Rutland Regional Planning Commission, Vermont

Route 22A Corridor Study

Final Report

Submitted by:

Broadreach Planning & Design

In conjunction with

Stantec Consulting Services, Inc.

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I. INTRODUCTION

A. OVERVIEW

The Rutland Regional Planning Commission (RRPC), in conjunction with Vermont Agency of Transportation (VTrans) and the Addison County Regional Planning Commission, undertook the study of the Route 22A Corridor to plan for its future. RRPC created a Corridor Technical Advisory Committee (CTAC) consisting of representatives of the two regional planning commissions, the Rutland Regional Transportation Council, VTrans, and the four towns associated with the Vermont Route 22A Corridor Study Area: Orwell, Benson, West Haven and Fair Haven. To assist the actual work of much of the study, the RRPC contracted with Broadreach Planning & Design and Stantec Consulting Services, the Study Team.

Vermont Route 22A (Route 22A) runs north south along the western side of the State of Vermont starting in Ferrisburgh on its northern end. It heads roughly straight south until it crosses into New York State at the southern limits of Fair Haven. The Study Area for this project extends from the Route 22A intersection with Vermont Route 73 (Route 73) in Orwell as the northern terminus and ends in the south at the New York State line, covering the southern 17 miles of Route 22A. The Study Area extends east west approximately one-half mile on either side of Route 22A, but extends farther as appropriate to include the influences of Vermont Route 30 (Route 30) and US Route 7 (Route 7) and other nearby north south routes.

Figure 1 shows the general location of Route 22A within western Vermont and **Figures 2A** and **2B** show the limits of the Study Area.

During the course of the Route 22A Corridor Study, the Study Team and the CTAC have:

- Examined current crash data and other safety conditions,
- Reviewed existing and potential future land uses,
- Looked at future development potential,
- Considered the influences of environmental and cultural resources,
- Developed and analyzed a large set of potential alternative recommendations,
- Met with the residents of each of the communities several times to get their input,
- Prepared a final list of recommendations, and
- Finalized a plan to guide how the Route 22A corridor will look, feel and perform into the future.

The goal of the study has been to develop a plan that guides where and what types of land use and roadway improvements should be considered now and in the next twenty years to address the road functions and existing issues. The plan also makes additional

recommendations on how the overall scenic rural character of Route 22A can be maintained into the future without sacrificing mobility for local communities or the region.

B. REPORT ORGANIZATION

After this introduction, the Final Report is divided into six additional sections:

II. Existing & Future Conditions,
III. Issues Assessment,
IV. Vision & Goals,
V. Recommendations,
VI. Implementation, and
VII. Performance Measures.

The report is formatted for double-sided printing; blank pages are intentional.

C. STUDY PROCESS

The development of this study has followed the outline presented in the *Vermont Corridor Management Handbook*. The Study Team thoroughly examined the existing conditions in the corridor, summarizing the information in the *Task 2 Summary: Existing Conditions*. The Rutland Regional Planning Commission assisted with the examination and projection of future conditions, which the Study Team summarized in the *Task 4 Summary: Future Corridor Conditions & Performance*. Following the completion of that work, the Study Team met individually with each of the communities to hear their concerns and suggestions for the corridor. With this information and valuable input from the CTAC, they developed an extensive list of potential alternative recommendations for the future of the corridor, which they refined to a final draft list of recommendations after analysis and a second round of consultations with each of the communities. Again with CTAC input, the Study Team developed a final set of recommendations and an accompanying report which they finalized after a last joint public discussion with the local communities. **Appendix H** includes more information on the development of the project.

D. BACKGROUND INFORMATION

Sixty years ago, Route 22A was a mix of hard surface and dirt. According to a description of the road in *Vermont: A Guide to the Green Mountain State* published in 1937, the dirt was predominant. It went on to indicate, "In spring the unimproved stretches are apt to be quite muddy, owing to their clay construction." This clay construction appears to have been used as the foundation of the current road, based on the on-going settling and spreading problems caused by heavier and heavier trucks using the road. **Appendix A** includes a copy of the complete description of a tour down what was then identified as State Route 30A, from Vergennes to the junction with Route 4 in Fair Haven. **Appendix B** includes photos of current conditions along the roadway as well as earlier photos of crashes that have occurred on Route 22A.

II. EXISTING & FUTURE CONDITIONS

VTrans classifies Route 22A as a Minor Arterial. This is based on the function of the roadway and compares to Route 7, which is classified as a principal arterial and Route 30 which is classified as a major collector.

The Study Team examined the existing conditions of the Study Corridor, during one of the first tasks they undertook as they began the project, to understand and assess the current transportation and land use issues. In particular, the project team looked at:

- Right-of-way and roadway widths,
- Pavement and intersection conditions,
- Current traffic volumes,
- Crash data,
- Bicycle routes and bicycle use,
- Utility locations,
- Driveway and farm access points,
- Historic properties and districts,
- Streams and wetlands,
- General vegetative cover,
- Wildlife crossings,
- Existing land uses,
- Long distance views,
- Other special features of the corridor,
- Other studies and reports relevant to the Route 22A corridor, and
- Existing planning and zoning documents covering the study area.

Appendix C contains a copy of the *Task 2 Summary: Existing Conditions* which the Study Team prepared at the conclusion of the examination of existing conditions. It includes a more complete description of the existing conditions in the study area. The Study Team also looked closely at the location and cause of recent crashes along the corridor to determine if modifications to the road, the surrounding areas or management practices could reduce the chances for future crashes. **Appendix D** contains the detailed information and analysis of the recent crashes on Route 22A in the study area. The relevant results of the crash analysis are presented in **Section III Issues Assessment**. **Figures 3A** and **3B** provide a visual representation of the most relevant existing conditions information. The additional figures in **Appendix C** provide more detailed existing conditions information.

The existing conditions information provided a basis for projecting traffic volumes and land uses into the future so that the potential conditions of the corridor 20 years from now could be considered in this planning process. **Appendix E** contains a copy of the *Task 4 Summary: Future Corridor Conditions & Performance* that includes the complete future projections work and

more detailed information on future conditions, traffic projections and land use build out projections, including graphic representations.

III ISSUES ASSESSMENT

A. OVERVIEW

Based on the existing conditions and the future projections as well as the comments received from the four communities, the project team in conjunction with the CTAC developed an overall list of problems and issues that should be addressed by the recommendations that are part of this plan. The issues focus on the overall roadway, the intersections, the traffic conditions and other aspects of the Route 22A corridor. **Figures 4A** and **4B** highlight the location of several of these issues.

B. CORRIDOR-WIDE TRANSPORTATION ISSUES & OPPORTUNITIES

Several issues and opportunities identified in the analysis process apply to specific locations while others apply to the entire Route 22A corridor within the study area. The following list highlights the corridor-wide transportation issues and opportunities. Subsequent sections highlight issues and opportunities for other aspects of the corridor.

- There is a lack of consistent shoulder and lane width along the corridor. Much of the corridor does not meet current state standards for lane and shoulder widths.

- Travelers on the Route 22A corridor have noted during public work sessions and on an informal user survey distributed for this project that they perceive the road as unsafe; statistics appear to support this perception. There are three High Crash Locations within the 17-mile roadway corridor, with numerous other intersections and roadway segments of 0.3 miles experiencing four or more crashes within a 6-year period.

- Travel speeds are typically much higher than the posted speed limits.

- Truck volume percentages are higher than most roadways in Vermont.

- High-speed truck traffic along Route 22A creates difficult tractor crossing conditions for farmers.

- There are several locations along the corridor where the steeper grades prompt consideration of the addition of passing lanes. The additional passing lanes could reduce the passing of motor vehicles in "no passing zones along the roadway by providing acceptable locations to overtake slower vehicles without needing to move into the opposing lane to do so. Passing lanes may, however, increase the speed on the corridor in general. Orwell in particular includes two roadway segments where the grade is nearly seven percent or more and may be candidates for truck climbing

lanes. When considered, the driveways and roads should be recognized as locations where turning movements will occur.

- The base of the roadway likely sits on clay soils. In fill sections, this results in lateral spread of the base and in turn road surface cracking and failure. This condition worsens with the loading of heavy trucks using the road. There are numerous locations along the roadway where multiple patchings and resurfacings have been required along the outer edges of the roadway to remedy the loss of the edge of the pavement. The patching has resulted in an uneven, rough road surface.

- There are several curves along the roadway where advance warning and advisory speeds are ineffectively located, omitted or inappropriate, as the recommended speed reduction is unachievable considering the travel speeds and the distance between the warning signs and the actual curve.

- Repeated incidence of single vehicle and rear end crashes at driveway locations appears to be due to high speeds and marginally adequate sight distances. When approaching driveways at the roadway travel speed, drivers appear to be unable to react and reduce speed sufficient to comfortably turn into the driveway and drivers following turning vehicles are too often unable to react with sufficient braking to avoid rear end collisions.

- Road name signs are difficult to read from a distance.

- There are few park and ride locations throughout the corridor.

- Winter maintenance of the roadway is reported to be poor by local residents.

- Enforcement of existing speeding and passing laws are reported to be minimal by local residents.

- Bicycle travel is risky on the northern portion of Route 22A that have minimal paved shoulders, including the section between Route 73 and Cook Road in Orwell that is part of the Lake Champlain Bikeway.

C. CORRIDOR-WIDE RESOURCE ISSUES & OPPORTUNITIES

- There are numerous locations along Route 22A where the long distance views are exceptional and aesthetically pleasing and are considered a valued resource by the communities.

- The wetland and wildlife areas close to Route 22A present limitations on what may be readily done to widen shoulders, create turning lanes, or otherwise modify the existing cross section of the roadway; the possible impacts to the resources will need to be carefully considered when developing and prioritizing recommendations.

- Significant wildlife corridors cross Route 22A; these wildlife corridors can be examined in more detail to understand what types of wildlife are using the corridors and how it may be possible to provide a less hazardous way of moving them across the roadway.

- The reforestation along the west side of Route 22A in West Haven will most likely increase wildlife activity and crossings between the new forests on the west and the ridges on the east side of the road.

D. INTERSECTIONS

1. SIGHT DISTANCE

There are several intersections that have sight distance or speed related issues.

- Route 73, where the grade of Route 22A rises to the intersection from the north, the view of oncoming traffic is obscured from drivers approaching Route 22A from the east or west of Route 73.

- Mutton Square Road and Cook Road, where the grade of Route 22A rises to the intersection from the north and acutely obscures oncoming traffic from the view of most vehicles approaching Route 22A from either side road approach.

- Route 144, where drivers entering Route 22A have difficulty judging how much time they have to enter due to the high speed of vehicles coming down the hill south of the intersection; drivers headed north on Route 22A turning right on Route 144 also have a difficult time making the turn due to high speed and vehicles following close behind. (At the posted speed limit, there is adequate sight distance for the intersection.)

- Lake Road, where there is a higher than normal crash rate and traffic entering Route 22A has a hard time judging how much time they have to enter due to the high speed of vehicles coming down the hill to the north of the intersection; traffic headed south on Route 22A turning right onto Lake Road also has a difficult time making the turn due to high speed of vehicles following close behind that make it difficult to slow enough to comfortably make the turn at the intersection. The intersection angle of Lake Road and Route 22A is also acute for drivers making this turn coming from the north on Route 22A. (At the posted speed limit, there is adequate sight distance for the intersection.)

- East Road, where the tight angle of the intersection can make it difficult to see vehicles coming from the north if drivers do not align themselves at close to a 90 degree angle with Route 22A when they stop at the intersection.

- Devil's Bowl Speedway northern access drive, where the rise on Route 22A to the north limits sight distance.

- Main Road in West Haven, where the Route 22A intersection is relatively busy because it connects to Stage Road, used by many as an alternate route between Benson and West Haven; Route 22A has a 39-foot pavement width at this intersection with seven and one half-foot shoulders on each side of the travel lane, which induces the common practice of motorists using the northbound shoulder to pass left turning vehicles with a minimal reduction of speed.

- North Park Place, where the vehicles parked along the north side of the Village Green limit sight distances and create potential pedestrian crossing conflicts at the North Park Place intersection with Caernarvon Street and Route 22A.

- North Main Street (Route 4A), where the acute angle of the Route 22A intersection impedes vision for drivers traveling south on Route 22A, who are required to YIELD to the vehicles headed south on North Main Street.

- Route 4A southern intersection of Route 22A, where eastbound traffic on Route 4A has very limited sight distance to the south on Route 22A due to the acute angle of the intersection and the uphill view of Route 22A toward the railroad directly south of the intersection.

2. LEFT TURN LANES

Left turn lanes are not warranted now but <u>will</u> be warranted on Route 22A by the year 2030, based on projected traffic growth, at:

- The southbound approach to the Route 73 intersection in Orwell,
- The northbound approach to the Lake Road intersection in Benson, and
- The northbound approach to the Main Road intersection in West Haven.

E. <u>OTHER TRAFFIC ISSUES</u>

- In Orwell, the Route 73 intersection is on the list of High Crash Locations (HCL). Speed is likely a contributing factor despite the presence of an intersection warning beacon over the roadway.

- Just north of the Orwell/Benson town boundary there is another HCL. Two head-on crashes and five single-vehicle crashes have resulted in personal injuries on this roadway segment with a sharp curve.

