-defining features may be required to physically or visually limit access width.*
- (6) No access shall be provided to serve a lot located in another zoning district which is to be used for a use that is prohibited within the district in which the access is located.*
- (7) Where a lot has frontage on two roads (e.g., a corner or through lot), access to the lot shall be provided from the secondary (less traveled) road unless otherwise approved by the Planning Commission or Board of Adjustment [Development Review Board].*
- (8) Shared accesses and driveways serving up to three (3) lots, and/or cross-connections to adjoining lots, are encouraged, and may be required for development subject to review by the Planning Commission or Board of Adjustment [Development Review Board] to limit the number of access points and intersections along public highways. Shared driveways may be located within side or rear yard*

² Per Joe Zingale November 25, 2009 email, the Town of Rutland prefers to consider this provision on a case by case basis.

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setbacks. The interests of each owner of a shared access and driveway shall be protected by an easement recorded in the deed of each lot.

(9) For the purposes of these regulations, any access driveway or road serving four (4) or more lots shall be considered a private development road, which must meet town highway [A-76] standards. Private roads may be taken over by the town only in accordance with the town highway ordinance.

(10) The applicant shall bear the cost of installing any access, driveway or road improvements and traffic control measures, located on or off-site, which are specifically required to serve the development and to ensure public safety and welfare.

Resources

Vermont Access Management Program (www.vtaccessmanagement.info/), including links to:

- Vermont Access Management Program Guidelines (2005 rev)
- Vermont Best Practices for Access Management (Guidance Document)
- Tools and Techniques, Definitions, Examples
- Sample Bylaws.

Transportation and Land Use Connections: Experience from Northwest Vermont, includes access management language and bylaw examples, available on the Northwest Project website (www.transportation-landuse.org).

Vermont Land Use Planning Implementation Manual, #25–Roads & Highways Vermont Land Use Education & Training Collaborative (www.vpic.info).

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Draft Language: US 7 Corridor Management Overlay District

This borrows heavily from VTrans's Access Management Program Guidelines, state highway permit application requirements, and other references (noted below), and has been drafted as a separate article, to be incorporated under updated zoning bylaws. Relevant language however, could instead be adapted for inclusion under appropriate sections of municipal zoning or subdivision regulations that address the review of access onto state (or town) highways. Many of the more technical standards included here could be adopted by reference, and/or regulated and applied under the town's highway ordinance for reference in its land use regulations. It's also important to note that, under 24 V.S.A. Chapter 117, an overlay district must conform the municipal plan – as such a proposed management overlay district should be specifically referenced in the adopted town plan.

ARTICLE ____ US 7 CORRIDOR MANAGEMENT OVERLAY DISTRICT

- 1 OBJECTIVE

To manage the development of and access to properties along US 7 in a manner that protects public safety, preserves public investment in transportation infrastructure and services, and maintains or enhances the functional capacity and integrity of the highway corridor in accordance with the US 7 Corridor Management Plan. The US 7 corridor in [Town] is part of the National Highway System, a state highway and a principal arterial which provides mobility between and access to businesses, residences and other land uses through the town, region, state and beyond. The management objectives and implementation strategies for this transportation network are described in the *US 7 Corridor Management Plan* (2009) [adopted as an addendum to the [Town] Town Plan on (date)].

-2 APPLICABILITY

The overlay district shall apply to the subdivision, re-subdivision, development or redevelopment of any parcel that has frontage on or requires access to US 7 within the Town of [Town]. This district overlies other zoning districts. When the requirements of this district differ from those of an underlying zoning district, the more restrictive shall apply.

-3 PERMITTED USES

As listed for the underlying zoning district.

-4 AREA AND DIMENSIONAL STANDARDS

As listed for the underlying zoning district, except as specified below.

- 5 APPLICATION REQUIREMENTS

- 5.1 Application Materials.** In addition to other required application materials, applications for land subdivision or development in this district shall include a corridor location map, drawn to scale and to an identified reference point (e.g., a bridge, intersection, mile marker, etc.) that shows the locations of:

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-5.1.1. The US 7 highway corridor, including all existing and proposed highway rights-of-way, centerlines, travel lanes, turning lanes, shoulders, and highway intersections, interchange ramps and driveway accesses within at least one-quarter mile, in both directions, of the lot(s) to be subdivided or developed.

-5.1.2. The location of all other existing and planned pathways, utilities, drainage structures, transit stops and infrastructure improvements and associated easements along the corridor, including the location of any planned improvements identified in the US 7 Corridor Management Plan, the adopted [Town] Town Plan and capital improvement program, or the state transportation improvement program.

-5.1.3. Lot lines for all existing and proposed lots along the specified corridor segment.

-5.1.4. Road frontage, front setback and access spacing distances along the specified corridor segment.

-5.1.5. Existing and proposed speed limits, speed zones and traffic control devices.

-5.1.6. Existing and proposed traffic generation and circulation, including a calculation of existing and proposed traffic generation using available data and current Institute of Transportation Engineers (ITE) standards.

-5.1.7. Other information as requested to determine conformance with the requirements of this district.

-5.2 Referral Requirements. Access to US 7 is also subject to the approval of the Vermont Agency of Transportation and, for properties that also front on or access connecting town highways, the [Town Highway Official]. Applicants are encouraged to meet with state or local officials to address access management requirements in project design. As a condition of state or town highway access approval, compliance with these regulations also is required. Accordingly:

-5.2.1. All applications for land subdivision and development within this district shall be referred by the Zoning Administrator, within 30 days of receipt, to the Vermont Agency of Transportation and/or Town [highway official] for review and comment. No municipal permits or approvals under these regulations shall be issued until written comments from state and town officials have been received or 30 days have elapsed from the date of referral, whichever is sooner.

-5.2.2. All highway accesses and corridor improvements shall be designed to meet the requirements of this overlay district, and other applicable state and municipal access management requirements. Where the requirements of this district differ from other applicable requirements, the more restrictive shall apply.

-5.2.3. A municipal or state highway access permit must be obtained prior to the issuance of a municipal [zoning permit /certificate of occupancy]. The Zoning Administrator may consult with town or state officials in determining whether a proposed access meets all applicable access requirements prior to the issuance of a permit.

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-5.2.4. In the event that municipal subdivision, site plan or conditional use review is required, a state or town highway access permit shall be obtained following the issuance of such approval(s) by the appropriate municipal panel, and shall comply with any conditions of approval.

-6 CORRIDOR PRESERVATION REQUIREMENTS

The preservation and protection of the US 7 Corridor, and planned corridor improvements as identified in the US 7 Corridor Management Plan [*or adopted municipal capital or state transportation improvement programs*], are necessary to achieve coordinated land and transportation system development, to provide for future growth, and to ensure that US 7 is adequate to meet future needs. Accordingly:

- 6.1 Conformance. All development in this district shall conform to and incorporate, to the extent feasible, planned corridor improvements identified in the US 7 Corridor Management Plan. Municipal approvals shall include related findings regarding project conformance with the management plan and potential impacts to planned corridor improvements, and, where alignments have been established, may require as a condition of approval that the project be modified as necessary to conform to the management plan or associated project engineering studies or designs.

-6.2 Dedications.

-6.2.1. Proposed projects adjacent to a segment of the US 7 highway corridor for which right-of-way acquisitions are needed as identified in US 7 Corridor Management Plan [*or the town's adopted capital improvement program or state transportation improvement program*] shall, as a condition of approval, dedicate land within the project site to accommodate planned corridor improvements. The land to be dedicated shall be only that shown by an engineering study or design to be necessary to accommodate planned improvements and shall not exceed the amount that is roughly proportionate to the transportation impacts to be generated by the proposed development. [*The value of this land shall be credited against any transportation impact fees.*] Such dedication shall occur by recordation on the face of the site development plan, subdivision plat, deed, grant of easement, or other method acceptable to the town.

6.2.2. The Planning Commission [*Development Review Board*] may allow for the clustering of development and the transfer of density from that portion of the site to be dedicated for planned corridor improvements to another developable portion of the site, or allow an increase in the overall density of development in accordance with Section ____ (Planned Unit Development) for the voluntary dedication of land in excess of the minimum required under -6.2.1 [*or to accommodate planned improvements not yet included in an adopted capital or transportation improvement program*].

Note: *If the town adopts an official map, the dedication of such improvements also can be required or the approval may be denied, however the town (or state) must then take measures to purchase the land or interests in land (e.g., easements, rights-of-way, development rights) or reconsider the application without the dedication requirement.*

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-6.3 Encroachments. The US 7 corridor through [Town] shall be protected from encroachments by structures, parking areas, and drainage facilities, except as otherwise allowed, in consultation with the Agency of Transportation, under these regulations. Accordingly:

-6.3.1. The following types of construction and activity are not permitted within existing or planned state highway rights-of-way:

- (A) Construction or installation of above ground structures including buildings, fences, and pipelines and excluding poles and repeaters.
- (B) Construction or installation of underground structures, including storage tanks and pumping stations. Utility manholes, vaults, pull boxes, pits and appurtenances are permissible if flush with the finished grade and/or can support vehicular loads.
- (C) Storage or parking of motor vehicles.
- (D) Filling, grading or placing materials in such a way as to obstruct a stream or direct the flow of water onto the highway right-of-way.
- (E) Erection of signs or other traffic control devices that do not conform to the MUTCD and any previously approved traffic control plans.
- (D) Any utility facility within an area needed for probably highway expansion.
- (E) Any other facility as may be prohibited by the Vermont Agency of Transportation.

-6.3.2. For lots in this district, the Planning Commission or Zoning Board of Adjustment [*Development Review Board*] may require an increase in the minimum front setback distance from the highway right-of-way, as specified for the underlying zoning district, to accommodate planned corridor improvements identified in the US 7 Corridor Management Plan. Where a proposed alignment has not yet been established, the applicant may propose an approximate alignment, acceptable to the town and state, as the basis for applying underlying district setback requirements. Once a final alignment is established through an engineering study or design, the approved setback may be reduced, subject to administrative review and approval, by no more than 10.0%.

-6.3.3. The Planning Commission [*Development Review Board*] may allow for [*require*] the clustering of development under Section ____ (Planned Unit Development) to avoid encroachments into the corridor that would adversely affect planned corridor improvements.

-6.4 Infrastructure Improvements. . A proposed subdivision or development shall not result in an undue adverse impact on the functional capacity of US 7, connecting roads and intersections in the vicinity, or to existing and planned corridor improvements. Accordingly:

-6.4.1. A traffic impact assessment shall be required for major subdivisions, for development at intersections or segments of the corridor having a Level of Service D [C] or less as identified in the US 4 Corridor Management Plan, or for development that results in an increase of 75 or more peak hour trips. The study will provide sufficient information to assess potential impacts to the highway corridor (including intersections, connecting roads, bridges, and other transportation and pedestrian facilities in the vicinity of the project) and existing and planned levels of service, and to identify infrastructure and traffic control improvements needed to address identified impacts.

-6.4.2. The Planning Commission or Board of Adjustment [*Development Review Board*] may require the phasing of development in relation to the available capacity of existing or planned corridor infrastructure that is scheduled for improvement under the town's adopted capital improvement program, or the state's transportation improvement program.

-6.4.3. Corridor infrastructure improvements and traffic control devices specifically required to serve a proposed development shall be installed and paid for by the developer. The applicant also may be required to fund a proportional share of the cost of needed intersection or other corridor improvements identified in the US 7 Corridor Management Plan affected by the development. In addition:

- (A) Where road widening or reconstruction is required, roadway design specifications shall be no less than those necessary to meet either the minimum posted speed limit for, or constructed design speed of that section of highway, whichever is greater.
- (B) Where necessary to remove, relocate or repair traffic control devices or public or private utilities for the construction of a permitted access, the relocation or removal shall be the responsibility of the applicant, without cost to the town or state.
- (C) Installation of any traffic control device necessary for the safe and proper operation and control of the access shall be required pursuant to the U.S. Department of Transportation's *Manual on Uniform Traffic Control Devices* (as revised). Where the access may warrant signalization in the future, phasing of the installation (turn lane work and signal work) may be required.

-6.4.4. The town, in consultation with the state, may require a three-year performance bond, or other form of security acceptable to the Select Board, in an amount sufficient to cover the full cost of required improvements, to ensure that such improvements are properly installed and adequately maintained for a period of two years after installation. The terms of the bond, with the consent of the owner, may be extended for an additional three-year period. If any required improvements have not been installed or maintained as provided in the bond, the bond shall be forfeited to the municipality and, upon receipt of the proceeds, the municipality shall install or maintain covered improvements.

-7 ACCESS MANAGEMENT REQUIREMENTS

-7.1 Access Management Categories. For purposes of these regulations, within this overlay district, including intersecting state highways, the following access management

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categories are established as shown on the accompanying [US 7 Corridor Access Management Overlay District] map:

Note: This table should be modified as needed to include only mapped access management category corridor segments located in the town.

Access Category	Corridor Segments	Function/Purpose	Access Control
2 – Limited Access Principal Arterial	US7	Carry high volumes of interregional traffic at high speeds; direct access is subordinate to through traffic	No direct access allowed without access rights; access at public highway intersections
3 – Principal Arterial	US7, VT103	Carry medium to high volumes of interregional traffic at moderate to high speeds.	Direct access may be restricted (e.g., number, spacing, location) or denied if other reasonable access is available
4 – Minor Arterial	VT7B	Carry medium volumes of intraregional and local traffic at moderate speeds	Direct access may be restricted (e.g., number, spacing, location)
6 – Urban Arterial	US 7	Carry medium to high volumes of through and local traffic at low to moderate speeds, in an urban setting.	Direct access may be restricted (e.g., number, spacing, location)

-7.2 Access Management Guidelines. Access to US 7 and intersecting state highways within the corridor shall be designed and constructed in accordance with applicable Vermont Agency of Transportation *Access Management Program Guidelines* in effect at the time of application, incorporated herein by reference, in relation to the highway segment's assigned functional class, access management category, and projected traffic volumes and conditions; as well as other applicable requirements of these regulations [Class I town highway segments,] Intersecting town highways, development roads and driveways shall be designed and constructed in accordance with the [Town] Highway Ordinance.

Note: In adopting state and town highway standards by reference (in part for consistency), this assumes that the town will actively refer to, use and apply state guidelines and town highway standards in its review of proposed development along the corridor.

-7.3 Nonconforming Access. Any access to US 7 or a connecting road within the corridor which is legally in existence as of the effective date of these regulations [date] and does not conform to these standards shall be considered a "nonconforming access." A nonconforming access may continue to be used indefinitely, but shall be retrofitted or otherwise brought into conformance with all applicable requirements of these regulations when:

- 7.3.1.** The lot is subdivided, re-subdivided, developed, or redeveloped,
- 7.3.2.** A new or relocated access is requested,
- 7.3.3.** There is a substantial enlargement, improvement, or change in the use of the property,

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-7.3.4. The principal use of the property is discontinued or abandoned for a consecutive period of more than 180 days,

-7.3.5. Trip generation will increase by 25% or more and at least 100 trips per day [75 *peak hour trips*], as calculated from traffic data or the current Institute of Transportation Engineers (ITE) “Trip Generation Manual,” or as

-7.3.6. US 7 roadway, intersection and other corridor improvements allow.

-7.4 Nonconforming Lot. Pursuant to the Act [§4412(3)], no development shall be permitted on a lot within the US 7 Corridor Management Overlay District that does not have the minimum required lot frontage [*width*], unless access through a permanent easement or right-of-way has been approved by the Planning Commission [*Development Review Board*] in accordance with Section ____ of these regulations. For purposes of these regulations:

-7.4.1. No direct access shall be provided to any lot having less than 40 feet of frontage on a state or town highway.

-7.4.2. Access approval under this section shall be limited to a pre-existing nonconforming lot which does not meet the minimum frontage [*width*] requirement for the zoning district(s) in which it is located. Lots created after the effective date of these regulations within the US 7 Corridor Management Overlay District shall meet all applicable access and frontage requirements, unless modified or waived by the Planning Commission or Board of Adjustment, [*Development Review Board*] in consultation with the state, under Section ____ [*Waivers, Planned Unit Development— as applicable*].

-7.4.3. The decision to approve an access to a nonconforming lot shall be based on written findings and determinations that:

- (A) No other reasonable access to the lot is available.
- (B) The lot cannot share an existing access to the state or town highway on the same lot or an adjoining lot for reasons of ownership, adequacy, safety, or physical site limitations that require a separate access.
- (C) Any permanent easement or right-of-way providing access to the lot shall be at least 20 feet in width. Pursuant to Section ____ [*Statutory Frontage Requirements*], the Planning Commission [*Development Review Board*] may require a wider easement or right-of-way width as necessary to accommodate a driveway that meets access and driveway width standards applicable to the proposed use. No subdivision or further development of the lot shall be allowed unless the access to existing and proposed lots is provided by means of a 50-foot road right-of-way.
- (D) The access and driveway or road serving the lot shall meet all other applicable requirements of these regulations.

Note: *The above section pertaining to nonconformities is intended to reflect existing bylaw requirements for related types of nonconformities, as allowed under Chapter 117, but these subsections could be deleted, if considered adequately covered under 7.5 below.*

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-7.5 Access Management Standards:

-7.5.1. *[All lots legally in existence in separate ownership as of the effective date of these regulations are entitled to one driveway connection to public highways in the district, subject to these regulations, except for limited access sections of US 7.]* Access to state highways in the corridor shall be allowed only if it is determined that the property or development in question has no other reasonable access to the highway network via an adjoining property, an internal development road or a secondary town highway. Temporary access to a state highway may be permitted until such time that reasonable access to a side street or collector road, or through an adjoining property, becomes available.

-7.5.2. No additional access rights shall accrue upon the subdivision or re-subdivision of existing parcels in this district, nor for the development or redevelopment of contiguous parcels under common ownership and control.

(A) Notwithstanding district lot frontage [*width*] requirements, the minimum frontage distance for lots created after the effective date of these regulations that front on state highways shall be no less than the minimum connection (access, intersection) spacing distance required for that section of highway under the Vermont Agency of Transportation's *Access Management Program Guidelines*.

-7.5.3. Where direct access to a state highway is allowed, only one access shall be permitted to serve an individual lot or contiguous lots under common ownership or control unless it is determined, in consultation with the Vermont Agency of Transportation and Town [*Highway Official*], that:

- (A) Because of physical site constraints, traffic circulation patterns, subdivision requirements, or to better accommodate emergency vehicles or transit, pedestrian or bicycle facilities, an additional access is necessary for the safe and efficient use of the property, and
- (B) The additional access will meet access spacing requirements, and not be detrimental to the safety and operation of the state highway, and
- (C) The additional access will not knowingly result in a hardship to an adjacent or facing property.
- (D) The town, in consultation with the state, may further limit the use of secondary accesses, (e.g., to one-way traffic, emergency vehicle access, etc.) as specified in the conditions of approval.

-7.5.4. For the subdivision, re-subdivision, development or redevelopment of lots within this district, one or more of the following may be required in consultation with the Vermont Agency of Transportation and, for intersecting town highways, the Town [*Highway Official*] as appropriate:

- (A) The elimination, consolidation or relocation of existing, nonconforming accesses and driveways.
- (B) The upgrade or redesign of an existing access or driveway as necessary to meet applicable design standards, or as identified in the *US 7 Corridor Management Plan*.
- (C) Shared access or cross connections with adjoining properties which are currently under common ownership or control, or which also are subject to a shared access requirement in accordance with Section _7.5.5 below.

_7.5.5. Provision shall be made in subdivision and site design wherever feasible for shared (joint) access to state and town highways within the district, and for shared parking and cross connections between adjoining lots. Accordingly:

- (A) Shared driveways or access roads and cross connections between adjoining lots shall be established wherever feasible along state and town highways.
- (B) For through or corner lots fronting on both a state or town highway and a proposed development road, access and frontage shall be provided along the development road, and access rights along the public highway shall be dedicated to the town or state, and recorded with the deed.
- (C) To the extent feasible, parking, loading and service areas shall be located to the side or rear of buildings to allow for cross connections and shared parking between adjoining lots.
- (D) Access points to adjoining lots shall be coordinated with existing and planned development on the remainder of the lot and on adjoining lots.
- (E) Requirements for shared access, parking and/or cross connections between lots shall be made either at the time of approval if similar provision has been made on adjoining lots, or contingent upon the future subdivision, development or redevelopment of an adjoining lot.
- (F) Connections shall be provided through the dedication of easements or rights-of-way as identified on the site plan or subdivision plat and recorded in town land records.

_7.5.6. In the interest of promoting unified access and circulation systems, access to multiple properties along the US 7 corridor that are under common ownership or being consolidated for purposes of development, and are to include more than one lot, building or use, shall not be considered separate properties in relation to required access standards. Accordingly:

- (A) The number of connections permitted to existing or subdivided lots shall be the minimum necessary to provide reasonable access to the site from the state highway, and not the maximum available based on total road frontage.
- (B) Direct connections to state and town highways shall be limited to shared driveways or service roads. The right of direct access to a state or town highway for lots with

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frontage along the highway shall be dedicated to the town or state, and recorded with the deed(s).

- (C) Access shall be provided to all lots, buildings and uses on the proposed development site, including frontage lots (out parcels) through an internal, shared site circulation system, which shall be designed to avoid excessive movement across parking aisles and queuing across surrounding parking areas and driving aisles.
- (D) All necessary easements, agreements and stipulations for shared access, parking and cross connections shall be met.

-7.5.7. In order to protect the safety and operational efficiency the following state highway intersections: *[specify as appropriate]*, no new connection to either state highway shall be permitted within $\frac{1}{4}$ [$\frac{1}{2}$] mile of the intersection unless it conforms to an access management plan for the intersection, as approved by the town and the Vermont Agency of Transportation. The access management plan shall:

- (A) Address access to multiple properties within the intersection area(s) *[under common ownership or control]*.
- (B) Address existing and anticipated deficiencies and recommended infrastructure improvements identified in the *US 7 Corridor Management Plan* *[town plan, capital improvement program or state transportation improvement program]*, and
- (C) Identify existing and proposed connections and openings within $\frac{1}{4}$ [$\frac{1}{2}$] mile of the intersection area which meet minimum access and road intersection spacing requirements.

Note: *The above section assumes that the state, region and/or town will develop one or more state highway intersection access management plans in association with affected landowners,; or that affected landowner(s) will be required to prepare an access management plan – which reasonably would include only their property(ies), and may otherwise be covered under -7.5.6 above.*

-7.6 Site Improvements. The following site improvements may be required as a condition of approval where applicable:

-7.6.1. Clearly marked travel lanes, pedestrian crossings, and pedestrian paths connecting buildings and parking areas shall be incorporated into subdivision and site and design as necessary to ensure vehicular and pedestrian safety and convenience.

-7.6.2. An access or connection that crosses or otherwise affects an existing or planned pedestrian, bicycle or handicapped facility shall incorporate necessary modifications to ensure safe crossing and use of those facilities.

-7.6.3. Bicycle racks or lockers shall be required for all multi-family dwellings and nonresidential uses intended for general public access [that are located along existing or planned bicycle paths].

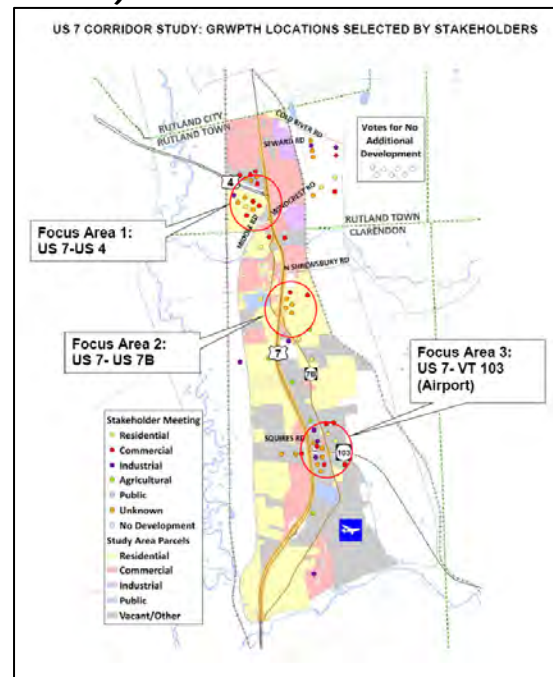
-7.6.4. Transit facilities (e.g., turn outs, shelters) may be required for school bussing or for development on existing or proposed transit routes.

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RECOMMENDATION: CONCENTRATED (NODAL) DEVELOPMENT

Overview

A basic precept of corridor management to preserve highway capacity and function is to concentrate development in targeted areas or “nodes” along a highway corridor that are served by existing and planned infrastructure, that allow for coordinated access management, and that accommodate higher densities of development that will support public transit. Nodes may include existing or planned village and urban centers, industrial or business parks, and major highway intersection or interchange areas. Outside of these areas commercial development is limited to avoid linear development served by multiple driveways and intersections, and traffic generation rates that could impair highway capacity and function.



The three focus areas identified for more concentrated development along the US 7 corridor – located at key intersections – fit within this recommended pattern of development.

They also are generally consistent with adopted regional and municipal planning goals and objectives to promote higher densities of development within existing and planned urban or village centers and business parks, and to avoid lower density, auto oriented linear development outside of these areas. Nevertheless, under current municipal bylaws, both commercial and residential development are allowed along the length of the US 7 highway corridor, including US 7B.

Regulatory Options

The most common ways to promote concentrated development within designated areas of a community, as authorized under the Vermont Planning and Development Act (24 V.S.A. Chapter 117) include:

- **Zoning District Designations** – including carefully delineated village, commercial, industrial, airport or highway interchange districts around key nodes or intersections, that do not extend along the length of a highway corridor. Zoning districts are established under zoning, however district standards (e.g.,

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lot size and frontage requirements) may also apply to the subdivision of land under unified or separately adopted subdivision regulations.

