

CHAPTER 2 – METHODOLOGY AND COORDINATION

2.1 Demographics, Housing, and Economics

2.1.1 Regulatory Framework

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (42 U.S.C. § 4601) and implementing regulations (49 C.F.R. § 24) establish the procedures for the acquisition of real property for federally funded projects, including rules for the compensation of affected residents and businesses. In addition, Vermont law for property acquisition for highway projects requires compensation to affected property owners to be based on the “most reasonable use of the property or right in the property, and of the business on the property, and the direct and proximate decrease in the value of the remaining property or right in the property and the business on the property” (19 V.S.A § 501).

2.1.2 Data Collection and Methodology

A demographic and economic profile documents existing conditions and recent trends for several major socioeconomic variables. The profile provides context for considering the purpose and need for the project and understanding the relationship of the project to the major socioeconomic trends facing Chittenden County.

The profile summarizes the socioeconomic trends and characteristics of Williston, Essex, and Essex Junction. This profile of project area municipalities is then compared with the socioeconomic characteristics of the affected sub-areas – the communities and neighborhoods within these project area municipalities – that are most proximate to the alternative corridors. These sub-areas are synonymous with the study area for land use and socioeconomics. The study area for this analysis was defined as the census block groups located within one quarter-mile of the centerline of each alternative alignment and one half-mile around proposed interchanges. The following steps in data collection and analysis were followed in the preparation of the demographic, housing, and economic profile.

Regional Trends and Study Area Profiles

Utilizing GIS tools for analysis and mapping, Census block groups and blocks that fall within the designated boundaries of the Project Area have been identified. Socioeconomic data has been compiled and presented in tabular formats and mapped thematically to identify populations and affected communities along the corridor and at interchange and intersection locations. The demographic profile has been developed using several data sources including U.S. Census data, Census of Retail Trade, trends on employment from Vermont Department of Labor and U.S. Bureau of Economic Analysis Regional Economic Information System (REIS), ESRI Business Information Services/InfoUSA (private vendors of local area business statistics), Vermont Business Magazine survey data, and regional and municipal master plans and data sets. Sources are documented along with the data presented in Chapters 3 and 4.

The community profiles include: maps depicting physical boundaries of each study area divided into segments; a narrative text that describes such characteristics as population demographics, economic and social history; and tabular or graphical presentation of important data and trends. Distinct communities or neighborhoods within each study area have been identified on the basis of discussions with local planners, the use of maps that identify existing communities, the use of Census data and the presence of physical barriers. Specific types of data collected for the community profiles included:

- Population – Total, Race and Ethnicity, Hispanic Origin, Age, Educational Attainment, Linguistic Isolation
- Housing Stock – Median Housing Value, Median Contract Rent, Occupied and Vacancy
- Income – Median Household Income, Per Capita Income and Percent in Poverty
- Labor Force – Size, Participation Rate and Unemployment Rate
- Journey to Work – Mean Travel Time, Mode of Travel, Major Origins and Destinations
- Employment – Trends and Characteristics, Major Industries and Employers
- Commercial Space – Location of key commercial activity nodes, and trends in occupancy.

No Build Future Conditions

To develop an estimate of land use conditions and socioeconomic conditions in the future, the study team consulted each of the municipalities in the project area to identify planned and permitted developments. This evaluation involved review of Town development reports (Williston 2005 Growth Report, Essex Town and Village New Development Project maps), supplemented by reference to minutes of Planning Commission meetings and consultations with municipal planners. This exercise was carried out for all municipalities in Chittenden County for input into the Chittenden County Transportation Model and is documented in more detail in the *Indirect Effects and Cumulative Impacts Technical Report* (DEIS Appendix J). Known development projects identified in the study areas are documented in Chapter 4 of the *Land Use Technical Report* (DEIS Appendix K).

Vacant parcels within the study areas not currently the subject of development applications have also been identified and assessed for their potential to develop during the time horizon of this study (2030). This assessment of future land use change is documented in Chapter 4 of the *Land Use Technical Report* (DEIS Appendix K).

Forecasts of population, households, and employment for Chittenden County and the five other surrounding counties in Northwest Vermont region have been prepared for the indirect effects and cumulative impacts evaluation. The Land Use Allocation Module of the Chittenden County Transportation Model was used to allocate those forecast to local areas (Traffic Analysis Zones) and municipalities within Chittenden County. These forecasts and local allocations are used to estimate No Build Future Conditions for population, households, and employment in each of the study areas. The development of the forecast and the No Build local area allocations are documented in the *Indirect Effects and Cumulative Impacts Technical Report* (DEIS Appendix J).