- The roadway width through Orwell, inclusive of paved and unpaved shoulders, is consistently the narrowest on the corridor at 26 feet in some sections but more

typically 28 feet; the roadway is similarly narrow in Benson and the northern portions of West Haven.

- There are eight roadway segments in Benson that experienced four or more crashes over the 2004 -2009 period; of these sections, the segment located between Lake Road and Route 144 is an HCL with eight crashes. Pavement settlement along the edges of the road where the shoulder is narrow and a drainage ditch lining the road may contribute to the single vehicle crashes.

- Two roadway segments in West Haven experienced four crashes over the six-year period. One of these is the segment including the termination of the truck-climbing lane.

- In Fair Haven, crashes typically involve lower speeds and as a likely consequence result in fewer injuries. The alignment of Route 22A through the downtown, which includes several intersections with acute angles, likely contributes to driver confusion.

- Overhead light fixtures that illuminate some intersections are mounted on existing utility poles that are sometimes not directly at the intersection, rather than being mounted on poles located to effectively illuminate the entire intersection.

- There is a drop sometimes of several inches between the edge of the pavement and the adjacent gravel shoulder (where such a shoulder exists).

- The downtown pedestrian crossing provisions are not always easily perceived by either pedestrians or motorists and need modifications or reinforcing measures.

- The limited signage at the northern and southern intersection of Route 22A and Route 4A on the direction of Route 22A creates confusion at the intersection for travelers southbound and northbound on Route 22A.

- The railroad that crosses Route 22A at the top of the hill in Fair Haven is a problem; both sight distances on the railroad and the roadway approach grade to the railroad are issues.

- The recently applied pavement markings on Route 22A in the Fair Haven town center are confusing to some drivers.

- The width of Route 22A between the Route 4 interchange and the Fair Haven Town Green is very wide for a two-lane roadway and it is often used as a four-lane roadway by motorists.

- The two-lane roadway capacity analysis for several sections on Route 22A shows that both current and future projected levels of service are at D or E south of Route 73 in

Orwell, north of Lake Road in Benson, north of Main Road in West Haven and north of the New York border in Fair Haven.

- Stage Road is used instead of Route 22A as an alternate means of traveling between Benson village and West Haven.

- The Orwell Town Plan calls for the speed limit on Route 22A to be reduced, at least in their Neighborhood Commercial District near the intersection with Route 73.

- The Benson Town Plan encourages the preservation of roadside trees and the planting of new roadside trees and vegetation, as well as the elimination of dead roadside trees and other vegetative obstruction.

- The remains of a former sidewalk system, which may be worthy of reinstating, exist south of the railroad crossing in Fair Haven.

F. CORRIDOR LAND USE ISSUES & OPPORTUNITIES

- The existing zoning within the towns appears to protect most portions of the corridor from inappropriate development. There are only a few areas where the zoning appears to be in conflict with either the existing resources or the stated goals of the Towns. In particular, the land in the northeast corner of Route 22A/Route 4 interchange appears to spread commercial development away from the town center, especially since the area closest to the interchange in this area will most likely never be developed due to the wetlands in this location. Route 4 currently appears to be the northern limit of the town center area and this clear line between town center and rural land uses may be appropriate to reinforce with zoning districts. This issue could be refined with additional discussions with the town to make sure that they have considered the potential increase in traffic and access drives on Route 22A and how this could affect the overall performance of the roadway.

- Some of the existing uses allowed in the rural and agricultural zoning districts in all four towns may not be appropriate for the corridor, due to the potential traffic that they may generate or the number of access points to Route 22A that might be needed.

- Improved access management techniques are also appropriate to improve the overall safety and traffic flow on Route 22A to maintain or improve existing levels of service or limit increases to driveway conflicts.

IV. VISION & GOALS

A. THE CORRIDOR VISION

To develop an overall vision for the future of the Route 22A Corridor, the Broadreach Planning & Design Study Team (BRPD) conducted individual public work sessions in each of the towns to discuss what the residents and officials envisioned for the future. The discussions covered several aspects of the corridor, with the residents providing input on what they thought the Corridor future should be relative to:

- Commercial Areas,
- Historic Properties,
- Wildlife Crossings,
- Bicycle and Pedestrian Use,
- Views and Visual Character,
- Safety,
- Traffic and Truck Volumes,
- Economic Development,
- Farm Access, and
- Other Issues or Problems.

From the work sessions, four very similar visions emerged for the corridor. BRPD merged the four individual visions into one shared vision for the entire Route 22A corridor from Orwell to the New York State Line. Each of the communities reviewed and endorsed the vision:

> Vermont Route 22A between Vermont Route 73 and the New York State line is the most important transportation link for the communities through which it passes. The system is enhanced fully so it is a stable roadway that meets safety standards for travel lanes and shoulder widths; provides local and regional access to residents, students, farms, and businesses in the corridor; offers mobility for regional travelers and freight haulers that is balanced between the other regional north south routes; and adequately supports the local municipal land use visions of a major route through rural agriculture and residential land. Route 22A is adequately maintained year round; well integrated into the environment; and effectively protected by sufficient police presence.

B. ADDITIONAL VIEWPOINTS

During the process of working with the individual towns to develop this shared vision, several local issues emerged that were not shared by all of the communities. Some of these issues, while not common to all of the communities, are still worth keeping in mind as the implementation of the plan proceeds. These issues or comments were not incorporated into the final shared vision because the four communities did not mutually accept them. It is

important to record them as part of the process of developing the Route 22A Corridor Study. The most important include:

- The overall number of trucks on the road should be reduced;
- There are surges of traffic on Friday and Sunday evenings;
- Parking along the roadway is critically important in Fair Haven; and
- The Route 22A Corridor should not be designated as a Byway.

C. GOALS FOR THE FUTURE

From the vision, several goals for the Route 22A corridor emerge, relating to:

- The physical character of the roadway itself,
- The mobility it provides to all users,
- The interaction with land uses, and
- The overall safety of the corridor.

From these issues, BRPD developed a set of goals for the corridor endorsed by the communities.

Goal 1: Upgrade the roadway and shoulders so that the entire length has an adequate base and meets or exceeds current State of Vermont Standards along its entire length by 2022.

Goal 2: Maintain an adequate Level of Service at intersections.

Goal 3: Reduce the number of crashes along the corridor to below the State average for similar roadways by 2022.

Goal 4: Provide safe and secure mobility for trucks, automobiles and bicyclists accessing both local and distant destinations.

Goal 5: Promote local economic development by encouraging both tourists and through travelers alike to stop and enjoy the visual and historic character of the adjacent and nearby land uses.

Goal 6: Accommodate safe wildlife migrations across the highway without creating problems for the wildlife and the vehicles on the corridor.

Goal 7: Mitigate the degradation of surface water quality due to storm water runoff from existing or future conditions on Route 22A.

D. OBJECTIVES

From these goals, the BRPD and the communities developed a set of objectives for the corridor that will help achieve the overall corridor vision.

Objective 1: Provide at least four feet of paved shoulder and three feet of unpaved shoulder along the entire length of Route 22A.

Objective 2: Secure funding for reconstruction projects through the Rutland and Addison Regional Planning Commissions at the rate of at least one every three years.

Objective 3: Monitor intersections regularly for turning lanes warrants and improve those that meet them. Consider same when development proposals are reviewed.

Objective 4: Increase the presence of State Police patrols on all portions of the roadway.

Objective 5: Reduce the traveling speed on the roadway to within no more than five miles over the posted speed limit.

Objective 6: Meet or exceed minimum sight distances at intersections and driveways along Route 22A.

Objective 7: Promote land uses along the corridor that contribute towards economic growth without significantly increasing the number of vehicles entering, exiting and using Route 22A.

Objective 8: Preserve the existing long distance views from Route 22A noted by each community as being significant.

Objective 9: Create an attractive roadway with recognized pull-offs at strategic locations to enhance safety and to inform travelers about local historic, recreational, retail and scenic destinations.

Objective 10: Work with local, statewide and national conservation agencies and organizations to develop safe wildlife crossing opportunities in appropriate locations along Route 22A.

Objective 11: Promote greater use of rail to reduce freight traffic in the corridor.

Objective 12: Use access management best practices along the roadway to maintain or improve mobility, capacity, Level of Service and overall performance of Route 22A.

V. RECOMMENDATIONS

A. OVERVIEW

The following list of physical or management changes for the Route 22A corridor represent recommendations for preserving or improving the overall operation and character of the roadway.

The recommendations are grouped into short and long term actions. Within each of these groups, the recommendations are listed in order of general priority with many at the beginning of each list appropriate for simultaneous implementation. **Figures 5A** and **5B** show the general location of those recommendations that are site specific. **Table 1** shows how the recommendations relate to the Route 22A Corridor Study goals and objectives.

The initials in the parenthesis at the end of each recommendation indicate the most likely responsible parties to assist in the implementation of the recommendation:

- The towns themselves, individually and collectively (**O**rwell, **B**enson, **W**est Haven, **F**air Haven, **A**ll);
- The Rutland Regional Planning Commission (**RRPC**);
- The Addison County Regional Planning Commission (**ACRPC**);
- The Vermont Agency of Transportation (**VTrans**);
- The Vermont Department of Fish and Wildlife (**FW**);
- The Nature Conservancy (**TNC)** and
- Individual landowners (**LO**).

B. CORRIDOR-WIDE TRANSPORTATION RECOMMENDATIONS

1. SHORT-TERM

CW-1. Post signage at major intersections between the Route 73 intersection in Orwell and the end of the narrow cross section in West Haven indicating "Danger – Narrow Unstable Shoulders Next X Miles." (VTrans)

CW-2. Implement VTrans' "Safety Edge" treatment to eliminate the typical vertical drop from the pavement edge that too frequently prevents drivers from recovering when wheels ride over the pavement edge. (VTrans)

CW-3. Undertake an analysis to reduce the speed limit between the southbound approach to Route 73 and the northbound approach to Mutton Square Road and between the southbound approach to Route 144 and the northbound approach to Lake Road to 40 MPH. (O, B, VTrans)

CW-4. Extend "No Passing" zones within the influence area of the Route 22A intersections with Route 73, Mutton Square Road, Route 144, Lake Road & Main Road. (O, B, W, VTrans)

CW-5. Update the VTrans access management categories for Route 22A to reflect the access management assumptions and recommendations made in developing the future conditions for this report. (A, RRPC, ACRPC, VTrans)

CW-6. Relocate or add new advance warning signs as needed at appropriate distances in advance of significant roadway curves. (A, RRPC, ACRPC, VTrans)

CW-7. Add hidden driveway or intersection warning signs in appropriate locations. (LO, A, Vtrans)

CW-8. Provide larger street signs. (A, VTrans)

CW-9. Install farm crossing warning signs as appropriate, near active farm crossing locations when requested by farmers. (LO, A, VTrans)

CW-10. Increase the frequency of speed limit signs within the corridor. (A, VTrans)

2. LONG-TERM

CW-11. Reconstruct the roadway base to reduce or eliminate continual settling, cracking and pavement failure. (VTrans)

CW-12. Create a variable cross section for Route 22A that is a minimum of 36 feet wide away from intersections consisting of two 12-foot wide travel lanes, each with four feet of paved shoulder/bicycle lane and a minimum of two feet of gravel shoulder and close to intersections consisting of two 11-foot wide travel lanes, each with five feet of paved shoulder/bicycle lane and a minimum of two feet of gravel shoulder. (RRPC, ACRPC, VTrans)

CW-13. Develop a tool kit of rural arterial traffic calming measures for communities to use at appropriate locations along the corridor that include, among other <u>possible</u> elements (RRPC, ACRPC, A, VTrans):

- Tree planting in appropriate locations,
- Narrower traffic lanes,
- Gateway treatments near intersections that lead to village areas,
- Intersection lighting,
- Different pavement materials,
- Angled striping along the fog line,
- Center line rumble strip, or
- Transverse rumble strips.