- **Planned Unit Developments (PUDs)** – including provisions to modify or waive zoning district requirements to promote more concentrated forms of planned development, such as mixed use transit, village, business or industrial park development. PUD provisions typically are adopted under zoning regulations, but administered in conjunction with subdivision regulations (as major subdivisions) or, where no subdivision of land is required, as a conditional use under zoning, if specified in the bylaws.

Clarendon's adopted zoning regulations, and proposed zoning regulations for Rutland Town, include both zoning districts and planned unit development as options for regulating development, however they have not specifically been proposed or applied to manage development along the US 7 highway corridor. Clarendon has yet to adopt subdivision regulations or specific requirements for planned unit developments. The Town of Rutland has not yet adopted zoning regulations; and proposed planned unit development provisions would apply only to the clustering of residential development to protect open space in more rural areas of the community. Existing and proposed regulations do not confine higher density, mixed use development to identified focus areas or nodes, but rather allow commercial development to extend along the length of the highway corridor.

Zoning Districts

There are a number of options for rezoning land along the corridor to concentrate development within targeted areas – including the designation of commercial, industrial, business, or mixed use (village) zoning districts centered on identified intersections. These could include, for example:

- A commercial or business park district at the US 7/US 4 intersection, to allow for planned, coordinated commercial development around this intersection;
- A new mixed use or village district at the US 7/7B intersection, to include a mix of pedestrian-oriented residential, retail and light industrial uses; and
- An airport business park district at the US 7/VT 103 intersection (including existing Commercial Industrial Zones in this area), to promote airport-related businesses and supporting services, and reduce potential hazards and use conflicts and hazards, as described in the accompanying paper on airport zoning.
- An access management overlay district, to manage access around key intersections in accordance with an adopted corridor or intersection access management plan.

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Such zoning districts could accommodate higher densities of development where feasible, as supported by existing or planned infrastructure improvements and access management plans. Commercial development could then be limited outside of these districts to avoid auto oriented linear development, access conflicts and traffic congestion – for example by rezoning surrounding areas along the corridor for clustered, lower density residential development, farming, forestry and resource or open space protection.

Planned Unit Developments (PUDs)

Many types of planned unit development are enabled under the Vermont Planning and Development Act (24 V.S.A. §4417) to allow or require some flexibility in subdivision and site design. PUDs typically provide for clustered development on a portion of a site, offset by open space or resource protection on the remainder of the site (as envisioned under Rutland’s proposed zoning bylaw) – but can also be used to promote other forms of planned development specified in the regulations, such as business and industrial parks or mixed use developments. They are especially effective when applied in conjunction with an overall master plan requirement that identifies:

- the type and location of existing and proposed principal and accessory use(s), including the location of designated building envelopes for initial and subsequent phases of development;
- the location, extent and use of conserved open space areas;
- the overall intensity (level) of use of on-site facilities at build-out, to include total occupants, employees, maximum building capacities, etc.;
- projected trip generation rates at build-out;
- the location of park entrances, internal and connecting access roads, parking areas, and pedestrian paths for the entire parcel;
- the location of on-site utilities, including water, wastewater and waste management systems; and
- a development schedule, including a proposed schedule for any phased development.

A planned unit development can function as a type of overlay district or performance zoning through the use of thresholds or triggers, based on the location, size or scope of a project. For example, PUDs and accompanying master plans, can be required for projects:

- within designated zoning districts,
- within a specified distance of a highway right-of-way or intersection,
- over a certain size (acreage, square footage), or
- that include commercial, industrial or mixed used development.

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PUD provisions should be adopted under zoning regulations, referenced under subdivision regulations, and include the following as required by statute:

- A stated purpose – e.g., to concentrate commercial or mixed use development in designated locations;
- A review process – to include subdivision and/or conditional use review;
- Application requirements – e.g., the submission of a master plan;
- PUD standards – including associated use, density, design and open space standards;
- Public improvement standards – including infrastructure requirements (e.g., access, roads, sidewalks, water and wastewater, utilities, etc.);
- Phasing provisions– tied to the municipal plan and adopted capital improvement programs; and
- Coordination with other applicable review processes – including the timing and sequence of review.

Related Considerations

Municipal Plans. Any proposed changes to local bylaws must conform to adopted municipal plans. Corridor management plan recommendations – especially for rezoning or planned unit development – at minimum should be incorporated by reference in updated municipal plans. Rezoning also requires the active involvement of the community and affected landowners – and often the assistance of planners, engineers or other design professionals. The development of “supporting plans” as identified in statute (24 V.S.A. §4432) – including access management, village or open space plans – may also help inform and support proposed rezoning along the highway corridor, and help define relevant district or PUD design standards (see related plan update information).

Unified Regulations. Since PUD provisions are adopted under zoning, but typically administered in association with the review subdivisions, they are most effectively applied by a single development review board, under a unified bylaw that includes integrated zoning and subdivision regulations. Clarendon and Rutland Town are both considering the adoption of zoning or subdivision bylaws which could be integrated into a consistent set of unified development regulations. Unified bylaws, if administered by one development review board, also allow for concurrent or combined hearings that can expedite the local review process.

Design Standards. Design standards are especially important to mitigate the adverse effects of higher density development on adjoining properties, infrastructure and resources. Design considerations are inherent in district dimensional and building height requirements and, as noted above, are required for planned unit developments.

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Design standards can be incorporated by zoning district (to all or specified uses within a district), by use type (e.g., for gas stations, industrial uses, mixed use buildings), under site plan or conditional use review criteria, or for planned unit developments. Design standards can also be applied under design review districts intended to more comprehensively regulate site and building design – including architectural elements – in conformance with a design study for the district prepared by the planning commission.

Basic design considerations for subdivisions within concentrated nodes or development districts– some of which are addressed under Rutland Town’s current regulations – may include:

- Pedestrian-friendly block, lot and street layouts,
- Internal and external access, vehicle, pedestrian and transit connections, including street connectivity requirements,
- Context-sensitive road and “streetscape” standards – including sidewalks, landscaping and buffer strips, street lighting, street trees and furniture, and
- Open space standards – e.g., for public plazas, courtyards, playgrounds, community gardens, parks or resource conservation.

Accommodating Higher Density Development under Zoning

- Allow mixed use and multi-family development,
- Reduce lot size and frontage requirements,
- Reduce or eliminate setback requirements,
- Increase density (units per acre, floor area ratios),
- Increase maximum building heights (stories) – except within airport approach areas,
- Increase maximum building and lot coverage requirements – with stormwater management,
- Require shared access and parking where feasible,
- Reduce on-site parking requirements –allow off-site and on-street parking, provide public parking,
- Require safe, convenient pedestrian and transit

Site plan or conditional use standards under zoning can more specifically address:

- Site layout – e.g., to require that principal buildings and transit stops be located at the front of the lot, that parking areas be located to the rear of the lot (or to the side behind the building line), that loading, utility and storage areas be located at the rear of the lot, behind principal buildings, and that drive-through areas and gas station pumps be sited to the side or rear of the lot.
- Building orientation – to ensure that new buildings line up along established building lines, with principal facades and entrances facing the street rather than adjoining parking areas.
- Building design – to manage the height, scale and massing of larger buildings, and to limit or prohibit “franchise architecture.”
- Pedestrian circulation – to require safe and convenient pedestrian connections to adjoining properties and to all buildings and parking areas.

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- Shared access and parking – including access improvements, cross connections, and parking lot design requirements.
- Landscaping and screening requirements – for public or main entrances, building facades, parking areas, utility and storage areas, and walkways, and between incompatible land uses (e.g., commercial and residential uses).
- Gateway or transition areas – e.g., at village entrances, or between commercial areas and residential neighborhoods.
- Exterior lighting requirements for entrances, building facades, parking areas and walkways.

Planned unit development standards for commercial or industrial parks can require:

- Master plans for coordinated, phased park development,
- Clustering buildings within designated development envelopes that are sited to avoid protected open spaces or scenic views,
- A campus or institutional pattern of development with a common entrance, shared service roads, parking and transit facilities, and interconnecting pedestrian walkways or paths,
- Consistent or complementary building styles and signs,
- Landscaping for entrances, building facades, common areas, and walkways,
- Screening for loading, service, utility and storage areas, including warehouses and storage units, and
- Exterior lighting standards for entrances, buildings, parking areas, and walkways.

Design standards will vary depending in part on the type(s) and densities of development allowed within a zoning district or PUD. Design exercises, such as visual preference surveys, design charrettes or more detailed scenario renderings that incorporate input from community officials and affected property owners can help identify appropriate standards for each area.

Resources:

Growing Smarter: Best Site Planning for Residential, Commercial and Industrial Development, published by Smart Growth Vermont; available on-line (www.smartgrowthvermont.org).

Growth Center Planning Manual for Vermont Communities (2007)– developed specifically to support applications for state growth center designation, but relevant to

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planning for all types of nodal development, Vermont Department of Housing and Community Affairs (<http://www.dhca.state.vt.us/Planning/>).

Vermont Land Use Planning Implementation Manual, Vermont Land Use Education & Training Collaborative (www.vpic.info).

#9 – Growth Centers

#22– Planned Unit Development

#23 – Public Transportation (Transit)

#25 – Roads and Highways

#30 – Zoning Regulations

Vermont Corridor Management Handbook (2005), Vermont Agency of Transportation (www.aot.state.vt.us/planning/VTcorridor.htm).

Vermont Access Management Program (www.vtaccessmanagement.info/), including

- Vermont Best Practices for Access Management (Guidance Document)
- Tools and Techniques, Definitions, Examples.

Vermont Interstate Interchange Planning & Development Design Guidelines (2004), Vermont Department of Housing & Community Affairs – can also apply to major highway intersection areas (<http://www.dhca.state.vt.us/Planning/GuidelinesFinal.pdf>).

Transportation and Land Use Connections: Experience from Northwest Vermont – includes information and examples for overlay district and planned unit development, available on the Northwest Project website (www.transportation-landuse.org).

Transit Oriented Design for Chittenden County: Guidelines for Planners, Policymakers, Developers and Residents (2002), Chittenden County Regional Planning Commission – includes design considerations for pedestrian-friendly, transit-oriented development (www.ccrpcvt.org).

Vermont Examples

- Randolph Zoning Regulations – Exit 4 Interchange District (<http://randolphvt.govoffice2.com/>)
- Bennington Regulations – Planned Commercial District (www.bennington.com/government)
- Middlesex Regulations– Mixed Use, Industrial Districts (<http://www.middlesex-vt.org>)
- Essex Town Zoning Regulations –Industrial, Commercial, Mixed Use PUDs (www.essex.org)

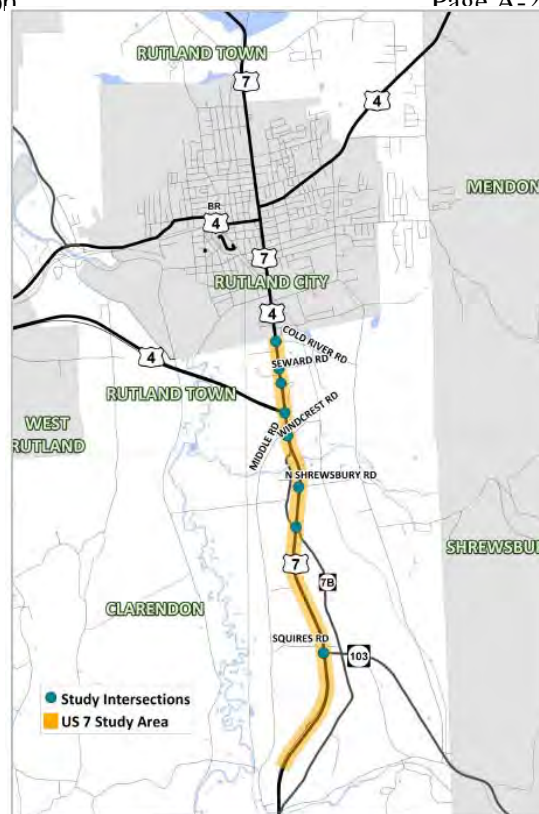
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RECOMMENDATION: MUNICIPAL AND REGIONAL PLANS

Overview

As a result of 2004 amendments to the Vermont Planning and Development Act (24 V.S.A. Chapter 117) plan implementation measures – including proposed bylaw amendments and capital improvement programs – are required to conform to adopted municipal plans. This means that they must (24 V.S.A. §4303):

- Make progress toward attaining , or at least not interfere with, goals and policies of the municipal plan;
- Provide for proposed future land uses, densities and intensities of development set forth in the municipal plan; and
- Carry out, as applicable, any specific proposals for community facilities and infrastructure, or other proposed actions contained in the municipal plan.



The Planning and Development Act also specifically provides for “supporting plans” – such as access management, growth center and open space plans – that, for implementation purposes, may be adopted and incorporated in the municipal plan in the same manner as the municipal plan is adopted (24 V.S.A. §4432). The *US 7 Corridor Management Plan* is a type of supporting plan that, for local implementation, should be referenced in updated municipal plans.

The towns and region are also statutory parties under all ten Act 250 criteria. Municipal and regional plans are considered in state Act 250 proceedings under criterion 10 (project conformance with local and regional plans) and under other relevant criteria (e.g., traffic impacts, public investments, etc.). As such, referencing the *US 7 Corridor Management Plan* in local and regional plans lends added weight to accompanying findings and recommendations in Act 250 proceedings.

Plan Update Recommendations

The Towns of Rutland and Clarendon should consider appending or incorporating the *US 7 Corridor Plan* by reference in municipal and regional plans, as the policy basis for implementing management plan recommendations. Specific management plan

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findings and recommendations can also be more comprehensively integrated in municipal and regional plan updates that tie management plan recommendations to other applicable planning efforts within the towns and region. Sample plan language is provided low, which should be adapted for local use.

Note: All current plans include descriptions of the US7 corridor as a principal arterial that is part of the National Highway System and serves the larger region, as well as local traffic. The following language is suggested to supplement existing plan language under the transportation elements of municipal and regional plans, and for inclusion (e.g., as a text box) in the Regional Commission's updated Regional Transportation Plan.

US 7 Corridor Management Plan (2009)

A comprehensive highway corridor management plan was prepared for the US 7/7B corridor through Rutland Town and Clarendon in 2009 to identify and address priorities for improved corridor management. The plan represents a joint effort of the Towns of Rutland and Clarendon, the Rutland Regional Commission, the Vermont Agency of Transportation, and residents and businesses along the highway. The US 7 Corridor Management Plan is a supporting plan to the municipal plan (under 24 V.S.A. §4432) and, for purposes of implementation, is incorporated here by reference [appended to the municipal/regional plan]. Management plan recommendations specific to the [town/region] are summarized as follows:

Goal: Improved, coordinated highway corridor management, in conformance with the 2009 US 7 Corridor Management Plan, to maintain the functional capacity of US 7 as the principal arterial serving the Rutland Region.

Recommendations:

- 1. Enter into a US 7 Corridor Management Agreement (MOU) with the Vermont Agency of Transportation, the Rutland Regional Commission, and [other] municipalities along the highway corridor to provide an accepted framework for coordinated corridor management.*
- 2. Update [zoning, subdivision] bylaws to reference state access management program guidelines as they apply to highway access and development along US 7 [and other state highways], and to refer applications for development on state highways to the Agency of Transportation for review.*
- 3. Update [zoning, subdivision] bylaws to include access management standards for town highways that are consistent with state access management program guidelines and adopted town highway ordinances.*

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4. *Schedule priority infrastructure improvements to be financed in whole or part with public funds in the [regional transportation improvement program, municipal capital improvement program].*
5. *Work with landowners, the Regional Commission, and the Agency of Transportation to develop access management plans for those areas targeted for higher density development at major highway intersections along the corridor.*
6. *Consider access and infrastructure improvements identified in the US 7 Corridor Management Plan in the review of development along the corridor. Require that developers pay for any improvements necessitated by proposed development, or to phase development in relation to scheduled public improvements included in the [regional transportation improvement program, municipal capital improvement program]. Also require the reservation of rights-of-way needed to accommodate planned highway improvements.*
7. *Re-evaluate zoning district designations, allowed uses and dimensional standards along the US 7 corridor to concentrate commercial development, including major traffic generators, within focus areas identified in the US 7 corridor management plan (at major intersections) and to restrict commercial development outside of these areas to maintain highway capacity and function, to prevent strip development, and to improve access management.*
8. *Consider a "US 7 Corridor [Access] Management Overlay District" to coordinate the review and regulation of development and access management along US 7/7B [and other state highways].*
9. *Consider airport zoning to regulate development around the Rutland State Airport, including development within airport approach zones, to support airport functions and related businesses and to minimize flight hazards and development or use conflicts resulting from airport operations.*
10. *Consider planned unit development (PUD) provisions under zoning or unified regulations to promote (or require) concentrated (nodal) development, including standards for mixed use, commercial or business parks in designated locations along the highway corridor.*

Resources

Vermont Corridor Management Handbook (2005), Vermont Agency of Transportation
(www.aot.state.vt.us/planning/VTcorridor.htm)

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Vermont Land Use Planning Implementation Manual (2007), Land Use Education & Training Collaborative, (www.vpic.info). The following may be especially helpful for evaluating implementation options to reference in municipal plan updates:

- #1 – Introduction: Implementing the Municipal Plan
- #4 – Capital Improvement Program
- #16 – Land Use & Development Regulations
- #20 – Parking
- #22 – Planned Unit Development
- #24 – Rail & Airports
- #25 – Roads & Highways
- #26 – Subdivision Regulations
- #30 – Zoning Regulations

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RECOMMENDATION: AIRPORT ZONING SOUTHERN VERMONT REGIONAL (RUTLAND STATE) AIRPORT

Overview

The Southern Vermont Regional (Rutland State) Airport in Clarendon is accessed from and served by the US 7 corridor. This airport is one of three “National Service Airports” in Vermont which provide intrastate, interstate and international flight connections, and the only airport other than Burlington International to offer scheduled commercial passenger flights. The airport serves the larger Rutland region, and is intended to provide a full range of air and ground services.

Airport operations fall under the jurisdiction of the Federal Aviation Administration (FAA) and, as the airport’s owner, the Vermont Agency of Transportation. The FAA governs airport development and airspace; but land in and around the airport is under state and local jurisdiction. As such, airport planning and development requires a coordinated, multi-jurisdictional approach.



Airport infrastructure also represents a significant public investment – more than \$10 million in needed system improvements have been identified at the Rutland Airport – for a runway extension, taxiway, upgraded lighting and navigational improvements, and additional parking – \$1.8 million of which are included in the state’s current airport capital plan. Adequate planning is needed to provide both air- and landside facilities to meet current and future needs, and to protect public investment by controlling development in and around the airport. As highlighted in the Vermont Agency of Transportation’s 2007 *Airport System and Policy Plan*, planning needs to go beyond airport boundaries into surrounding communities:

Planning for future airport development and the ability to protect public investment in airports by controlling development around airports are important. Airports need to proactively plan for future development and implement land use planning guidelines to protect them from the encroachment of activities or land uses that are incompatible with their day-to-day operations. Proper planning on and around system airports generally increases their ability to respond to development needs and allows for

The state intends to coordinate and work with communities around state airports to address airport facility, access, land use and environmental concerns. At present, 76% of these airports are recognized in regional plans – including the Rutland Regional Plan – that include recommendations for airport-compatible development, but

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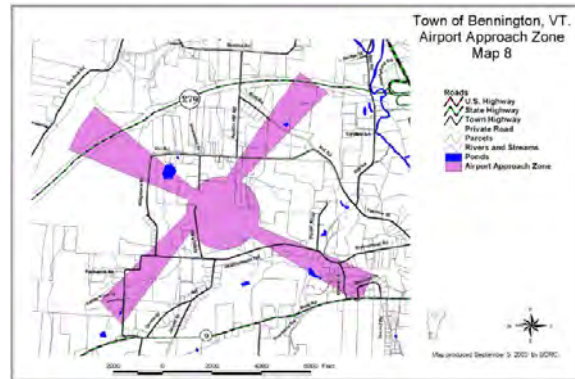
The Region’s airports have a direct impact on businesses and tourism in the Region. At the same time, airports can be sources of land use conflicts; decisions about development immediately adjacent to the Fair Haven and Rutland State airports should be made with careful consideration to future compatibility.

~ 2008 Rutland Regional Plan
(p.191)

only 53% are protected through locally-adopted airport zoning regulations. Clarendon references airport master planning and access concerns in its town plan, but has not yet considered airport zoning regulations.

Airport Zoning

Recognizing the importance of controlling land uses around air, rail and highway facilities, the state authorizes municipalities to “regulate, restrict or prohibit structures” in the vicinity of major transportation arteries and aircraft facilities (24 V.S.A. §4411). This is reinforced under related statutes that specifically allow communities to regulate development within airport hazard areas (24 V.S.A. §4414(1)(C) and 5 V.S.A. Chapter 17 Airport Zoning). Airport zoning regulations must be prepared, adopted and administered in conformance with these statutes.



Airport zoning is most often adopted as an overlay zone corresponding to mapped airport facility and approach zones. Height, safety and noise hazards are typically addressed, but municipalities can adopt regulations that more generally govern the use of land, the location and height of structures and vegetation, outdoor lighting, and population densities within two miles of the airport boundary under flight approach zones, and up to a mile from the boundary in other areas. Uses allowed in these zones are generally limited to airport-related facilities and activities – including businesses that provide or rely on air service, passenger facilities and services, and parking areas– and uses that will not create flight hazards or be adversely affected by airport noise and flight patterns. Residential uses and other high-occupancy forms of development are typically excluded from these areas, and in any adjoining areas planned for airport expansion.

Developing airport regulations typically involves:

- Appointing an “airport zoning commission” (under 5 V.S.A. §1002) which can be the same as the municipal planning commission, to prepare required reports and draft regulations;
- Working with the state, airport officials, technical experts, and affected property owners and business interests to develop policies and zoning regulations that address airport operations and planned airport improvements and expansions;
- Mapping and evaluating existing and potential hazards within the vicinity of the airport, including flight approach zones;
- Overlaying noise contours on land use maps, and
- Limiting development within airport hazard, expansion and high noise areas.

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Airport zoning must meet any airport zoning guidelines adopted by the Vermont Transportation Board, but can be adopted separately or incorporated, administered and enforced under the town's regular zoning bylaw.

Resources

Vermont Airport Zoning Act (5 V.S.A. Chapter 17) (www.leg.state.vt.us/statutes/)

Vermont Airport System and Policy Plan (2007), Vermont Agency of Transportation, Operations Division, Aviation Program ([www. http://airports.vermont.gov/index.htm](http://airports.vermont.gov/index.htm))

Vermont Land Use Planning Implementation Manual (2007), #24 – Rail and Airports, Vermont Land Use Education & Training Collaborative, (www.vpic.info)

Airport Zoning: Better Neighbors by Design, Michigan Department of Transportation – includes model language that could be adapted for use in Vermont.

(www.michigan.gov/documents/zoningmanual_18130_7.pdf)

Vermont Examples

- City of South Burlington/Burlington International Airport web site (www.sburl.com)– Noise Land Inventory Update & Reuse Plan (Acquisition Program) , Living Wall Noise Buffer Project
- City of South Burlington Land Development Regulations – Airport , Airport Industrial Districts
- Bennington Land Use Regulations – Planned Airport (PA) , Airport Approach Overlay Districts
- Morristown Zoning & Subdivision Regulations– Airport Hazard Areas (Section 310).

