

2011

ROADWAY STUDY

MAIN STREET, LASELL ROAD/OAKHURST ROAD & LACKEY DAM ROAD
NORTHBRIDGE & SUTTON, MASSACHUSETTS



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The Central Massachusetts Regional Planning Commission (CMRPC) is the designated regional planning entity for the Central Massachusetts region, which includes the City of Worcester and the surrounding 39 communities. This region encompasses the southern two-thirds of Worcester County.

CMRPC's mission is fourfold:

- (1) addressing growth and development issues that extend beyond community boundaries,
- (2) maintaining the district's certification for federal transportation improvement funds,
- (3) providing technical knowledge and resources to assist local government in addressing specific land use, economic or environmental problems resulting from growth or decline, and
- (4) building strong working relationships with member communities, state and federal officials as well as the area's legislative representatives.

CMRPC collaborates with local, regional, state and federal officials, as well as with legislators, in order to bring a regional perspective and a coordinated approach to the planning and development that occurs in this region. The ultimate goal of this agency is to improve the quality of life for those who work and live in the Central Massachusetts region.

We are a Regional partnership, serving the planning and development interests of our member communities, and providing municipal and regional planning for the following:

- Land Use and Transportation,
- Community Development services,
- Transit Planning for the region's transit authority, and
- Geographic Information Services (GIS).

CMRPC's Community Development and Planning (CDAP) program includes comprehensive planning services, technical planning services, and grant preparation and administration to the Region's 40 communities. In addition, CDAP conducts studies on regional growth issues and development trends. Overseeing these activities is the Physical Development Committee, which provides policy guidance for our work activities and sets the direction for the program.

Through its Delegates, each community has the opportunity to shape public policy in a real and tangible way through participation in the various committees established to implement these core focus areas. In that way, our delegates provide a vital link enabling us to deliver appropriate and desired services, to compete for discretionary grant funds, to identify community needs in transportation and land use, and to foster inter-municipal collaboration through shared services, joint studies and procurement.

On a community planning level, CMRPC provides direct technical assistance to all of our 40 communities, in addition to the ongoing regional initiatives. We have worked with numerous communities to generate Geographic Information Systems (GIS) maps and data, develop Open Space Plans, develop Master Plan elements, and complete a long list of other projects. Homeland Security programs for our entire region are administered through other projects. Homeland Security programs for our entire Region are administered through this Division, and have provided an additional opportunity for inter-municipal and programmatic coordination. Through our various efforts, we have succeeded in bringing millions of dollars in Homeland Security and other grant funds into our member communities every year.

CMRPC is pleased to have completed this two-town “East Side Road” regional planning initiative through an “Expedited Permitting 43D” Technical Assistance Grant from the Executive Office Housing and Economic Development (EOHED).