CW-14. Work with VTrans to investigate the potential for creating small pull-offs along the roadway at strategic locations that are in character with the roadway to promote heritage and tourism, augment roadway safety and assist in police enforcement of existing speed limits and other road regulations and move to adding them if the investigation has positive conclusions. **Figure 5A** and **5B** shows the location of several potential pull-offs. (A, RRPC, ACRPC, VTrans)

CW-15. Change Roadway Classification of the roadway when traffic volumes indicate that it is warranted. (RRPC, ACRPC, VTrans)

C. CORRIDOR-WIDE RESOURCE RECOMMENDATIONS

1. VEGETATION: ON-GOING

V-1. Plant new trees along the roadway within the right-of-way a minimum of 25 feet away from the center line to enhance scenic qualities and assist in lowering vehicle speeds while avoiding conflicts with utility lines and poles and not creating the potential for heavy winter shade on the roadway. (A, VTrans)

V-2. Work with landowners to plant trees on the edges of their properties adjacent to the right-of-way in appropriate locations that do not impact active farming activities or create the potential for heavy winter shade on the roadway. (A, LO)

V-3. Manage the existing vegetation in the corridor to preserve existing healthy trees and shrubs and remove unhealthy, invasive, dying or dead trees and vegetation along the roadway to maintain adequate sight lines, preserve the current rural character of Route 22A and ensure that sun reaches a good portion of the roadway during the winter months. (VTrans)

2. WILDLIFE: ON-GOING

WL-1. Continue to monitor wildlife movement activities to locate critical wildlife crossing locations on Route 22A. (VTrans, FW, TNC, LO)

WL-2. Upgrade existing culverts under Route 22A that currently restrict the free movement of fish, amphibians and other wildlife. (VTrans, FW)

WL-3. Install new culverts with appropriate channeling features to allow safe crossing of wildlife in critical migration corridors. (VTrans, FW)

WL-4. Install new surface wildlife crossing features in critical migration corridors. (VTrans, FW, TNC)

3. STORMWATER: ON-GOING

STW-1. Use open, vegetated drainage ditches parallel to the roadway within the right-of-way to treat stormwater from the roadway as it is conveyed to natural watercourses. (VTrans)

D. INTERSECTIONS

1. ROUTE 73

a. Short-Term

Rt 73-1. Post "No Parking" signs along the west side of Route 22A north of the intersection to keep large trucks and vehicles from parking in that location and further limiting sight distance north for vehicles on the Route 73 west side approach to the intersection. (O, VTrans)

Rt 73-2. Relocate the roadway signs north of the intersection on Route 22A to remove the sight distance obstruction for truck drivers and others with vehicles that have an elevated sight line. (VTrans)

Rt 73-3. Inspect and replace worn warning signs and install additional warning signage. (VTrans)

Rt 73-4. Upgrade street lighting or fixture location near the intersection to better illuminate the intersection itself. (O, VTrans)

Rt 73-5. Implement access management best practices around the intersection to define specific access points to the existing service station and other future land uses that may develop on the adjacent properties. (O, VTrans)

Rt 73-6. Narrow the travel lanes by shifting the edge line and implement other appropriate traffic calming measures outside the travel way to slow traffic on Route 22A as it approaches the intersection. (O, VTrans)

b. Long-Term

Rt 73-7. Monitor the traffic volumes at the intersection to determine when a dedicated left turn lane southbound on Route 22A is warranted and then install a dedicated left turn lane southbound on Route 22A. (ACRPC, VTrans)

Rt 73-8. Regrade the Route 73 west side approach to create a more level approach to the intersection. Coordinate with abutting business owner regarding their driveway access. (ACRPC, VTrans)

2. COOK ROAD/MUTTON SQUARE ROAD

a. Short-Term

Cook-1. Inspect and replace worn warning signs and install additional warning signage as needed. (VTrans)

Cook-2. Narrow the travel lanes by shifting the edge line and implement other appropriate traffic calming measures outside the travel way to slow traffic on Route 22A as it approaches the intersection. (O, VTrans)

Cook-3. Install street lighting near the intersection. (O, VTrans)

Cook-4. Monitor crash occurrence and in response to high incidence of angle type (vehicle front to vehicle side)crashes consider installation of ITS electronic signage that alerts drivers on the Mutton Hill Road and Cook Road approaches to the intersection that vehicles are approaching the intersection on Route 22A from the north. (ACRPC, VTrans)

Cook-5. Clear the vegetation in and adjacent to the ditches along the edge of the road to provide greater sight distances for drivers on the side roads.

b. Long-Term

Cook-6. Widen the pavement of Mutton Hill Road close to the intersection to create easier movements from Route 22A. (O)

3. ROUTE 144

a. Short-Term

Rt 144-1. Inspect and replace worn warning signs and install additional warning signage as needed. (VTrans

Rt 144-2. Improve street lighting or fixture location near the intersection. (B, VTrans)

Rt 144-3. Cut the vegetation and possibly the bank on the east side of Route 22A south of the intersection to improve sight lines. (B, VTrans)

Rt 144-4. Install flashing beacon over the intersection to help in warning that the intersection is there and to help identify the actual location of the road versus other entries into the gas station. (Note: VTrans staff recommends that the municipality pay the electric bill for this beacon.) (B, RRPC, VTrans)

b. Long-Term

Rt 144-5. Implement access management best practices around the intersection to define specific access points to the existing gas station and other future land uses that may develop on the adjacent properties. (B, VTrans)

Rt 144-6. Narrow the travel lanes by shifting the edge line and implement other appropriate traffic calming measures outside the travel way to slow traffic on Route 22A as it approaches the intersection. (B, RRPC, VTrans)

Rt 144-7. Add a wider radius for the right turn northbound on Route 22A and investigate the special need that may exist to provide a full right turn lane to pull vehicles from the south slowing to turn onto Route 144 out of the main stream of traffic on Route 22A. (B, RRPC, VTrans)

4. LAKE ROAD

a. Short-Term

Lake-1. Inspect and replace worn warning signs. (VTrans)

Lake-2. Relocate and augment as needed the existing streetlight to better illuminate the intersection. (B, VTrans)

Lake-3. Regrade and reseed the area to the south of Lake Road used in the past to store gravel to differentiate it from the roadway. (B)

Lake-4. Narrow the travel lanes by shifting the edge line and implement other appropriate traffic calming measures outside the travel way to slow traffic on Route 22A as it approaches the intersection. (B, RRPC, VTrans)

Lake-5. Install flashing beacon over the intersection in response to the recent crash history of angle type crashes. (Note: VTrans staff recommends that the municipality pay the electric bill for this beacon.) (B, VTrans)

b. Long-Term

Lake-6. Improve the Lake Road approach to the intersection to create a level area close to the intersection and bring the angle of the Lake Road approach closer to 90 degrees but leaving it directly opposite the end of Mill Pond Road as it is now. (RRPC, B)

Lake-7. Add a wider radius for the right turn southbound from Route 22A onto Lake Road, and investigate the special need that may exist to provide a full right turn lane to pull vehicles slowing to turn onto Lake Road out of the main stream of traffic. (B, RRPC, VTrans)

Lake-8. Monitor the traffic volumes at the intersection to determine when a dedicated left turn lane northbound on Route 22A is warranted and then install the dedicated left turn lane on Route 22A in the northbound direction. (RRPC, VTrans)

5. EAST ROAD: LONG-TERM

East-1. Reconfigure the intersection to create a 90-degree approach to Route 22A for traffic exiting East Road onto Route 22A but maintain the angle turn onto East Road for vehicles traveling north on Route 22A. (B, RRPC)

6. MAIN ROAD

a. Short-Term

Main-1. Inspect and replace worn warning signs and install additional warning signage. (VTrans)

Main-2. Improve street lighting or light fixture location near the intersection. (W, VTrans)

Main-3. Narrow the travel lanes by shifting the edge line and implement other appropriate traffic calming measures outside the travel way to slow traffic on Route 22A as it approaches the intersection. (W, RRPC, VTrans)

b. Long Term

Main-4. Monitor the traffic volumes at the intersection to determine when a dedicated left turn lane northbound on Route 22A is warranted and then install the left turn lane by widening the roadway by four feet to provide a bypass lane and an additional continuous paved shoulder a minimum of five feet wide through the intersection to accommodate bicycles. (W. RRPC, VTrans)

Main-5. Improve the Main Road approach to the intersection to create a level area close to the intersection. (W, RRPC)

7. ROUTE 4 EXITS: SHORT-TERM

Rt 4-1. Reinforce the change in character of Route 22A northbound from that of Route 4 through signage or other differentiating methods, including landscaping. (F, RRPC, VTrans)

Rt 4-2. Review and upgrade turning radii to make sure they work for larger trucks currently permitted to travel on the road. (F, RRPC, VTrans)

Rt 4-3. Monitor the need to have side-by-side left turn lanes for the two Route 4 access ramps to accommodate truck queues exceeding the turn lane storage. (F, RRPC)

8. ROUTE 4A (BOTH) & DOWNTOWN INTERSECTIONS

a. Short-Term

Rt 4A-1. Install more easily understood directional signage at and before both intersections of Route 22A and Route 4A. (VTrans)

b. Long-Term

Rt 4A-2. Conduct a downtown circulation and parking study to develop recommendations for improving the movement of motor vehicles, bicycles and pedestrians through and within the downtown; as part of this study consider the safety concerns associated with parking within the immediate area of intersections that reduce sight distance. (F, RRPC)

Rt 4A-3. Pursue implementation of the recommendations that come from the downtown circulation and parking study. (F, RRPC, VTrans)

Rt 4A-4. Monitor crash occurrence and in response to noted high incidence of angle type crashes consider installation of ITS electronic signage that alerts drivers on the Route 4A approach to the southern intersection that vehicles are approaching the intersection on Route 22A from the south beyond the railroad track. (F, RRPC, VTrans)

Rt 4A-5. Explore the potential to straighten the southern intersection of Route 22A and Route 4A to create a 90-degree angle between the two roads. (F, RRPC, VTrans)

E. <u>OTHER TRAFFIC & ROADWAY ISSUES</u>

1. SHORT-TERM

Other-1. Work with the VTrans District Managers to optimize the level of summer and winter maintenance on Route 22A. (A, VTrans)

Other-2. Work with the State Police and County Sheriffs to increase enforcement of speed limits and passing limitations on Route 22A. (A, SP)

Other-3. Work with the VTrans District Managers to improve the signage and pavement markings to clearly indicate through and turning lanes on Route 22A in downtown Fair Haven north of the bridge over the Castleton River. (F, RRPC, VTrans)

Other-4. Work with the VTrans District Managers to optimize the ongoing level of signage and roadway marking maintenance on Route 22A. (A, ACRPC, RRPC, VTrans)

Other-5. Create gateways at the Route 4 interchange on Route 22A southbound to Fair Haven and towards the more rural Route 22A corridor northbound and at other intersections leading to village areas. A, ACRPC, RRPC, VTrans)

Other-6. Explore the addition of a park and ride lot close to the intersection of Route 22A and Route 4 in Fair Haven, in Benson, and near the intersection of Route 22A and Route 73 in Orwell. (A, RRPC, VTrans)

Other-7. Explore methods for clearly delineating the single travel lane in each direction on Route 22A between the Route 4 interchange south to a point north of the intersection with West Park and West Streets. (F, RRPC)

Other-8. Review the existing guidelines for installing guard rails and check the corridor to determine if locations exist that warrant guard rails which currently do not have them. (RRPC, VTrans)

Other-9. Install guardrails as needed in appropriate locations. (VTrans)

2. LONG-TERM

Other-10. Extend the existing sidewalk system south on Route 22A to at least Academy Street on the west side of the right-of-way and to at least the house on the east side of the right-of-way south of the Lee Street intersection from its current end near the Castleton River Bridge. (F)

Other-11. Consider possible redesigns of the portion of Route 22A to the southeast of the Green at the intersection with South Park Place to eliminate some of the pavement; increase the amount of parking spaces; provide clearer indications of where vehicular, bicycle and pedestrian traffic should go; and add trees and vegetation to the area. (F, RRPC, VTrans)

Other-12. Work with VTrans and other regional planning commissions along the west side of the State to increase the potential for greater use of the railroad for freight movement. (ACRPC, RRPC, VTrans)

F. CORRIDOR LAND USE

1. SHORT-TERM

LU-1. Incorporate access management principles into land use development regulations and policies in each of the four towns. (A)

LU-2. Encourage the internal turnaround areas on properties adjacent to Route 22A for vehicles to eliminate the need to back out onto the main road. (A)

LU-3. Examine the limits of the Commercial District to the north side of Route 4 in Fair Haven to reconfirm the appropriateness of extending it north of Route 4. (F)

LU-4. Create design standards for the Neighborhood Commercial District along Route 22A in Orwell to ensure that future development does not compromise the existing character of either Route 22A or the village center in Orwell. (O)

LU-5. Incorporate desirable design features for preserving wildlife corridors that cross Route 22A into local zoning regulations. (A)

2. LONG-TERM

LU-6. Create scenic overlay districts in the existing municipal zoning regulations to preserve important vistas along the roadway. (A)

LU-7. Consider community interest in designating the portion of Route 22A north of Route 4 as a Byway. (A, ACRPC, RRPC)

VI IMPLEMENTATION

A. INTRODUCTION

The overall work of implementing the recommendations of this Corridor Study lies with several different entities as described in **Section V**:

- The towns themselves, individually and collectively;
- The Rutland Regional Planning Commission;
- The Addison County Regional Planning Commission
- The Vermont Agency of Transportation;
- The Vermont Department of Fish and Wildlife;
- The Nature Conservancy; and
- Individual landowners.

These groups can begin working on the short-term recommendations while planning for the more long-term ones. The recommendations themselves already provide portions of the information needed to begin implementation – the phasing as well as the responsible parties. Additional information relating to potential costs and funding is presented in the following section.

B. PROCESS

There is no single process for pursuing the various recommendations of this report.

Those that involve physical modifications to portions of Route 22A, such as left turn lanes or road widening, will need to have additional preliminary, final and construction plans and recommendations completed before they can be implemented. Responsibility for this work will usually lie with VTrans, but may require coordination and initial recommendations from RRPC or the ACRPC in conjunction with the municipalities involved. These projects typically follow the VTrans project development process. **Appendix F** contains the VTrans Project Development flow chart which outlines their project development process.

The other less involved modifications, such as warning signs or flashing beacons, will also be installed by VTrans, but the request for these items will usually be initiated by the municipality and/or appropriate regional planning commission. There may be a requirement for the communities to fund both the installation and the ongoing electrical and maintenance costs for these beacons.