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APPENDIX B

Conceptual Plans





CONCEPTUAL IMPROVEMENT PLAN
ROUTE 4/7
RUTLAND, VERMONT

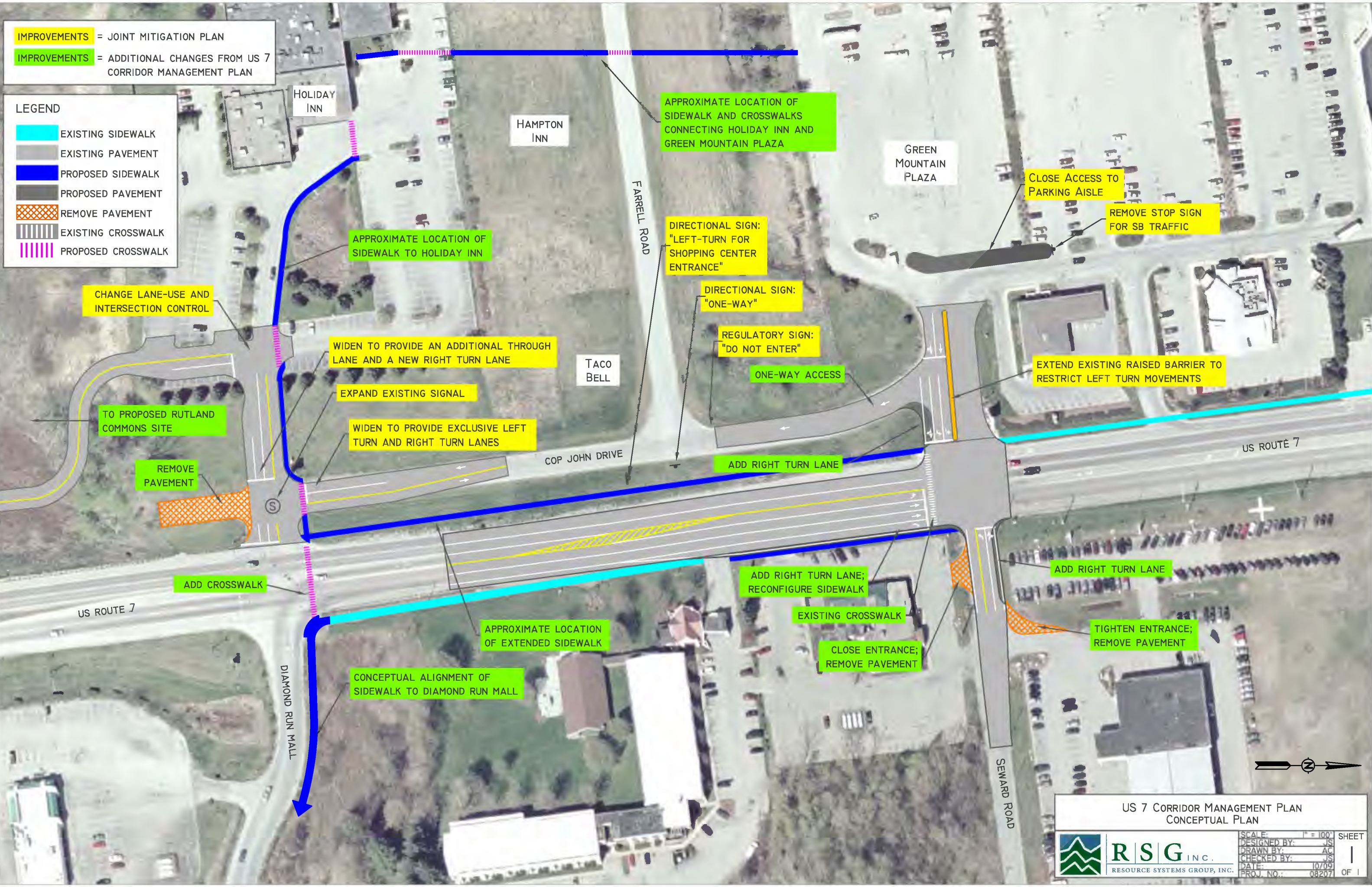
GPI Greenman-Pedersen, Inc.
Engineers, Architects, Planners, Construction Engineers & Inspectors
61 Split Brook Road, Suite 110, Nashua, NH 03060 - Tel. (603) 891-2213
800 South Main Street, 1st Floor, Manchester, MA 02108 - Tel. (603) 338-8350
108 Central Street, Suite 4100, Stoneham, MA 02180 - Tel. (781) 278-8800
Other Offices in: FL, MD, MI, NJ, NY, OH, PA, VA, VT, WA <http://www.gpinet.com>

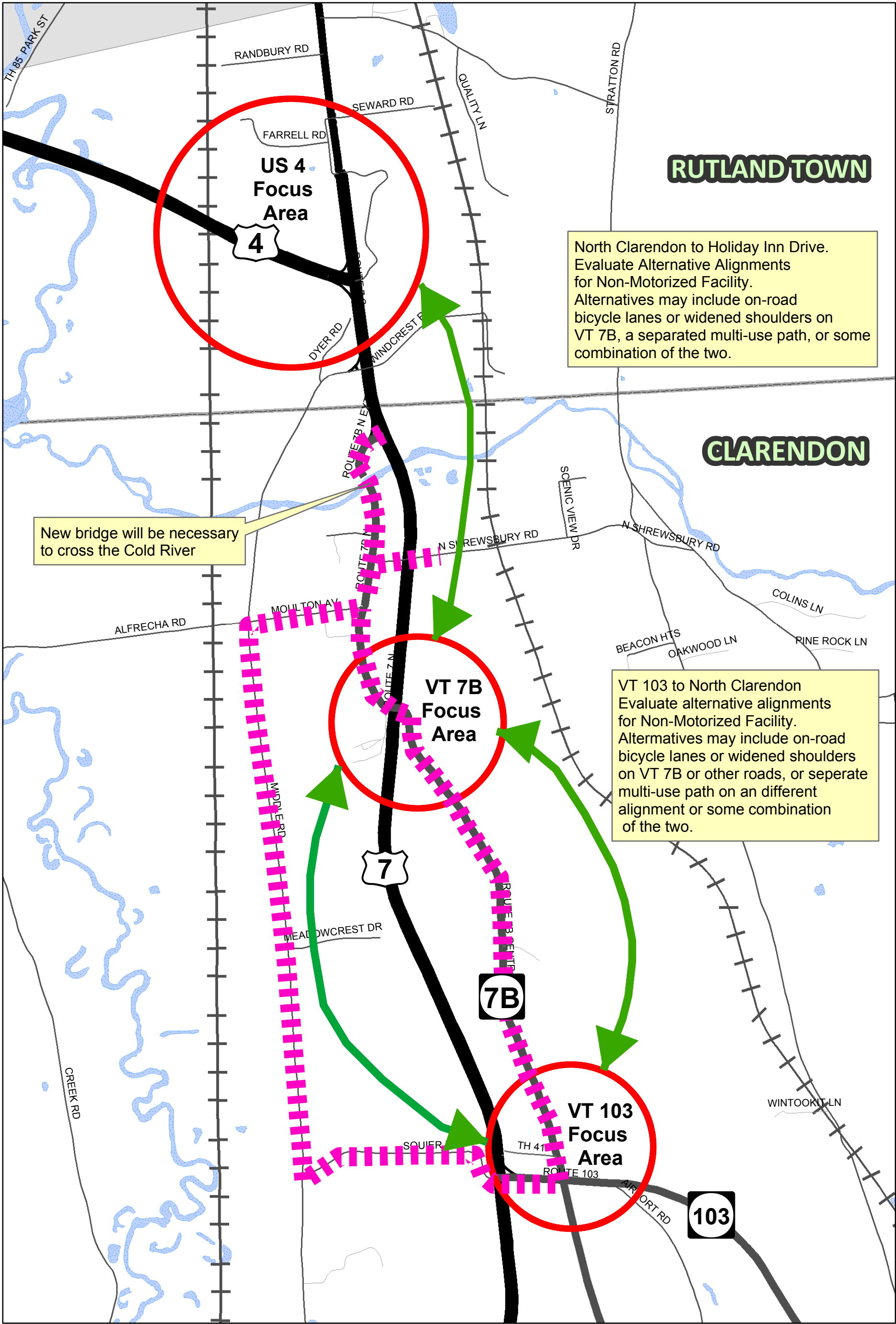
DATE: 1/23/09
SCALE: 1" = 100'
JOB NO.: NHK-2008598
FILE NAME: 08598 CONCEPT
DRAWING NO.: 1 of 1

IMPROVEMENTS = JOINT MITIGATION PLAN
IMPROVEMENTS = ADDITIONAL CHANGES FROM US 7 CORRIDOR MANAGEMENT PLAN

LEGEND

- EXISTING SIDEWALK
- EXISTING PAVEMENT
- PROPOSED SIDEWALK
- PROPOSED PAVEMENT
- REMOVE PAVEMENT
- EXISTING CROSSWALK
- PROPOSED CROSSWALK





0.5

Miles



On-Road Facility Alternatives.
Widen shoulder or Dedicated Bicycle Lane



Multi-Use Path on separate alignment.
Alignments are conceptual only. Actual alignments
to be fully evaluated through scoping process.



Development Focus Areas

US 7 Corridor Management Plan

Non-Motorized Facility
Recommendations

Resource Systems Group
October 2009

APPENDIX C

RRPC Build-Out Analysis



Build Out Analysis

**The US 7 Corridor Management Plan
Rutland and Clarendon, Vermont**



**Prepared by: Rutland Regional Planning Commission
PO Box 965
Rutland, VT 05702**



Introduction

A major component in the planning process of The US 7 Corridor Management Plan was to estimate the build-out potential for each town. The purpose of a build-out analysis is to project the number of future dwelling units (households) and nonresidential space that could eventually be built under a town's current zoning. A build-out analysis can give a more accurate population projection than simply projecting the current growth rate into the future. The results of the build-out analysis reflect the remaining capacity for an area; it does not imply or forecast how many buildings will actually be built. It represents one possible interpretation of the zoning regulations.

There are two major steps in the build-out process; a numeric step and a spatial step. A numeric build-out is the first step. It attempts to measure the holding capacity of the land and provides an estimated building capacity in numbers per polygon (parcel). The spatial build-out will then take the numeric results and convert them to points representing individual buildings. It further refines these points based on the geometry of land-use areas and structures.

For this project we ran two separate build-outs, one for each town. The analyses were run for the entire town and then focused on the study area.

The build-out analysis for the Towns of Rutland and Clarendon was done using the Orton Family Foundation's Community Viz, Scenario 360 software. The software relies heavily upon data input from the town's zoning regulations. A series of additional map layers were used to further refine the analysis, including digital tax maps, roads, steep slopes, wetlands, flood hazard areas, public & private conserved lands, and existing buildings. The software requires users to set parameters for the build-out to use (eg: building density, minimum lot size). Many of these parameters require the user to make important decisions that will affect the build-out analysis.

Location

The towns of Rutland and Clarendon are centrally located in the Rutland region. The US 7 Corridor Management Plan encompasses a study area located in both towns. In the Town of Rutland, the study area is flanked by The Vermont Railway to the West and The Green Mountain Rail Road to the East, The City of Rutland to the North and the Town of Clarendon to the South. See Figure 1. While Clarendon is bordered by the Middle Road to the West, the East side of VT Route 7B and the industrial park near the airport in the East, the Town of Rutland to the North and the intersection of US Route 7 and Gorge Road in the South. See Figure 2.



- 4 -

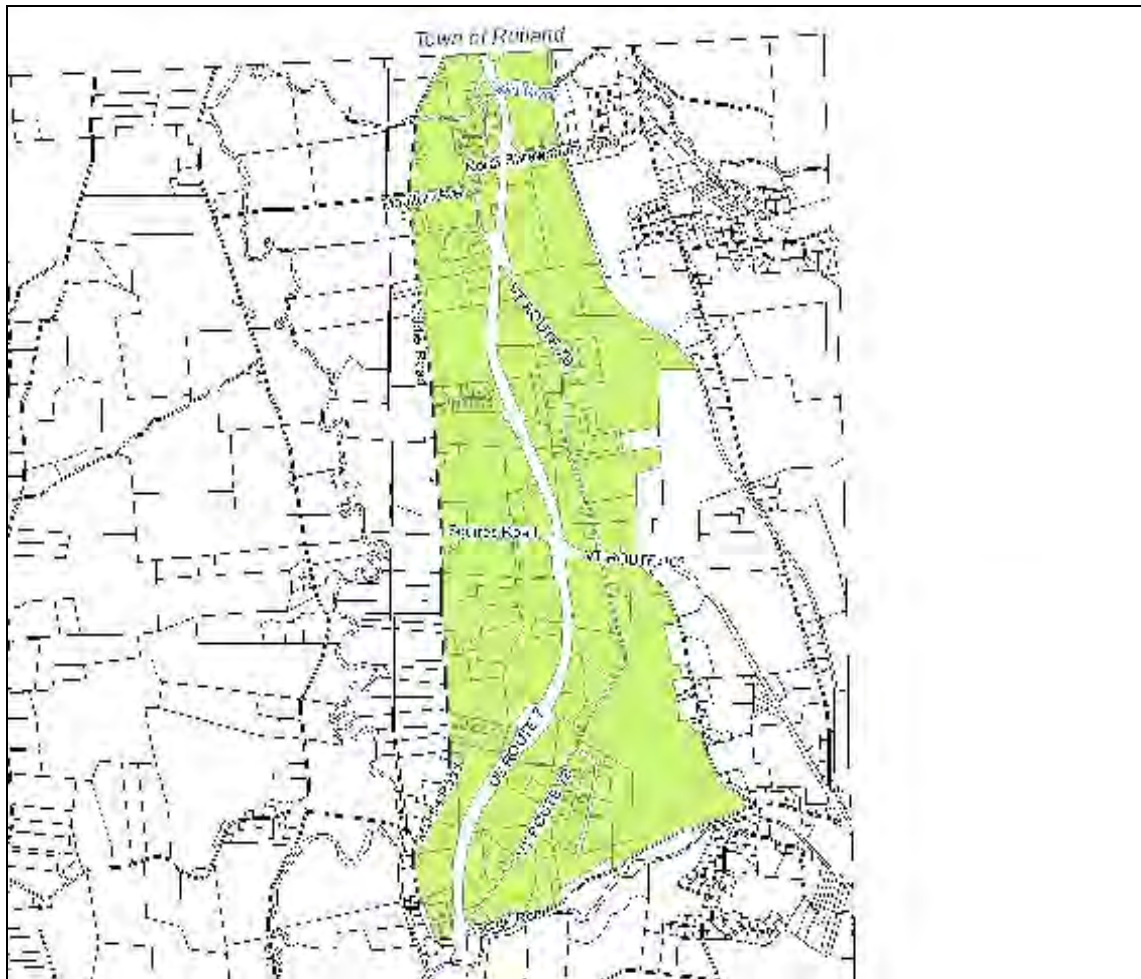


Figure 2: Clarendon Study Area

Proposed Zoning Regulations

The Town of Rutland is in the process of adopting zoning regulations. Currently, they have a proposed zoning document which was used in the build-out process. Clarendon is in the process of updating their zoning regulations. Their new proposed zoning regulations were used for the build-out.

The RRPC met with representatives from both towns to gather input regarding interpretation of the zoning regulations and assumptions concerning future development. An important piece of information collected at these meetings was the growth rate. For both Rutland Town and Clarendon, the average number of new buildings built per year is 15. Each town has defined their own zoning districts and they are different from town to town, therefore, a separate build-out analysis was run for each town. Proposed zoning for Rutland Town includes twelve zoning districts while proposed zoning for Clarendon has four zoning districts town-wide. In our study area, Rutland Town has two districts: Affordable Housing and Industrial/Commercial; and Clarendon has two districts: Residential/Commercial and Commercial/Industrial. See Figures 3 and 4.

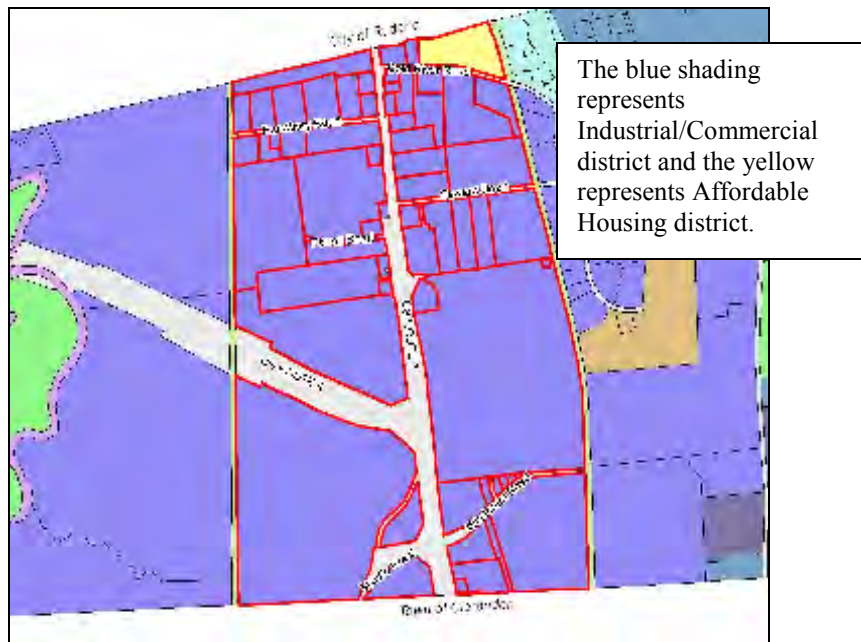


Figure 3: Rutland Town Proposed Zoning Districts (study area outlined in red).

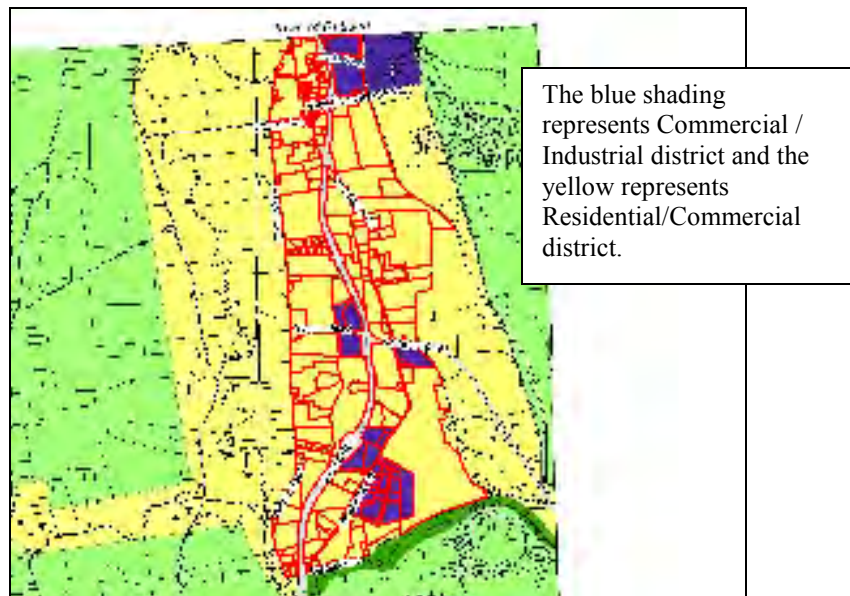


Figure 4: Clarendon Proposed Zoning Districts (study area outlined in red).

Numeric Build-out

The steps followed to run the build-out analysis for each town are basically the same.

First, a GIS database was created by joining the parcel data with the proposed zoning data. This gave us a new GIS database with proposed zoning (district) and parcel (unique id) attribute information. This is the primary database used in the numeric build-out.

The second consideration is density. What is the allowed density in each of the proposed zoning districts? This is based on either dwelling units per acre (DU acre) in residential districts or Floor Area Ratio (FAR) in commercial districts, see Table 1 below. The FAR was calculated using the allowable number of floors and the building coverage ratio.

Density Rules				Clarendon
Land-Use Designation	Dwelling Units	Floor Area	Efficiency Factor (%)	
Agricultural & Rural Residential	2 DU per acre		20	
Commercial & Industrial		1.2 FAR	40	
Conservation			0	
RAIL			0	
Residential & Commercial	3 DU per acre	1.05 FAR	35	
ROAD			0	
Density Rules				Rutland Town
Land-Use Designation	Dwelling Units	Floor Area	Efficiency Factor (%)	
AFFORDABLE HOUSING	6 DU per acre		40	
AGRICULTURE	0.2 DU per acre		40	
COMMERCIAL		0.5 FAR	25	
CONSERVATION	0.04 DU per acre		2	
INDUSTRIAL/COMMERCIAL		0.5 FAR	20	
MUNICIPAL/GOVERNMENT		1 FAR	5	
R40A	1.5 DU per acre		45	
R40B	12 DU per acre		50	
R40C	1.5 DU per acre		55	
ROAD			0	
RR ROW			0	
RR-10	0.1 DU per acre		50	
UTILITY			0	
WATER			0	

Table 1: Density and Efficiency factors for Clarendon and Rutland Town

Efficiency factors were used to adjust each district for density losses. They are entered as a percentage where 100% equals complete efficiency where no density is lost down to 0% which means no buildings will be estimated for that proposed zoning district. Refer to Table 1 above for examples.

Building information can also be entered into the build-out analysis, but it isn't mandatory. The Clarendon and Rutland Town build-outs used the default settings, which use some of the details supplied earlier in the build-out process, such as number of floors allowed. Mixed use buildings, though allowed in several districts in each town, were not calculated for this build-out.

Constraints to Development

The build-outs were estimated considering the following environmental factors, which represent areas where no development can occur.

- Slope greater than 25%
- Surface Water
- Public and Private Conserved Lands
- Wetlands
- 100 Year Flood Hazard Areas

The development density for flood hazard areas was transferred to the whole parcel. This means that if a portion of a parcel is covered by flood hazard area, that area is included in the calculation determining how many buildings can be placed on that lot. Even though the area is included, no buildings will be placed there; all buildings will be placed on the remaining available part of the parcel, giving it a higher density than otherwise.

The final constraint considered in the build-out analysis was the location of existing buildings.

Spatial Build-out

The spatial build-out takes place after the numeric build-out has been run. The software determines how to place buildings on the land. This is done considering various building separation rules for each district and different layout options for the buildings (random, grid or along roads). In these build-outs, the distances will come from setback data for each town and district. See Table 2.

Town	District	Front Setback (ft)	Rear Setback (ft)	Side Setback (ft)
Clarendon				
	Commercial Industrial	40	30	20
	Residential Commercial	40	30	20
Rutland Town				
	Affordable Housing	40	40	25
	Industrial Commercial	60	60	50

Table 2: Setback Distances

The minimum separation distance is used as a buffer between new buildings in a parcel. A new building placed in a neighboring parcel may be closer because the software estimates are based on a polygon (parcel). The side setbacks were doubled and used as the minimum separation distance. The layout pattern was set to random allowing buildings to fit the parcel better than a grid pattern or a pattern that follows along the road network. The setbacks used represent the front setback distance. See Table 3.

Settings Clarendon				
Land-Use Designation	Minimum Separation Distance (feet)	Layout Pattern	Road or Line Layer	Setback (feet)
Agricultural & Rural Residential	40	Random	clardstrans_08	40
Commercial & Industrial	40	Random	clardstrans_08	40
Conservation	40	Random	clardstrans_08	40
RAIL	0	Random	clardstrans_08	0
Residential & Commercial	40	Random	clardstrans_08	40
ROAD	0	Random	clardstrans_08	0
Settings Rutland Town				
Land-Use Designation	Minimum Separation Distance (feet)	Layout Pattern	Road or Line Layer	Setback (feet)
AFFORDABLE HOUSING	50	Random	rtrdstrans_08	40
AGRICULTURE	50	Random	rtrdstrans_08	40
COMMERCIAL	50	Random	rtrdstrans_08	60
CONSERVATION	50	Random	rtrdstrans_08	40
INDUSTRIAL/COMMERCIAL	50	Random	rtrdstrans_08	60
MUNICIPAL/GOVERNMENT	50	Random	rtrdstrans_08	60
R40A	50	Random	rtrdstrans_08	40
R40B	50	Random	rtrdstrans_08	25
R40C	50	Random	rtrdstrans_08	40
ROAD	0	Random	rtrdstrans_08	0
RR ROW	0	Random	rtrdstrans_08	0
RR-10	50	Random	rtrdstrans_08	40
UTILITY	50	Random	rtrdstrans_08	60
WATER	0	Random	rtrdstrans_08	0

Table 3: Spatial Build-out Data for Clarendon and Rutland Town

Build-out Results

	<u>District</u>	<u>Numeric Floor Area</u>	<u>Numeric Dwelling Units</u>	<u>Numeric Buildings</u>	<u>Spatial Floor Area</u>	<u>Spatial Dwelling Units</u>	<u>Spatial Buildings</u>
<u>Clarendon</u>		Sq ft			Sq ft		
	Commercial Industrial	5,572,338	0	43	5,570,181	0	40
	Residential Commercial	7,326,833	1224	1450	7,321,785	1221	1443
<u>Rutland Town</u>							
	Affordable Housing	0	1	1	0	0	0
	Industrial Commercial	1,964,286	0	66	1,962,167	0	58

**Table 4: Numeric and Spatial Build-out Results
The US 7 Corridor Management Plan Study Area.**

The data in Table 4 represents the project study area only, not the entire town. *Numeric* numbers represent what the software says will fit and *Spatial* numbers represent what the land says will fit.

In Clarendon, under the current proposed zoning regulations, it is estimated that there is the potential for 12,891,966 total square feet of floor area available and a total of 1483 new buildings including 1221 new dwelling units. See Table 4.

In Rutland Town, under the current proposed zoning regulations, it is estimated that there is the potential for 1,962,167 total square feet of floor area available and a total of 66 new buildings and no new dwelling units. See Table 4.