Identification of Directly Affected Properties and Uses

Using right-of-way and preliminary design information developed for each of the Build Alternatives, the extent of private and public property acquisitions was estimated. Using GIS parcel mapping provided by the Chittenden County Regional Planning Commission (CCRPC) and Grand List tax records provided by each municipality, the number and land use classification of properties potentially to be acquired, or for which an easement would be required, was identified for each alternative. To the extent possible, the number of affected residential units (for residential properties) and businesses (for commercial and industrial properties) was also determined. In the case of tax-exempt property owned by public agencies or utility corporations, property details were sought directly from the respective agency, where needed. The existing uses of properties potentially to be acquired under various alternatives were field-verified, as necessary, to confirm the use and occupancy of residential properties,

and the nature of affected businesses, details of tenants, and whether the site is active or derelict.

As part of the full disclosure of the process of property acquisition, this technical report and the DEIS outlines the federal and state laws regarding right-of-way acquisitions and relocation. Direct effects of any anticipated displacements were evaluated as follows:

- *Affected Tenants and Owners* – The availability of suitable sites for relocation was evaluated through research of residential vacancy rates in nearby comparable neighborhoods, and current trends in local residential and commercial property markets. This information was gathered from real estate publications and listings, and through interviews with local real estate professionals.
- *Community Effects* – In order for a direct displacement to create a substantial adverse effect on the local community, the displaced residents or businesses must represent a defining element of the character of the area. This evaluation considered land use adjacent to acquired properties in order to determine the potential for the residential and commercial property acquisitions to disrupt the character, unity, and cohesiveness of an existing neighborhood (see Section 2.2. below).

Fiscal Impacts

Direct fiscal impacts were estimated by applying Fiscal Year 2007 tax rates for each jurisdiction to estimates of the value of land and improvements (building) to be acquired. The fair-market values for the property acquisitions for each alternative estimated by VTTrans Right-of-Way Section were adjusted to reflect their likely assessed value on each town's Grand List based on 2007 estimated Common Level Appraisal (CLA) ratios calculated by the Vermont Department of Taxes (a ratio reflecting the average assessed value to full fair market value in each municipality). Tax rates used in the estimation included municipal, local agreement and highway rates for all properties, and education tax rates for homestead (residential) and non-residential (commercial) properties. Town of Essex municipal taxes (general, capital, and local agreement taxes) were estimated for property acquisitions in the Village of Essex Junction. There are no anticipated right-of-way acquisitions in the Town of Essex outside the Village under any of the Build Alternatives. The estimated tax loss in each jurisdiction was compared to the annual tax revenues in each category to derive a percentage estimate of the overall tax base effects.

Effects of Alternatives on Neighborhoods and Demographics of Study Area

Potential effects in each study area attributable to the proposed Build Alternatives were assessed in terms of: likelihood of effect; scale, severity and extent of effect; duration of effect over time (e.g., permanent or temporary effects during construction); and reversibility. The following issues were evaluated:

- *Economic Patterns and Changes in Access* – This technical report documents the extent to which each Build Alternative has the potential to displace businesses as well as change the regional and local accessibility of businesses. Drawing upon the analysis of property acquisitions, this section characterizes and assesses the effects that displacements of businesses, if any, and changes in the accessibility of businesses may have upon community resources or neighborhoods. If a potentially displaced business fulfills a unique specialized function in a community, consideration is given to whether there are suitable alternative sites. This section also considers how the project may affect pedestrian and vehicular access to businesses.

- *Social Patterns* – The potential for the Build Alternatives to affect population patterns was considered. The analysis considers whether the Build Alternatives separate or set apart groups or disrupt community. This assessment also draws upon the analysis of property acquisitions with due consideration given to whether neighborhoods may be directly or indirectly affected by displacement and relocation, if any, of residents.
- *Safety and Environment* – Neighborhoods can be altered temporarily during construction or permanently by project-induced changes that alter the physical environment and influence community perception of the built environment. Drawing upon other technical analyses prepared for the Circ-Williston EIS and findings related to noise, visual resources, air quality, local circulation and pedestrian movements, the Build Alternatives were assessed for their potential to affect households, businesses, and community services during and after construction. The Build Alternatives were evaluated for potential to create barrier effects that may alter circulation, local accessibility or safety. The potential for changes to community from dust, noise, odor or traffic and parking were also addressed.