Those items that need additional study or coordination can be pursued by the communities, the RRPC or the ACRPC, but if the communities undertake the work, it is usually advantageous to have their regional planning commission involved.

The communities may want to continue to operate as a group with the support of the two regional planning commissions in order to increase their weight with VTrans, the State Legislature and other funding sources. They should also continue to operate as a group to create a good working relationship with the VTrans district office and manager to optimize the level of on- going maintenance of signage, road striping and winter clearing.

The communities should submit the recommended speed limit changes to VTrans. The Vermont Traffic Committee is the authority that sets and adjusts speed limits on State roadways. That body is advised by the VTrans Traffic Operations Unit. The Traffic Operations Unit completes an inventory of the roadway/ intersection geometrics, intersection control devices and intersection operation including pedestrians and adjacent land use. In addition, the Traffic Operations Unit collects crash data, traffic volume data, intersection control data and vehicle speed data. They analyze the crash data with respect to the average statewide conditions of similar intersections by associating the traffic volume, determining crash rates, critical crash rates and ultimately actual to critical crash ratios. The speed data is collected to determine the 85th percentile speed. They assemble the data into a report referred to as a Traffic Engineering Report and submit it with a recommendation regarding the municipality's request to the Vermont Traffic Commission.

Appendix G includes several documents relating to the process of lowering speed limits and prior requests and traffic engineering reports for speed reduction at the Rte 73/ Rte 22A intersection. The crashes reported in 2003 during the last review of the Rte 73 intersection were comparatively low; that Traffic Engineering Report identified three crashes for the roadway segment between mm 3.00 and 3.40. As part of the justification for reconsidering a speed limit reduction, since the last Traffic Operations Unit review, there have been 12 crashes over the six-year period between 2004 and 2009. Additionally, VTrans has since identified the Rte 73 intersection as a High Crash Location between 2003 and 2007.

C. INITIAL ESTIMATES OF POTENTIAL CONSTRUCTION COSTS

To assist in initial planning, the Study Team has prepared initial estimates of potential construction costs for the larger actions contained in the recommendations. **Table 2** shows the basis for these estimates.

Approximately 12.5 miles of Route 22A needs to be reconstructed, which in constant 2011 dollars would need a budget of a little more than $46 million.

Table 2: Initial Estimate of Potential Construction Costs for Selected Recommendations

Opinion of Roadway Improvement Costs - Route 22A

Description	Unit	Major Items	Minor Items	Maintenance of Traffic	Engineering	Construction Monitoring	Total
			20%	10%	10%	10%	
Reconstructed Roadway - 36' crossection (55 mph design speed)	mile	$2,256,372	$451,274	$270,765	$297,841	$297,841	$3,574,093
Roadway and Shoulder(Full Depth)	mile	$1,775,048					
2 x Edge of Shoulder (cut section or fill section/ no guard rail)	mile	$481,324					**$3,600,000/ mi**
Box widening from 28 to 36' crossection (55 mph design speed)	mile	$667,452	$133,490	$80,094	$88,104	$88,104	$1,057,244
Roadway and Shoulder (Box Widening)	mile	$186,128					
2 x Edge of Shoulder (cut section or fill section/ no guard rail)	mile	$481,324					**$1,100,000/ mi**
Guard Rail along one side with other roadway reconstruction	mile	$28,000	$5,600	$3,360	$3,696	$3,696	$44,352
(in general a substitute for / supplement to cost of clear zone slope)							**$50,000/ mi**
Guard Rail along one side without other roadway reconstruction	mile	$268,082	$53,616	$32,170	$35,387	$35,387	$424,642
							$425,000/ mi
Left Turn Lane	EACH	$291,896	$58,379	$35,027	$38,530	$38,530	$462,363
1000 feet of construction on both sides of roadway							**$465,000**
Right Turn Lane	EACH	$157,284	$31,457	$18,874	$20,762	$20,762	$249,138
500 feet of construction							**$250,000**
Culvert (8')							
Under existing 28' roadway (assume 8' embankment each side)	EACH	$30,000	$6,000	$3,600	$3,960	$3,960	**$48,000**
Under existing 36' roadway (assume 15' embankment each side)	EACH	$50,000	$10,000	$6,000	$6,600	$6,600	**$80,000**
ITS Treatment for severely inadeqate sight distance	EACH	$25,000	$5,000	$3,000	$3,300	$3,300	$39,600
							$40,000
Overhead Flashing Beacon installed at Intersection	EACH	$25,000	$5,000	$3,000	$3,300	$3,300	$39,600
							$40,000
Lane marking change at existing intersections	EACH	$25,000	$5,000	$3,000	$3,300	$3,300	$39,600
(500' on 2 approaches includes cold planing and 1.5"overlay)							**$40,000**

D. FUNDING

1. FEDERAL & STATE TRANSPORTATION FUNDS

There are several different federal funding sources that could be used to pay for some of the recommendations.

- Surface Transportation Program/VTrans Capital Program (STP Funds): The STP funds are the most flexible funding source from federal transportation funds. These funds could be used for almost any of the Route 22A Corridor recommendations relating to the roadway itself. These funds require a 20 percent match which the State would cover for the larger projects on Route 22A that are not under local jurisdiction. Projects funded with STP funds need to be included on the States Transportation Improvement Program.
- Transportation Enhancement Program (TE Funds): TE funds can be used to increase bicycle and pedestrian mobility, improve aesthetics along a roadway or other specific types of projects that enhance the overall transportation experience. These funds will cover a maximum of 80 percent of the project costs with the remaining portions most likely coming from the project sponsoring organization. TE funds are distributed in Vermont through a competitive grant program.
- Bicycle and Pedestrian Program: These funds cover specific bicycle and pedestrian improvement projects and are also provided via a competitive grant program.
- Safety Improvement Funds: Safety Improvement Funds are available to cover projects that are directly related to improving specific safety related problems. These funds are administered by VTrans and could potentially be used to fund the recommended warning signs, flashing beacons or other improvements that are meant to minimize future crashes.
- Safe Routes to School (SRTS Funds): The SRTS program provides funds to improve physical connections to grade and middle schools that will increase the ability of students to walk or bicycle to school. These funds also cover training and encouragement programs meant to increase the incidence of school children walking and bicycling to school. These funds could be used in Fair Haven to improve pedestrian and bicycle circulation along Washington Street close to the existing grade school.
- High Risk Rural Roads Program: This program is meant to address specific safety issues on rural roads with low cost safety improvement projects to achieve significant reductions in traffic fatality and serious injury crashes. The locations for the use of these funds are recommended by the regional planning commissions.
- Highway Safety Improvement Program: The focus of this program is to enhance safety at the high crash locations throughout the State. This program attempts to address up to 50 high crash locations a year with studies and recommendations for remedial actions. Federal funds are used for this program.
- Vermont Local Roads/Circuit Rider Program (vermontlocalroads.org): This program is made available to local municipalities to assist them in planning and designing better rural roads or addressing specific transportation projects. These funds are not

meant to fund construction. These programs may be able to assist the municipalities in some of the recommended additional studies.

- State Research & Planning Funds: These funds are available for the development of plans and research at the State level. They can also be passed through to regional entities to fund planning or research that has statewide significance.

2. LOCAL FUNDS

- Municipal Bonds: Municipalities can fund transportation improvements through the use of municipal bonds which the municipalities pay back over time.

- Traffic Impact Fees: Local transportation impacts fees can be collected from new development to help pay their portion of improvements to the transportation system that may be necessary to accommodate the new development. There are very specific requirements that communities must meet, including the development of a capital improvement plan, before collecting traffic impact fees.

E. RIGHT-OF-WAY

Several of the recommendations could potentially be affected by limited right-of-way, including:

- The general cross-section recommendation of 36 feet, including 12-foot lanes, four-foot paved shoulders and two-foot gravel shoulders;
- Left turn lanes at Rte 73 and Lake Road; and
- Widening at Main Road.

Table 3 lists the available right-of-way in each of the towns as recorded in the State Route Logs for Route 22A. The table includes a line for the specific recommended intersection widenings. Adding 12 feet for the left turn lanes to 36 feet suggests that 48 feet is the needed width for these areas. While that width is available in each instance, it is not the total width requirement for the widened roadway. Outside the 36-foot or 48-foot roadway, there are other ancillary needs that will be required as part of new construction, including:

- Snow storage;
- Drainage ditches;
- Utilities;
- Clear zone requirements including one on four slopes in fill areas; and
- Guard rails.

Where the right-of-way is only 50 feet wide, as the VTrans records indicate it is in Orwell and along the northern ten percent of the roadway in Benson, it may be difficult to have sufficient right-of-way to construct all aspects of the widening within it. Essentially there will be a total of approximately 14 feet of construction space available outside the roadway elements for the

typical 36-foot wide cross section or seven feet on each side. If there is a two-foot drop at the edge of the road, it would require eight horizontal feet for the one on four slope to meet the clear zone requirement alone, beyond which a drainage ditch may need to be constructed.

Table 3: Right-of-Way Details

Mile Marker (mile)	Mile Marker (mile)	Travel Lane (feet)	Roadway (feet)	Right of Way (feet)	Comment
			Orwell		
					to VT 73
0	3.223	21.7	27.6	50 to 70	TL Benson
	3.23			50	Rte 73
	2.65			60	Mutton Sq Rd
			Benson		
4.94	6.276	21.7	29.5	50 to 87	TL Orwell
4.66	4.94	21.7	31.5	50	
3.915	4.66	21.7	27.6	60 to 87	
	3.4			64	Rte 144
3.169	3.915	21.7	29.5	60 to 110	
2.809	3.169	21.7	31.5	60 to 85	
	2.5			64	Lake Road
0.806	2.809	21.7	29.5	64	
0	0.806	21.7	27.6	64 to 110	TL West Haven
			West Haven		
1.348	3.007	21.7	27.6	64	TL Benson
1.158	1.348	23.6	39.3	100 to 130	
0.708	1.158	34.4	47.2	100 to 130	
	0.63			130	Main Road
0	0.708	23.6	39.4	100 to 130	TL Fair Haven
			Fair Haven		
3.604	4.43	23.6	39.4	130 to 200	TL W Haven
2.81	3.604	23.6 to 43.3	43.3	90 to 200	
2.446	2.81	23.6 to 43.3	43.3 to 61.3	200	
2.421	2.446	23.6 to 43.3	42.7 to 52	200	
2.205	2.421	24.9 to 42.7	42.7 to 52	200	
2.055	2.205	42.7 to 52	44	100 to 200	curb to curb
1.799	2.055	23.6	40	80 to 100	
1.63	1.799	23.6	41.9	80 to 100	
1.602	1.63	23.6 to 47.9	36	80 to 100	
1.525	1.602	23.6 to 47.9	36.4 to 79.4	80 to 100	
1.489	1.525	24	26	50	
0.243	1.489	21.7	31	30 to 40	
0.217	0.243	21.7	27.6	50	
0	0.217	23.6	46	50	SL NY

Grey squares indicate locations where left turn lanes may be warranted in the future.

The Orwell town records do not agree with the VTrans records and indicate that the right-of-way is almost 100 feet wide in a six-rod right-of-way. As work proceeds on this project the actual width of the right-of-way in Orwell will need to be confirmed. The wider right-of-way in the Orwell Town records would make the widening and addition of a left turn lane at the intersection with Route 73 much easier.

South of the VTrans narrower section of right-of-ways in Benson, VTrans records show that the right-of-way varies with 60 feet as the minimum, which offers 12 feet on each side of the basic 36-foot wide roadway. That width may be sufficient for most of the section, but there are stretches where the edge of road is three feet higher than the adjacent land, which will require wider right-of-ways or easements.

Through the northern half of West Haven the right-of-way is 64-feet wide and south of that the right-of-way is 100 to 130-feet wide. These right-of-way widths should be sufficient for most of the highway, especially since the road is relatively flat in this portion of West Haven and not elevated significantly above the surrounding grade.

The southern mile and one half of Fair Haven, south of the railroad crossing, is also constrained by a right-of-way that is only 30 to 40 feet wide for over a mile, with most of the rest of the right-of-way in this area being 50 feet wide. Additional right-of-way will certainly be necessary for at least portions of this section of Route 22A to undertake the recommended road widening to 36 feet. The road widening may need to be balanced between the existing buildings for the northern portions of this narrow section south of the railroad crossing. Dividing the widening equally between both sides of the roadway may bring the edge of the roadway to within ten feet of existing houses. Consequently, the acquisition of additional right-of-way may also need to be balanced or centered between the existing houses, so that the remaining setback of the buildings from the right-of-way is roughly equal on both sides of the roadway.

F. RESOURCE IMPACTS

The recommended widening to 36 feet will have some impacts on wetland areas that are directly adjacent to the roadway. **Figures 6A** and **6B** highlight the potential locations where wetlands could be impacted. Both the State of Vermont Wetland Section of the Agency of Natural Resources and the Army Corps of Engineers will need to be involved in reviewing and approving the proposed widening work where it impacts wetlands.