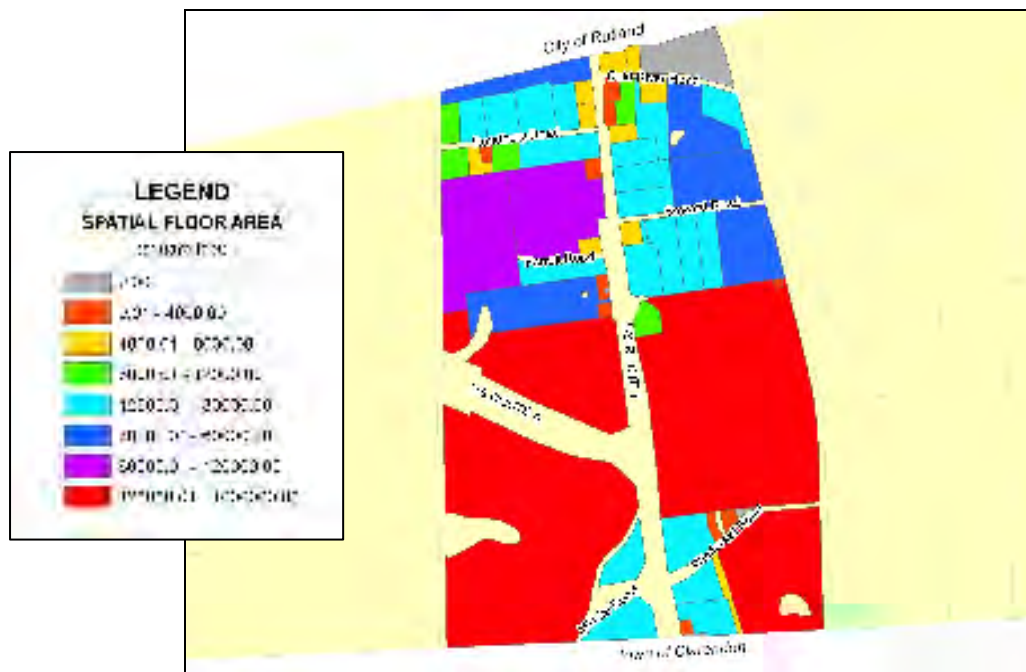


Figure 5: Spatial Floor Area Available Rutland Town

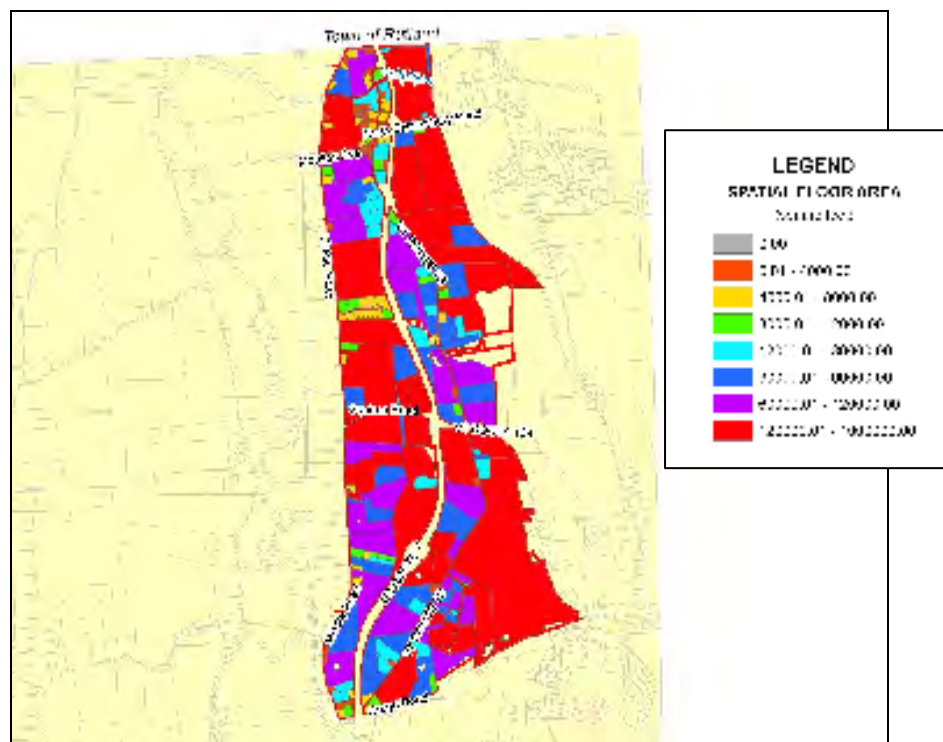


Figure 6: Spatial Floor Area Available Clarendon

Timescope Analysis

Another tool in Community Viz Scenario 360 software is the Timescope tool. It filters the build-out results over time by allowing us to specify the rate and order that features (buildings) will be built.

The average growth rate expressed in new buildings built per year is 15 for both towns. In Clarendon, under the current proposed zoning regulations, there can be a total of 1483 new buildings built before the Route 7 Corridor Study Area is completely built-out. For the Route 7 Corridor Study Area in Rutland Town, the number is 58. See Table 4.

Timescope estimates the location and type of buildings that could be built. Buildings will be sited for each year from 2009 – 2030, many of them are placed outside the Study Area for this project. The values in Table 5 represent the Route 7 Corridor Study Area build-out from today to 2030 and how many buildings could be built, how many of these contain new dwelling units and how much new floor area is added per any given year.

The software estimates this given growth rates and other factors.

Timescope Analysis 2009 - 2030						
	CLARENDON	CLARENDON	CLARENDON	RUTLAND TOWN	RUTLAND TOWN	RUTLAND TOWN
	# New Buildings	# New Dwelling Units	New Floor Area	# New Buildings	# New Dwelling Units	New Floor Area
YEAR						
2009	5	4	292,082	1	0	49240
2010	7	4	88,407	1	0	4372
2011	2	1	103,724	1	0	17589
2012	0	0	0	2	0	28380
2013	3	3	0	0	0	0
2014	2	1	3,842	0	0	0
2015	2	2	0	0	0	0
2016	3	1	180,590	2	0	106230
2017	3	3	0	0	0	0
2018	4	4	0	0	0	0
2019	5	4	4,153	0	0	0
2020	4	4	0	0	0	0
2021	3	2	45,542	0	0	0
2022	2	1	5,014	0	0	0
2023	2	2	0	0	0	0
2024	1	1	0	0	0	0
2025	2	2	0	0	0	0
2026	1	1	0	0	0	0
2027	3	3	0	0	0	0
2028	3	2	53,789	0	0	0
2029	2	2	0	0	0	0
2030	2	2	0	1	0	17133
Totals	61	49	777143	8	0	222944

**Table 5: Building and Floor Area Estimates 2009 – 2030
Route 7 Corridor Study Area**

Clarendon: 2009 – 2030, Route 7 Corridor Management Study Area

The analysis suggests that 61 new buildings will be built in the Route 7 Corridor Study Area. Of the 61 new buildings, 49 are residential (single family structures for this analysis) and 12 are non residential (commercial/industrial). The 12 new commercial/industrial buildings make up the 777,143 square feet of new floor area.

The growth trend seems to be steady over the next twenty years. There is only one year that estimates suggest no new buildings will be built and there are 3 years when 5 or more will be built. Approximately 80% of the new buildings will be residential.

2009-2030	Maximum Build-out	% Built 2009-2030
61 buildings	1483 buildings	4%
49 dwelling units	1221 dwelling units	4%
777,143 sq ft	12,891,966 sq ft	6%

Table 6: Buildings by Type 2009 – 2030, Clarendon VT

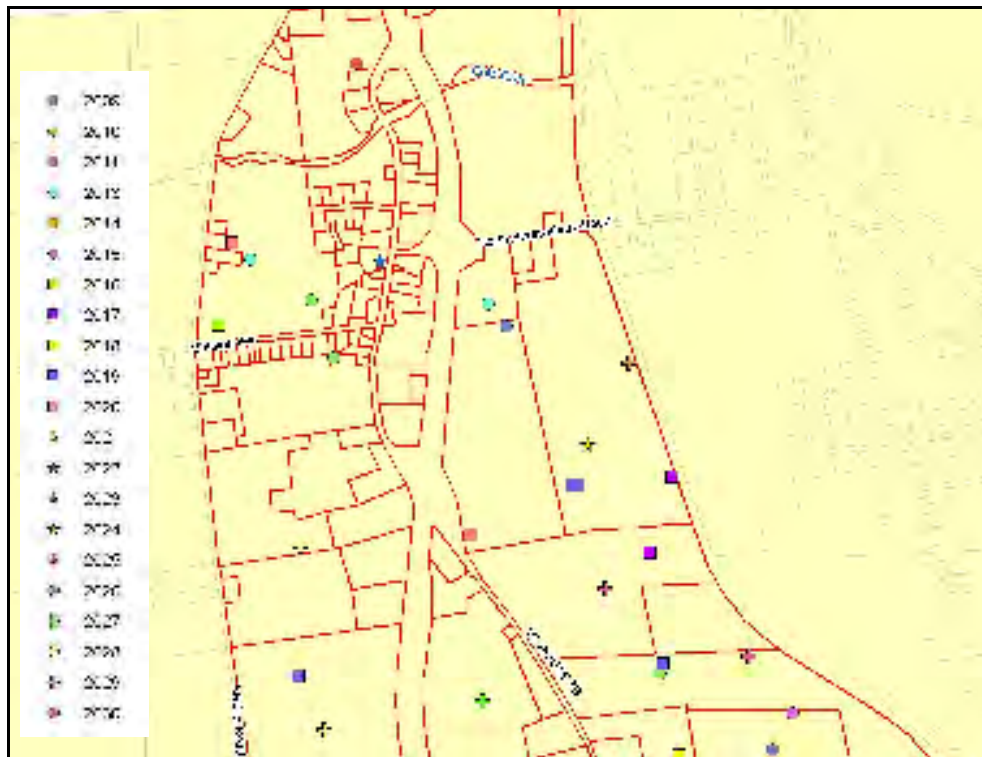


Figure 8: Year Built Northern Portion Enlarged, Clarendon VT

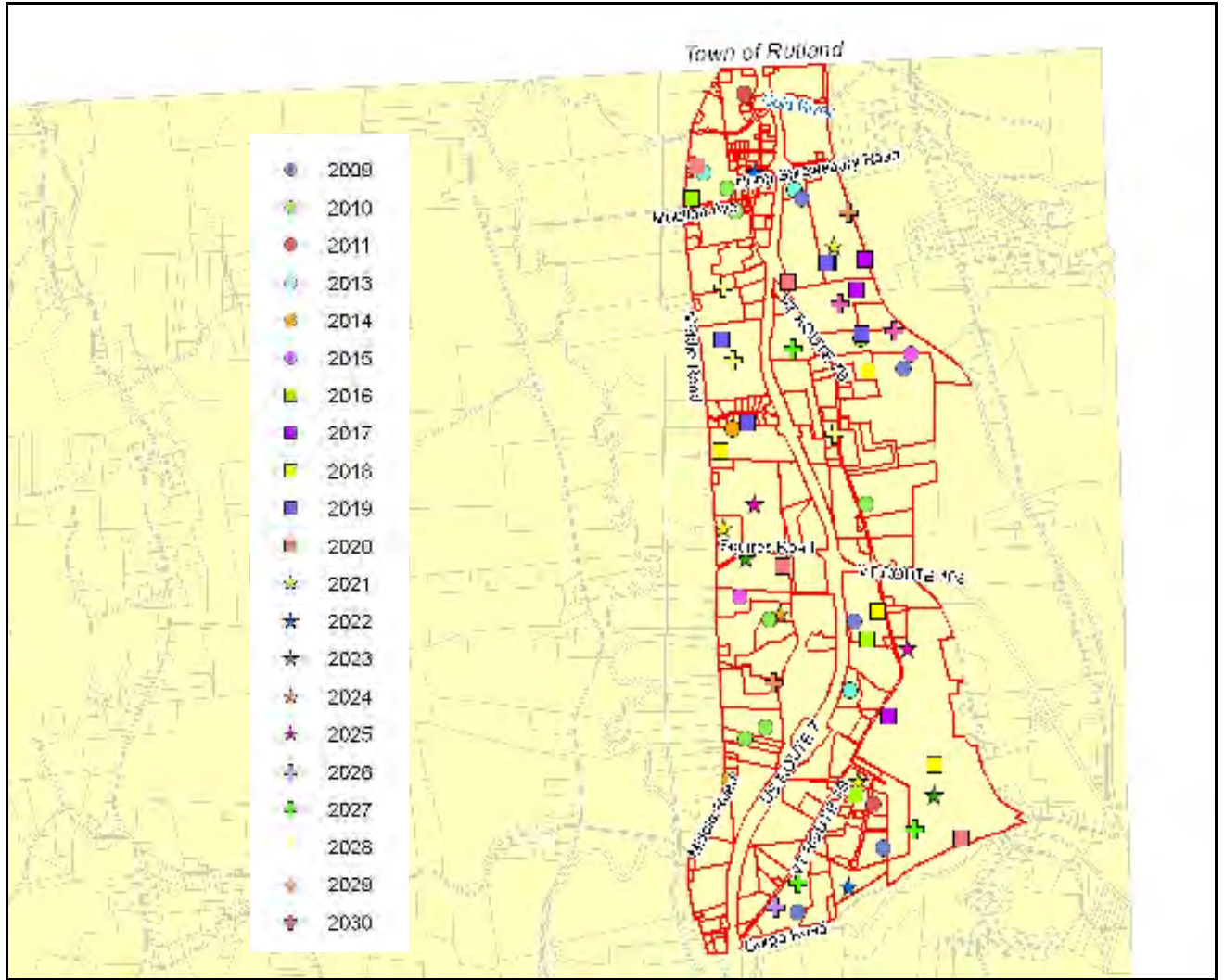


Figure 7: Year Built, Clarendon VT

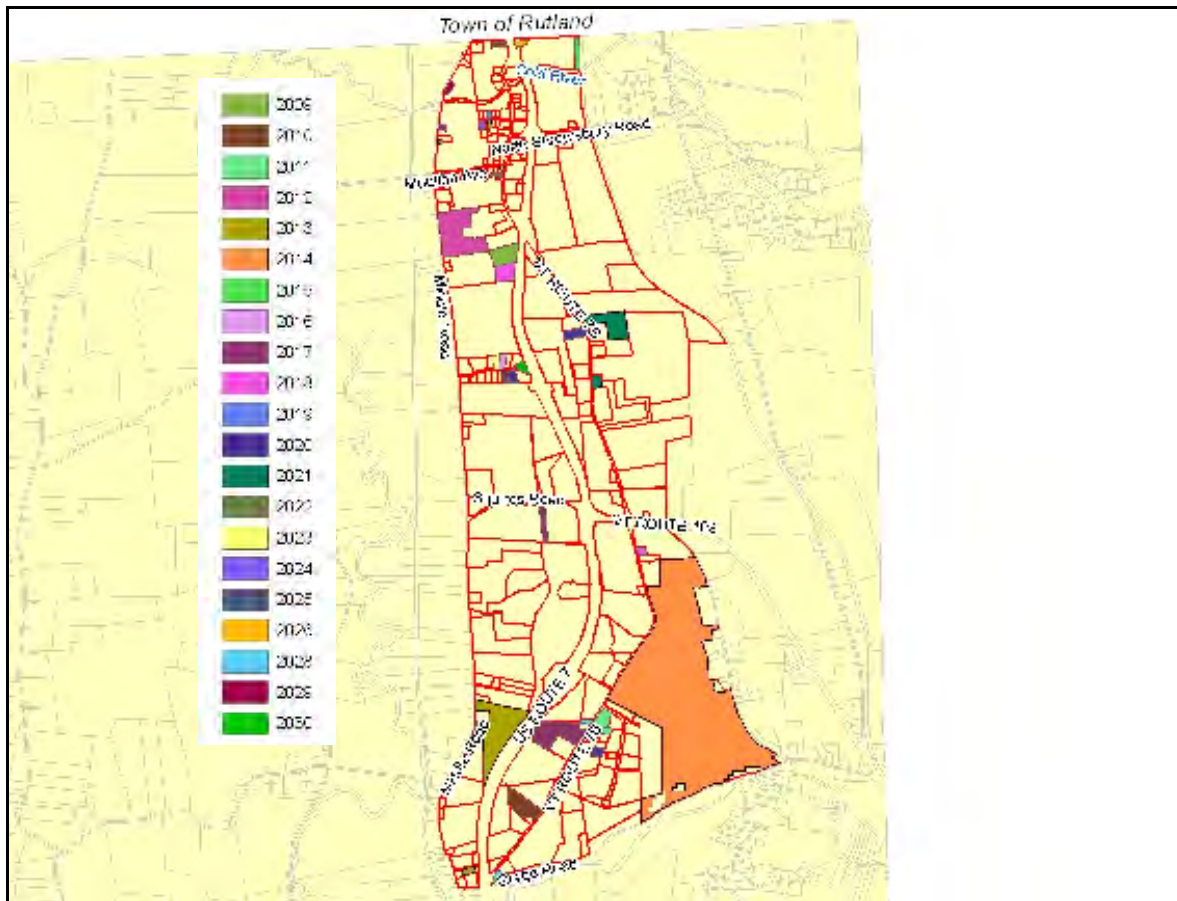


Figure 9: Year Floor Area Added, Clarendon, VT

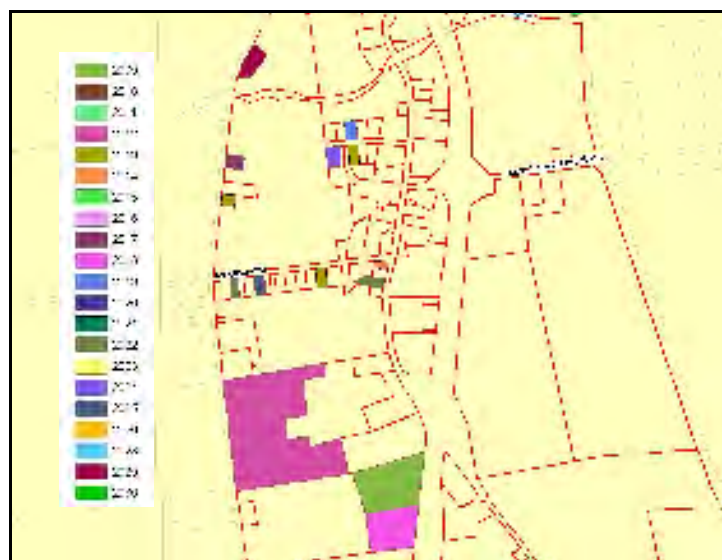


Figure 10: Year Floor Area Added Northern Portion Enlarged, Clarendon, V T

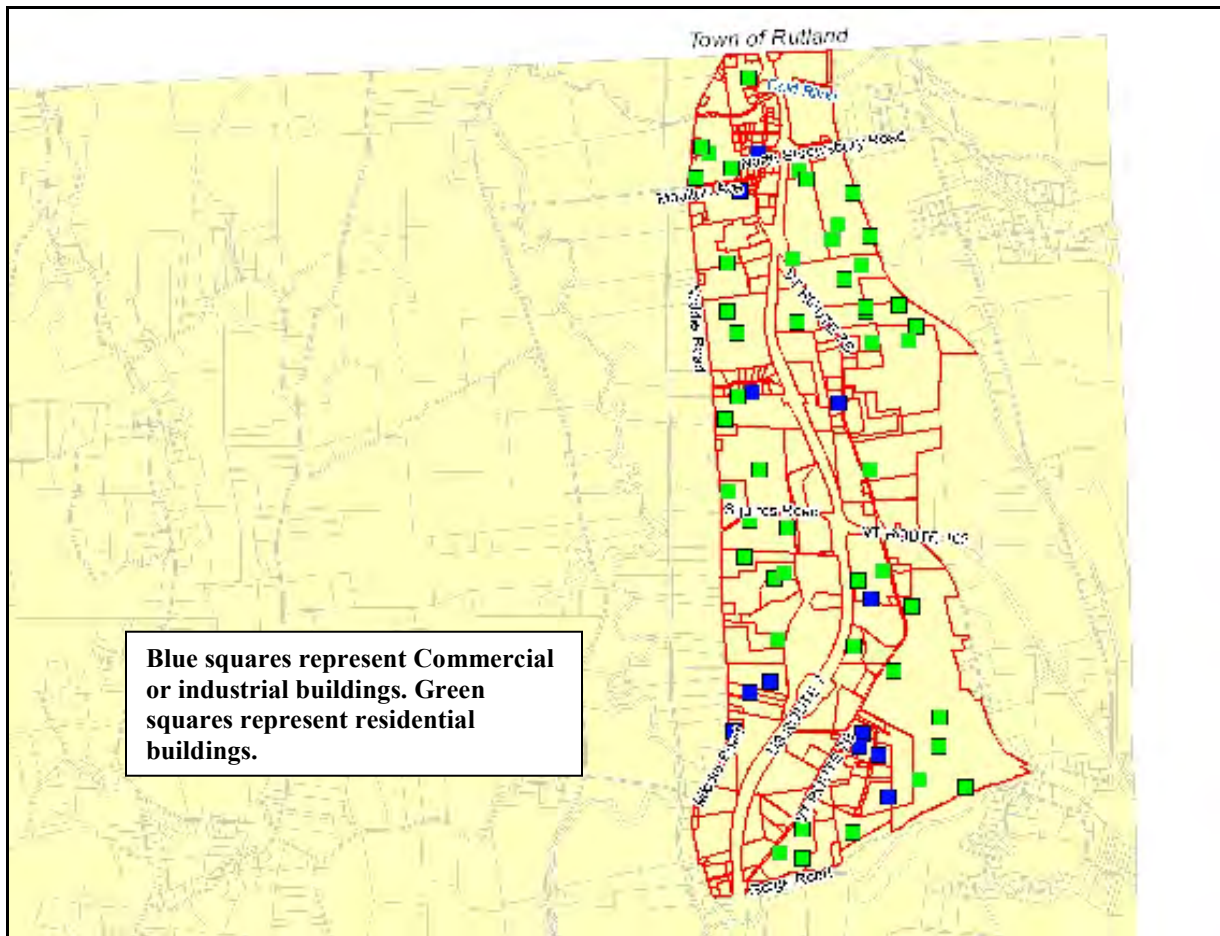


Figure 11: Buildings by Type 2009 – 2030, Clarendon, VT

Rutland Town: 2009 – 2030, Route 7 Corridor Management Study Area

It is estimated that there will be 8 new buildings built in the study area all of which are industrial/commercial and contain no new dwelling units. These 8 total 222,944 square feet of new floor area.

For the study area in Rutland Town, growth is projected to be all commercial or industrial. Over 60% of the buildings would be built in the next 4 years, then only 3 buildings over the next 16 years, the last one projected to be built in 2030.

2009-2030	Maximum Build-out	% Built 2009-2030
8 buildings	58 buildings	14%
0 dwelling units	0 dwelling units	0%
222,944 sq ft	1,962,167 sq ft	11%

Table 7: Buildings by Type 2009 – 2030, Town of Rutland, VT

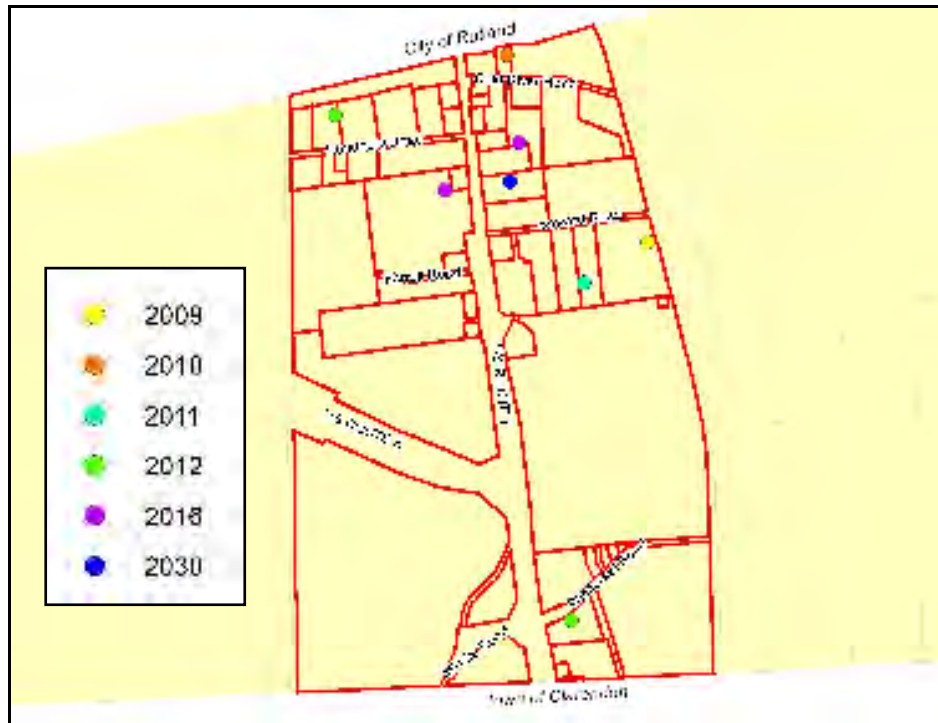


Figure 12: Year Built, Town of Rutland, VT

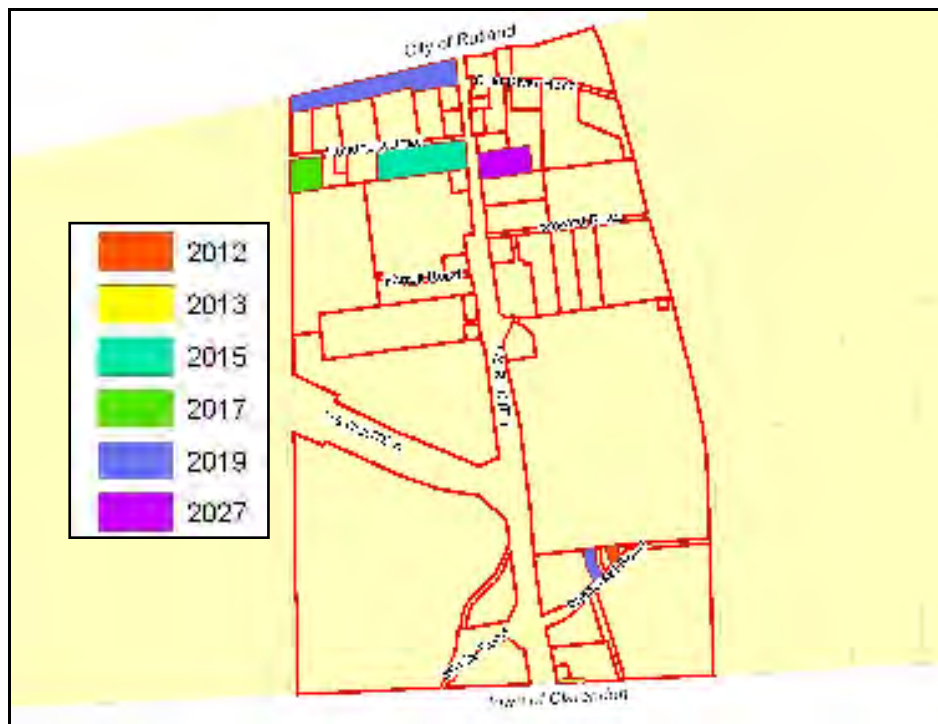


Figure 13: Floor Area Estimates, Town of Rutland, VT

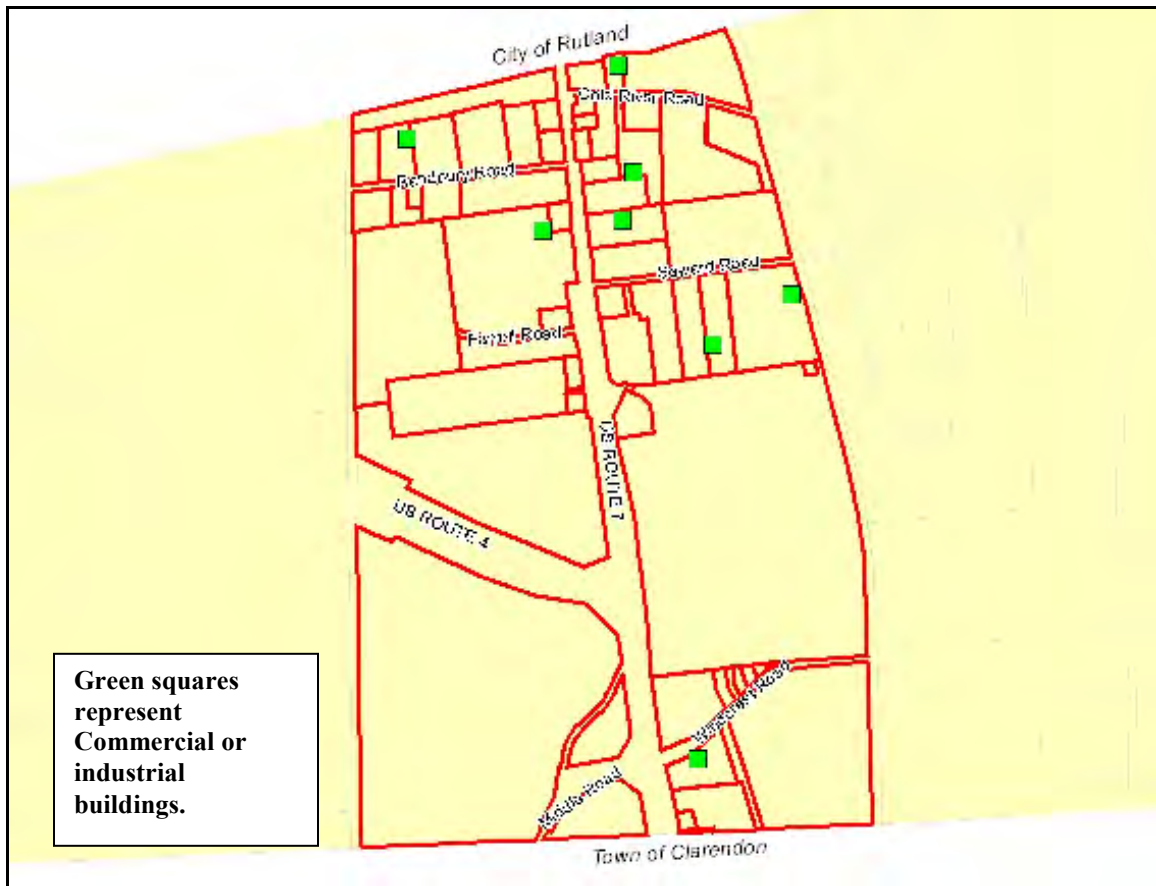


Figure 14: Buildings by Type 2009 – 2030, Town of Rutland, VT

Conclusion

The build-out analysis for the Route 7 corridor is an exercise to apply the zoning and see what is permitted by projecting it to its maximum, and then filtering these results over time, given some basic tenants of reality and assumptions. Physical constraints and assumptions are employed in the modeling. The build-out was run at the town level and then focused in on the study corridor. The end result is scenarios which occur over a period of time.

