

6.0 Findings, Conclusions, and Recommendations

This section presents the key findings, conclusions, and recommendations of the Chittenden County Regional Freight Study. The findings and conclusions are based on the analyses completed for each task. The recommendations have been developed in support of the findings and conclusions.

■ 6.1 Findings and Conclusions

The findings and conclusions are organized around five areas. These areas consist of the economy, the transportation infrastructure, freight flows, intermodal transportation, and institutional issues.

Economy

The Chittenden County economic trends are favorable compared to national and regional trends.

- Unemployment rates have continued to decline over the last decade, following the national trend. In addition, unemployment rates in Chittenden County are lower than both the Vermont and U.S. averages.
- Chittenden County's population grew by almost 10 percent between 1990 and 1999, which is about the same as the U.S., and faster than Vermont and the Northeast. The population is expected to continue growing by 69 percent by 2035.
- Manufacturing employment in Chittenden County as a percent of total employment has continued to decline but is higher than Vermont and the U.S. as a whole. Chittenden County has the highest density of manufacturing employment of all the counties in Vermont (17 percent in 1998).
- Chittenden County's average wage is lower than the New England average, but is almost \$5,000 higher than Vermont's average wage.

Based on these trends, Chittenden County is well positioned to maintain its position as a positive contributor to Vermont, and the regional, national, and international economy. This will be dependent to a certain degree on the ability of Chittenden County to maintain and improve the transportation infrastructure. This will be necessary to support continued economic prosperity and growth.

Transportation Infrastructure

The transportation infrastructure in Chittenden County has met the needs of the businesses based here, but not without creating some inefficiencies, additional costs to shippers and receivers, and restricted modal selection.

The highway infrastructure in Chittenden County is the most critical component of the overall transportation infrastructure. Trucks carry more than 90 percent of all freight by weight. Recent growth in the population and employment in the county has created a congested highway system. This is further complicated by what many consider to be an incomplete highway system. Specifically, the circumferential highway and the southern connector projects have never been completed. These two example projects would provide limited access highways in key corridors in Chittenden County. Other examples of problem areas include access to the airport and congestion in the Tafts Corner area. Chittenden County also is impacted by the highway infrastructure in the rest of Vermont.

Due to the rural character and mountainous topography of Vermont, the highway system does not provide trucks with efficient access to all parts of the state. Specifically, there are no east/west limited access highways. Industry representatives agree that there should be improvements to the existing east/west highway corridors in Vermont. These consist of U.S. 2 in the north, U.S. 4 in central Vermont, and VT 9 in the south. There is a related problem for the north/south corridor along the western border. This corridor consists of U.S. 7 and VT 22A. These highways pass through small community centers, have narrow segments, and steep inclines. VAOT has been working with local communities and industry stakeholders to balance the desire of businesses for better access to plants and markets with citizens concerns about diminishing quality of life resulting from noise and air pollution from increased truck traffic. In addition to in-state efforts, VAOT has been working with the states of Maine, New Hampshire, and New York to improve multi-state east/west corridors. Many of these routes connect with Chittenden County, such as U.S. 7, VT 22A, and U.S. 2, impacting access to Chittenden County.

The expanded truck network defined by the Legislature in 2000 improved the system by designating a statewide truck network on which vehicles with overall lengths less than 72 feet (including 53-foot tractor trailer combinations) can travel without permits. The only exception is the segment of U.S. 4 through Woodstock where a permit is required. Major successes for the business community included the elimination of permits for specific vehicles on the designated network and the opening of key highway segments, such as U.S. 4, to larger trucks. Another key issue for truck movements is the variations in local road postings. To access some areas a trucking company must acquire multiple permits, which can be an extremely time consuming and costly activity.

Chittenden County is served by two railroads, the Vermont Railway and the New England Central Railroad. These railroads connect Chittenden County with the surrounding region and North America. However, the rail system in Chittenden County and in Vermont has weight and clearance limits that impact its ability to function effectively in the regional, national, and North American rail system. The maximum weight limit for almost all of the Vermont system is 263,000 pounds per car, which is below the typical Class 1 operations of 286,000 pounds or above. This creates operational problems for interline traffic destined for or moving through Chittenden County and Vermont from

other railroads. In addition, there are no routes in the state that are double-stack cleared, with the exception of the short segment of track operated by the St. Lawrence and Atlantic in northeastern Vermont. There are no operational TOFC/COFC terminals in Chittenden County or Vermont, however, there are through train moves currently carrying trailers and containers on flat car. A double-stack cleared route could create a niche market for Vermont railroads, and increased weight limits could facilitate an increase in existing carload traffic.

Another factor impacting rail service in Chittenden County is the reduced number of direct rail sidings and the limited number of transload facilities. The railroads downsized their systems over the years in response to reduced traffic. In a time of limited capital, these sidings cannot realistically be put back. As a result, there is a demand today for a greater number of transload facilities for the transfer of bulk commodities between truck and rail. This is a market still served by the short lines in Vermont and represents an area the CCMPO and VAOT should consider in future investment decisions. These factors should be addressed and considered with any future work on the re-location of the Vermont Railway's Burlington yard.