The widening to 36 feet may also impact some of the adjacent trees that now line the roadway. **Figures 6A** and **6B** show the locations where there is the potential to impact adjacent trees with the widening process. New trees should be planted in these locations as part of the overall construction process for the widening. It may also be possible to shift the centerline so that there is more widening on the side of the road without significant trees, so that the trees, which contribute to the existing character of the road, can be preserved.

A wider cross section on the road could also impact Mountain View (Tylord) Farm in Benson and the Brookside barn adjacent to the road in Orwell. To minimize these potential impacts the widening of the road should occur entirely on the east side of the road, resulting in a corresponding slight shift of the road centerline to the east. Additional right-of-way will most likely be needed to accommodate this shift. It may also be necessary to reduce the overall width of the roadway in these two areas, especially near Brookside, where the shift may require the removal of several old black locust trees along the front of the property containing the main building on the Brookside historic site.

G. PRIORITIZATION

Because the roadway width is sub-standard for much of the northern portion of Route 22A in the study area, the reconstruction of the entire length of road is considered the highest priority recommendation. It is classified as a long-term project because it is currently not even in the planning phases at VTrans and will therefore take some time to come to fruition. Work should be instigated as soon as possible, however, in getting the project, or portions of the roadway, into the VTrans project development process.

Because there are more wetland areas along the northern portions in Benson and Orwell, it may make sense to start work at the southern end of the sub-standard section in West Haven and move northward, doing whatever length of project is possible. Benson and Orwell could also work together to initiate discussions with VTrans, the Vermont Department of Natural Resources and the Army Corps of Engineers about potential impacts to and possible mitigation measures for the wetland areas along the edges of the roadway so that some informal agreements can be reached before the actual design and permitting of the widening occurs.

The other short-term recommendations should be pursued in whatever order is most feasible for the communities or the regional planning commissions.

VII. PERFORMANCE MEASURES

In order to track how well Vermont Agency of Transportation, the Rutland and Addison County Regional Planning Commissions and the communities are moving towards the Corridor Goals and Objectives, BRPD developed a draft set of Performance Measures. These measures have been suggested so that they can be used without significant expenditures of time or money, using existing data wherever possible.

These items should be checked on a yearly basis:

- Mileage of reconstructed roadway;
- Percentage of roadway with seven-foot wide minimum combined paved and unpaved shoulder;
- The number of crashes along Route 22A;
- The number of police cruisers on Route 22A in each town;
- Level of Service C or better at intersections on the segment of the corridor north of Route 4 and the segment of the corridor south of the railroad crossing;
- Level of Service D or better at intersections on the segment of the corridor in Fair Haven between Route 4 on the north and the railroad crossing on the south;
- The number of sanctioned pull-offs;
- The yearly maintenance budget for Route 22A;
- The number of street trees planted along Route 22A; and
- The number of road kills along Route 22A.

Table 1
Route 22A Corridor Study
Recommendation, Goals & Objectives

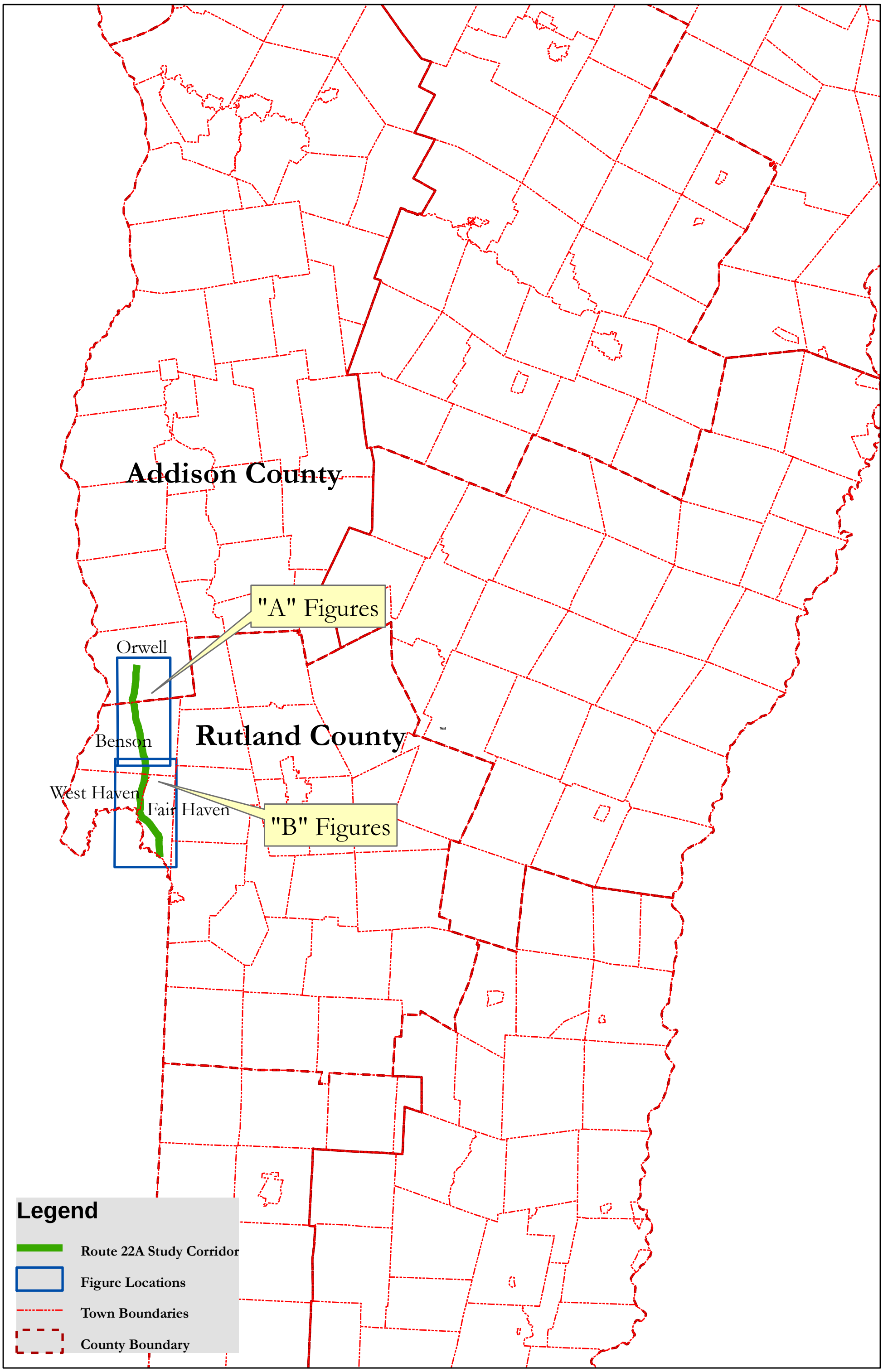
	CW-1	CW-2	CW-3	CW-4	CW-5	CW-6	CW-7	CW-8	CW-9	CW-10	CW-11	CW-12	CW-13	CW-14	CW-15		V-1	V-2	V-3
Goal 1 - Adequate Base											X								
Goal 2 - Adequate Level of Service	X				X	X	X	X		X	X		X		X				
Goal 3 - Reduce Crashes	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Goal 4 - Safe and Secure Mobility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Goal 5 - Economic Development							X		X		X	X	X	X	X		X	X	X
Goal 6 - Safe Wildlife Migration											X			X			X	X	X
Goal 7 - Surface Water Quality											X			X			X	X	X
Obj. 1 - Provide 4 FT Paved/ 3 FT Unpaved Shoulder		X									X	X			X				
Obj. 2 - Have 1 Paving Project Every 3 Yrs		X									X				X				
Obj. 3 - Monitor Intersection/Add Turning Lanes													X		X				
Obj. 4 - Increase State Police Presence															X				
Obj. 5 - Reduce Actual Vehicle Speeds	X	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X
Obj. 6 - Meet Sight Distances				X	X	X	X		X			X	X	X					X
Obj. 7 - Promote Proper Land Use									X	X									
Obj. 8 - Preserve Long Distance Views																			
Obj. 9 - Create Attractive Roadway/Pull Offs											X								
Obj. 10 - Develop Safe Wildlife Crossings											X								
Obj. 11 - Promote Greater Rail Use																			
Obj. 12 - Use Access Management											X								
Total	**4**	**5**	**3**	**5**	**6**	**6**	**6**	**4**	**7**	**6**	**13**	**7**	**10**	**10**	**10**		**9**	**10**	

	WL-1	WL-2	WL-3	WL-4	STW-1	Rt 73-1	Rt 73-2	Rt 73-3	Rt 73-4	Rt 73-5	Rt 73-6	Rt 73-7	Rt 73-8	Cook-1	Cook-2	Cook-3	Cook-4	Cook-5	Cook-6
Goal 1 - Adequate Base																			
Goal 2 - Adequate Level of Service										X		X					X		
Goal 3 - Reduce Crashes	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Goal 4 - Safe and Secure Mobility	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Goal 5 - Economic Development									X	X	X	X			X	X			
Goal 6 - Safe Wildlife Migration	X	X	X	X	X														
Goal 7 - Surface Water Quality		X	X		X														
Obj. 1 - Provide 4 FT Paved/ 3 FT Unpaved Shoulder											X				X				
Obj. 2 - Have 1 Paving Project Every 3 Yrs												X	X						X
Obj. 3 - Monitor Intersection/Add Turning Lanes												X	X						
Obj. 4 - Increase State Police Presence																	X		
Obj. 5 - Reduce Actual Vehicle Speeds							X	X	X		X			X	X	X			
Obj. 6 - Meet Sight Distances						X	X					X	X					X	X
Obj. 7 - Promote Proper Land Use										X									
Obj. 8 - Preserve Long Distance Views																			
Obj. 9 - Create Attractive Roadway/Pull Offs					X	X					X				X				
Obj. 10 - Develop Safe Wildlife Crossings	X	X	X	X	X														
Obj. 11 - Promote Greater Rail Use																			
Obj. 12 - Use Access Management						X				X									
Total	**4**	**5**	**5**	**4**	**4**	**5**	**4**	**3**	**4**	**5**	**6**	**7**	**5**	**3**	**6**	**4**	**4**	**3**	**4**

	144-1	144-2	144-3	144-4	144-5	144-6	144-7		Lake-1	Lake-2	Lake-3	Lake-4	Lake-5	Lake-6	Lake -7	Lake-8		East-1	
Goal 1 - Adequate Base														X	X			X	
Goal 2 - Adequate Level of Service					X		X									X			
Goal 3 - Reduce Crashes	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X	
Goal 4 - Safe and Secure Mobility	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X	
Goal 5 - Economic Development		X			X	X				X	X	X				X			
Goal 6 - Safe Wildlife Migration																			
Goal 7 - Surface Water Quality											X			X				X	
Obj. 1 - Provide 4 FT Paved/ 3 FT Unpaved Shoulder						X						X							
Obj. 2 - Have 1 Paving Project Every 3 Yrs																X			
Obj. 3 - Monitor Intersection/Add Turning Lanes							X							X	X	X		X	
Obj. 4 - Increase State Police Presence																			
Obj. 5 - Reduce Actual Vehicle Speeds	X	X				X			X	X		X							
Obj. 6 - Meet Sight Distances			X								X				X	X			
Obj. 7 - Promote Proper Land Use				X	X						X		X	X				X	
Obj. 8 - Preserve Long Distance Views																			
Obj. 9 - Create Attractive Roadway/Pull Offs						X					X	X							
Obj. 10 - Develop Safe Wildlife Crossings																			
Obj. 11 - Promote Greater Rail Use																			
Obj. 12 - Use Access Management					X						X								
Total	**3**	**4**	**3**	**3**	**6**	**6**	**4**		**3**	**4**	**8**	**6**	**3**	**6**	**5**	**7**		**6**	

	Main-1	Main-2	Main-3	Main-4	Main-5		Rt4-1	Rt4-2	Rt4-3		Rt4A-1	Rt4A-2	Rt4A-3	Rt4A-4	Rt4-5				
Goal 1 - Adequate Base																			
Goal 2 - Adequate Level of Service				X							X	X	X	X	X				
Goal 3 - Reduce Crashes	X	X	X	X	X			X	X		X	X	X	X	X				
Goal 4 - Safe and Secure Mobility	X	X	X	X	X		X	X	X		X	X	X	X	X				
Goal 5 - Economic Development		X	X	X			X	X	X		X	X	X		X				
Goal 6 - Safe Wildlife Migration																			
Goal 7 - Surface Water Quality																			
Obj. 1 - Provide 4 FT Paved/ 3 FT Unpaved Shoulder			X																
Obj. 2 - Have 1 Paving Project Every 3 Yrs				X	X			X	X			X	X						
Obj. 3 - Monitor Intersection/Add Turning Lanes				X	X				X			X	X	X					
Obj. 4 - Increase State Police Presence																			
Obj. 5 - Reduce Actual Vehicle Speeds	X	X	X				X					X	X						
Obj. 6 - Meet Sight Distances				X	X										X				
Obj. 7 - Promote Proper Land Use							X				X	X	X						
Obj. 8 - Preserve Long Distance Views																			
Obj. 9 - Create Attractive Roadway/Pull Offs			X				X					X	X						
Obj. 10 - Develop Safe Wildlife Crossings																			
Obj. 11 - Promote Greater Rail Use																			
Obj. 12 - Use Access Management												X	X						
Total	**3**	**4**	**6**	**7**	**5**		**5**	**4**	**5**	**3**	**5**	**10**	**10**	**4**	**5**	**5**	**4**	**5**	