The potential for indirect land use, housing, or employment change through disruption or disturbance or through indirect development associated with the Build Alternatives is analyzed in the *Indirect Effects and Cumulative Impacts Technical Report* (DEIS Appendix J).

Regional Economic Impacts

The construction of the Build Alternatives would result in short-term economic benefits for the six-county Northwest Vermont region¹ in the form of material purchases from suppliers based in the region, construction payrolls, and related indirect and induced spending, or “multiplier effects.” These construction-related economic impacts would occur during the approximately three-year construction period anticipated should any one of the Build Alternatives be implemented.

An input-output model developed by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) was used to quantify the economic effects of the Build Alternatives. The model provides the basic methodology for the assessment of potential economic impacts, with modifications to produce multipliers specific to the region most likely to be affected by the Build Alternatives. Quantification of the effects of material purchases, during both the construction and the operational phases of the Build Alternatives involved the following steps:

- *Determination of Regional Impact Area* – Journey-to-work information from the 2000 Census Transportation Planning Package was analyzed to determine the geographic area from which labor is likely to be drawn. The data indicates that approximately 95 percent of workers in Chittenden County reside in the six-county Northwest Vermont region.
- *Estimates of Material Expenditures* - Projected material and labor expenditures were derived from preliminary engineering cost estimates developed for each of the Build Alternatives
- *Determination of Specific Goods and Services Required* - The particular goods and services needed for construction of the proposed roadway improvements were evaluated through analysis of “use” vectors – industries affected by spending for roadway and bridge construction throughout the United States as identified through surveys conducted by BEA. This is known as the “bill-of-goods” methodology recommended by BEA.

¹ Addison, Chittenden, Franklin, Grand Isle, Lamoille, and Washington counties.

- *Estimates of Local Purchases* - A location quotient analysis was conducted to project the degree to which materials were likely to be purchased in the local region. The location quotients are calculated to reflect the degree to which particular supplying industries are present within a given region.
- *Application of Multipliers to Evaluate Potential Project Impacts on the Regional Economy* - Output multipliers derived from the BEA input-output model were used to evaluate indirect and induced impacts on the local economy. These output multipliers indicate the total increase in sales that occurs in the local economy with each dollar of project expenditures, including respending of income derived by local businesses and individuals from direct project-related purchases. Similar employment multipliers are applied to analyze total job creation in the local area resulting from project-related direct expenditures.

Quantification of the effects of payroll-related impacts relied upon the following:

- *Estimates of the Payroll Expenditures* - These were based on typical Davis-Bacon wage rates for a federal road construction projects in Chittenden County, available from U.S. Department of Labor. Estimates reflect current wage rates as Davis-Bacon rates are revised periodically and may be different when construction commences.
- *Adjustments for Fringe Benefits, Taxes and Other Payroll Deductions* - Average fringe benefits for road construction workers in the project area were determined by using Davis-Bacon wage rates for construction trades.
- *Adjustment for Employment of Non-Local Labor* – The spending potential of workers residing outside the region (see discussion of journey-to-work patterns in setting the Regional Impact Area) were deducted from the evaluation to reflect the likelihood that it will not be respent within the region.
- *Application of an Appropriate Multiplier to Determine Total Impacts on the Local Economy* - As discussed, multipliers applied to this aspect of the analysis are derived from the BEA Input-Output accounts, modified to generate regional multipliers relevant to Northwest Vermont.

The following assumptions were made in determining the economic impacts of the Build Alternative's construction budgets:

- The construction budget estimates do not include right-of-way property acquisition costs which would not be expected to result in net economic benefits to the region.
- A labor-to-materials expenditure ratio of 40/60; i.e., 40 percent of the total project/construction budget is assumed to be expended on labor and 60 percent on materials, based U.S. Bureau of Economic Analysis statistics on highway construction.²

According to the U.S. Department of Labor, Wage and Hour Division, prevailing wage rates for construction workers for federally-funded projects within Chittenden County average approximately \$38,300 per year.³ This figure includes benefits and assumes a 40-hour work week as well as 48 weeks of annual employment.

