Appendix A

Literature Review

The following are summaries of the Vermont-related data sources and planning documents reviewed as part of this study.

1. Automatic Traffic Recorder Station History: 1975-1998. Prepared by the Vermont Agency of Transportation, Technical Services Division, Traffic Research Section. (April 1999).

   These tables contain Average Annual Daily Traffic (AADT) for each station counted by VAOT between 1975 and 1998, listed in town and route order. It should be noted that some sites are permanently monitored, while others are monitored periodically for several years at a time.

2. Truck Weight Study Based on 1995 Weigh-In-Motion Data. Prepared by the Vermont Agency of Transportation, Planning Division, Traffic Research Section. (1995).

   The report summarizes the copious quantities of data that Vermont's nine Weight-in-Motion stations produce. The data is for 1995, and does not include historical data to establish time trends. However, the results do point to interesting trends by roadway type and geographic location. Much of the report focuses on Equivalent Single Axle Loads (ESAL) which is of more concern to pavement design professionals, though it is also related to overweight violations and enforcement.

3. Truck Network Analysis: Vehicle Related Criteria. Prepared by VHB/Vanasse Hagen Brustlin, Inc. (1998).

   VHB's well-organized report presents suggested revisions to the criteria to use in commercial vehicle permitting. The recommendations utilize both a study of vehicle permitting in neighboring states, and analysis using a theoretical "envelope vehicle." Photos throughout the report document unsafe conditions currently found on Vermont's roads.

4. 1998 Permanent Traffic Recorder Stations (including Weigh-in-Motion sites). Prepared by the Vermont Agency of Transportation, Planning Division. (1998).

   This packet summarizes a year's sampling period at each on Vermont's permanent recorder stations (including the 8 Weigh-in-Motion Stations). The data is reported on a monthly basis, for each of 13 separate vehicle classes. Reported data includes: vehicle count, percent, recorded, warning count, percent warned, valid weight, TGW, average GVW, total ESAL, average ESAL, overweight, and percent overweight. The cover material includes a map of each station's location, as well as a list of recording stations with town and route location.

5. Origin – Destination & Goods Movement Truck Study (US Route 4). Prepared by the Vermont Agency of Transportation, Policy & Planning Division. (1998).

   This report summarizes two days of truck surveys on US 4 that were undertaken as a proof of concept for future statewide trucking surveys. The major finding of the trial is

that valuable information can be gathered in this manner without truckers revising their normal behavior to avoid being stopped. Summary statistics from the actual results are also presented, including a breakdown of major origins and destinations by state and town, commodities, and routes.

6. Freight Market Analysis of the Green Mountain Railroad Corridor: Final Report. Prepared by Main Line Management Services, Inc. (in association with Rail Trac Associates). (February 1999).

   This report details the findings of the consultant team regarding the potential growth of the market for rail-freight movement along the Rutland-Bellows Falls corridor. The findings are based on shipper surveys, meetings with railroad and local officials, review of existing literature, and assessment of current zoning. The study's major findings include:
   - Opportunities for growth of traffic are limited
   - Local restrictions and requirements impede rail-oriented development
   - Educational material is needed to help developers and the railroad negotiate the local requirements
   - Log traffic and Liquid Petroleum Gas (LPG) are two markets with potential to divert to rail from current highway based modes
   - Upgrading of the right-of-way to FRA class 2 or 3 standards would enable freight trains to operate at up to 25 MPH or 40 MPH respectively and passenger trains to operate at up to 30 MPH or 60 MPH respectively.
   - An opportunity exists for the corridor to act as a bridge between CN and CSX routes by integrating more fully with the Vermont Railway System.
   - The potential for rail express and intermodal service in conjunction with Amtrack's Ethan Allen Express or Vermonter service could greatly reduce the cost of providing passenger service in the corridor.

7. Five Year Rail Capital Development Plan Railway Clearance Survey: Task IVA, Phase II Report. Prepared by Costello Lomasney & deNapoli, Inc and Gordon, Bua & Read, Inc. (February 1997, revised August 1997).

   This legislatively mandated report represents only one phase of the process of determining obstructions to double-stack rail container movement throughout the state. In this phase, a list of possible obstructions was verified to ensure that only obstructions that actually violated the AAR plate H equipment envelope for double-stacked container cars, factoring in the necessary buffers and track geometry. The report also gives detailed accounts of each of these obstructions and determines a rough estimate of the cost to correct the obstruction. Finally, the report asserts that the Bellows Falls tunnel is the most immediate obstruction to double stack container movement, since it is both costly to correct, and located on Vermont's only regional main line.

8. Statewide Travel Demand Model Development: Roadside Origin-Destination Survey. Prepared by Vanasse Hagen Brustlin, Inc. (February 1995).