	Other-1	Other-2	Other-3	Other-4	Other-5	Other-6	Other-7	Other-8	Other-9	Othe-10	Othe-11	Othe-12	LU-1	LU-2	LU-3	LU-4	LU-5	LU-6	LU-7
Goal 1 - Adequate Base																			
Goal 2 - Adequate Level of Service			X	X		X	X					X							
Goal 3 - Reduce Crashes	X	X	X	X	X	X	X	X	X					X			X		
Goal 4 - Safe and Secure Mobility	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X		
Goal 5 - Economic Development	X		X	X	X	X	X			X	X	X	X		X	X		X	X
Goal 6 - Safe Wildlife Migration																	X		X
Goal 7 - Surface Water Quality	X												X		X	X			
Obj. 1 - Provide 4 FT Paved/ 3 FT Unpaved Shoulder							X												
Obj. 2 - Have 1 Paving Project Every 3 Yrs																			
Obj. 3 - Monitor Intersection/Add Turning Lanes																			
Obj. 4 - Increase State Police Presence		X																	
Obj. 5 - Reduce Actual Vehicle Speeds		X	X	X	X		X												
Obj. 6 - Meet Sight Distances								X	X					X					
Obj. 7 - Promote Proper Land Use					X		X			X	X	X	X	X	X	X	X	X	X
Obj. 8 - Preserve Long Distance Views															X	X		X	X
Obj. 9 - Create Attractive Roadway/Pull Offs	X				X					X	X				X	X		X	X
Obj. 10 - Develop Safe Wildlife Crossings																	X		X
Obj. 11 - Promote Greater Rail Use												X							
Obj. 12 - Use Access Management													X						X
Total	**3**	**4**	**10**	**4**	**4**	**12**	**4**	**3**	**7**	**7**	**4**	**4**	**5**	**4**	**5**	**5**	**6**	**4**	**7**



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Stantec

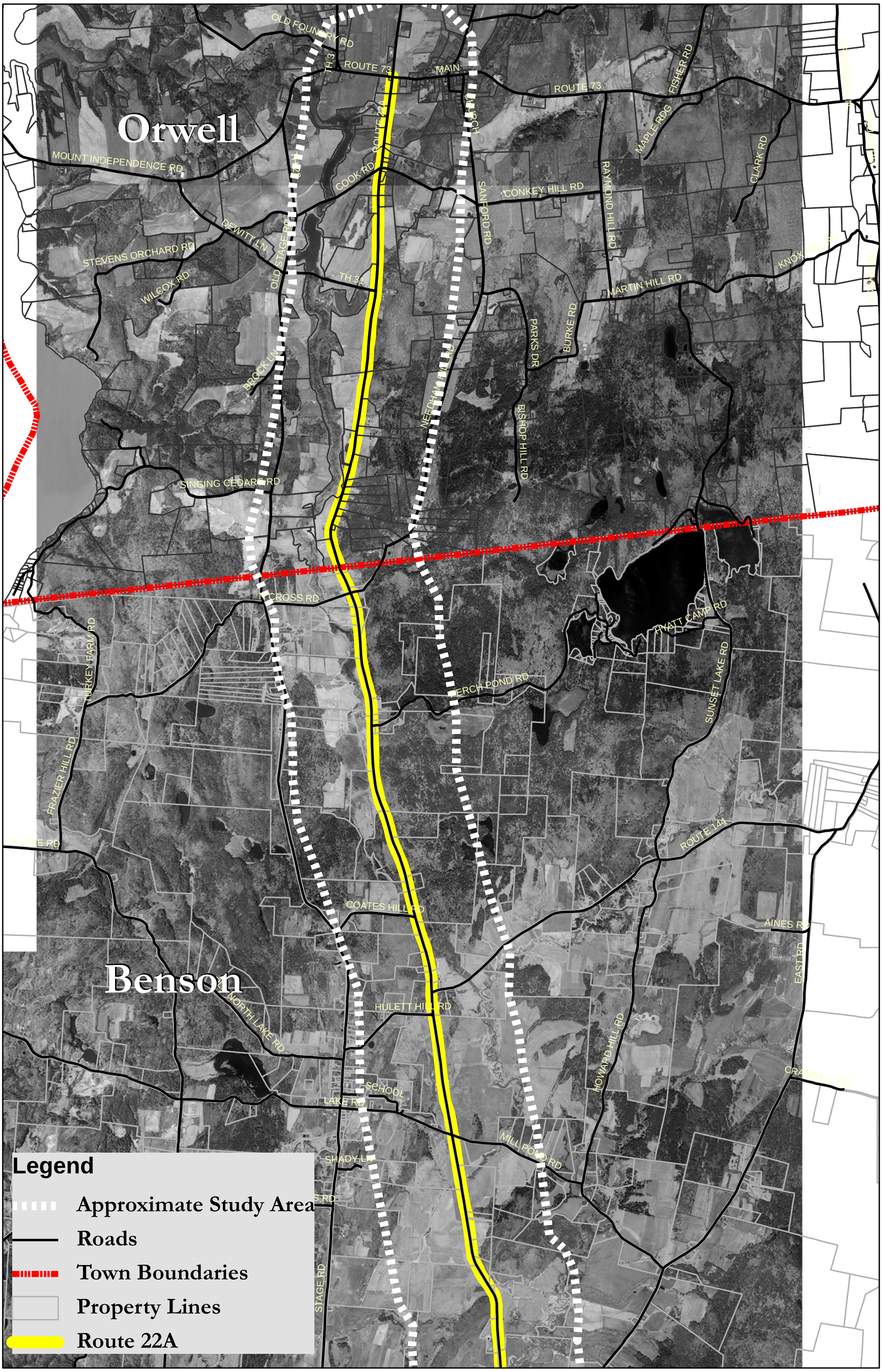
N W E S

Not to Scale

Route 22A Corridor Study

Study Area Location within Vermont

June 2010 Figure 2-1



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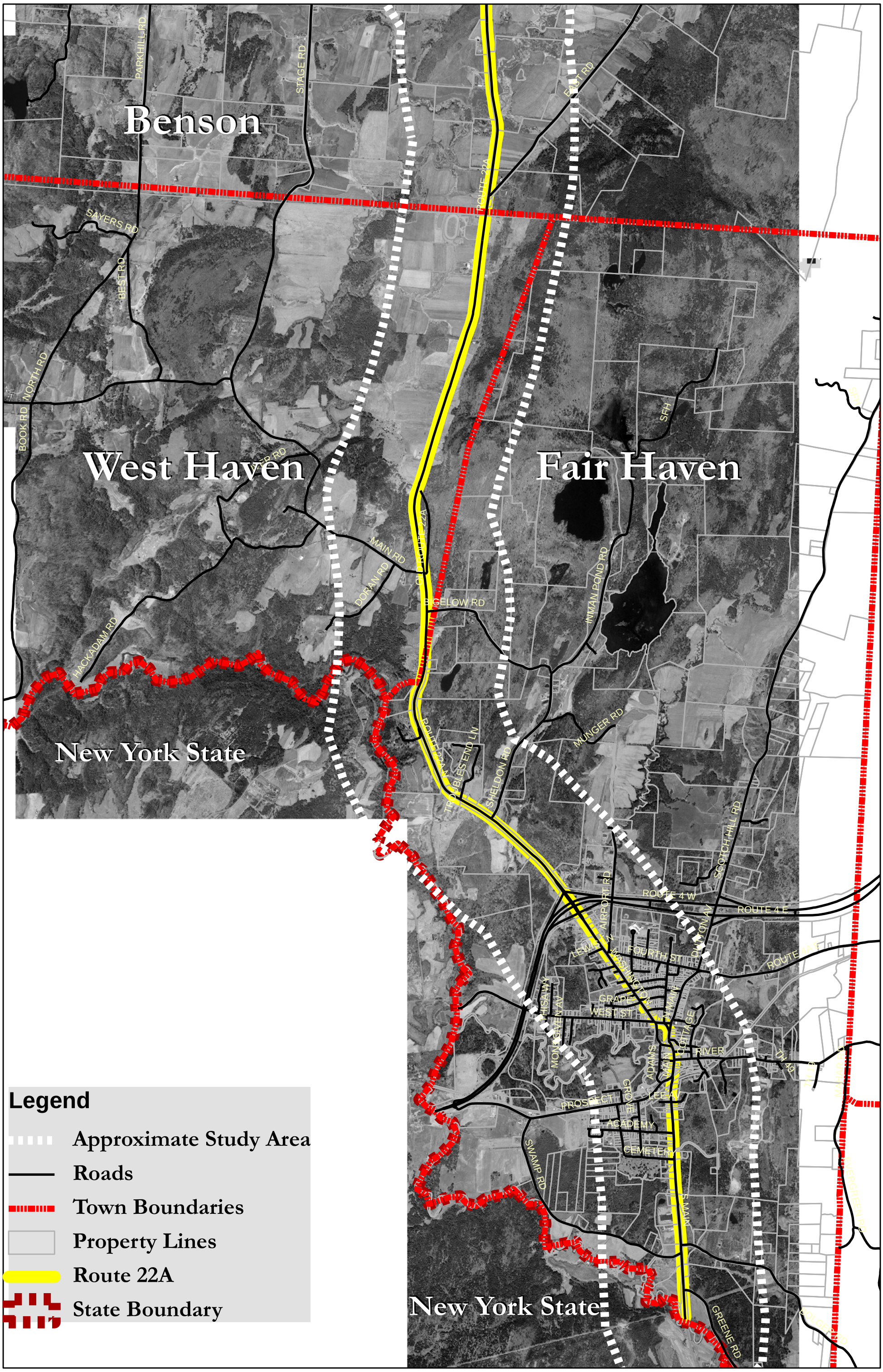
Route 22A Corridor Study

Study Area

July 2010 Figure 2A



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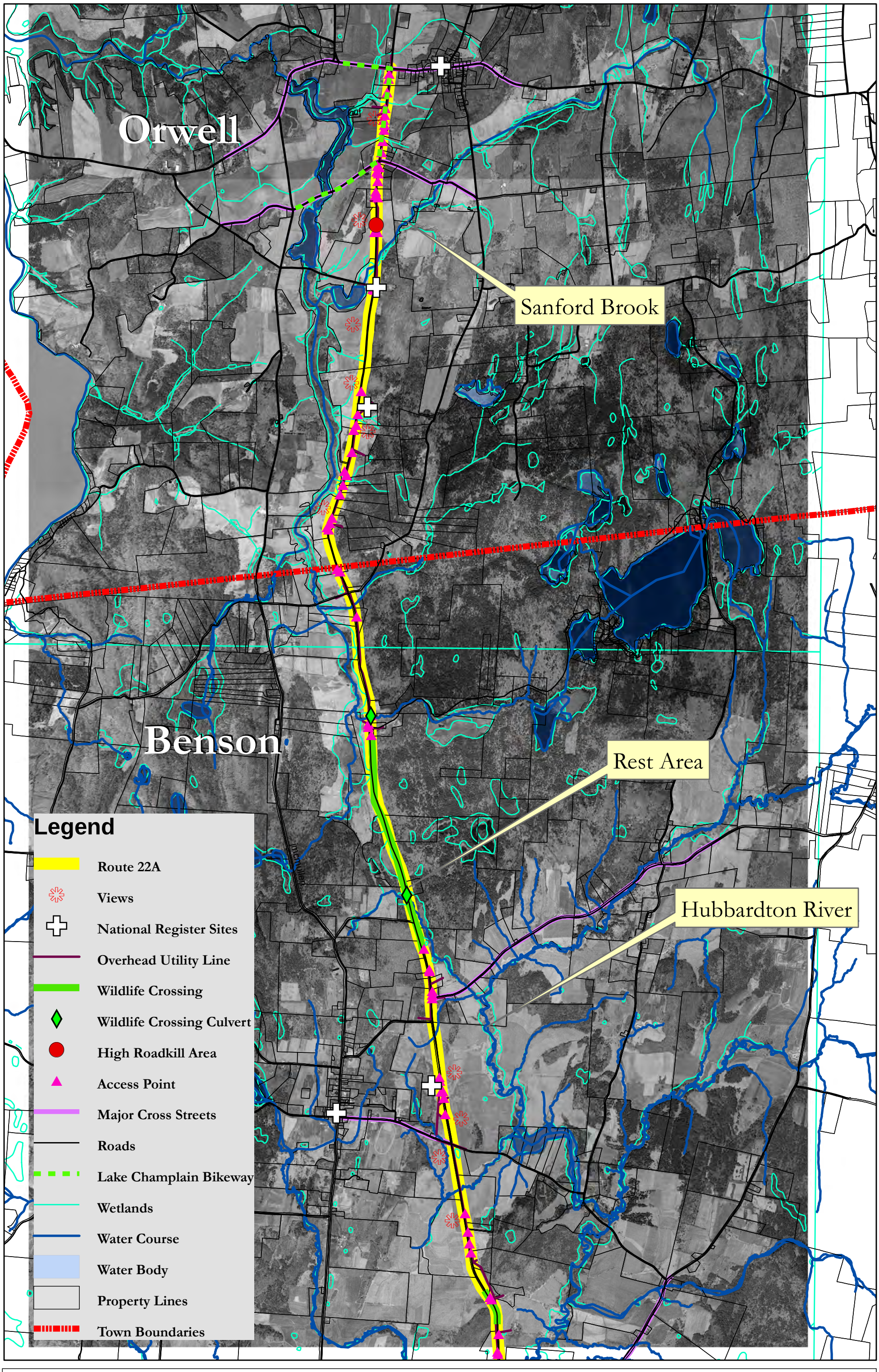
Route 22A Corridor Study