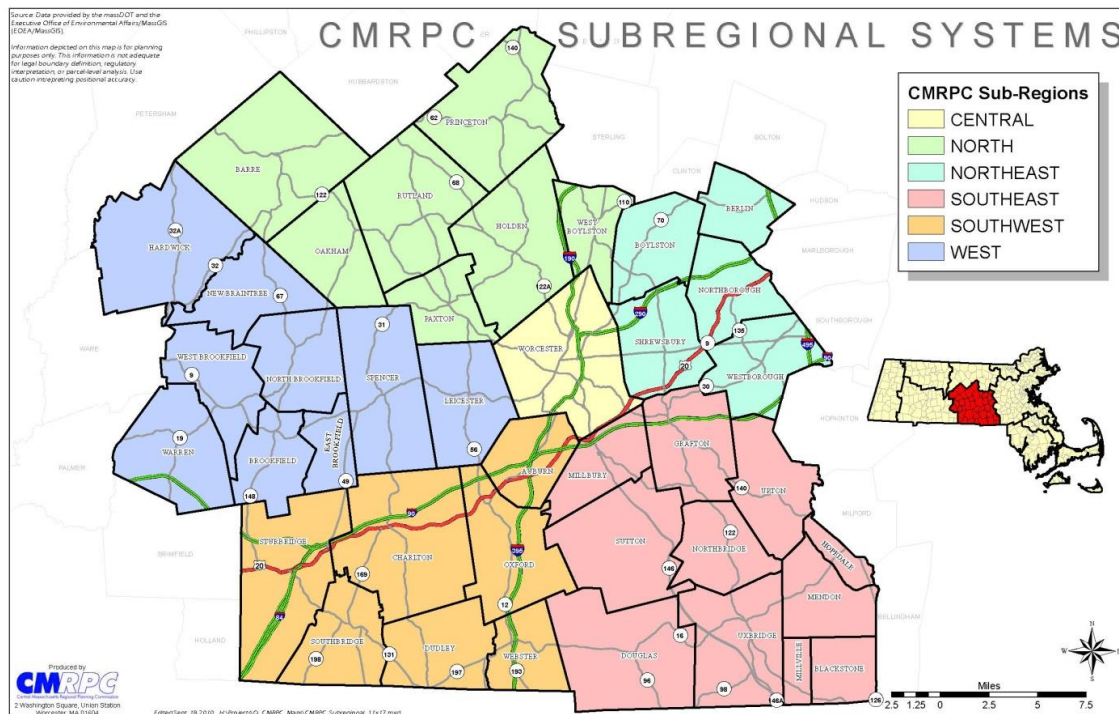


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1.0 INTRODUCTION

The Towns of Northbridge, Douglas, Sutton, and Uxbridge have been working together for the past several years to support and promote economic development along the Route 146 corridor, specifically the area where the four town boundaries merge on over 1,000 acres of land. The four-town project, Valley Crossroads, involves providing necessary infrastructure to the acreage south of Whitins Road/Main Street, including roads, water, and sewer that are not currently available.

As the towns share some road and water infrastructure, and various privately owned parcels cross town boundaries in this area, it is a natural location for regional development considerations.

This regional effort has focused primarily on recent *land use development*, evolving *transportation patterns*, and recent *infrastructure improvements* within a four-town study area. As a response to an increase in development pressure, this multi-municipal area has been studied on both the east and west sides of Route 146.

The significance of this area is augmented by several **MGL Chapter 43D** - designated **Priority Development Sites** within the four-town study area in Northbridge, Sutton, and Douglas (See Figure 1). This is another example of the communities recognizing additional ways to promote economic development in the region, and working in collaboration to do so. Further, as a result of extending the dialogue beyond town boundaries, the towns of Northbridge and Sutton have successfully rezoned certain adjoining properties on Lasell Road/Oakhurst Road to more compatible zoning designations (See Table 1), requiring parallel efforts in two communities and comprehensive actions by two open town meetings. This in turn will result in reducing the difficulty in permitting development proposals within the two municipalities.

In addition to having complementary zoning designations, the four towns recognize that it is equally important to understand and identify potential transportation geometry and patterns that will further promote economic development.

In 2009, the Towns of Northbridge and Sutton received 43D Technical Assistance Grant funds for various initiatives to promote economic development in their communities. Grants issued under this program are intended to assist in economic development endeavors in the grant communities. One of those local initiatives was to develop this preliminary Roadway Study on land located on the easterly side of Route 146, known as the East Side Roadway Study Area. This report focuses solely on the land area to the east of Route 146 (a study of the west side land area began a few years ago). The communities' goal is to provide economic development opportunities on the site in order to expand and broaden their local tax base with commercial

land uses. To that end, the towns of Northbridge and Sutton decided to evaluate the existing roadway infrastructure within the four-town study area, specifically what is considered the East Side Roadway Study Area.

This report will evaluate the roadway infrastructure of Main Street/Whitins Road, Lasell Road/Oakhurst Road, and Douglas Road/Lackey Dam Road within the East Side Roadway Study Area, which is a portion of the Valley Crossroads area. The report includes the following: general description and evaluation of existing conditions, land use, traffic data, resource areas, sightlines, turning radii, and lane widths, as well as potential layout alternatives for a new connector roadway. In addition to the roadway analysis of both existing conditions and the development of alternative roadway layouts, the scope of this study included an important component: public outreach. Public workshops provide an opportunity to understand the importance of the balance between potential conflicting interests relative to existing surrounding residential land use and the promotion of economic development in the region. A more detailed discussion of the public outreach conducted for this project is in Section 5.0.