² U.S. Bureau of Economic Analysis, *1997 Benchmark Input-Output Accounts*, Industry Code: 230230: Highway, street, bridge, and tunnel construction.

³ Davis-Bacon Wage Determinations, Wage and Hour Division of the U.S. Department of Labor

Identify Means to Avoid or Reduce Effects on Communities

Potential measures to avoid or reduce any adverse effects are presented as appropriate. These include avoidance (e.g., change facility layout or alignment to avoid displacements or improve access); minimization (e.g., minimize the potential for the siting of facilities to encourage incompatible land use development, phase construction to minimize impedance to business access during peak shopping periods); mitigation (e.g., set aside land for a park or add to public recreation areas to replace lost facilities); and enhancement (e.g., provide signage or landscaping for specific community resources).

2.1.3 Agency Consultation and Coordination

As noted in Section 2.1.2, the evaluation of environmental justice impacts was based in part on local data on land use and housing available from the Town of Williston, Town of Essex, Village of Essex Junction and the CCRPC. During scoping, interviews were conducted with the Select Boards and key municipal staff to identify issues of importance and key data sources. Municipal planning staff were consulted during the course of the analysis, as necessary. In addition, the CCRPC was represented at Circ-Williston EIS agency coordination meetings.

2.2 Community Character and Neighborhood Cohesion

The FHWA guidebook: *Community Impact Assessment: A Quick Reference for Transportation* (1996) defines community as follows:

Community is defined in part by behavior patterns which individuals or groups of individuals hold in common. These behavior patterns are expressed through daily social interactions, the use of local facilities, participation in local organizations, and involvement in activities that satisfy the population's economic and social needs. A community is also defined by shared perceptions or attitudes, typically expressed through individuals' identification with, commitment to, and attitude towards a particular identifiable area. In addition, there are other concepts of community which are not based on spatial relationships. Communities may be based on a common characteristic or interest, such as religion, ethnicity, income strata, or concern for the economic viability of a region, which provides a psychological unity among members.

Community impact assessment is a process to evaluate the effects of a transportation action on a community and its quality of life. FHWA guidance indicates that the assessment should include all items of importance to people, such as mobility, safety, employment effects, relocation, isolation, and other community issues. The community character section of this technical report summarizes socioeconomic and land use affects and evaluates the extent to which those effects may alter the character of communities or their cohesiveness.

2.2.1 Data Collection and Methodology

Evaluating neighborhood cohesion involved three tasks: identifying residential neighborhoods within the project area; profiling the characteristics of each neighborhood through available data sources (i.e., U.S. Census block group data); and assessing the level of neighborhood cohesion within those neighborhoods. These tasks draw heavily on analysis conducted for demographic, housing and economics (see Section 2.1.2) and environmental justice (see Section 2.3.2).

Classification of a residential area as a neighborhood is based on patterns of development characterized by predominant housing types, and the physical configuration of housing into subdivisions. Profiling the demographic characteristics of the neighborhoods involved analyzing percentage of minority persons within the neighborhoods, percent poverty, range of incomes,

dominant land uses, and predominant community facilities. The level of cohesion within a neighborhood is exhibited by age of the neighborhood and its housing stock; the level of involvement of residents and businesses in local political issues; and the extent to which residents and businesses have organized to address common concerns. Data gathered from regional and municipal plans, and public involvement was supplemented by consultations, as necessary with municipal planning officials and neighborhood associations.

2.2.2 Agency Consultation and Coordination

As noted in Section 2.2.2, the evaluation of community character and cohesion was based in part on local data on land use and housing available from the Town of Williston, Town of Essex, Village of Essex Junction and the CCRPC. During scoping, interviews were conducted with the Select Boards and key municipal staff to identify issues of importance and key data sources. Interviews were also conducted with key community groups and neighborhood associations. Municipal planning staff were consulted during the course of the analysis, as necessary. In addition, the CCRPC was represented at Circ-Williston EIS agency coordination meetings.

2.3 Environmental Justice

U.S. Department of Transportation (U.S. DOT) guidance notes that effective transportation decision-making depends upon “understanding and properly addressing the unique needs of different socioeconomic groups.”⁴ The agency considers evaluation of environmental justice as part of a comprehensive, inclusive approach to consideration of the human environment and nondiscrimination in transportation decision-making.

In its guidance on environmental justice, U.S. DOT notes three fundamental principles:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

This section summarizes the key regulatory considerations in environmental justice, data sources and methods, and coordination.