Study Area

July 2010 Figure 2B



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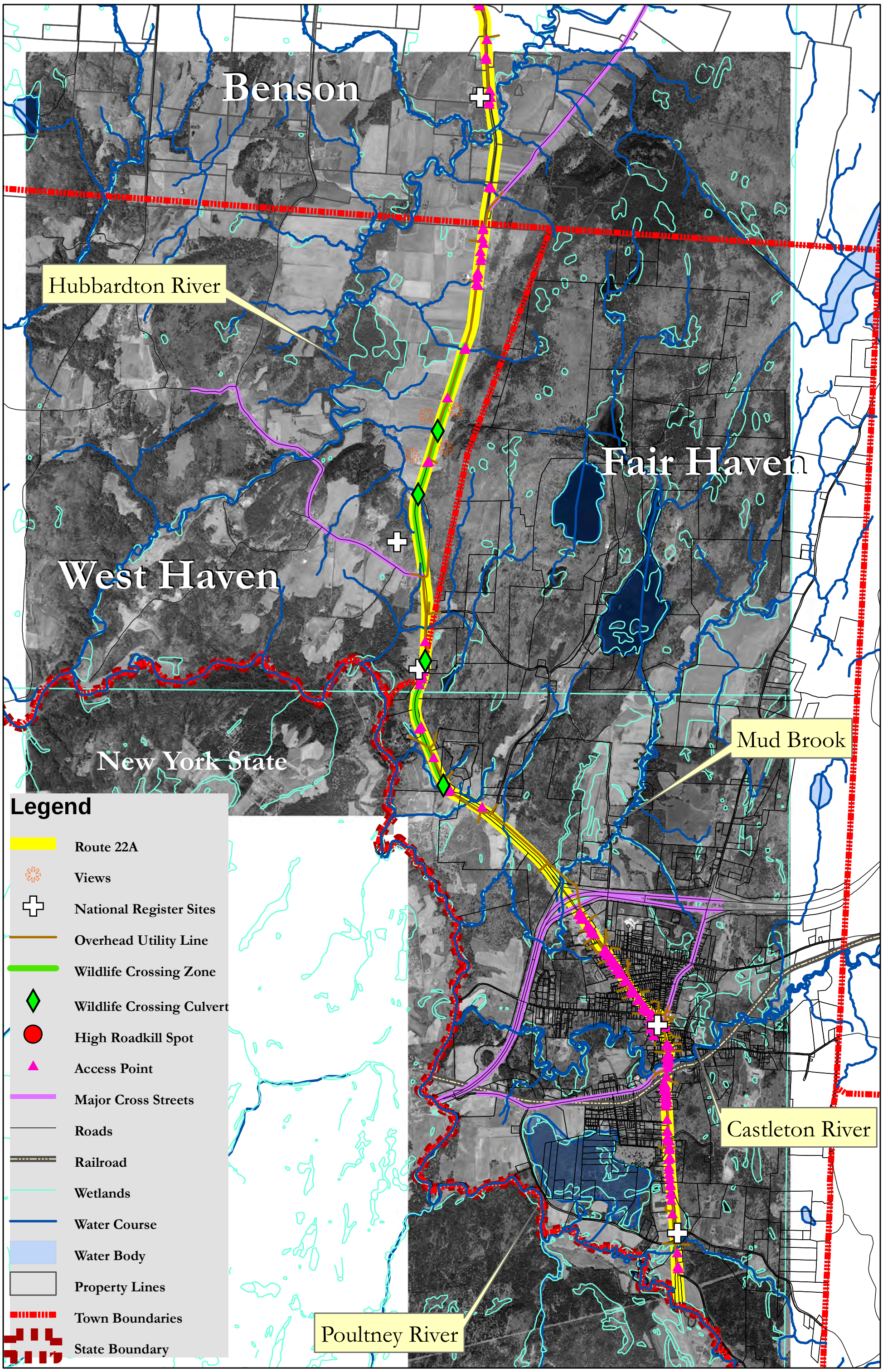
N W E S

0 750 1,500 3,000 4,500 6,000 Feet

Route 22A Corridor Study

Existing Conditions Summary

July 2011 Figure 3A



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July 2011

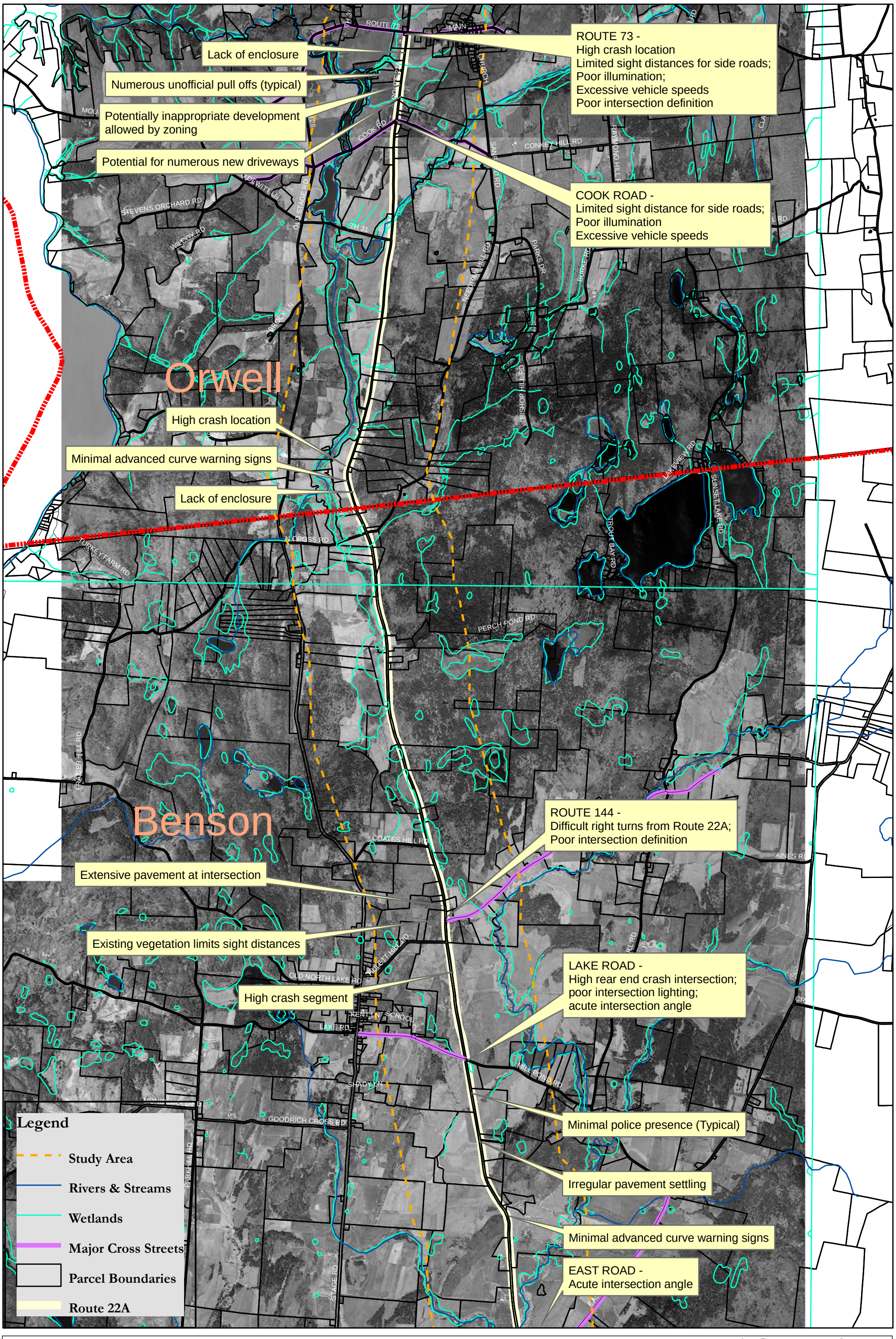
N W E S

0 750 1,500 3,000 4,500 6,000 Feet

Route 22A Corridor Study

Existing Conditions Summary

July 2011 Figure 3B



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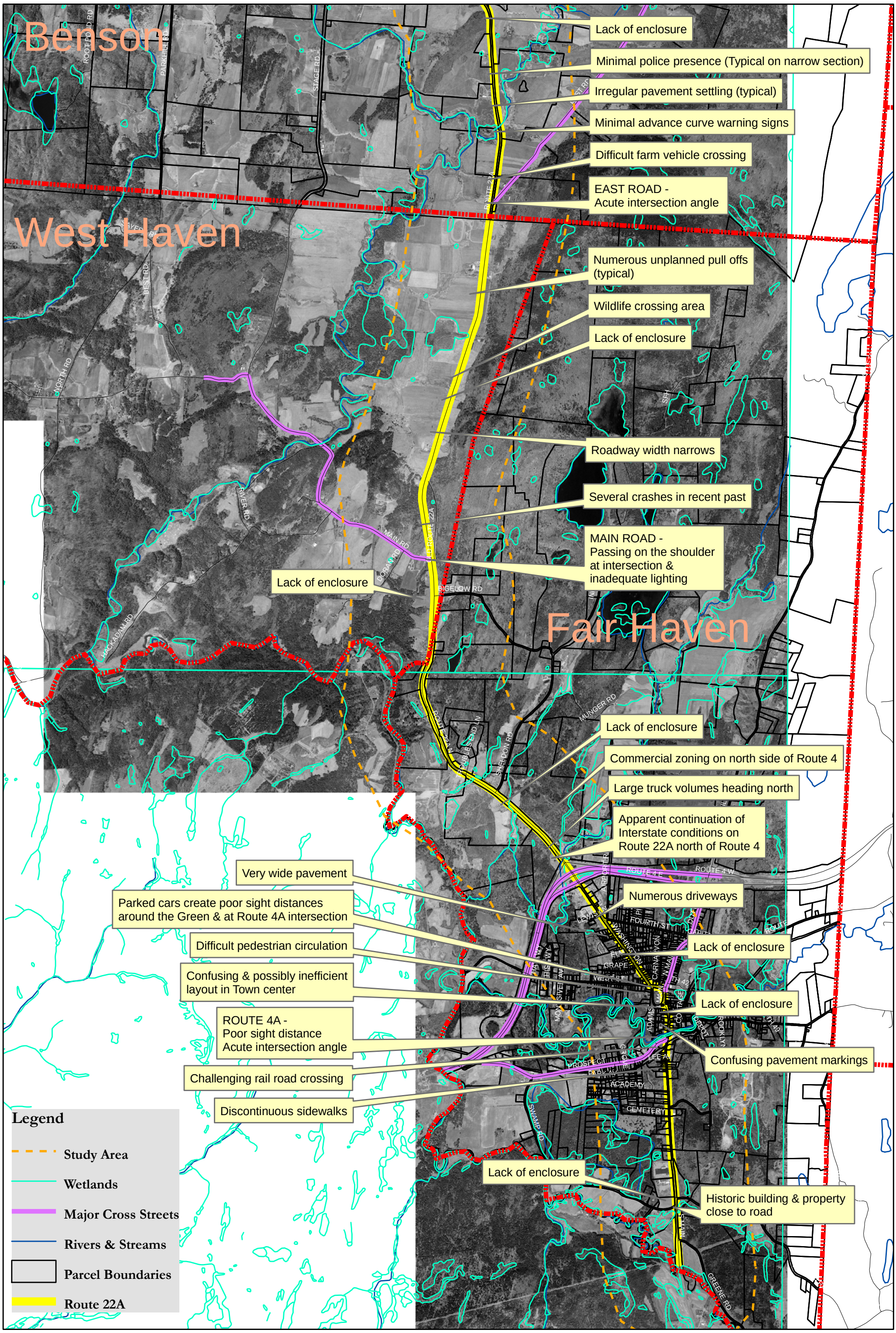
Route 22A Corridor Study

Issues Summary

August 2011 Figure 4A



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Route 22A Corridor Study

Issues Summary

July 2011 Figure 4B

Provide Park & Ride Near Intersection

Plant Street Trees

Possible Pull Off Location

Create Neighborhood Commercial District Design Standards

Provide Adequate Stormwater Management

Incorporate Access Management Principles into Zoning

ROUTE 73 -
Intersection Improvements:
- Left Turn Lane Southbound
- Relocate Signs
- No Parking Zone
- Access Management
- Upgrade Lighting
- Regrade Rt 73 West Approach
- Traffic Calming

Lower Speed Limit Rt 73 to Cook Rd

COOK ROAD -
Intersection Improvements
- Street Lighintg
- ITS Sign
- Clear Vegetation
- Traffic Calming