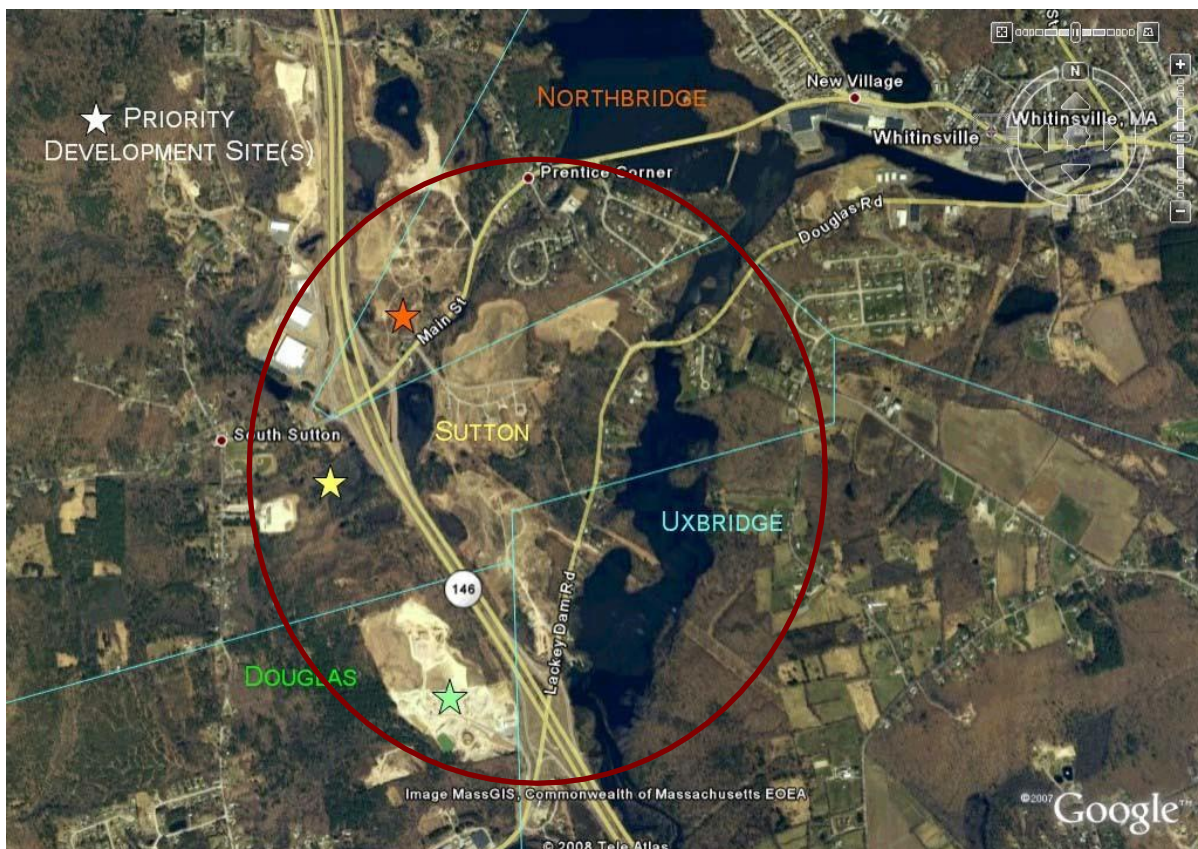


Figure 1. Priority Development Sites within the 4-town Study Area (GoogleEarth imagery 2007©)

1.1 East Side Roadway Study Area

The East Side Roadway Study Area incorporates a total area of approximately 200 acres on the east side of Route 146 distributed amongst the four towns, with more than one-half of the area in Sutton, at over 130 acres (See Figure 2). The site was historically used for gravel production, but is now essentially vacant. The overall study area also includes Main Street in Northbridge, which is the location of a designated Priority Development Site (See Figure 1). The study area is traversed by both a natural gas pipeline and electrical transmission lines, and is accessed by Lasell Road via Main Street at the northwest corner and Oakhurst Road via Lackey Dam Road at the northeast corner. There is also a curb cut at the southeast corner of the site off Lackey Dam Road in Uxbridge. There are two off-ramps from Route 146 at Lackey Dam Road and Main Street providing nearly direct access to the study area.



Route 146

Route 146 is the primary transportation corridor that supports, and contributes to, the growth of the Blackstone Valley, as well as movement of goods and people within the Blackstone Valley and between the Valley and other regions.

The Massachusetts Department of Transportation (MassDOT) originally designed Route 146 during the 1940s and constructed the road in the early 1950s. Connecting Worcester to Providence, Rhode Island, Route 146 was built as a four-lane roadway from US Route 20 in Millbury to a point just south of Boston Road; from there, Route 146 was built as a three-lane limited access roadway through the southern portion of the Blackstone Valley. The three-lane design included one lane in each direction and a shared lane striped for use for both directions along different parts of the roadway. Route 146 provided a highway bypass around the original north-south routes through the Blackstone Valley, specifically Route 122.