The corridor is estimated to experience 69 new buildings by 2030, 61 in Clarendon and 8 in Rutland Town, with Clarendon's to be primarily residential and Rutland Town's commercial. Given the potential for development today, and the types of land use, this is both consistent with the existing land use and development and the zoning and vision for the future.

GIS DATA Appendix

Constraint Data

- **Steep Slopes** – derived from VCGI database: **ElevationSlope_SLOPE24**, for complete metadata,
http://www.vcgi.org/metadata/metadata.htm?xmlfile=http://www.vcgi.org/metadata/ElevationSlope_SLOPE24.xml,xslfile=xsl/FGDC_Plus_body.xsl.
- **Conserved Lands** – derived from VCGI database: **CadastralPublands_CONSPUB**, For complete metadata,
http://www.vcgi.org/metadata/metadata.htm?xmlfile=http://www.vcgi.org/metadata/CadastralPublands_CONSPUB.xml,xslfile=xsl/FGDC_Plus_body.xsl
- **Vermont Significant Wetland Inventory (VSWI)** - derived from VCGI database: **WaterWetlands_VSWI**, For complete metadata,
http://maps.anr.state.vt.us/vgisdata/layers_anr/metadata/metadata.htm?xmlfile=http://maps.anr.state.vt.us/vgisdata/layers_anr/metadata/WaterWetlands_VSWI.xml,xslfile=xsl/FGDC_Plus_body.xsl
- **100 Year Flood Hazard Area (DFIRM 2008)** - derived from VCGI database: **EmergencyFlood_DFIRMC**, For complete metadata,
http://www.vcgi.org/metadata/metadata.htm?xmlfile=http://www.vcgi.org/metadata/EmergencyFlood_DFIRMC.xml,xslfile=xsl/FGDC_Plus_body.xsl
- **Surface Water** – derived from VCGI database: **WaterHydro_VHDCARTO**, For complete metadata,
http://www.vcgi.org/metadata/metadata.htm?xmlfile=http://www.vcgi.org/metadata/WaterHydro_VHDCARTO.xml,xslfile=xsl/FGDC_Plus_body.xsl
- **Existing Structures** – derived from VCGI database: **EmergencyE911_ESITE**, For complete metadata,
http://www.vcgi.org/metadata/metadata.htm?xmlfile=http://www.vcgi.org/metadata/EmergencyE911_ESITE.xml,xslfile=xsl/FGDC_Plus_body.xsl
- **Roads** – derived from VCGI database: **TransRoad_RDS**, For complete metadata,
http://www.vcgi.org/metadata/metadata.htm?xmlfile=http://www.vcgi.org/metadata/TransRoad_RDS.xml,xslfile=xsl/FGDC_Plus_body.xsl

Town Data

- **Study Area** – developed by RRPC, based on Parcel data from each town.
- **Parcels** – both Rutland Town (2003) and Clarendon (2008) parcel data was developed by RussellGraphics.
- **Proposed zoning** – developed by RRPC working with towns.
- **Proposed Zoning and Parcels** – combined the parcels and proposed zoning for each town.

Build-out Generated Data

- **Full town wide build-out**
 - Buildings -
 - Buildable Area
- **Study Area**
 - Buildings – clipped from town wide data
 - Buildable Area – clipped from town wide data
- **2009 - 2030**
 - Buildings – reselected from study area data
 - Buildable Area – reselected from study area data

Metadata for All Build-out Generated Data

CVBO_BUILDABLE AREA (build-out polygon results)			
Field name	Field type	Notes	
OBJECTID SHAPE	integer shape	Geodatabase unique ID buildable area polygon	
PARENT_OBJECTID AREA_CODE	text text	User selected identifier for the parent land-use polygon Land-use designation code, unique value legend created for this build-out report from the town land-use layer	
NUMEROUS_FLOOR_AREA NUMEROUS_FLOOR_UNITS	integer integer	See Numeric calculations See Numeric calculations	
NUMEROUS_BUILDINGS TOTAL_FLOOR_AREA	integer double	See Numeric calculations Clear area for the existing buildings	
EXISTING_DWELLING_UNITS TOTAL_EXISTING_UNITS	double integer	Dwelling units for the existing buildings Count of existing building found in the BUILDABLE AREA	
SPATIAL_FLOOR_AREA SPATIAL_FLOOR_UNITS	double double	Floor area for buildings placed by spatial build-out model Dwelling units for buildings placed by spatial build-out model	
SPATIAL_BUILDINGS TOTAL_FLOOR_AREA	integer double	Buildings placed by the spatial build-out model Numeric minus spatial	
DWELLING_UNITS_DIFFERENCE TOTAL_UNITS	double integer	Numeric minus spatial Numeric minus spatial	
SHAPE_LENGTH SHAPE_AREA	double double	Geodatabase maintained polygon perimeter in coordinate system units Geodatabase maintained polygon area in coordinate system units	
SCENARIO	text	CVAnalysis scenario identifier	

CVBO_BUILDINGS (build-out point results)			
Field name	Field type	Notes	
OBJECTID	integer	Geodatabase unique ID	
SHAPE	shape	Buildings points	
PARENT_OBJECTID LAND_USE_CODE	text integer	User selected identifier for the parent land-use polygon Land-use designation code	
DWELLING_UNITS FLOOR_AREA	integer integer	Dwelling units for the building feature Clear area for the building units	
FLOORS FLOOR_AREA	double double	Copy of input parameter for land-use code Copy of input parameter for land-use code	
DOB_MODEL BUILDING	integer text	Path to model file – virtual build-out result CVAnalysis scenario identifier	
OBJECTID SHAPE	integer shape	Geodatabase unique ID building points	
PARENT_OBJECTID BUILDING_USE_CODE	text integer	User selected identifier for the parent land-use polygon Use code based on floor area and dwelling units, used for legends: Unknown, Single Family Residential, Multi-Family Residential, Mixed-Use, Commercial Only	
FLOOR_AREA FLOORS	integer double	Dwelling units for the building feature Floor area for the building units	
		Copy of input parameter for land-use code	

Timescope

Running the timescope analysis adds three new attributes to the build-out generated data:

- TS_Build_Date – year that features are estimated to be built

- TS_Built –attribute is either 1 (built) or 0 (not built yet). TS_BUILT is 1 if TS BUILD_DATE is greater than or equal to Timescope Time, not used in this analysis.
- TS_Order – specifies order built, not used in this analysis

GIS Data List

CLA_slope25 – steep slopes
 CLA_conpriv – privately conserved lands
 CLA_conpub – publicly conserved lands
 CLA_dfirm100 – 100 year flood hazard area
 CLA_rdstrans – roads
 CLA_esite – existing structures
 CLA_vhdpoly – lakes, ponds and big rivers
 CLA_vswi – wetlands
 CLA_studyarea – Route 7 Corridor Management Study Area
 CLA_par08 - parcels
 CLA_parzone – combined parcels and proposed zoning
 CLA_propzone – proposed zoning
 CLA_bo_bldgs_townwide – build-out generated buildings for the whole town
 CLA_bo_barea_townwide – build-out generated buildable area for whole town
 CLA_bo_bldgs_studyarea – build-out generated buildings clipped to study area
 CLA_bo_barea_studyarea – build-out generated buildable areas clipped to study area
 CLA_bo_bldgs_2030 – timescope buildings to built by 2030
 CLA_bo_barea_2030 – timescope buildable area to be added by 2030

RT_slope25 – steep slopes
 RT_conpriv – privately conserved lands, **NONE EXIST** in town
 RT_conpub – publicly conserved lands, **NONE EXIST** in town
 RT_dfirm100 – 100 year flood hazard area
 RT_rdstrans – roads
 RT_esite – existing structures
 RT_vhdpoly – lakes, ponds and big rivers
 RT_vswi – wetlands
 RT_studyarea – Route 7 Corridor Management Study Area
 RT_par08 - parcels
 RT_parzone – combined parcels and proposed zoning
 RT_propzone – proposed zoning
 RT_bo_bldgs_townwide – build-out generated buildings for the whole town
 RT_bo_barea_townwide – build-out generated buildable area for whole town
 RT_bo_bldgs_studyarea – build-out generated buildings clipped to study area
 RT_bo_barea_studyarea – build-out generated buildable areas clipped to study area
 RT_bo_bldgs_2030 – timescope buildings to built by 2030
 RT_bo_barea_2030 – timescope buildable area to be added by 2030

APPENDIX D

Traffic Data



01/08/10 03:31 PM

ODVs From ODVs Tab

US 7/Cold River Rd Rutland, VT 6/27/2008 GPI Count	EB	WB	NB	SB	
LT	0	6	0	0	
TH	0	0	61	59	
RT	0	0	4	0	129
Enter	0	6	65	59	129
Exit	4	0	61	64	129

US 7/HanburyRd Rutland, VT 11/12/2008 2nd Wednesday Resource Systems Group	EB	WB	NB	SB	
LT	0	0	1	0	
TH	0	0	65	64	
RT	2	0	0	0	132
Enter	2	0	66	64	132
Exit	0	1	65	66	132

US7/Green Mountain Plz Rgl Rutland, VT 11/12/2008 2nd Wednesday Resource Systems Group	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	66	66	
RT	0	0	0	0	132
Enter	0	0	66	66	132
Exit	0	0	66	66	132

US7/Green Mountain Plz/Sev Rutland, VT 11/12/2008 2nd Wednesday Resource Systems Group	EB	WB	NB	SB	
LT	-1	63	0	80	
TH	4	4	-13	-14	
RT	0	79	51	0	253
Enter	3	146	38	66	253
Exit	135	5	65	48	253

US 7/Diamond Run Mall Pl/H Rutland, VT 11/12/2008 2nd Wednesday Resource Systems Group	EB	WB	NB	SB	
LT	1	1	0	12	
TH	0	0	27	36	
RT	0	10	0	1	88
Enter	1	11	27	48	88
Exit	12	1	38	36	88

US 7/US 4/Diamond Run Mall Rutland, VT 6/27/2008 GPI Count	EB	WB	NB	SB	
LT	7	0	6	1	
TH	0	0	18	20	
RT	6	2	1	15	76
Enter	13	2	25	36	76
Exit	2	21	27	26	76

US 7/Windcrest Rd/Middle R Rutland, VT 6/6/2005 1st Monday VTrans Count	EB	WB	NB	SB	
LT	3	0	0	6	
TH	0	0	14	18	
RT	0	8	0	3	51
Enter	3	8	14	26	51
Exit	6	3	25	18	51

US 7 - N Shrewsbury Clarendon, VT 6/6/2005 1st Monday	EB	WB	NB	SB	
LT	1	0	0	2	
TH	0	0	13	15	
RT	0	1	0	1	32
Enter	1	1	13	18	32
Exit	2	1	14	15	32

US 7 - VT 78 Clarendon, VT 9/29/2008 5th Monday	EB	WB	NB	SB	
LT	0	0	0	1	
TH	0	0	12	14	
RT	0	0	0	0	28
Enter	0	0	12	15	28
Exit	1	0	13	14	28

US 7 - VT 103 - Squires Rd Clarendon, VT 6/4/2008 1st Wednesday	EB	WB	NB	SB	
LT	0	0	0	6	
TH	0	0	6	8	
RT	0	6	0	0	27
Enter	0	6	6	14	27
Exit	6	0	12	8	27

Cop John Dr/Holiday Dr Rutland, VT 11/12/2008 2nd Wednesday Resource Systems Group	EB	WB	NB	SB	
LT	0	0	0	0	
TH	1	1	0	0	
RT	0	0	0	0	2
Enter	1	1	0	0	2
Exit	1	1	0	0	2

No Build 2009

	EB	WB	NB	SB	
LT	10	125	4	49	
TH	4	1	1368	1381	
RT	5	66	87	0	3100
Enter	19	192	1459	1430	3100
Exit	140	5	1444	1511	3100

	EB	WB	NB	SB	
LT	26	0	15	0	
TH	0	0	1227	1449	
RT	35	0	0	8	2759
Enter	61	0	1242	1457	2759
Exit	0	23	1253	1483	2759

	EB	WB	NB	SB	
LT	0	0	0	1	
TH	0	0	1303	1256	
RT	0	0	0	253	2813
Enter	0	0	1303	1510	2813
Exit	1	253	1303	1256	2813

	EB	WB	NB	SB	
LT	252	94	121	104	
TH	7	11	1036	1102	
RT	184	116	59	107	3013
Enter	441	221	1104	1248	3013
Exit	168	240	1292	1314	3013

	EB	WB	NB	SB	
LT	35	27	39	191	
TH	7	11	1036	1102	
RT	83	177	23	24	2755
Enter	125	215	1098	1317	2755
Exit	221	74	1248	1212	2755

	EB	WB	NB	SB	
LT	283	50	194	37	
TH	37	56	724	698	
RT	102	63	53	512	2809
Enter	422	169	971	1247	2809
Exit	127	762	1070	850	2809

	EB	WB	NB	SB	
LT	117	58	1	181	
TH	19	12	614	575	
RT	5	323	50	80	2036
Enter	141	393	667	836	2036
Exit	250	95	1053	638	2036

	EB	WB	NB	SB	
LT	39	51	1	77	
TH	22	28	646	681	
RT	2	38	37	29	1651
Enter	63	116	684	788	1651
Exit	136	58	723	734	1651

	EB	WB	NB	SB	
LT	10	0	44	43	
TH	3	5	753	730	
RT	30	28	4	10	1659
Enter	42	33	801	783	1659
Exit	50	59	790	760	1659

	EB	WB	NB	SB	
LT	25	12	2	281	
TH	13	10	322	362	
RT	7	324	17	12	1387
Enter	45	345	341	655	1387
Exit	310	24	671	381	1387

	EB	WB	NB	SB	
LT	4	0	0	96	
TH	29	32	0	0	
RT	0	42	0	9	212
Enter	33	74	0	105	212
Exit	125	41	46	0	212

Trip Generation

Enter Exit
PM 0 0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

Build 2009

	EB	WB	NB	SB	
LT	10	125	4	49	
TH	4	1	1368	1381	
RT	5	66	87	0	3100
Enter	19	192	1459	1430	3100
Exit	140	5	1444	1511	3100

	EB	WB	NB	SB	
LT	26	0	15	0	
TH	0	0	1227	1449	
RT	35	0	0	8	2759
Enter	61	0	1242	1457	2759
Exit	0	23	1253	1483	2759

	EB	WB	NB	SB	
LT	0	0	0	1	
TH	0	0	1303	1256	
RT	0	0	0	253	2813
Enter	0	0	1303	1510	2813
Exit	1	253	1303	1256	2813

	EB	WB	NB	SB	
LT	252	94	121	104	
TH	7	11	1036	1102	
RT	184	116	59	107	3013
Enter	441	221	1104	1248	3013
Exit	168	240	1292	1314	3013

	EB	WB	NB	SB	
LT	35	27	39	191	
TH	7	11	1036	1102	
RT	83	177	23	24	2755
Enter	125	215	1098	1317	2755
Exit	221	74	1248	1212	2755

	EB	WB	NB	SB	
LT	283	50	194	37	
TH	37	56	724	698	
RT	102	63	53	512	2809
Enter	422	169	971	1247	2809
Exit	127	762	1070	850	2809

	EB	WB	NB	SB	
LT	117	58	3	181	
TH	19	12	614	575	
RT	5	323	50	80	2036
Enter	141	393	667	836	2036
Exit	250	95	1053	638	2036

01/08/10 03:33 PM

Balancing 2030

Note: no balancing b/c different peak hours at different intersections.

US 7/Cold River Rd
Rutland, VT
6/27/2008
GPI Count

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

Balanced Adjusted Raw Counts 2030

	EB	WB	NB	SB	
LT	10	119	4	49	
TH	4	1	1417	1432	
RT	5	66	83	0	3190
Enter	19	186	1504	1481	3190
Exit	136	5	1493	1556	3190

No Build 2030

	EB	WB	NB	SB	
LT	10	125	4	49	
TH	4	1	1477	1491	
RT	5	66	87	0	3319
Enter	19	192	1568	1540	3319
Exit	140	5	1553	1621	3319

2030 Assumed Growth

	EB	WB	NB	SB	
LT	0	3	0	0	
TH	0	0	145	88	
RT	5	0	12	0	254
Enter	5	3	158	88	254
Exit	12	0	145	96	254

Build 2030

	EB	WB	NB	SB	
LT	10	128	5	49	
TH	4	1	1622	1579	
RT	11	66	99	0	3573
Enter	25	195	1726	1628	3573
Exit	152	6	1698	1717	3573

US 7/RandburyRd
Rutland, VT
11/12/2008
2nd Wednesday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	26	0	14	0	
TH	0	0	1259	1500	
RT	33	0	0	8	2840
Enter	59	0	1273	1508	2840
Exit	0	22	1285	1533	2840

	EB	WB	NB	SB	
LT	26	0	15	0	
TH	0	0	1324	1564	
RT	35	0	0	8	2972
Enter	61	0	1339	1572	2972
Exit	0	23	1350	1599	2972

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	158	96	
RT	0	0	0	0	254
Enter	0	0	158	96	254
Exit	0	0	158	96	254

	EB	WB	NB	SB	
LT	26	0	15	0	
TH	0	0	1482	1660	
RT	35	0	0	8	3226
Enter	61	0	1497	1668	3226
Exit	0	23	1508	1695	3226

US7/Green Mountain Plz Rtg
Rutland, VT
11/12/2008
2nd Wednesday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	0	0	0	1	
TH	0	0	1340	1289	
RT	0	0	0	253	2884
Enter	0	0	1340	1543	2884
Exit	1	253	1340	1289	2884

	EB	WB	NB	SB	
LT	0	0	0	1	
TH	0	0	1406	1355	
RT	0	0	0	253	3015
Enter	0	0	1406	1609	3015
Exit	1	253	1406	1355	3015

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	158	96	
RT	0	0	0	0	254
Enter	0	0	158	96	254
Exit	0	0	158	96	254

	EB	WB	NB	SB	
LT	0	0	0	1	
TH	0	0	1564	1452	
RT	0	0	0	253	3269
Enter	0	0	1564	1706	3269
Exit	1	253	1564	1452	3269

US7/Green Mountain Plz/Sen
Rutland, VT
11/12/2008
2nd Wednesday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	253	31	121	24	
TH	1	7	1015	1138	
RT	184	37	8	107	2926
Enter	438	75	1144	1269	2926
Exit	33	235	1305	1353	2926

	EB	WB	NB	SB	
LT	252	94	121	104	
TH	5	11	1002	1124	
RT	184	116	59	107	3179
Enter	441	221	1182	1335	3179
Exit	168	240	1370	1401	3179

	EB	WB	NB	SB	
LT	0	2	18	0	
TH	0	0	158	96	
RT	10	0	2	0	286
Enter	10	2	178	96	286
Exit	2	18	158	108	286

	EB	WB	NB	SB	
LT	252	95	140	104	
TH	5	11	1159	1220	
RT	193	116	61	107	3464
Enter	451	223	1359	1432	3464
Exit	170	258	1527	1509	3464

US 7/Diamond Run Mall Pl/H
Rutland, VT
11/12/2008
2nd Wednesday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	34	26	39	179	
TH	7	11	1093	1156	
RT	83	167	23	23	2841
Enter	124	204	1155	1358	2841
Exit	209	73	1294	1265	2841

	EB	WB	NB	SB	
LT	35	27	39	191	
TH	7	11	1120	1191	
RT	83	177	23	24	2928
Enter	125	215	1183	1406	2928
Exit	221	74	1332	1301	2928

	EB	WB	NB	SB	
LT	115	6	113	0	
TH	14	15	64	-12	
RT	99	0	18	120	552
Enter	228	21	195	108	552
Exit	32	248	179	93	552

	EB	WB	NB	SB	
LT	150	33	152	191	
TH	21	26	1184	1179	
RT	182	177	41	144	3480
Enter	353	236	1377	1514	3480
Exit	253	322	1511	1394	3480

US 7/US 4/Diamond Run Mal
Rutland, VT
6/27/2008
GPI Count

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	299	50	204	36	
TH	37	56	765	734	
RT	104	61	52	539	2936
Enter	440	167	1020	1309	2936
Exit	125	798	1125	888	2936

	EB	WB	NB	SB	
LT	306	50	210	37	
TH	37	56	783	754	
RT	110	63	53	553	3012
Enter	453	169	1046	1345	3012
Exit	127	819	1151	914	3012

	EB	WB	NB	SB	
LT	43	7	102	0	
TH	0	0	168	68	
RT	0	0	18	25	431
Enter	43	7	288	93	431
Exit	18	127	211	75	431

	EB	WB	NB	SB	
LT	349	57	312	37	
TH	37	56	951	822	
RT	110	63	71	578	3443
Enter	496	175	1334	1438	3443
Exit	145	946	1362	989	3443

US 7/Windcrest Rd/Middle R
Rutland, VT
6/6/2005
1st Monday
VTrans Count

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	114	58	3	175	
TH	19	12	649	604	
RT	5	315	50	77	2081
Enter	138	385	702	856	2081
Exit	244	92	1078	667	2081

	EB	WB	NB	SB	
LT	117	58	3	181	
TH	19	12	664	622	
RT	5	323	50	80	2132
Enter	141	393	717	882	2132
Exit	250	95	1103	685	2132

	EB	WB	NB	SB	
LT	94	19	40	5	
TH	22	15	186	54	
RT	61	8	42	32	578
Enter	178	42	268	91	578
Exit	69	87	288	134	578

	EB	WB	NB	SB	
LT	211	77	43	185	
TH	41	27	850	675	
RT	66	330	92	112	2711
Enter	319	435	885	973	2711
Exit	318	182	1391	819	2711

US 7 - N Shrewsbury
Clarendon, VT
6/6/2005
1st Monday

	EB	WB	NB	SB	
LT					
TH					0
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	47	62	1	92	
TH	27	34	776	817	
RT	3	45	45	35	1985
Enter	77	142	823	944	1985
Exit	165	70	869	881	1985

	EB	WB	NB	SB	
LT	48	62	1	94	
TH	27	34	789	832	</

PM ODVs

US 7/Cold River Rd	LT	10	119	4	49
Rutland, VT	TH	4	1	1252	1266
06/27/08	RT	5	66	83	0
GPI Count	Enter	19	186	1339	1315
	Exit	136	5	1328	1360
		0.0%	0.0%	0.0%	0.0%
		0	0	0	0
		4:15-5:15 PM	0.00		