Create Scenic Overlay District

Shift Road Widening East to Avoid Historic Buildings

Orwell

CORRIDOR-WIDE RECOMMENDATIONS
Typical Cross Section
12-foot lane, 4-foot paved shoulder
Reconstruct Roadway Base
Farm Crossing Signs
Encourage Internal Turnarounds
Consider Byway Designation
Incorporate Wildlife Corridor Considerations into Zoning

Plant Street Trees

Manage Existing Vegetation

Improve Advanced Warning Signs

Plant Street Trees

Manage Existing Vegetation

Manage Existing Vegetation

ROUTE144 -
Intersection Improvements
- Improve Lighting
- Trim Vegetation
- Install Flashing Beacon
- No Passing Zone
- Access Management
- Wider Turing Radius
- Traffic Calming

Benson

Provide Adequate Stormwater Management

Manage Existing Vegetation

Create Scenic Overlay District

Lower Speed Limit Rt 144 to Lake Rd

Shift Road Widening East to Avoid Historic Buildings

LAKE ROAD -
Intersection Improvements
- Improve Lighting
- Revegetate Near Intersection
- Flashing Beacon
- No Passing Zone
- Regrade Lake Rd Approach
- Widen Turning Radius
- Straghten Lake Road Intersection
- Traffic Calming
- Street Trees

Provide Park & Ride in Benson

Incorporate Access Management Principles into Zoning

Improve Advanced Warning Signs

Intersection Improvements (East Road)

Legend

- Potential Future Large/Commercial Development
- Future Access Point
- Existing Access Point
- Study Area
- Major Cross Streets
- Parcel Boundaries
- Route 22A

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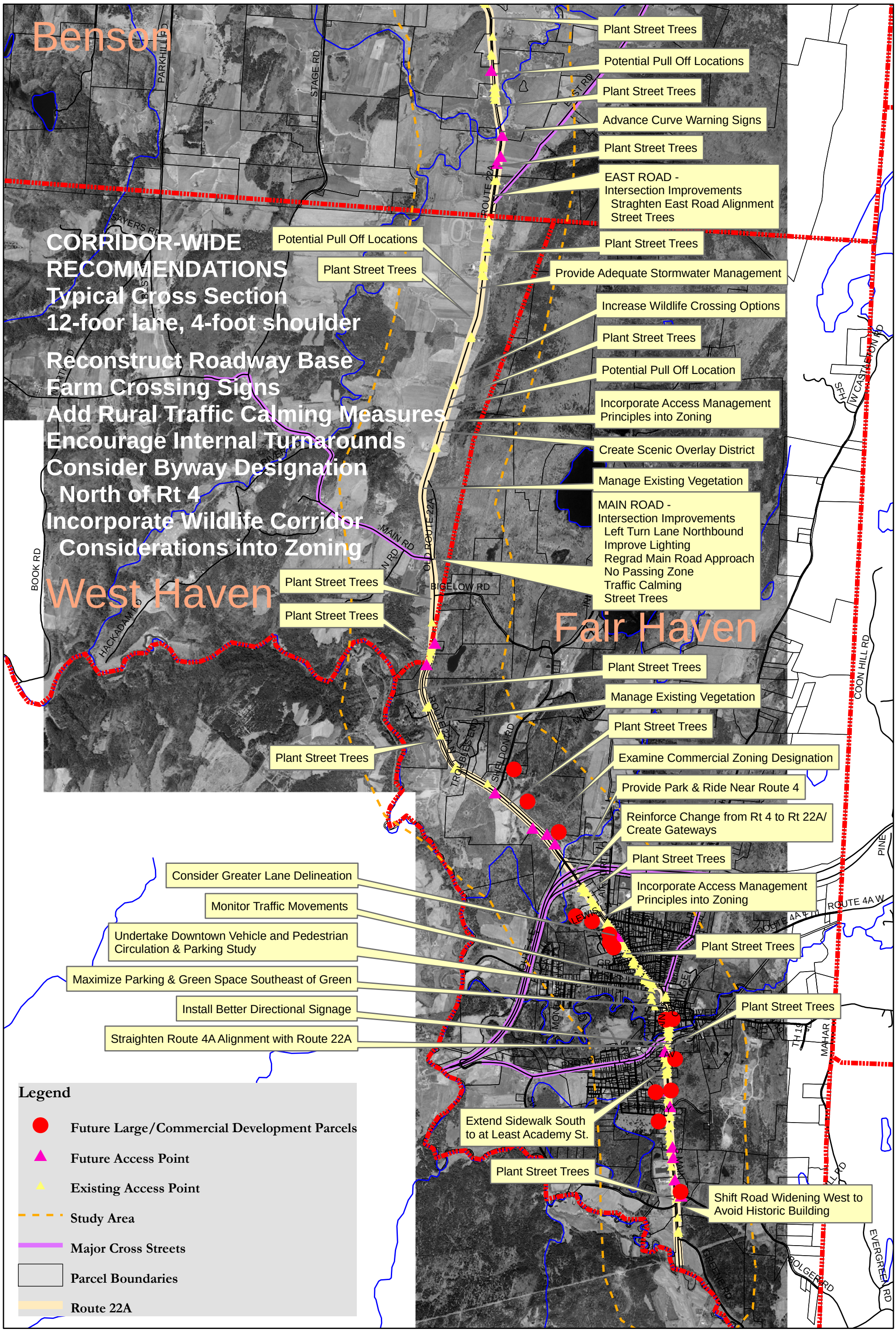
Route 22A Corridor Study
Recommendations
July 2011 Figure 5A



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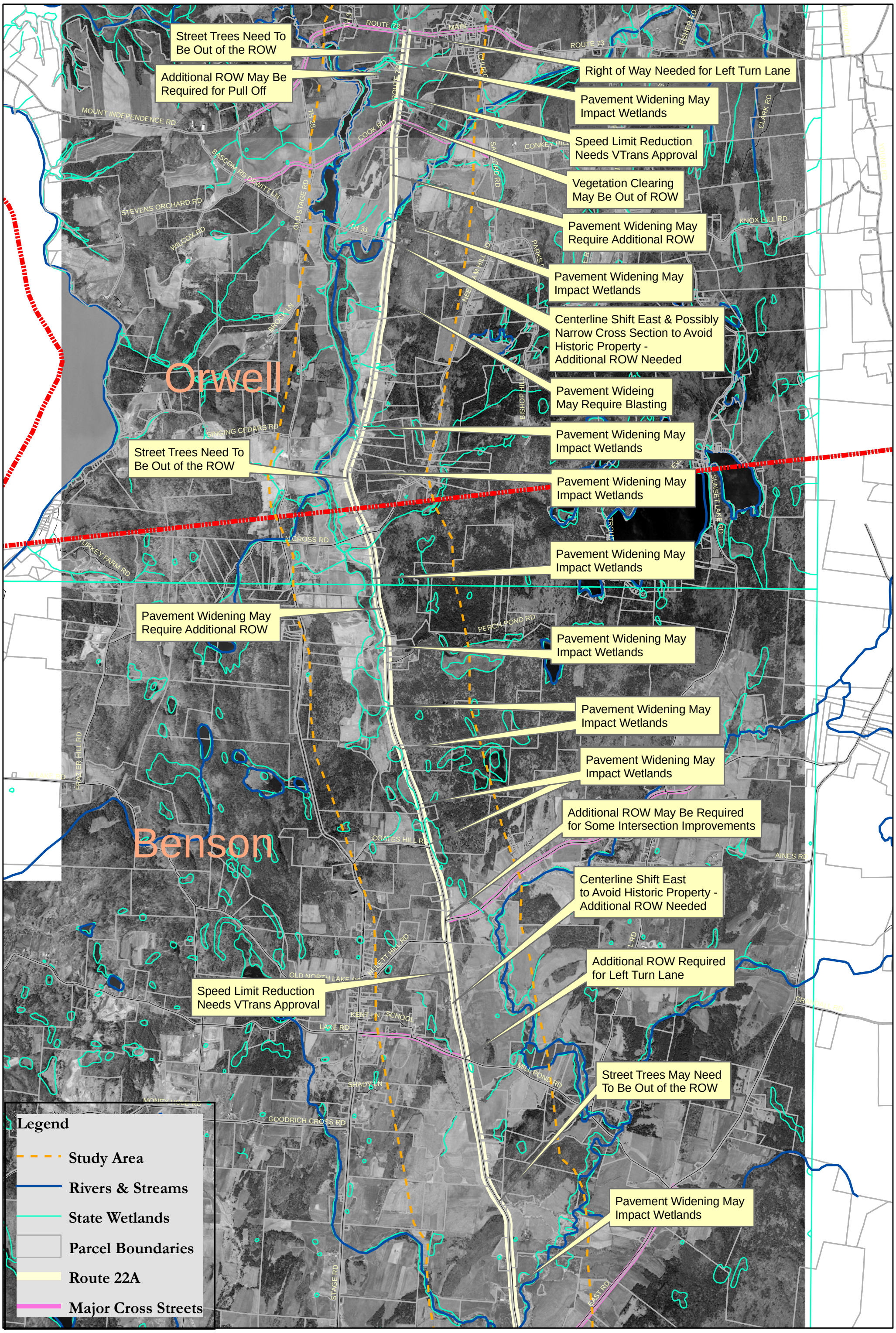
Route 22A Corridor Study
Recommendations
July 2011 Figure 5B



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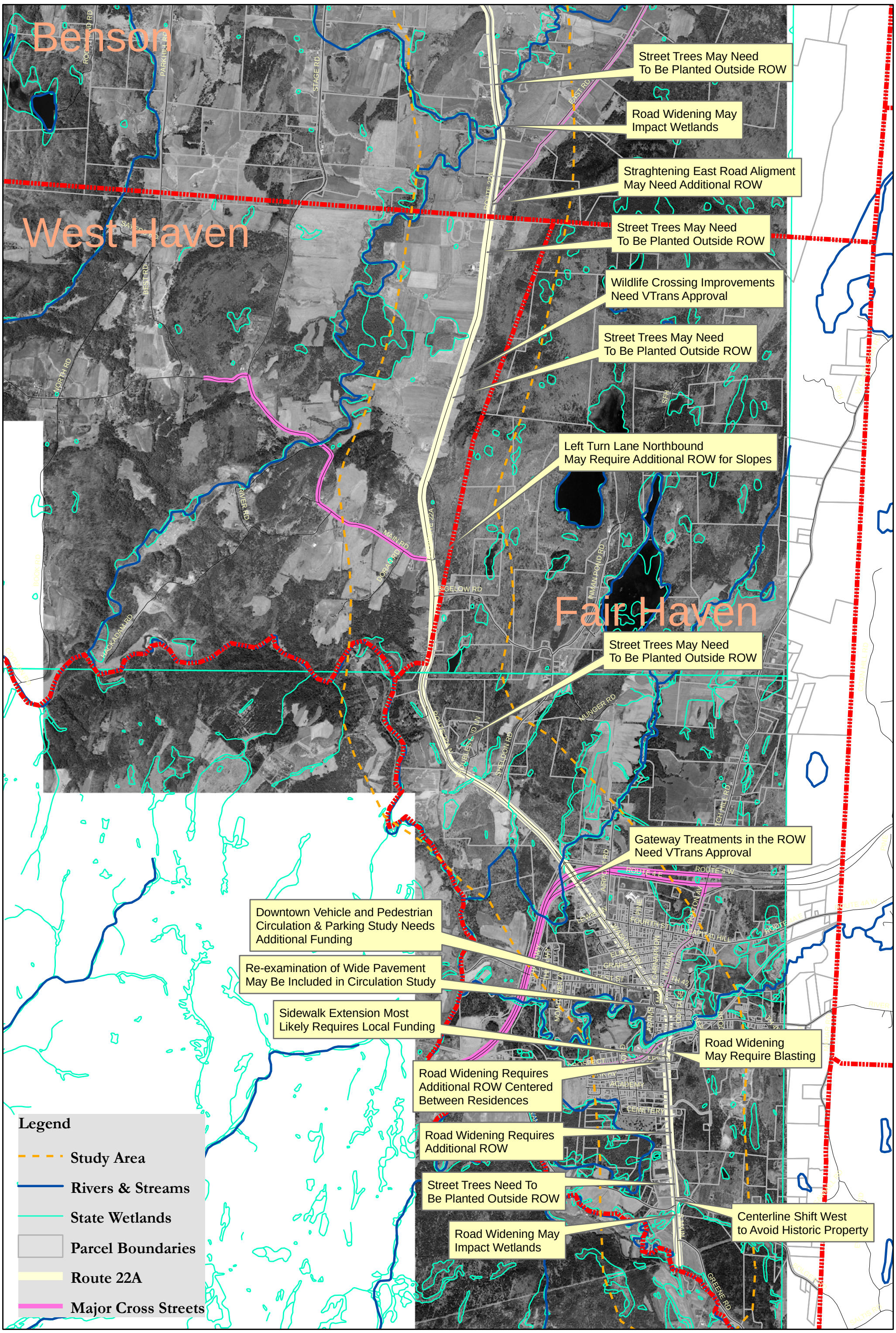
Route 22A Corridor Study

Potential Impacts

June 2011 Figure 6A



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Route 22A Corridor Study

Potential Impacts

July 2011 Figure 6B