In 1981, MassDOT widened Route 146 from Sutton to Millville to its present four-lane cross section and reconstructed the Central Turnpike interchange from a tight half-cloverleaf, 1950s-era design to a spacious diamond interchange. In addition to the Route 146 widening, MassDOT designated a “no-access” line along Route 146 beginning just south of Boston Road to the Rhode Island border. A “no-access” line prohibits MassDOT from granting curb-cut access permits anywhere on that section of road, thus establishing its freeway-like character.

In 1997, MassDOT began constructing a new grade-separated interchange with Route 122A in Millbury. This is the southern limit of the Route 146/Massachusetts Turnpike/ Interstate 290 Connector Project, stretching from Millbury to Worcester. As part of this construction, a “no-access” line has been designated in Millbury from the Worcester city line to just south of Route 122A. This means that this section has been designated as an area restricting all access. At the location of the Route 122A interchange, a new regional shopping center has been constructed, further adding to the generation of traffic through the corridor.

With the completion of the connection of Route 146 with I-290 at Brosnihan Square in Worcester, Route 146 is an access-controlled highway from I-290 to Route 122A in Millbury. It is already an access-controlled highway from Central Turnpike in Sutton to the Rhode Island state line and beyond. For its length within Massachusetts, the only section of Route 146 that is not limited access, access controlled, or no access, is the section south of Route 122A to a location just north of Central Turnpike, approximately two miles north of the study area.

Land Use

Table 1. Zoning Classifications of each Town within the Study Area

TOWN	ZONING	AREA
SUTTON	Office – Light Industrial	130.8 ac
NORTHBRIDGE	Business Three (3)	25.6 ac
DOUGLAS	Industrial	7.7 ac
UXBRIDGE	Agricultural	36.4 ac

Current land use on Lasell Road/Oakhurst Road is predominantly single-family residential, but for the Sutton Animal Hospital. Northbridge land use within the immediate study area is vacant, but for a single family home at the corner of Main Street and Lasell Road. National Grid and Wal-Mart are located on Valley Parkway off Main Street near the study area and, as mentioned above, there is a designated Priority Development Site in Northbridge on Main Street near the study area.

The study area is made up of multiple parcels with several different landowners, so any large-scale development of the entire area would require assembling multiple parcels. This, in addition to the various possible future land use scenarios, makes this a long-term development process. Finally, it is important to note that the variety of land use options on the site result in different site design and traffic/transportation solutions, both on- and off-site. This is discussed in more detail in Section 4.0 - *Priority Development Sites - MGL Chapter 43D*.

1.2 Development Considerations

On August 2, 2006, Massachusetts General Law Chapter 43D was signed into law. As mentioned at the beginning of this report, Chapter 43D offers communities a tool for targeted economic development.

By designating parcels as Priority Development Sites, a municipality can take advantage of the following:

- a) priority consideration for state infrastructure grants;
- b) priority consideration for quasi-public financing and training programs;
- c) brownfields remediation assistance;
- d) enhanced marketing of the parcel by the state;
- e) technical assistance provided by the regional planning agencies;
- f) competitive advantage for economic development opportunities.

As stated in the Introduction, the presence of adjacent or nearby Priority Development Sites to the East Side Roadway Study Area adds an additional positive factor to the overall regional economic development goals of the area – to expand opportunities for commercial and

industrial development and promote economic development in industry clusters. (See Figure 3 and Figure 4).