US 7/RandburyRd	L	26	0	14	0
Rutland, VT	T	0	0	1091	1299
11/12/08	R	33	0	0	8
2nd Wednesday	Enter	59	0	1105	1307
Resource Systems Group	Exit	0	22	1117	1332
		0.0%	0.0%	0.3%	0.1%
		0	0	0	0
		4:15 PM - 5:15 PM Peak	0.95		

US7/Green Mountain Plz Right In	L	0	0	0	1
Rutland, VT	T	0	0	1161	1117
11/12/2008	R	0	0	0	253
2nd Wednesday	Enter	0	0	1161	1371
Resource Systems Group	Exit	1	253	1161	1117
		0.0%	0.0%	3.4%	0.2%
		0	0	0	0
		4:30 PM - 5:30 PM Peak	0.94		

US7/Green Mountain Plz/Seward Rd	L	253	31	121	24
Rutland, VT	T	1	7	879	586
11/12/2008	R	184	37	8	107
2nd Wednesday	Enter	438	75	1008	1117
Resource Systems Group	Exit	33	230	1169	1201
		1.4%	0.0%	1.1%	0.2%
		2	3	2	4
		4:30 PM - 5:30 PM Peak	0.95		

US 7/Diamond Run Mall Plz/Holiday D	L	34	26	39	179
Rutland, VT	T	7	1	947	1001
11/12/2008	R	83	167	23	23
2nd Wednesday	Enter	124	204	1009	1203
Resource Systems Group	Exit	209	73	1148	1110
		1.6%	1.0%	4.5%	1.7%
		1	2	1	1
		5:00 PM - 6:00 PM Peak	0.72		

US 7/US 4/Diamond Run Mall Place	LT	264	50	180	36
Rutland, VT	TH	37	56	676	649
6/27/2008	RT	92	61	62	478
GPI Count	Enter	393	167	908	1161
	Exit	125	712	1001	791
		0.0%	0.0%	0.0%	0.0%
		0	0	0	0
		4:00-5:00 PM	0.00		

US 7/Windcrest Rd/Middle Rd	LT	114	58	3	175
Rutland, VT	TH	19	12	575	536
6/6/2005	RT	5	315	50	77
1st Monday	Enter	138	385	629	788
VTrans Count	Exit	244	92	1005	599
		4.3%	3.9%	9.4%	17.4%
		0	0	0	0
		2:15 PM - 3:15 PM Peak	0.88		

US 7 - N Shrewsbury	LT	36	48	1	71
Clarendon, VT	TH	21	26	588	629
6/6/2005	RT	2	35	35	27
1st Monday	Enter	59	109	634	727
	Exit	127	54	669	676
		1.7%	2.8%	17.4%	13.7%
		0	0	0	0
		4:30 PM - 5:30 PM Peak	0.90		

US 7 - VT 78	LT	7	0	32	31
Clarendon, VT	TH	2	4	544	526
9/29/2008	RT	22	20	3	7
5th Monday	Enter	31	24	579	564
	Exit	36	43	571	545
		0.0%	0.0%	5.5%	4.3%
		0	0	0	0
		3:30 PM - 4:30 PM Peak	0.93		

US 7 - VT 103 - Squires Rd	LT	25	11	2	261
Clarendon, VT	TH	13	10	301	337
6/4/2008	RT	7	302	16	12
1st Wednesday	Enter	45	323	319	610
	Exit	290	24	628	365
		4.4%	5.9%	4.1%	13.1%
		0	0	0	0
		4:00 PM - 5:00 PM Peak	0.96		

IHOP

P:\WGCI\IHOP Rutland-07035\Vol
07035 with Taco Bell and VSECU.xls

EB	WB	NB	SB
LT	0	0	0
TH	0	4	4
RT	0	5	4
Enter	0	0	5
Exit	0	4	5

EB	WB	NB	SB
LT	0	0	0
TH	0	5	5
RT	0	0	5
Enter	0	0	5
Exit	0	0	5

EB	WB	NB	SB
LT	0	0	0
TH	0	5	5
RT	0	0	5
Enter	0	0	5
Exit	0	0	5

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	0	1	0
TH	0	0	0
RT	0	5	0
Enter	0	6	0
Exit	0	5	1

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	1	4	1
TH	2	4	4
RT	1	2	4
Enter	1	2	4
Exit	1	7	4

EB	WB	NB	SB
LT	0	0	0
TH	0	4	4
RT	0	0	4
Enter	0	0	4
Exit	0	0	4

EB	WB	NB	SB
LT	0	0	0
TH	0	3	3
RT	0	0	3
Enter	0	0	3
Exit	0	0	3

EB	WB	NB	SB
LT	0	2	1
TH	13	10	301
RT	2	2	0
Enter	0	2	2
Exit	1	0	3

VSECU

Primary Trips

P:\WGCI To Be Archived\VSECU
Rutland-07085\Vol 07085-ITE Trip
Gen.xls

EB	WB	NB	SB
LT	4	0	0
TH	0	40	38
RT	0	3	3
Enter	0	4	42
Exit	3	0	40

EB	WB	NB	SB
LT	0	0	1
TH	0	42	41
RT	1	0	0
Enter	0	0	43
Exit	0	1	42

EB	WB	NB	SB
LT	0	0	0
TH	0	43	42
RT	0	0	43
Enter	0	0	43
Exit	0	0	43

EB	WB	NB	SB
LT	0	24	0
TH	2	3	0
RT	0	43	21
Enter	2	70	21
Exit	65	3	43

EB	WB	NB	SB
LT	1	0	4
TH	0	0	0
RT	3	0	0
Enter	1	3	17
Exit	4	0	21

EB	WB	NB	SB
LT	4	0	1
TH	1	12	11
RT	0	0	0
Enter	4	1	12
Exit	1	8	17

EB	WB	NB	SB
LT	1	0	2
TH	0	4	7
RT	0	7	8
Enter	1	4	7
Exit	2	1	12

EB	WB	NB	SB
LT	0	0	0
TH	0	6	7
RT	0	0	0
Enter	0	0	6
Exit	0	0	7

EB	WB	NB	SB
LT	0	0	0
TH	0	6	0
RT	0	0	6
Enter	0	0	6
Exit	0	0	6

EB	WB	NB	SB
LT	0	0	0
TH	0	3	3
RT	3	0	0
Enter	0	3	3
Exit	3	0	3

VSECU

Passby Trips

P:\WGCI To Be Archived\VSECU
Rutland-07085\Vol 07085-ITE Trip
Gen.xls

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	-1	12	0
TH	2	1	-12
RT	-1	12	0
Enter	0	26	0
Exit	26	1	-1

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	3	0	0
TH	1	7	0
RT	0	0	0
Enter	3	1	7
Exit	0	6	10

EB	WB	NB	SB
LT	1	4	2
TH	2	4	6
RT	0	0	0
Enter	1	2	4
Exit	2	1	7

EB	WB	NB	SB
LT	0	0	0
TH	0	3	5
RT	0	0	0
Enter	0	0	3
Exit	0	0	5

EB	WB	NB	SB
LT	0	0	0
TH	0	0	0
RT	0	0	0
Enter	0	0	0
Exit	0	0	0

EB	WB	NB	SB
LT	0	2	2
TH	0	2	2
RT	2	0	0
Enter	0	2	2
Exit	2	0	3

Alderman Toyota

L&D Alderman Toyota Study

EB	WB	NB	SB
LT	2	0	0
TH	0	17	17
RT	0	0	4
Enter	0	2	18
Exit	1	0	17

EB	WB	NB	SB
LT	0	0	0
TH	0	18	19
RT	0	0	0
Enter	0	0	18
Exit	0	0	18

EB	WB	NB	SB
LT	0	0	0
TH	0	18	19
RT	0	0	0
Enter	0	0	18
Exit	0	0	18

EB	WB	NB	SB
LT	26	26	0
TH	0	-6	-7
RT	24	18	0
Enter	0	50	12
Exit	44	0	18

	EB	WB	NB	SB	
LT	0			3	
TH			10	16	
RT		2		0	31
Enter	0	2	10	19	31
Exit	3	0	12	16	31

2030 Developmnt Assumptions

Rutland CommonsGPI August 2008 Study
New Trips

	EB	WB	NB	SB	
LT					
TH		62	66		
RT	5	4			137
Enter	5	0	66	66	137
Exit	4	0	62	71	137

US 7/Cold River Rd

	EB	WB	NB	SB	
LT					
TH		66	71		137
RT					
Enter	0	0	66	71	137
Exit	0	0	66	71	137

US 7/RandburyRd

	EB	WB	NB	SB	
LT					
TH		66	71		137
RT					
Enter	0	0	66	71	137
Exit	0	0	66	71	137

US7/Green Mountain Plz Right In

	EB	WB	NB	SB	
LT					
TH		66	71		137
RT					
Enter	0	0	66	71	137
Exit	0	0	66	71	137

US7/Green Mountain Plz/Seward Rd

	EB	WB	NB	SB	
LT	66		51		
TH	14	15			
RT	46		71		263
Enter	126	15	51	71	263
Exit	14	137	66	46	263

US 7/Diamond Run Mall Pth/Holiday Dr

	EB	WB	NB	SB	
LT	27				
TH		24	21		
RT			25		97
Enter	27	0	24	46	97
Exit	0	25	51	21	97

US 7/US 4/Diamond Run Mall Place

	EB	WB	NB	SB	
LT	3			5	
TH		8	14	14	
RT			2		45
Enter	3	8	14	21	45
Exit	5	2	24	14	45

US 7/Windcrest Rd/Middle Rd

	EB	WB	NB	SB	
LT	1			1	
TH		1	12	12	
RT			1		28
Enter	1	1	12	14	28
Exit	1	1	14	12	28

US 7 - N Shrewsbury

	EB	WB	NB	SB	
LT	0			1	
TH		0	12	12	
RT		0			25
Enter	0	0	12	12	25
Exit	1	0	12	12	25

US 7 - VT 7B

	EB	WB	NB	SB	
LT	0			5	
TH		6	6	6	
RT			0		23
Enter	0	6	6	12	23
Exit	5	0	12	6	23

US 7 - VT 103 - Squires Rd

Rutland CommonsGPI August 2008 Study
Passby Trips

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	49		49		
TH			-49	-49	
RT	49				98
Enter	98	0	0	0	98
Exit	0	98	0	0	98

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

US 7-4 Land Use Study AreaTrip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB	
LT	0	1	0	0	
TH	0	0	29	10	
RT	0	0	3	0	44
Enter	0	1	33	10	44
Exit	3	0	29	11	44

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	33	11	
RT	0	0	0	0	44
Enter	0	0	33	11	44
Exit	0	0	33	11	44

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	33	11	
RT	0	0	0	0	44
Enter	0	0	33	11	44
Exit	0	0	33	11	44

	EB	WB	NB	SB	
LT	0	1	7	0	
TH	0	0	33	11	
RT	4	0	1	0	56
Enter	4	1	40	11	56
Exit	1	7	33	16	56

	EB	WB	NB	SB	
LT	0	3	3	0	
TH	0	0	40	16	
RT	2	0	7	0	70
Enter	2	3	50	16	70
Exit	7	3	40	20	70

	EB	WB	NB	SB	
LT	7	3	35	0	
TH	0	0	50	20	
RT	0	0	6	0	122
Enter	7	3	91	20	122
Exit	6	35	57	23	122

	EB	WB	NB	SB	
LT	91	0	24	0	
TH	22	15	0	0	
RT	55	0	0	30	238
Enter	168	15	24	30	238
Exit	22	69	91	55	238

	EB	WB	NB	SB	
LT	2	0	0	8	
TH	0	0	19	43	
RT	0	3	0	3	79
Enter	2	3	19	55	79
Exit	8	3	24	43	79

	EB	WB	NB	SB	
LT	1	0	0	16	
TH	0	0	17	20	
RT	0	1	0	1	57
Enter	1	1	17	38	57
Exit	16	1	19	20	57

	EB	WB	NB	SB	
LT	1	0	0	16	
TH	0	0	8	20	
RT	0	8	0	1	55
Enter	1	8	8	38	55
Exit	16	1	17	20	55

7B Land Use Study AreaTrip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB	
LT	0	1	0	0	
TH	0	0	22	7	
RT	0	0	2	0	33
Enter	0	1	24	7	33
Exit	2	0	22	9	33

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	24	9	
RT	0	0	0	0	33
Enter	0	0	24	9	33
Exit	0	0	24	9	33

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	24	9	
RT	0	0	0	0	33
Enter	0	0	24	9	33
Exit	0	0	24	9	33

	EB	WB	NB	SB	
LT	0	1	5	0	
TH	0	0	24	9	
RT	3	0	0	0	41
Enter	3	1	29	9	41
Exit	0	5	24	13	41

	EB	WB	NB	SB	
LT	0	2	2	0	
TH	0	0	29	13	
RT	1	0	5	0	53
Enter	1	2	37	13	53
Exit	5	2	29	16	53

	EB	WB	NB	SB	
LT	5	2	26	0	
TH	0	0	37	16	
RT	0	0	5	0	91
Enter	5	2	67	16	91
Exit	5	26	42	18	91

	EB	WB	NB	SB	
LT	0	12	6	0	
TH	0	0	67	24	
RT	4	0	16	0	129
Enter	4	12	90	24	129
Exit	16	6	67	39	129

	EB	WB	NB	SB	
LT	0	6	7	0	
TH	0	0	90	39	
RT	3	0	17	0	162
Enter	3	6	114	39	162
Exit	17	7	90	48	162

	EB	WB	NB	SB	
LT	0	110	0	47	
TH	3	9	0	58	
RT	0	114	50	4	394
Enter	3	232	50	110	394
Exit	100	13	114	168	394

	EB	WB	NB	SB	
LT	3	0	0	47	
TH	0	0	23	58	
RT	0	23	0	4	159
Enter	3	23	23	110	159
Exit	47	4	50	58	159

103 Land Use Study AreaTrip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB	
LT	0	1	0	0	
TH	0	0	32	6	
RT	0	0	3	0	41
Enter	0	1	35	5	41
Exit	3	0	32	6	41

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	35	6	
RT	0	0	0	0	41
Enter	0	0	35	6	41
Exit	0	0	35	6	41

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	35	6	
RT	0	0	0	0	41
Enter	0	0	35	6	41
Exit	0	0	35	6	41

	EB	WB	NB	SB	
LT	0	0	7	0	
TH	0	0	35	6	
RT	2	0	1	0	52
Enter	2	0	43	6	52
Exit	1	7	35	8	52

DHV & Annual Adjustments to
2009

[illegible]

	EB	WB	NB	SB	
L	15	0	9	0	
T	0	0	1427	1301	
R	16	0	0	4	2772
Enter	31	0	1436	1305	
Exit	0	13	1442	1317	2772
% Trucks	0.0%	0.0%	0.1%	0.1%	
Peds	0	0	0	0	PHF
Peak Hour	11:45 AM - 12:45 PM	Peak	0.93		

	EB	WB	NB	SB	
L	0	0	3	0	
T	0	0	1454	1069	
R	0	0	0	289	2815
Enter	0	0	1457	1358	
Exit	0	292	1454	1069	2815
% Trucks	0.0%	0.0%	1.6%	1.5%	
Peds	2	2	0	0	PHF
Peak Hour	11:45 AM - 12:45 PM	Peak	Peak	Peak	0.93

	EB	WB	NB	SB	
L	336	24	199	37	
T	3	9	1302	1006	
R	225	36	5	140	3322
Enter	564	69	1506	1183	3322
Exit	45	348	1674	1255	3322
% Trucks	0.2%	0.0%	1.5%	2.2%	
Peds	1	0	1	1	PHF
Peak Hour	11:45 AM - 12:45 PM Peak				0.89

	EB	WB	NB	SB	
L	49	24	35	402	
T	49	19	695	656	
R	89	336	14	28	2396
Enter	187	379	744	1086	2396
Exit	465	82	1080	769	2396

	EB	WB	NB	SB	
L	25	0	0	110	0
T	150	123	0	0	0

	EB	WB	NB	SB	
L	25	0	0	110	0
T	169	133	0	0	0
R	0	50	0	41	528
Enter	194	183	0	151	528
Exit	279	174	75	0	528
0	0.0%	0.0%	0.0%	0.0%	0
0	0	0	0	0	0
0	12:00 AM				0.00

TM Count Year	2008
DHV Adj.	1.04
Annual Adj.	1.004
Total Adj.	1.04

TM Count Year	2008
DHV Adj.	1.06
Annual Adj.	1.004
Total Adj.	1.07

TM Count Year	2008
DHV Adj.	1.06
Annual Adj.	1.004
Total Adj.	1.07

TM Count Year	2008	
DHV Adj.	1.06	
Annual Adj.	1.004	
Total Adj.	1.07	

TM Count Year	2008
ATR/CTC ID	
Location	VOID
Ball Group	

TM Count Year	2008
DHV Adj.	
Annual Adj.	
Total Adj.	1.00

Italics means unadjusted

	EB	WB	NB	SB	
LT	10	63	5	43	
TH	3	3	1089	1114	
RT	7	59	64	3	2464
Enter	20	125	1158	1160	2464
Exit	110	11	1158	1184	2464

	EB	WB	NB	SB	
LT	15	0	9	0	
TH	0	0	1521	1386	
RT	16	0	0	4	2951
Enter	31	0	1530	1390	2951
Exit	0	13	1536	1402	2951

	EB	WB	NB	SB	
LT	0	0	3	0	
TH	0	0	1549	1139	
RT	0	0	0	289	2980
Enter	0	0	1552	1428	2980
Exit	0	292	1549	1139	2980

	EB	WB	NB	SB	
LT	336	24	199	37	
TH	3	9	1387	1072	
RT	225	36	5	140	3473
Enter	564	69	1591	1249	3473
Exit	45	348	1759	1321	3473

	EB	WB	NB	SB	
LT	49	24	35	402	
TH	49	19	741	699	
RT	89	336	14	28	2485
Enter	187	379	790	1129	2485
Exit	465	82	1126	812	2485

	EB	WB	NB	SB	
LT	25	0	0	110	
TH	169	133	0	0	
RT	0	50	0	41	528
Enter	194	183	0	151	528
Exit	279	174	75	0	528

Note: no balancing b/c different peak hours at different intersections.

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB
LT				-36
TH	-56	-79		
RT		-22		
Enter	-56	-101	0	-36
Exit	-92	-79	-22	0

	EB	WB	NB	SB	
LT	10	63	5	43	
TH	3	3	1089	1114	
RT	7	59	64	3	2464
Enter	20	125	1158	1160	2464
Exit	110	11	1158	1184	2464

	EB	WB	NB	SB	
LT	15	0	9	0	
TH	0	0	1521	1386	
RT	16	0	0	4	2951
Enter	31	0	1530	1390	2951
Exit	0	13	1536	1402	2951

	EB	WB	NB	SB	
LT	0	0	3	0	
TH	0	0	1549	1139	
RT	0	0	0	289	2980
Enter	0	0	1552	1428	2980
Exit	0	292	1549	1139	2980

	EB	WB	NB	SB	
LT	336	24	199	37	
TH	3	9	1387	1072	
RT	225	36	5	140	3473
Enter	564	69	1591	1249	3473
Exit	45	348	1759	1321	3473

	EB	WB	NB	SB	
LT	49	24	35	402	
TH	49	19	741	699	
RT	89	336	14	28	2485
Enter	187	379	790	1129	2485
Exit	465	82	1126	812	2485

	FB	WB	NB	SB	
LT	25	0	0	74	
TH	113	54	0	0	
RT	0	28	0	41	335
Enter	138	82	0	115	335
Exit	187	95	53	0	335

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**Balancing
2009**

Note: no balancing b/c different peak hours
at different intersections.

US 7/Cold River Rd
Rutland, VT
6/28/2008
GPI Count

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

US 7/RandburyRd
Rutland, VT
11/8/2008
2nd Saturday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

US7/Green Mountain Plz Right In
Rutland, VT
11/8/2008
2nd Saturday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

US7/Green Mountain Plz/Seward Rd
Rutland, VT
11/8/2008
2nd Saturday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

US 7/Diamond Run Mall Pl/Holiday C
Rutland, VT
12/6/2008
1st Saturday
Resource Systems Group

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0
Exit	0	0	0	0	0

Cop John Dr/Holiday Dr
Rutland, VT
11/12/2008
2nd Wednesday
Resource Systems Group

	EB	WB	NB	SB	
LT				-36	
TH	-56	-79			
RT		-22			-193
Enter	-56	-101	0	-36	-193
Exit	-92	-79	-22	0	-193

**Balanced Adjusted Raw
Counts
2009**

	EB	WB	NB	SB	
LT	10	63	5	43	
TH	3	3	1089	1114	
RT	7	59	64	3	2464
Enter	20	125	1158	1160	2464
Exit	110	11	1158	1184	2464

	EB	WB	NB	SB	
LT	15	0	9	0	
TH	0	0	1521	1386	
RT	16	0	0	4	2951
Enter	31	0	1530	1390	2951
Exit	0	13	1536	1402	2951

	EB	WB	NB	SB	
LT	0	0	3	0	
TH	0	0	1549	1139	
RT	0	0	0	289	2980
Enter	0	0	1552	1428	2980
Exit	0	292	1549	1139	2980

	EB	WB	NB	SB	
LT	336	24	199	37	
TH	3	9	1387	1072	
RT	225	36	5	140	3473
Enter	564	69	1591	1249	3473
Exit	45	348	1759	1321	3473

	EB	WB	NB	SB	
LT	49	24	35	402	
TH	49	19	741	699	
RT	89	336	14	28	2485
Enter	187	379	790	1129	2485
Exit	465	82	1126	812	2485

	EB	WB	NB	SB	
LT	25	0	0	74	
TH	113	54	0	0	
RT	0	28	0	41	335
Enter	138	82	0	115	335
Exit	187	95	53	0	335

**ODVs
From ODVs Tab**

	EB	WB	NB	SB	
LT	0	9	0	0	
TH	0	0	93	91	
RT	0	0	6	0	200
Enter	0	9	99	91	200
Exit	6	0	93	100	200

	EB	WB	NB	SB	
LT	0	0	1	0	
TH	0	0	99	100	
RT	3	0	0	0	203
Enter	3	0	101	100	203
Exit	0	1	99	103	203

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	0	0	101	103	
RT	0	0	0	0	203
Enter	0	0	101	103	203
Exit	0	0	101	103	203

	EB	WB	NB	SB	
LT	-1	71	3	87	
TH	5	4	19	16	
RT	2	82	71	0	358
Enter	5	157	92	103	358
Exit	162	7	99	89	358

	EB	WB	NB	SB	
LT	2	4	0	44	
TH	1	2	43	45	
RT	0	48	1	1	190
Enter	2	54	44	90	190
Exit	45	3	92	50	190

	EB	WB	NB	SB	
LT	0	0	0	0	
TH	2	3	0	0	
RT	0	0	0	0	4
Enter	2	3	0	0	4
Exit	2	3	0	0	4

**No Build
2009**

	EB	WB	NB	SB	
LT	10	72	5	43	
TH	3	3	1182	1206	
RT	7	59	70	3	2663
Enter	20	134	1258	1252	2663
Exit	116	11	1251	1285	2663

	EB	WB	NB	SB	
LT	15	0	10	0	
TH	0	0	1620	1487	
RT	19	0	0	4	3154
Enter	34	0	1630	1491	3154
Exit	0	14	1635	1505	3154

	EB	WB	NB	SB	
LT	0	0	3	0	
TH	0	0	1650	1242	
RT	0	0	0	289	3184
Enter	0	0	1653	1531	3184
Exit	0	292	1650	1242	3184

	EB	WB	NB	SB	
LT	335	95	202	124	
TH	8	13	1406	1088	
RT	227	118	76	140	3831
Enter	569	226	1684	1352	3831
Exit	207	355	1859	1410	3831

	EB	WB	NB	SB	
LT	51	28	35	446	
TH	50	21	784	744	
RT	89	384	15	29	2675
Enter	189	433	834	1219	2675
Exit	510	85	1218	862	2675

	EB	WB	NB	SB	
LT	25	0	0	74	
TH	115	57	0	0	
RT	0	28	0	41	339
Enter	140	85	0	115	339
Exit	189	98	53	0	339