The airport system in Chittenden County consists of Burlington International Airport. A limited amount of freight is moved into and out of Chittenden County by air. It represents 0.1 percent of the county's total by weight and more than 96 percent of the air cargo tonnage in Vermont. Burlington International Airport serves as a critical link in the overnight parcel and mail network; courier companies must transport their goods by air to ensure next day service as courier companies must transport their goods by air to ensure next day service. Some parts of the state do not have next day courier service as a result of no air service. Federal Express is looking to expand its operation in Burlington. Future use of the air service in Chittenden County will continue to be for niche markets like overnight service and some limited use by high-tech companies and companies shipping light, perishable products.

The water system in Chittenden County consists of ferry service across Lake Champlain. There are multiple locations where truck can access this service, although not all facilities accommodate trucks. This service exists to address the geographic barrier created by Lake Champlain. It provides carriers with the opportunity to take more direct routes for some corridors, although some industry representatives reported the service was cost prohibitive for trucks. The other component of the water system that needs to be recognized is the location of major ports in proximity to Chittenden County shippers and receivers. There are several ports that provide the county's shippers and receivers with service, including Montreal, Quebec, Halifax, Boston, and New York/New Jersey. Freight movements to/from each of these facilities involves a dray move by truck. West Coast ports can be accessed via intermodal rail for Pacific markets. This port infrastructure consists of multiple competing facilities and provides Chittenden County with good access to international markets.

Freight Flows

In 1997 there were about 5.8 million tons of freight moving into, out of, and within Chittenden County. About 91 percent of this tonnage moved by truck. Rail consisted of

about six percent. These two modes basically carry the freight into, out of, and within the county. While the county-level data do not provide an estimate of through moves, for Vermont as a whole, such movements are the single largest type of movement, representing 35 percent of all tons moved. This is characterized by moves to/from Quebec, New Hampshire, and Massachusetts. These origin/destination patterns suggest that much of this through traffic travels on I-89, moving through Chittenden County. Also, Chittenden County receives significantly more freight than it ships (4.0 versus 1.5 million tons annually). Within Vermont, Chittenden County is both the largest receiver and shipper of freight.

The commodity flow analysis was originally intended to include data gathered during the Canadian National (Truck) Roadside Survey (NRS) conducted during 1999 and 2000. The Vermont Agency of Transportation, as a member of the Eastern Border Transportation Coalition (EBTC), contributed funds to this effort to capture additional data specific to U.S./Canadian border crossings. This data was not available prior to the analysis and preparation of the freight flows completed as part of this study. However, it will be made available in the spring of 2001 and an addendum to the Vermont Statewide Freight Study will be prepared to summarize the cross-border data that impacts the Vermont transportation infrastructure. At this time, CCMPO may decide to review this additional data.

Intermodal Rail Transportation

The intermodal analysis completed for this study and the Vermont Statewide Freight Study was originally intended to explicitly explore the potential for developing traditional truck/rail terminals to serve TOFC/COFC markets. The data collected early in the project suggested that the effort should also address other truck/rail transfer services, such as transload facilities for the transfer of bulk commodities between truck and rail. This was an important component because, as described above, many direct rail sidings have been eliminated over the years resulting in the need for additional transload facilities. In addition, this could potentially represent a shorter-term improvement opportunity.

The existing TOFC/COFC service operating in Vermont consists of through trains, as there is no intermodal ramp located in Vermont. The Vermont Railway tested an intermodal service several years ago, but was unable to make it profitable. This is due to two key variables. First, Vermont does not have a single base load shipper. For any intermodal ramp, there needs to be a single customer providing the majority of loads required to make the service profitable. Second, Vermont is surrounded by several large, successful intermodal ramps that can be accessed with a relatively short dray by Vermont shippers/receivers. These consist of Albany, NY, Syracuse, NY, Palmer, MA, and Montreal. The major network of terminals located in Northern New Jersey also is accessible. Therefore, any terminal based in Vermont will need to compete with these established facilities. It is unlikely that a new ramp will be able to attract enough freight from the existing sites to be efficient.

The existing transload service operating in Vermont consists of a network of terminals and yards operated by the railroads serving Vermont. The service has grown in importance as

the rail system has been consolidated over the years, resulting in the elimination of rail spurs and direct rail sidings. This service is heavily marketed by the railroads today. Transload facilities provide shippers/receivers with access to rail transportation and storage capacities that otherwise would be unavailable. This enables a local business to purchase a rail car load of product at a lower price per unit, and it provides opportunities for several shippers/receivers to consolidate their freight to take advantage of the economies offered by rail. This translates into lower costs and reduced dependence on trucks.