   This technical report outlines VHB's methodology for conducting their 1994 statewide cordon O-D study to better help Vermont planners determine the passenger and truck traffic moving into, out of, and through the state. The report details three aspects of the study: how sampling survey results were checked to ensure reliability and accurate coverage, the process of field data collection, and the costs of the sampling. The actual survey results, as well as analysis, is not included in this report.

9. Trucking in Vermont Report to the Legislature. Prepared by the Commercial Vehicle Enforcement and Safety (CVEST) Advisory and Enforcement Committees. (January 26, 1999).

   This document is an initial report of the findings of the two CVEST committees charged with statewide commercial vehicle planning. Included are a list of prioritized recommendations from each committee to improve the safety and consistency of commercial vehicle regulation. Discussion is devoted to Vermont's permitting criteria in comparison to other regional systems. Finally, the study advocates for a regional approach to CV planning.

10. Automatic Vehicle Classification Report. Prepared by the Vermont Agency of Transportation, Technical Services Division, Traffic Research Section. (April 1999).

    This document contains the latest (as of April 1999) truck traffic counts broken down by FHWA truck class for state routes ranging from interstate highways to local streets. Each of the samples has met consistency criteria, such as a minimum sampling period without holidays.

11. Vermont Airport Directory. Prepared by the Vermont Agency of Transportation. (1998).

    This booklet summarizes the location and services of the state's 17 public use airports and airfields.

12. Evaluation of Potential Sites for the Relocation of the Burlington and Rutland Railyards. Prepared by Vanasse Hagen Brustlin, Inc. (January 2000).

    This report presents seven alternative sites for both the Burlington and Rutland railyards. These fourteen sites are then evaluated with respect to development costs, railroad operations, wetland/flood impacts, and historic signifigance.

13. VGIS Handbook: Part 2 – Standards Section G: Road Centerline Spatial Data Interim Standard. Prepared by the Vermont Center for Geographic Information. (December 10, 1998).

    This technical standards document defines the standardized procedure for updating the official GIS coverage of roadway geometry for each town in Vermont. This is done to

track the most updated version, and to ensure consistent entry of data into the statewide model.

14. Transportation Improvement Program for Fiscal Years 2000-2002. Prepared by the Chittenden County Metropolitan Planning Organization. (Adopted July 28, 1999).

    This report is a summary of planned infrastructure improvements for fiscal years 2000 to 2002. It identifies individual projects, the purpose of the improvement, and the intended funding sources. The scope is limited to Chittenden County improvements.

15. Statewide Transportation Improvement Program (STIP) for Federal Fiscal Years 2000-2002. Prepared by the Vermont Agency of Transportation.

    This report discusses current transportation improvement projects across the state over the 2000 to 2002 planning horizon. The STIP classifies projects on a town-by-town basis, and identifies project funding requirements and sources.

16. Vermont State Rail Plan: 1986 Update. Prepared by the Vermont Agency of Transportation. (September, 1987).

    This statewide report describes the current rail lines operated within the state, including major commodities carried, volumes, and right-of-way geometry. The report then outlines proposed projects, abandonments, and other anticipated changes to the system. Particular attention is devoted to the crossing improvement program.

17. OMYA Quarry Material Alternative Transport Legislative Study: Volume 1 – Economic and Environmental Report. Prepared by R.L. Banks and Associates, Inc. (January 6, 1999).

    This study explores alternative methods of transporting marble from OMYA's marble quarry in Middlebury, VT to their processing plant in Florence, VT. The alternatives study is required because OMYA's anticipated production in the next several years would exceed the allowed truck volume if all shipment is done by the current method. This volume presents the alternatives studied, and evaluates the costs, traffic impacts, and environmental effects of each alternative.

18. OMYA Quarry Material Alternative Transport Legislative Study: Volume 2 – Appendices, Economic. Prepared by R.L. Banks and Associates, Inc. (January 6, 1999).

    This study explores alternative methods of transporting marble from OMYA's marble quarry in Middlebury, VT to their processing plant in Florence, VT. The alternatives study is required because OMYA's anticipated production in the next several years would exceed the allowed truck volume if all shipment is done by the current method. This appendix details the economic calculations used to derive the alternative project costs.

19. OMYA Quarry Material Alternative Transport Legislative Study: Volume 3 – Appendices, Environmental. Prepared by R.L. Banks and Associates, Inc. (January 6, 1999).

    This study explores alternative methods of transporting marble from OMYA's marble quarry in Middlebury, VT to their processing plant in Florence, VT. The alternatives study is required because OMYA's anticipated production in the next several years would exceed the allowed truck volume if all shipment is done by the current method. This Appendix examines the wetlands, archeological, and historic structure impacts of the proposed alternatives..