01/08/10 03:37 PM

	Trip Generation	Build 2009	Annual Adjustment	Adjusted Raw Counts 2030	Balancing 2030	Balanced Adjusted Raw Counts 2030	No Build 2030	2030 Assumed Growth	Build 2030
	Enter Exit AM 0			<i>Italics means unadjusted</i>	Note: no balancing b/c different peak hours at different intersections.				
US 7/Cold River Rd Rutland, VT 6/28/2008 GPI Count	EB WB NB SB LT 10 72 5 43 TH 3 3 1182 1209 RT 7 59 70 3 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 10 72 5 43 TH 3 3 1182 1209 RT 7 59 70 3 Enter 20 134 1258 1252 Exit 116 11 1251 1285	1.083	EB WB NB SB LT 10 63 5 43 TH 3 3 1180 1207 RT 7 59 64 3 Enter 20 125 1249 1253 Exit 110 11 1249 1277	EB WB NB SB LT 10 63 5 43 TH 3 3 1180 1207 RT 7 59 64 3 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 10 63 5 43 TH 3 3 1180 1207 RT 7 59 64 3 Enter 20 125 1249 1253 Exit 110 11 1249 1277	EB WB NB SB LT 10 72 5 43 TH 3 3 1273 1299 RT 7 59 70 3 Enter 20 134 1348 1345 Exit 116 11 1342 1378	EB WB NB SB LT 0 3 0 0 TH 0 0 123 121 RT 7 0 9 0 Enter 7 3 132 121 Exit 9 0 123 131	EB WB NB SB LT 10 74 6 43 TH 3 3 1306 1420 RT 15 59 79 3 Enter 28 136 1480 1466 Exit 125 12 1465 1509
US 7/RandburyRd Rutland, VT 11/8/2008 2nd Saturday Resource Systems Group	EB WB NB SB LT 15 0 10 0 TH 0 0 1620 1487 RT 19 0 0 4 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 15 0 10 0 TH 0 0 1620 1487 RT 19 0 0 4 Enter 34 0 1630 1491 Exit 0 14 1635 1505	1.083	EB WB NB SB LT 15 0 9 0 TH 0 0 1647 1502 RT 16 0 0 4 Enter 31 0 1656 1506 Exit 0 13 1662 1518	EB WB NB SB LT 15 0 9 0 TH 0 0 1647 1502 RT 16 0 0 4 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 15 0 9 0 TH 0 0 1647 1502 RT 16 0 0 4 Enter 31 0 1656 1506 Exit 0 13 1662 1518	EB WB NB SB LT 15 0 10 0 TH 0 0 1747 1602 RT 19 0 0 4 Enter 34 0 1757 1606 Exit 0 14 1762 1621	EB WB NB SB LT 0 0 0 0 TH 0 0 132 131 RT 0 0 0 0 Enter 0 0 132 131 Exit 0 0 132 131	EB WB NB SB LT 15 0 10 0 TH 0 0 1879 1734 RT 19 0 0 4 Enter 34 0 1889 1738 Exit 0 14 1894 1752
US7/Green Mountain Ptz Right In Rutland, VT 11/8/2008 2nd Saturday Resource Systems Group	EB WB NB SB LT 0 0 3 0 TH 0 0 1650 1242 RT 0 0 0 289 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 0 0 3 0 TH 0 0 1650 1242 RT 0 0 0 289 Enter 0 0 1653 1531 Exit 0 292 1650 1242	1.083	EB WB NB SB LT 0 0 3 0 TH 0 0 1678 1234 RT 0 0 0 289 Enter 0 0 1681 1523 Exit 0 292 1678 1234	EB WB NB SB LT 0 0 3 0 TH 0 0 1678 1234 RT 0 0 0 289 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 0 0 3 0 TH 0 0 1678 1234 RT 0 0 0 289 Enter 0 0 1681 1523 Exit 0 292 1678 1234	EB WB NB SB LT 0 0 3 0 TH 0 0 1779 1337 RT 0 0 0 289 Enter 0 0 1782 1626 Exit 0 292 1779 1337	EB WB NB SB LT 0 0 0 0 TH 0 0 132 131 RT 0 0 0 0 Enter 0 0 132 131 Exit 0 0 132 131	EB WB NB SB LT 0 0 3 0 TH 0 0 1911 1468 RT 0 0 0 289 Enter 0 0 1914 1757 Exit 0 292 1911 1468
US7/Green Mountain Ptz/Seward Rd Rutland, VT 11/8/2008 2nd Saturday Resource Systems Group	EB WB NB SB LT 335 95 202 124 TH 8 13 1406 1086 RT 227 118 76 140 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 335 95 202 124 TH 8 13 1406 1086 RT 227 118 76 140 Enter 569 226 1684 1352 Exit 207 355 1859 1410	1.083	EB WB NB SB LT 336 24 199 37 TH 3 9 1503 1161 RT 225 36 5 140 Enter 564 69 1707 1338 Exit 45 348 1875 1410	EB WB NB SB LT 336 24 199 37 TH 3 9 1503 1161 RT 225 36 5 140 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 336 24 199 37 TH 3 9 1503 1161 RT 225 36 5 140 Enter 564 69 1707 1338 Exit 45 348 1875 1410	EB WB NB SB LT 335 95 202 124 TH 8 13 1522 1177 RT 227 118 76 140 Enter 569 226 1799 1441 Exit 207 355 1974 1499	EB WB NB SB LT 0 1 7 0 TH 0 0 132 131 RT 12 0 1 0 Enter 12 1 140 131 Exit 1 7 132 145	EB WB NB SB LT 335 97 209 124 TH 8 13 1654 1308 RT 239 118 76 140 Enter 581 228 1939 1573 Exit 208 362 2106 1644
US 7/Diamond Run Mail Plt/Holiday Rutland, VT 12/8/2008 1st Saturday Resource Systems Group	EB WB NB SB LT 51 28 35 446 TH 50 21 784 744 RT 89 384 15 29 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 51 28 35 446 TH 50 21 784 744 RT 89 384 15 29 Enter 189 433 834 1219 Exit 510 85 1218 862	1.083	EB WB NB SB LT 49 24 35 402 TH 49 19 802 757 RT 89 336 14 28 Enter 187 379 851 1187 Exit 465 82 1187 870	EB WB NB SB LT 49 24 35 402 TH 49 19 802 757 RT 89 336 14 28 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 49 24 35 402 TH 49 19 802 757 RT 89 336 14 28 Enter 187 379 851 1187 Exit 465 82 1187 870	EB WB NB SB LT 51 28 35 446 TH 50 21 845 803 RT 89 384 15 29 Enter 189 433 896 1277 Exit 510 85 1280 920	EB WB NB SB LT 159 14 146 0 TH 21 23 -19 -22 RT 336 0 17 167 Enter 316 37 144 145 Exit 38 336 140 127	EB WB NB SB LT 210 42 181 446 TH 71 44 827 780 RT 225 384 32 195 Enter 505 469 1039 1422 Exit 548 420 1420 1047
Cop John Dr/Holiday Dr Rutland, VT 11/12/2008 2nd Wednesday Resource Systems Group	EB WB NB SB LT 25 0 0 74 TH 115 57 0 0 RT 0 28 0 41 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 25 0 0 74 TH 115 57 0 0 RT 0 28 0 41 Enter 140 85 0 115 Exit 189 98 53 0	1.000	EB WB NB SB LT 25 0 0 110 TH 169 123 0 0 RT 0 50 0 41 Enter 194 183 0 151 Exit 279 174 75 0	EB WB NB SB LT 25 0 0 110 TH 169 123 0 0 RT 0 50 0 41 Enter 0 0 0 0 Exit 0 0 0 0	EB WB NB SB LT 25 0 0 74 TH 113 54 0 0 RT 0 28 0 41 Enter 138 82 0 115 Exit 187 95 53 0	EB WB NB SB LT 25 0 0 74 TH 115 57 0 0 RT 0 28 0 41 Enter 140 85 0 115 Exit 189 98 53 0	EB WB NB SB LT 9 0 0 0 TH 316 336 0 0 RT 0 0 0 10 Enter 325 336 0 10 Exit 316 346 9 0	EB WB NB SB LT 34 0 0 74 TH 431 393 0 0 RT 0 28 0 51 Enter 465 421 0 125 Exit 505 444 62 1010

SAT ODVs

US 7/Cold River Rd	LT	10	119	4	49	0
Rutland, VT	TH	4	1	1252	1266	0
06/27/08	RT	5	66	83	0	2859
GPI Count	Enter	19	186	1339	1315	2859
01/00/00	Exit	136	5	1328	1390	2859
01/00/00	% Trucks	0.0%	0.0%	0.0%	0.0%	0
01/00/00	Peds	0	0	0	0	0
01/00/00	Peak Hour	4:15-5:15 PM	0.00			
01/00/00	0	0	0	0	0	0

US 7/RandburyRd	L	26	0	14	0	
Rutland, VT	R	0	0	1091	1299	
11/12/08	T	33	0	0	8	2471
2nd Wednesday	Enter	59	0	1105	1307	2471
Resource Systems Group	Exit	0	22	1117	1332	2471
	% Trucks	0.0%	0.0%	0.3%	0.1%	
	Peds	0	0	0	0	PHF
	Peak Hour	4:15 PM - 5:15 PM Peak				0.95

	L	0	EB	WB	NB	SB	
US7/Green Mountain Plz Right In		0	0	0	0	1	
Rutland, VT	T	0	0	1161	1117		
11/12/08	R	0	0	0	0	253	2532
2nd Wednesday	Enter	0	0	0	1161	1371	2532
Resource Systems Group	Exit	1	253	1161	1117	2532	
% Trucks	0.0%	0.0%	3.4%	2.6%			
Peds	4	2	0	0	0	0	PHF
Peak Hour	4:30 PM - 5:30 PM	Peak	0.84				

US7/Green Mountain Plz/Seward R	L	EB	WB	NB	SB	
Rutland, VT	T	253	31	121	24	
11/12/08	T	1	7	879	986	
2nd Wednesday	R	184	37	8	107	2638
Resource Systems Group	Enter	438	75	1008	1117	2638
	Exit	33	235	1169	1201	2638
% Trucks		1.4%	0.0%	1.1%	2.5%	
Peds		2	3	2	4	PHF
Peak Hour		4:30 PM - 5:30 PM	Peak			0.95
01/00/00	0	0	0	0	0	0

US 7/Diamond Run Mall PHoliday	L	EB	WB	NB	SB	
Rutland, VT	T	34	26	39	179	
11/12/08	T	7	11	947	1001	
2nd Wednesday	R	83	167	23	23	2540
Resource Systems Group	Enter	124	204	1009	1203	2540
	Exit	209	73	1148	1110	2540
	% Trucks	1.6%	1.0%	4.8%	1.7%	
	Peds	1	2	1	1	PHF
	Peak Hour	5:00 PM - 6:00 PM	Peak	0.72		

01/00/00	0	EB	WB	NB	SB	0
US 7/US 4/Diamond Run Mall Place	L	264	50	180	36	0
Rutland, VT	TH	37	56	676	649	0
06/27/08	RT	92	61	52	476	2629
GPI Count	Enter	393	167	908	1161	2629
01/00/00	Exit	125	712	1001	791	2629
01/00/00	% Trucks	0.0%	0.0%	0.0%	0.0%	0
01/00/00	Peds	0	0	0	0	0
01/00/00	Peak Hour	4:00-5:00 PM				0.00

01/00/00	L	EB	WB	NB	SB	
US 7/Windcrest Rd/Middle Rd	LT	114	58	3	175	
Rutland, VT	TH	19	12	576	536	
06/06/05	RT	5	315	50	77	1940
1st Monday	Enter	138	385	629	788	1940
VTrans Count	Exit	244	92	1005	599	1940
	% Trucks	4.3%	3.9%	9.4%	7.4%	
	Peds	0	0	0	0	PHF
	Peak Hour	2:15 PM	3:15 PM	Peak	0.86	

01/00/00		0	EB	WB	NB	SB	
US 7 - N Shrewsbury	L	36	48	1	71		
Clarendon, VT	TH	21	26	598	629		
06/06/05	RT	2	35	35	27		1529
1st Monday	Enter	59	109	634	727		1529
	Exit	127	54	669	679		1529
	% Trucks	1.7%	2.8%	7.4%	3.7%		
	Peds	0	0	0	0		PHF
	Peak Hour	4:30 PM - 5:30 PM	Peak				0.80

01/00/00	0	EB	WB	NB	SB	
US 7 - VT 7B	LT	7	0	32	31	
Clarendon, VT	TH	2	4	544	526	
09/29/08	RT	22	20	3	7	1198
5th Monday	Enter	31	24	579	564	1198
	Exit	36	43	571	548	1198
% Trucks		0.0%	0.0%	5.5%	4.3%	
Peds		0	0	0	0	PHF
Peak Hour		3:30 PM - 4:30 PM	Peak			0.93

01/00/00	0	EB	WB	NB	SB	0
US 7 - VT 103 - Squires Rd	LT	25	11	2	261	
Clarendon, VT	TH	13	10	301	337	
06/04/08	RT	7	302	16	12	1297
1st Wednesday	Enter	45	323	319	610	1297
	Exit	290	24	628	355	1297

IHOP

P:\WGC\IHOP Rutland-07035\VoIs
07035 with Taco Bell and VSECU.xls

	EB	WB	NB	SB	
LT		3	0		
TH			33	28	
RT	0		2		66
Enter	0	3	35	28	66
Exit	2	0	33	31	66

	EB	WB	NB	SB	
LT		0	0		
TH			35	31	
RT	1		0		67
Enter	1	0	36	31	67
Exit	0	0	35	31	67

	EB	WB	NB	SB	
LT					
TH			36	31	
RT					67
Enter	0	0	36	31	67
Exit	0	0	36	31	67

	EB	WB	NB	SB	
LT	0	1	3	0	
TH	0	0	36	31	
RT	3	0	1	0	76
Enter	3	1	40	31	76
Exit	1	3	36	36	76

	EB	WB	NB	SB	
LT	0	4	0	36	
TH	1	2	0	0	
RT	0	40	1	0	83
Enter	1	46	1	36	83

	EB	WB	NB	SB	
LT	0	16	46	0	
TH	0	0	0	0	
RT	37	0	3	0	103
Enter	37	16	49	0	103

	EB	WB	NB	SB	
LT	6			12	
TH			28	36	
RT		15		5	103
Enter	6	15	28	53	103

	EB	WB	NB	SB	
LT	2			4	
TH			25	31	
RT		1		1	65
Enter	2	1	25	36	65

	EB	WB	NB	SB	
LT	0			2	
TH			24	29	
RT		1		0	57

	EB	WB	NB	SB	
LT	1			13	
TH			12	16	
RT		12		1	53

VSECU

Primary Trips

P:\WGC_To Be Archived\VSECU
Rutland-07085\VoIs 07085-ITE Trip
Gen.xls

	EB	WB	NB	SB	
LT		3	0		
TH			28	31	
RT	0		2		64
Enter	0	3	30	31	64
Exit	2	0	28	34	64

	EB	WB	NB	SB	
LT		0	0		
TH			30	34	
RT	1		0		65
Enter	1	0	30	34	65
Exit	0	0	30	35	65

	EB	WB	NB	SB	
LT					
TH			30	35	
RT					65
Enter	0	0	30	35	65
Exit	0	0	30	35	65

	EB	WB	NB	SB	
LT	0	19	0	35	
TH	2	3	0	0	
RT	0	30	17	0	106
Enter	2	52	17	35	106
Exit	54	3	30	19	106

	EB	WB	NB	SB	
LT	1			3	
TH			14	15	
RT		2		0	36
Enter	1	2	14	19	36

	EB	WB	NB	SB	
LT	4			0	
TH			10	9	
RT		1		6	30
Enter	4	1	10	15	30

	EB	WB	NB	SB	
LT	1			2	
TH			5	6	
RT		3		1	18
Enter	1	3	5	9	18

	EB	WB	NB	SB	
LT	0			1	
TH			5	5	
RT		0		0	11
Enter	0	0	5	6	11

	EB	WB	NB	SB
LT	0			0
TH			5	5
RT		0		0

	EB	WB	NB	SB	
LT	0			2	
TH			2	3	
RT		2		0	9

VSECU

Passby Trips

P:\WGC_To Be Archived\VSECU
Rutland-07085\VoIs 07085-ITE Trip
Gen.xls

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					
Enter	0	0	0	0	0
Exit	0	0	0	0	0

	EB	WB	NB	SB	
LT	-1	10	0	10	
TH	2	1	-10	-10	
RT	-1	10	10	0	21
Enter	0	21	0	0	21
Exit	22	1	1	1	21

	EB	WB	NB	SB	
LT					0
TH					
RT					
Enter	0	0	0	0	0

	EB	WB	NB	SB	
LT					
TH					
RT					0
Enter	0	0	0	0	0

	EB	WB	NB	SB	
LT					0
TH					
RT					
Enter	0	0	0	0	0

EB	WB
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SAT 2030 Development Vols

Rutland Commons

GPI August 2008 Study
New Trips

	EB	WB	NB	SB
LT			91	99
TH				
RT	7	6		
Enter	7	0	97	99
Exit	6	0	91	106

203 203

Rutland Commons

GPI August 2008 Study
Passby Trips

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

US 7-4 Land Use Study Area

Trip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB
LT	0	1	0	0
TH	0	0	12	9
RT	0	0	1	0
Enter	0	1	13	9
Exit	1	0	12	10

23 23

7B Land Use Study Area

Trip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB
LT	0	1	0	0
TH	0	0	13	7
RT	0	0	1	0
Enter	0	1	14	7
Exit	1	0	13	8

22 22

103 Land Use Study Area

Trip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	7	6
RT	0	0	1	0
Enter	0	1	8	6
Exit	1	0	7	7

15 15

Total Future Dev. Traffic

Trip Gen and Assignment by RSG using
US 7 Corridor Study Future Land Use
Estimate

	EB	WB	NB	SB
LT	0	3	0	0
TH	0	0	123	121
RT	7	0	9	0
Enter	7	3	132	121
Exit	9	0	123	131

263 263

US 7/RandburyRd

	EB	WB	NB	SB
LT				
TH			97	106
RT				
Enter	0	0	97	106
Exit	0	0	97	106

203 203

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	13	10
RT	0	0	0	0
Enter	0	0	13	10
Exit	0	0	13	10

23 23

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	14	8
RT	0	0	0	0
Enter	0	0	14	8
Exit	0	0	14	8

22 22

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	8	7
RT	0	0	0	0
Enter	0	0	8	7
Exit	0	0	8	7

15 15

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	132	131
RT	0	0	0	0
Enter	0	0	132	131
Exit	0	0	132	131

263 263

US7/Green Mountain Plz Right In

	EB	WB	NB	SB
LT				
TH			97	106
RT				
Enter	0	0	97	106
Exit	0	0	97	106

203 203

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	13	10
RT	0	0	0	0
Enter	0	0	13	10
Exit	0	0	13	10

23 23

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	14	8
RT	0	0	0	0
Enter	0	0	14	8
Exit	0	0	14	8

22 22

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	8	7
RT	0	0	0	0
Enter	0	0	8	7
Exit	0	0	8	7

15 15

	EB	WB	NB	SB
LT	0	0	0	0
TH	0	0	132	131
RT	0	0	0	0
Enter	0	0	132	131
Exit	0	0	132	131

263 263

US7/Green Mountain Plz/Seward Rd

	EB	WB	NB	SB
LT				
TH			97	106
RT				
Enter	0	0	97	106
Exit	0	0	97	106

203 203

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

	EB	WB	NB	SB
LT	0	1	3	0
TH	0	0	13	10
RT	5	0	0	0
Enter	5	1	16	10
Exit	0	3	13	16

32 32

	EB	WB	NB	SB
LT	0	0	3	0
TH	0	0	14	8
RT	4	0	0	0
Enter	4	0	17	8
Exit	0	3	14	13

30 30

	EB	WB	NB	SB
LT	0	0	2	0
TH	0	0	8	7
RT	3	0	0	0
Enter	3	0	10	7
Exit	0	2	8	10

20 20

	EB	WB	NB	SB
LT	0	1	7	0
TH	0	0	132	131
RT	12	0	1	0
Enter	12	1	140	131
Exit	1	7	132	145

285 285

US 7/Diamond Run Mall Plz/Holiday Dr

	EB	WB	NB	SB
LT	97		76	
TH	21	23		
RT	68			106
Enter	186	23	76	106
Exit	21	205	97	68

391 391

	EB	WB	NB	SB
LT	62		62	
TH	61		-62	-61
RT				
Enter	123	0	0	0
Exit	0	123	0	0

123 123

	EB	WB	NB	SB
LT	0	6	1	0
TH	0	0	16	10
RT	3	0	7	0
Enter	3	6	24	16
Exit	7	1	16	24

49 49

	EB	WB	NB	SB
LT	0	4	1	0
TH	2	0	17	10
RT	2	0	8	0
Enter	2	4	26	13
Exit	8	1	17	19

46 46

	EB	WB	NB	SB
LT	0	4	5	0
TH	0	2	10	10
RT	2	0	2	0
Enter	2	4	17	10
Exit	2	5	10	15

33 33

	EB	WB	NB	SB
LT	159	14	146	0
TH	21	23	-19	-22
RT	136	0	17	167
Enter	316	37	144	145
Exit	38	336	140	127

641 641

US 7/US 4/Diamond Run Mall Place

	EB	WB	NB	SB
LT		21		
TH			52	44
RT				24
Enter	0	21	52	68
Exit	0	24	52	65

141 141

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

	EB	WB	NB	SB
LT	12	3	12	0
TH	0	0	24	24
RT	0	0	5	0
Enter	12	3	41	24
Exit	5	12	36	28

81 81

	EB	WB	NB	SB
LT	9	3	14	0
TH	0	0	26	19
RT	0	0	5	0
Enter	9	3	45	19
Exit	5	14	35	22

77 77

	EB	WB	NB	SB
LT	7	2	30	15
TH	0	0	17	15
RT	0	0	4	0
Enter	7	2	30	15
Exit	4	9	25	18

55 55

	EB	WB	NB	SB
LT	28	29	35	0
TH	0	0	120	103
RT	0	0	14	24
Enter	28	29	169	127
Exit	14	59	148	132

354 354

US 7/Windcrest Rd/Middle Rd

	EB	WB	NB	SB
LT	6			14
TH			30	44
RT				6
Enter	6	16	30	65
Exit	14	6	52	44

117 117

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

	EB	WB	NB	SB
LT	41	0	37	0
TH	6	8	0	0
RT	30	0	0	40
Enter	77	8	37	40
Exit	6	84	41	30

161 161

	EB	WB	NB	SB
LT	0	6	5	0
TH	0	0	45	31
RT	4	0	6	0
Enter	4	6	56	31
Exit	6	5	45	41

97 97

	EB	WB	NB	SB
LT	0	5	3	0
TH	0	0	30	25
RT	3	0	4	0
Enter	3	5	37	25
Exit	4	3	30	33

70 70

	EB	WB	NB	SB
LT	47	11	45	14
TH	6	8	105	100
RT	37	16	10	46
Enter	90	36	160	161
Exit	30	99	169	148

446 446

US 7 - N Shrewsbury

	EB	WB	NB	SB
LT	2			4
TH			27	38
RT			2	
Enter	2	2	27	44
Exit	4	2	30	38

74 74

	EB	WB	NB	SB
LT				
TH				
RT				
Enter	0	0	0	0
Exit	0	0	0	0

0 0

	EB	WB	NB	SB
LT	2	0	0	4
TH	0	0	30	25
RT	0	4	0	2
Enter	2	4	30	30
Exit	4	2	37	25

67 67

	EB	WB	NB	SB
LT	0	7	0	0
TH	0	0	56	41
RT	4	0	3	0
Enter	4	7	60	41
Exit	3	0	56	52

112 1

APPENDIX E

Meeting Notes



US Route 7 Corridor Study Kick-Off Meeting

15 December 2008

RRPC Conference Room

1:30 PM

Attendees: Susan Schreibman (RRPC), Mark Blucher (RRPC), George Ambrose (Town of Clarendon), Dave Potter (Town of Clarendon), Tom Bartholomew (Town of Benson), Joe Zingale (Town of Rutland), Costa Pappis (VTrans), David Saladino (RSG), Amanda Clancy (RSG)

Introductions

Committee Input on Corridor Study

- Clarendon is interested in learning how and where to allow commercial and industrial lots to develop in order to increase the tax base [George]
- Would like to look past prior zoning issues and include the Clarendon Town Plan in development of this project. Would like to see a plan for how the Towns of Clarendon and Rutland can interface with one another in land use planning and development. [Dave]
- Want to use the existing capacity in US 7 to facilitate growth; US 7 in Rutland Town has been designated a high-growth area. [Joe]
- This US 7 corridor is an area of rapid development. Would like to see a cohesive framework built for the towns to work within. Would like to know what development is possible/reasonable given the existing capacity – the existing road has no plans for future expansion. [Mark]

General Discussion and Notes

- Since US 7 is a limited access facility south of US 4, 7B will provide primary business access to development adjacent to the corridor
- The intersection of US 7/VT 103 is of major importance to Clarendon, but there are barriers to development. The City of Rutland's wastewater treatment facility still has available capacity, although certain truck lines are nearing capacity.
- Visualization of future scenarios will be very important to presenting to the public.
- Crash analysis should be considered with a grain of salt and not belabored; crash data should be kept in perspective
- Would be best to route bicycles to use 7B, Creek Road, or another parallel route rather than US 7
- Pedestrian access is best to be considered on a very conceptual level, and should include signs, recommended paths, etc; Great detail or emphasis is not suggested
- Clarendon zoning regulations are currently being reviewed; expected to be complete in 3+ months (ready for 2010 Town Meeting?)
- VTrans Utilities & Permits division not likely to join Steering Committee for this project
- Include tourism as a potential source for future growth

- In Clarendon, it may be desirable to maintain some farmland in the future scenario
- 7B gets used as a shortcut in the AM peak hour from VT103 to US 7
- Stratton Road is used to bypass US 7 in Rutland
- Key businesses in the area include: GE, the Hospital, Carrera's Cement Plant, Auto International, Mill River Union High School (draws towns of Shrewsbury, Clarendon, Wallingford), Mill River Lumber
- Rail service on the Vermont Rail line currently consists of one train per week (Thursday AM); current plans indicate this may increase to two times per day
- Consider the potential for Rail/Highway interfacing and potential transload facilities

Identified Potential Development

- 50 and 25 acre parcels for industrial development (marked on map)
- Senior Center proposed on parcel between Cold River Road, Stratton Road and Quality Lane (existing farmland, Prime soils)
- The Airport has proposed a 500 ft. runway expansion to the north, but this is expensive and probably a long-term development

Study Area Feedback

- Extend study area to include transfer station and Riddick Industrial Park (30-40 acres West of US 7 by Fairgrounds) – Riddick has another parcel east of US 7 of similar size to be developed
- Include Middle Road in Clarendon and the Mill River School
- Include Squire Road

Scope Revisions

- Meeting with VTrans and RSG will be in Montpelier, the Steering Committee does not need to attend
- Design sketches do not need to be in engineering detail; conceptual only
- Do not need corridor travel time assessment

Deliverables

- Costa will revise VTrans meeting location (Montpelier) in scope
- RRPC will provide GIS data to RSG (water, sewer, parcels, etc)
- RRPC will create future growth scenario, ideally parcel by parcel, broken up by residential, commercial and industrial lots, and will project the maximum buildout.
- RSG will provide deliverable deadlines for the RRPC
- RRPC will finalize scope and issue contract