Institutional Issues

Chittenden County is a region characterized by beautiful landscapes, quaint old towns and villages, and a quality of life that attracts many. This environment is not conducive for the development of large industrial operations or large trucks moving on substandard highways through small villages. However, in order for residents to earn a living and serve the tourism industry, it is necessary to have an adequate transportation system. These conflicting goals have been the center of conflicts between the public and private industry. CCMPO, along with VAOT and the Legislature has been left to mediate these conflicts and work to create a system that addresses the concerns of both groups. The practices of retention and attraction of businesses in and to Chittenden County are impacted by the desire throughout the state to maintain the quality of life while working to create a strong base of employment opportunities.

This Regional Freight Study is an important first step. It provides data and analyses that explain what is moving, how much is moving, why it is moving the way it is, and what can be done to facilitate future movements. The 2000 truck network created by the Legislature has already addressed some of industry's concerns. The key issues in Chittenden County focus around completion of the circumferential highway and the southern connector, as well as roadway geometries and congestion at sites such as Tafts Corner. Truck routes in general in the greater Burlington area are also of a concern to trucking companies and the citizens.

■ **6.2 Recommendations and Next Steps**

A series of recommendations and next steps have been developed to assist CCMPO in improving the freight transportation system in Chittenden County in the coming years. These recommendations and next steps address policy decisions, outreach activities, educational exercises, and development and use of new freight planning and modeling tools. The following recommendations and next steps have not been prioritized.

Recommendations

- **Continue monitoring the designated truck highway network in Vermont.** The existing truck highway network designated by the Legislature in 2000, is a very

positive advancement in the infrastructure, however, this will need to continuously be reviewed to match economic development, as well as citizen's concerns regarding safety, and noise and air pollution. CCMPO should take an active role in monitoring the effectiveness of this network and provide input to any future modifications.

- **Continue emphasizing key freight highway corridors in Chittenden County.** The issue of north/south routes on the western border of Vermont, as well as east/west highways in northern Vermont continue to be significant factors for efficient freight transportation into and out of Chittenden County. The CCMPO should continue to work towards a viable solution for these corridors, to ensure better access to Chittenden County and better access to markets south and east of Chittenden County.
- **Develop freight-specific projects.** Freight-specific projects should be developed, prioritized, and included in the CCMPO's Transportation Improvement Plan (TIP). This is the funding mechanism for transportation projects, so the inclusion of freight-specific projects will be critical for addressing improvements to meet the needs outlined in the report.
- **Use the methodology developed for prioritizing projects.** The methodology for evaluating freight transportation projects developed as part of this study and the Vermont Statewide Freight Study should be incorporated into the CCMPO's planning activities and existing evaluation tools. This will require buy-in and acceptance from CCMPO staff and other local stakeholders that freight transportation should be considered as a separate goal.
- **Investigate possible modal diversion analyses.** This study outlines the data needs and methodology for conducting modal diversion analyses. This material should be reviewed and CCMPO should consider possible applications of this approach.
- **Develop an outreach program that communicates the findings of this study to the general public to build consensus for freight system improvements.** It is critical to educate the public about the importance of freight transportation in Chittenden County. The goal of this outreach should be to educate the public as well as provide opportunities for comments with the ultimate objective being the building of consensus regarding freight planning initiatives and project development and implementation.
- **Participate in the prepare an action plan to develop double-stack cleared routes in Vermont, based on required improvements in Chittenden County.** The future of intermodal rail service in Vermont is directly related to the ability of Vermont to provide double-stack capabilities through the state. A critical element of this plan should be coordination with the surrounding states in the development of cleared routes serving the Northeast.

Next Steps

- **Develop action plan for development of an expanded intermodal network.** The CCMPO should work with the VAOT and the two railroads operating in Chittenden County to identify opportunities for improved rail/truck service. This would likely

include transload facilities in the short term. Regionally, this would likely include consideration of joint efforts with surrounding states and provinces regarding TOFC/COFC terminals. This is an important action for Chittenden County because it has the largest single market in Vermont. Questions to be addressed would be things like what can improvements to weight and clearance limits to Vermont's rail system do for the regional intermodal opportunities.

- **Incorporate the recommendations developed as part of other recent and ongoing studies.** The CCMPO and VAOT are undertaking or have recently undertaken studies that impact freight flows in Vermont. For example, CCMPO is in the process of conducting studies to evaluate access to the airport, and the development of a more elaborate land use analysis tool. It also is working on the circumferential highway project, and a commuter rail service. Each of these initiatives will impact the flow of freight directly or indirectly in Chittenden County. In addition, the VAOT is in the process of completing the Vermont Rail Capital Investment Policy Plan and the Long-Range Transportation Plan. The findings of these efforts should be incorporated into the ongoing freight planning activities.
- **Incorporate the Canadian National (Truck) Roadside Survey data.** This data will be incorporated as an addendum to the Vermont Statewide Freight Study. This subsequent analysis should be reviewed to identify any data relevant to Chittenden County.
- **Develop a stakeholders forum for industry representatives to provide input and expertise to freight projects.** Data collected from the industries in Chittenden County were a critical part of this study. An ongoing forum should be developed that provides CCMPO staff with access to the freight industry, as well as the industry representatives access to the transportation planning staff. This should also include involvement of the general public.