2.3.1 Regulatory Framework

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994, directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

To address Executive Order 12898, U.S. DOT *Order to Address Environmental Justice in Minority Populations and Low-Income Population* and FHWA Order 6640.23 *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* require a determination on whether proposed projects would have disproportionately high and adverse

⁴ U.S. DOT, *An Overview of Transportation and Environmental Justice*, 2000, Publication No. FHWA-EP-00-013.

effects on minority and low-income populations. “Disproportionately high and adverse effects” are adverse effects predominantly borne by a minority or low-income population or suffered by the minority or low-income population and would be appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the non-minority or non-low-income population.

For purposes of environmental justice, the DOT and FHWA orders define “minority populations” as those persons identifying as: Hispanic or Latino, Black or African-American, American Indian and Alaskan Native, Asian, and Native Hawaiian and other Pacific Islander. “Low-income” is defined as persons with household income at or below the federally-defined poverty threshold

Although no specific regulations for addressing environmental justice in NEPA documents currently exist, several forms of guidance are available. The U.S. Council on Environmental Quality’s *CEQ Environmental Justice Guidance Under the National Environmental Policy Act* (1998) defines “disproportionately high” effects as those that: 1) affect a population that is more than 50 percent minority and/or low-income; or 2) affect a minority and/or low-income population that represents a proportion “meaningfully greater” than the average minority and/or low-income population for an appropriate geographic reference area.

In addition to the DOT Order, some guidance is provided in the FHWA/FTA joint website on environmental justice (www.fhwa.dot.gov/environment/ej2.htm), which includes a series of questions and answers about environmental justice, some of which specifically relate to its relationship with the NEPA process. The website also provides links with other sources of information related to environmental justice.

2.3.2 Data Collection and Methodology

Addressing environmental justice in NEPA documents entails procedural considerations as well as technical considerations. Procedural considerations primarily involve reaching out to ensure that minority and low-income populations are effectively engaged in public involvement processes. Public meetings related to the EIS process were held in three locations to encourage attendance: one meeting in the core area comprising the cities of Burlington, South Burlington and Winooski; one meeting in the Circ-Williston Project Area; and one meeting at an outer-tier community such as Hinesburg, Richmond or Jericho/Underhill. Public outreach activities are summarized in Chapter 22 of the DEIS. The following section describes the technical analyses performed to address environmental justice.

Identification of Minority and Low-Income Populations

Those communities and neighborhoods with a meaningfully greater population of minority and low-income residents are identified through use of 2000 U.S Census block (race) and block group (income) data. The study area for this analysis was defined as the census block groups located within one quarter-mile of the centerline of each alternative corridor, and one half-mile around proposed interchanges. In locations where census geographic units were too large to identify small areas of minority or low-income population concentration, information gathered through the public involvement program and/or discussions with local planners supplements the census data analyses. The relationship of the minority populations and low-income populations to the overall population distribution and characteristics of the study area was defined.

Assessment of Impacts and Benefits to Minority and Low-Income Populations

The environmental impacts of each Build Alternative, as identified through the analyses performed for other sections of the EIS such as land use, zoning and public policy; communities, neighborhoods and people; land acquisition and displacement; secondary and cumulative effects; air quality; noise; water resources; visual resources; traffic and transit

access; and cultural resources were reviewed to determine whether these impacts are adverse, and if so, if these impacts meet a “high and adverse” threshold.

For any environmental subject areas in which such impacts could be characterized as high and adverse, the alternatives were reviewed for their relationship to any minority and low-income communities and neighborhoods. The effects of each of the project alternatives on minority and low-income populations were assessed to identify whether disproportionately high and adverse effects and/or a denial, reduction or delay of benefits would be predominantly borne by the subject populations. For environmental justice, the central question concerns whether these impacts are appreciably more severe and are greater in magnitude than the adverse impacts on non-minority and/or non-low-income populations.

2.3.3 Agency Consultation and Coordination

As noted in Section 2.3.2, the evaluation of environmental justice impacts was based in part on local data available from the Town of Williston, Town of Essex, Village of Essex Junction and the CCRPC. During scoping, interviews were conducted with the Select Boards and key municipal staff to identify issues of importance and key data sources. Municipal planning staff were consulted during the course of the analysis, as necessary. In addition, the CCRPC was represented at Circ-Williston EIS agency coordination meetings.