US Route 7 Corridor Management Plan
Stakeholder Meeting
9 February 2009
Holiday Inn, Rutland VT

Name	Organization	Address	Email
Mark Blucher	RRPC	PO Box 965, Rutland VT 05702	mblucher@rutlandrpc.org
Marion Pratico	Resident	3272 Route 7B Central, Clarendon VT 05259	
Philip E Alderman	Alderman Toyota		philalderman@aldermanstoyota.com
Theresa Gilman	VTrans		theresa.gilman@state.vt.us
Peter Buckley	Mill River Lumber	2639 Middle Road, North Clarendon VT	pbuckley@millriverlumber.com
Sean Barrows	TAC	42 Skyline Drive, West Rutland VT 05779	slbarrows@myfairpoint.net
Barry Varian	General Electric		barry.varian@ge.com
John Kalish	Mid-VT Properties, LLC		jkalish@kalishcompanies.com
Sandra Lober	Property Owner		sjlober@comcast.net
Robert Brown	Clarendon Planning Commission		rkbrown@rrmc.org, bocabrown@aol.com
Bud McLaughlin	Holiday Inn	476 US Route 7 South, Rutland VT	bmclaughlin@hivernmont.com
Joseph Zingale Jr	Town of Rutland		rutlandtown@comcast.net
Tom Roberts	VTrans District #3		tom.roberts@state.vt.us
Bill Matteson	Rutland Town		william832@comcast.net
Jamie Stewart	REDC		jstewart@rutlandeconomy.com
Tom Bartholomew	Town of Benson		tbarthol@shoreham.net
Costa Pappis	VTrans		costa.pappis@state.vt.us
Dave Potter	Town of Clarendon, VT House Transportation Committee		
Susan Shreibman	RRPC		sschreibman@rutlandrpc.org
Steve Schild	RRPC		steve@rutlandrpc.org
Janet Choi	Resource Systems Group		jchoi@rsginc.com
Amanda Clancy	Resource Systems Group		aclancy@rsginc.com

STAKEHOLDER MEETING NOTES (9 FEBRUARY 2009)

1.0 Issues

- Stacking lanes at GMP – issue exiting
- Non-accessibility of 4 lane section of US 7
- VT 7B – misclassified? Less traffic than Cold River Rd and Stratton Rd and East Clarendon Rd
- Capacity Issues – congestion north of GMP
- Confusion & Indecision – accidents and access issues
- US 7 South & McDonalds
- Left Turn Lane on US 7N at US 4 – signal timings – inefficiently programmed
- Signal timings during off-peak hours
- Development – GMP/Rutland Commons
- Access control
- Problems in study area generated by signal timings north of the study area
- Pedestrian crossings & Safety
- Design of future access roads – eg Cop John Drive
- VT 103 intersection – how will it tie in with town plan?
- N of US 4 and S of US 4 have many different issues
- Money – federal and state funding to proceed with improvements

2.0 Strengths

- Development will generate more taxes
- Four lane divided highway
- Signal coordination from GMP to US 4
- Good traffic flow below DRM
- Space & Land = Opportunity
- Availability of infrastructure – water, sewer, fire protection, etc (Rutland Town)
- Business and people willing to work on problems
- This current opportunity – the corridor management plan

3.0 Weaknesses

- Primary area of conflict – max capacity now

- Infrastructure limitations (Clarendon)
 - Extend across two or three municipalities – coordination will be necessary
- Town Plans not on same page – Clarendon plans not current
- Limitations on ability to develop
- Permitting process
 - VTrans cooperation
- Lack of consideration for alternative transportation solutions (ie Roundabouts)
- Existing Conditions
 - Enter/Exit at Red Roof
 - DRM
- Collaboration between towns?
- Lack of signage/Ability to sign for local businesses
 - US designated intersections

4.0 Comments:

- How can we accommodate new traffic with new development?
- Shelburne Road reconfiguration – medians and right in/right out access
- Peak Hours are terrible – otherwise roads are ok
- Sidestreets north of US 4 need more time
- Need connector roads/parallel routes north of US 4
- Don't think Clarendon will ever develop like Rutland Town
- The Town of Clarendon wants industrial/commercial growth near VT 103.

5.0 Other Notes:

- A dual EB left has been previously proposed at GMP – VTrans has resisted
- Cop John Drive was a good idea (add access roads) but terrible in implementation
- VT 103 intersection is a development opportunity. Conflict with Airport expansion/development could be an issue.
- More jobs are desirable, which implies retail (manufacturing would be great, but there is the feeling that industrial uses and/or manufacturing would not come to this region)
- Add a bike path along the eastern Railroad for recreation and commuting purposes
- Smaller mixed-use development desirable at the VT 103 intersection, larger development should remain in Rutland Town.
- Add note about passenger rail to the existing conditions report – Dave (from Clarendon) will email cost estimates and/or a study that provides more detail



CTAC MEETING NOTES (13 APRIL 2009)

- ADD LIST OF PEOPLE AT THE MEETING
- Review of agenda
- Review stakeholder meeting input
 - Agree on limiting number of driveways south of US 7 south of US 4
 - Agree on promoting all modes of transportation
 - Compatibility on limiting new driveway on US 7 north of US 4
 - Consolidate existing driveways north of US 4
 - Concentrate mixed-use development in nodes
 - Divided opinions on focusing through traffic vs. local circulation
 - Divided opinions on development vs. open space
- Review vision statement and goals
 - Costa wonders where the mention of economic development is in the vision statement.
- Review of Visualizations – US 7/US 4
 - There are many caveats: the market, economy, zoning, environmental constraints etc.
 - Not every detail is included in these visualizations.
 - The design pattern was guided by the projections provided to LandWorks.
 - Incorporated setback issues, limiting access, sharing curb cuts, access off of US 7, creative land use planning
 - Each scenario has an existing conditions visualization.
 - Wetlands should have been considered in where you place development. Many consultants have tried to place development on certain parcels and found many environmental constraints.
 - The orthophoto is outdated. A barn has come down and new Tractor Supply isn't there. Stove Depot is not there. Two buildings are shown that are no longer there.
 - LandWorks will run these visualizations through another time.
 - What's depicted in the northwest corner would never occur that way because of the wetlands on that property. He likes the way Rutland Commons is there because it's permitted.
 - The state might work with the owner if it's housing versus commercial to make connectors, etc. But developers can make more money with commercial/industrial land uses so they will probably choose commercial/industrial because the economics drive it.
 - North of the US 7/US 4 intersection is almost fully built out and most of those businesses are fine. Only the Red Roof Inn is having trouble paying the bills.
 - There are a lot of types of development that could occur at the southwest corner of the US 7/US 4 intersection. It could be a shopping center or a wood stove manufacturer. We need to analyze what is likely to occur.
 - Bill is looking for industrial on the west side of the parcel and commercial for closer to US 4.

- The visualization should be expanded to show the more intensely developed area north of the US 4 intersection to help with context. The build-out visualizations will still focus on the US 7/US 4 area, but the expanded view will help provide more context and orientation.
 - There's some potential development that could happen north of the US 4 intersection. Something could happen behind Smith Buick. The visualization of the northerly section could be helpful for access issues. On the west side behind existing buildings there's some potential for additional development. The east side could also have more development (Quality Lane). There's a plan for a road behind the old Hannaford to the city. Joe Zingale can send that to us. The visualizations will not show the development behind Smith Buick (the scope of work is limited to 3 locations for the visualizations). The proposed roadways should be considered in the recommendation phase of the plan and show conceptually with broad lines on orthophotos .
- Review of Visualizations – VT 7B Segment
 - Village street grid for the 11 industrial buildings
 - The visualization shows a possible development pattern if Planned Unit Developments (PUD) were permitted in Clarendon and adequate water and sewer infrastructure were available.
 - The proposed zoning does not currently allow PUDs. Clarendon might want to look into a PUD provision in their zoning
 - The study will include land use policy recommendations and will most likely recommend that Clarendon allow PUDs. Sample PUD language can be provided.
 - Clarendon doesn't have municipal sewer and water. Until we have that everything is very conceptual. Clarendon would like an approximation of waste water flows to help them get an idea how much capacity would be needed to accommodate this level of development.
 - Having residential and commercial uses in the same building means the second floor needs to be sprinkled which requires town water.
 - Review of Visualizations – US 7/VT 103
 - Dave Potter suggested that the visualizations should have focused on the west side of US 7 rather than the east side. For example, development could occur close to the school and the post office. However, he acknowledged that the people attending the stakeholder meeting placed their stickers on the side. Joe Segale pointed out that the visualizations show a form of development that could occur on either side of US 7. Either way, traffic to and from the assumed development will load through the same intersection on to US 7.
 - On the east side thought was an office park or industrial uses.
 - Took into consideration sharing curb cuts and having pedestrian access between adjacent parcels.
 - David moving away from plunking buildings down in the middle of asphalt. Trying to have shared parking. Don't want parking lots fronting on the limited access road etc. You want to hide the parking within the development, like the development on the southeast corner. To do this, you probably need a PUD unless you build roads that are town roads. Putting town roads in is not going to happen so a PUD makes more and more sense.
 - Is there a better use for the land that the golf course currently occupies? The golf course is off of Squires Road behind Auto International.
 - Maintaining safety and mobility at this intersection is critical. VT 103 is part of the Vermont Truck Network. A lot of thought has gone into the design of the intersection and the most recent modifications solved a lot of the urgent safety needs. People were getting killed at that intersection. The roundabout is not going to happen but the intersection is signalized and a



slip lane was put in/extended. There may not be many more options for at-grade intersection design changes.

- Many of those trucks using VT 103 are traveling to or from US 4 and never enter Rutland City. The treatment of trucks is important.
 - There is a need for a truck stop somewhere between VT 103 and US 4. The most likely location for the truck stop would be around the US 7/US 4 intersection so that it could be used by trucks both on US 4 and VT 103.
 - There have been many studies conducted about extending the runway to the north beyond VT 103. VT 103 would have to be relocated or the runway would pass over it. Relocating VT 103 would be the most expensive option. The expansion of the runway is part of the regional plan. The extension is unlikely to happen soon and is not an issue that needs to be considered in the US 7 Corridor Study.
- 2030 Land Use Assumptions
 - RSG will base the 2030 traffic projections on the square footage and dwelling units numbers used to develop the visualizations in the three specific areas.
 - The analysis will assume no changes to the roadway system beyond any projects that are currently planned and funded (for example – Rutland Commons must make some intersection modifications which will be assumed). This Do-Nothing Scenario will be used to identify potential issues. RSG will begin to develop recommendations as well to include transportation system strategies (adding turn lanes, installing traffic signals, etc); new local access roads, and land use strategies (changing intensity or type of land use to reduce trip generation)

Next Steps

RSG will conduct the 2030 transportation analyses and prepare the Technical Paper 3-Future Conditions Assessment for review by the CTAC

Joe Zingale will provide images of proposed local access road, latest orthophotos and environmental constraints

LandWorks will revise the visualization at the US 7/US 4 intersection to address the comments above.





US 7 Corridor Management Plan

June 8, 2009 Stakeholder Meeting

Holiday Inn, Rutland Vermont

Prepared: June 9, 2009 by Joe Segale

Mark Blucher started the meeting and provided an overview on the purpose of the project. Mark asked everyone in attendance to introduce themselves and then turned the meeting over to the consultants. Joe Segale and Sharon Murray delivered a presentation that summarized the *Future Conditions and Strategy Options Memorandum* (June 2, 2009). The memo had been distributed to members of the CTAC and stakeholder group by the RRPC in the previous week. The following comments were offered by the stakeholder group following the presentation. Responses are from the consultants unless otherwise noted:

1. **Comment:** Be careful about how the local road network strategy is presented. Not opposed to the concept of local roads, but need to be sensitive to property owner plans. The local roads could reduce property values or affect in some way plans a property owner has for a parcel.
Response: Local roads may also increase property values because they increase accessibility. Joe acknowledged that the local roads should be shown much more conceptually (with large arrows rather than specific lines).
2. **Comment:** How do we involve specific property owners in the process? **Response:** The stakeholder group was formed by the RRPC to gather feedback from representatives of property owners as well as other interested parties. The RRPC will also post memoranda, draft plans, etc produced during the plan process on its web site.
3. **Comment:** Need to mention that Randbury Road is a potential site for the Rutland Railyard relocation. **Response:** So noted.
4. **Comment:** The suggestion of a park-and-ride lot in the vicinity of US 7-US 4 has been considered before. A park-and-ride was suggested at Diamond Run Mall. It was not approved by VTTrans because it would have been on private land. **Response:** The memo suggests a specific parcel for the park-and-ride on the southwest quadrant of the US 7-US 4 intersection. The exact location is less important, than the concept of having a park-and-ride facility with transit service, somewhere in the US 7-US 4 vicinity.
5. **Comment:** People will not become interested or get involved unless there are specific recommendations that could impact them or their property. **Response:** Recommendations will be refined in the next step of the process.
6. **Comment:** Did the land use scenario consider the cost of waste water and water infrastructure? The cost of providing these services is one of the biggest challenges to implementing the concentrated development pattern suggested in the visualizations. Another stakeholder noted that Rutland Town and Clarendon are in early discussion about planning and cooperating on future waste water and water services in the corridor. **Response:** We acknowledge that the cost

of waste water and water infrastructure is a significant challenge. The consultants are working on coming up with an order of magnitude costs.

7. **Comment:** Has the plan considered past and current population change? Has the plan considered the aging of the population and how that may affect transportation needs? Senior citizens are less likely to walk or take transit. **Response:** Demographics have not been discussed yet in the process and will be added. Good point about considering the affect of the aging of the population. However, senior citizens will walk if there are sidewalks and destination, like a convenience store, are close enough. Also, we are planning for a twenty year time frame, and the senior citizens of tomorrow are not the same as the senior citizens of today.
8. **Comment:** Will the bike path suggested in the memo be limited to VT 7B? **Response:** The concept of connecting the focus areas with a bike facility is more important than the specific location. Different alternatives such as a separated path, wider shoulders or dedicated bike lanes should be considered. The bike facility should be designed to serve basic cyclists traveling for transportation reasons, rather than for recreation (although recreational cyclists would also benefit). This facility may not make sense until the focus areas are developed. Susan Schreibman commented that the consultants need to look at VTrans standards for on-road bike facilities.
9. **Comment:** Rutland Town is in the process of adopting a new town plan, The Selectboard expects to receive a draft this week. Clarendon also expects to adopt new zoning regulations this summer. If possible, it would be good to include recommendations from the US 7 Corridor Management Plan in the updates. **Response:** Plan completion is scheduled for September, The consultants will do our best to provide recommendations prior to then,

Next Steps:

- Consultants to develop specific recommendation for RRPC/VTrans Review
- Consultant produce Technical Memo 4- Implementation Plan
- CTAC Meeting to review Technical Memo 4





US 7 Corridor Management Plan

November 18, 2009 Stakeholder Meeting

Holiday Inn, Rutland Vermont

Prepared: November 19, 2009 by Joe Segale

Present: Mack Goodwin, Shrewsbury Planning Commission; Joseph Zingale Jr., Rutland Town Manager; James Hall and Charley Shields, Rutland Town Selectboard, Bill Matterson, Rutland Town Planning Commission; Bud McLaughlin, Holiday Inn; George Ambrose, Clarendon Selectboard; Dave Potter, Clarendon State Representative; Tom Bartholomew, Benson; Sean Barrows, West Rutland and RRPC Transportation Advisory Committee; Clay Poitras and Costa Pappis, VTrans; Mark Blucher and Susan Schreibman, Rutland Regional Planning Commission; Joe Segale, Resource System Group

Notes

Susan Schreibman started the meeting and provided an overview on the purpose of the project. The purpose of this meeting was to gather comments on the Draft US 7 Corridor Management Plan dated October 12, 2009. Susan asked everyone in attendance to introduce themselves and then turned the meeting over to the consultant. Joe Segale delivered a presentation that summarized the Draft Management Plan. Joe pointed out that the report includes a Plan Summary and a fill report. The Plan Summary had been distributed to members of the Stakeholders Group. The following comments were offered by the stakeholder group following the presentation. Responses are from the consultants unless otherwise noted:

1. **Comment:** Joe Zingale asked why the report was titled "Corridor Management Plan" rather than "Corridor Management Study". Joe was concerned that the word "Plan" suggests that the recommendations contained in the report are somehow mandatory or required. Mark Blucher pointed out that unless formally adopted in regional or municipal plans the document has no standing in Act 250 or other regulatory proceedings. Dave Potter and George Ambrose stated that they are not concerned about the word "plan". George Ambrose also stated that he has no issues with naming the document a "study" or a "guide".
2. **Comment:** Joe Zingale expressed his opinion that VTrans should not be a party to a Corridor Management Memorandum of Understanding as recommended in the report. He pointed out that he had asked that VTrans be removed from the recommendation when he reviewed a previous draft and was concerned that VTrans participation was still included. Bill Matterson reinforced Joe Zingale's point about VTrans and stated that Rutland Town has no issues with joining in an MOU with Clarendon. Joe Segale pointed out that since VTrans owns US 7 and is responsible for managing access, their participation in an MOU will only help improve coordination and communication. Rutland Town remains skeptical about VTrans participation. Mark Blucher responded that the report contains recommendations only and does not require that VTrans be included in the MOU.
3. **Comment:** Joe Zingale asked that references such as "Big Box Stores" and "Strip Development", which often have a negative connotation, be replaced with more objective terminology such as

“Large Scale Retail” and “Linear Development”. Joe also stated that the report had a lot of good information and used language that suggested flexibility and options rather than mandating specific steps.

4. **Comment:** Joe Zingale pointed out that the Rutland Town plan was adopted in 2009.
5. **Comment:** Joe Zingale offered several specific corrections to the report as follows: Page 45 – Remove the reference to proposed relocation of the Rutland Railyard to south of US 4 in Clarendon; Page 62 – Rutland Commons will not include industrial development; Page 77 – remove replace references to strip development with more objective terms. Joe Segale asked that Joe Zingale submit any other comments in writing to Susan Schreibman.
6. **Comment:** Jim Hall expressed his concern that bike paths might interfere with development plans. Joe Zingale stated his opinion that traveling by bike was not necessarily practical in a commercial area. Sean Barrows pointed out that cycling is often the only mode of transportation available to some people that work in the area and that there are currently no safe routes. Susan Schreibman acknowledged that cyclists were not going to go to the supermarket or Home Depot, but some may chose to bike to services like a dentist. Joe Segale pointed out that bike paths could be incorporated into site plans for future development and would likely have little impact on the amount of land that could be developed.

Susan Schreibman would like to keep momentum moving on the recommendations contained in the report and asked if any of the stakeholders would be willing to meet on a regular basis to coordinate efforts. Joe Zingale and George Ambrose agreed to participate. Susan will arrange the meeting.

Next Steps:

- Joe Zingale, and anyone else who would like to, will submit written comments to Susan.
- RSG will incorporate edits and produce a Final Report
- Susan Schreibman will arrange the first US 7 Corridor Implementation group meeting





WRITTEN COMMENTS AND RESPONSES

This document presents written comments on the October 12, 2009 Draft that were submitted after the November 18, 2009 meeting. Each comment is provided followed by a response from RSG on how the comment has been addressed in the December 15, 2009 final report.

From: Joe Zingale [mailto:rutlandtown@comcast.net]

Sent: Wednesday, November 25, 2009 8:52 AM

To: Susan Schreibman

Subject: Re: US 7 Study

- 1) The Town would request the document be called the US 7 Corridor "Guide" or "Plan" not "Management" Plan. (cover)

RSG Response: Report title has been changed to US 7 Corridor Plan.

- 2) (Page1) The Town of Rutland would be party to an Intergovernmental US 7 Plan Agreement with the Town of Clarendon and the RRPC but does not with the State of Vermont, Agency of Transportation. (page1)

RSG Response: See response following #5

- 3) (Not numbered) The Town has a problem with the proposed **Access Management Standard (2)** which states "No additional access rights to a public highway shall result from the subdivision or re-subdivision of existing lots, nor for the development or redevelopment of contiguous parcels under common ownership and control. Town would like to consider on a case-by-case basis. Town has history with the State of VT with this issue and the Town does not like the fact Alderman's was not allowed to use existing curb cut on US 7. (not numbered)

RSG Response: See response following #5

- 4) (Not numbered) Beginning on the page that reads "**Recommendation: Concentrated (Nodal) Development**", the Town would request any reference to "**strip development**" be changed to "**continued historical development along State highways**, when referring to areas in the Town of Rutland.

RSG Response: See response following #5

- 5) (Not numbered) Under the heading "Plan Update Recommendations" The Town would like the paragraph to begin, "**The Towns of Rutland and Clarendon should consider appending or incorporating**" rather than the Statement "**At minimum, the US7 Corridor Management Plan should be appended to.**"

RSG Response to Zingale Comments 2-5 : Mr. Zingale's comment refers to language in Appendix A. A note has been added. In addition, the following footnote was added to every page of the land use planning and regulatory strategies identified: "The agreements, bylaw language, planning policies and other strategies presented in this Appendix are for reference only and may need to be modified for specific circumstances. The fact that the concepts are presented in the US 7 Corridor Plan should not be construed to suggest a commitment or endorsement by Rutland Town, Clarendon, Rutland Regional Planning Commission, VTrans or other stakeholders that participated in the planning process."

- 6) **(Page 4)**, General Electric Company is located in the Town of Rutland on the border with the Town of Clarendon.

RSG Response: Edit has been made.

- 7) **(Page 6)**, I thought the Slopes 25% and greater are located outside of the Study area.

RSG Response: Correction has been made.

- 8) **(Page 16)**, Town would prefer that the term "big box" be changed to either "National Retailers", or "large commercial stores"

RSG Response: All references to Big Box have been replaced with "large commercial stores"

- 9) **(Page 19)**, section 2.1.34 , The Rutland Town Plan was adopted in 2009 not 2007.

RSG Response: Correction has been made.

- 10) **(Page 35)** section 2.2.1.4 last sentence should read " by and large the majority of accidents in this section of Rutland Town can be described as fender benders or minor very low speed accidents

RSG Response: Observation by local officials have been noted

- 11) **(Page 45)** section 2.2.23, The current proposal is to locate the railyard almost completely the City of Rutland, with a couple of sets of tracks in Rutland Town. Would be north of the US RT 4 Bypass.

RSG Response: Correction has been made.

- 12) **(Page 51)** 2.3 Existing Conditions Summary, once again the term "High Crash" locations is used when describing accidents (however minor they may be) could say High Crash **with minor to no injuries resulting** or dare I, use the word **many fender benders**.

RSG Response: Observation by local officials have been noted

- 13) **(Page 62)** top of page, there is no industrial uses planned for the Commons Development.

RSG Response: Correction has been made.

- 14) **(Page 67)** I as a member of this committee was never presented with the findings of the Western Corridor Transportation Management Plan, therefore I have reservations regarding incorporating these finding into our report, plan guide, whatever we call it.



RSG Response. Information from the WCTMP was used to described freight traffic and issues in the corridor and for some information on traffic volumes, We have not incorporated any recommendations from the WCTMP.

- 15) **(Page 75)** General Access Standards, Town not in favor of prohibiting an existing access to US 7, which would be the case with **Require the relocation, consolidation or elimination of non-conforming accesses upon development or redevelopment**, i.e. Alderman's Toyota

RSG Response: Recommendation has been removed

- 16) **(Page 75)** Same objection to suggested the Town **Limit parking to the side or rear of buildings**

RSG Response: Recommendation has been removed

- 17) **(Page 77)** Once again, the use of the term "strip development" is not acceptable, could be historical development pattern or you fill in the blank.

RSG Response: The term strip development has been replaced with "linear" development or "auto oriented linear commercial development"

- 18) **(Page 82) section 4.3.5.1 Biking**, The statement, "It is legal for cyclist to travel along state routes such as US 7 should also cite the fact that the City of Rutland prohibits the riding of bicycles for rider safety along various sections of South and North Main Street. Cyclists are required to ride on the sidewalk for their safety. South main Street is abuts our Study area.

RSG Response: The comment has been added. Susan Schreibman also noted that the City of Rutland did not have the authority to prohibit cyclists from riding on US 7. However US 7 is a Class 1 highway through this section, therefore the City does have the authority to limit use.

- 19) **(Page 75) Section 5.1.4.2** The Local 1% Option Tax is not an option for this project.

RSG Response: Correction has been made.

From: Mark Blucher

Sent: Friday, November 20, 2009 3:48 PM

To: Susan Schreibman

Subject: Route 7 Corridor Management Plan/Guide/Study/thbbt

Susan,

When making some updates for the final version ask RSG to update the section on the rail yard and the passenger rail service to what is currently in the mix. I know it may change before we can blink but we should at least be as current as possible.

RSG Response: The summary of rail facilities in the existing conditions section of the report references the WCTMP relative to potential changes to rail service



From: Susan Schreibman [mailto:Sschreibman@rutlandrpc.org]

Sent: Tuesday, December 08, 2009 10:08 AM

To: Joe Segale

Subject: Mayor's comments

Hi Joe,

The Mayor of Rutland would like to note in the Rt 7 CMP that new development is dependent upon city water and sewer service and there should not be an assumption that this will occur.

I think this comment could fit in on 4.1.3 -2030 Land Use Scenario Visualizations

.....The future sketches are conceptual in nature, and should be used to understand what could happen in these areas and the general scale, intensity and pattern of development. While they do attempt to consider elements such as wetlands and steep slopes, they would require City water and sewer services and there is no assumption that this will occur. They are not meant to be taken as final recommendations

RSG Response: The section has been edited to note that water and sewer service would be necessary to support the intensity of development indicated and that it should not be assumed to be available from the City of Rutland.

End of Written Comments