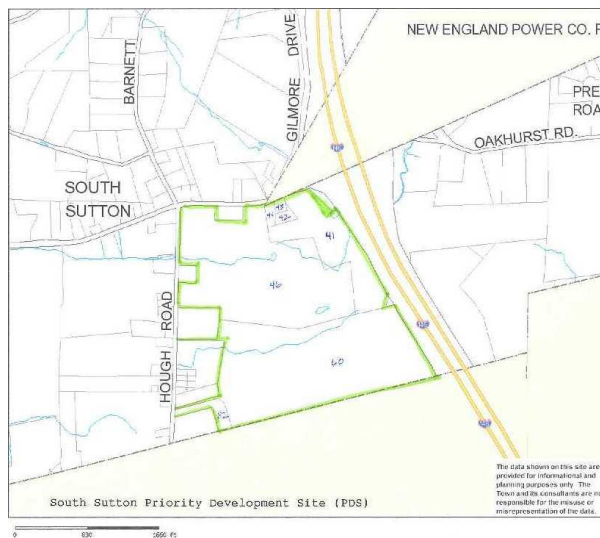


Figure 3. Nearby Priority Development Site in Sutton

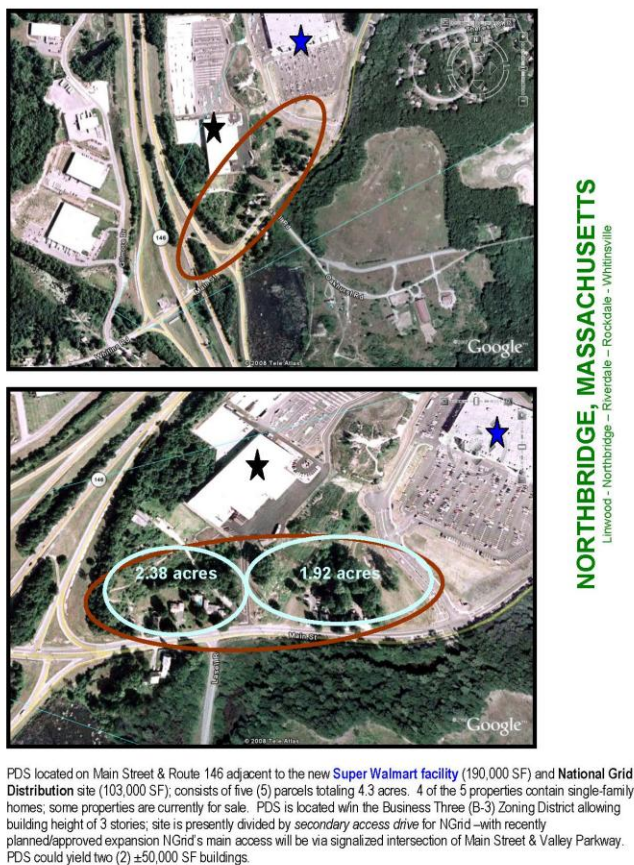


Figure 4. Adjacent Priority Development Site in Northbridge

2.0 ROADWAY ANALYSIS

A roadway evaluation relative to the East Side connector road is a preliminary step in the overall site analysis. The evaluation looks at existing roadway infrastructure, traffic volume, and surrounding land use.

Base information was gathered from the following sources:

- CMRPC staff on-site roadway survey conducted on May 13, 2010
- CMRPC staff field GPS survey conducted on May 17, 2010
- Traffic counts conducted by CMRPC in August 2008 and May 2010
- “Traffic Impact and Access Study – Proposed Oakhurst Farm Plaza”, prepared by Transportation Engineering, Planning and Policy, LLC, dated August 2007
- “Traffic Monitoring Study – Walmart Supercenter, Northbridge, MA”, prepared by GPI, dated March 2010; updated April 2011

ROADS

MA 146

Route 146 connects Worcester MA to Providence, RI, and is a four-lane access-controlled and limited access divided highway. It intersects Main Street at a full diamond interchange about one-quarter mile west of the Main Street/Lasell Road intersection. Route 146 also intersects Lackey Dam Road at a full diamond interchange about one-quarter mile west of the Lackey Dam Road/Oakhurst Road intersection.

Main Street

Main Street is a key travel route and an east-west arterial that extends from Northbridge center to the east and southern Sutton to the west. It is the primary roadway for travel to and from the downtown commercial district of Whitinsville. Near the Main Street/Lasell Road intersection, Main Street is curvilinear and has a pavement width of approximately 41 feet and includes one travel lane in each direction with variable-width shoulders. Pavement markings include a double yellow centerline and white fog lines. Utility poles, some with light fixtures, are located along the south side of the road.

To the east of Lasell Road, Main Street’s pavement width is approximately 38 feet (narrowing from 41 feet at its intersection with Lasell Road) approaching the signalized intersection with WalMart/National Grid, which is about 900 feet to the east of the Main Street/Lasell Road intersection. The intersection of Main Street and Valley Parkway provides a through lane and an exclusive left-turn lane eastbound on Main Street, and a through lane and an exclusive right-turn lane for westbound traffic.

Main Street has a posted speed limit of 35 mph near the Lasell Road intersection. Land development along the road includes a mix of residential and commercial uses and open land. A significant water and wetlands resource area exists along the south side of Main Street, between the site and Main Street from west of Lasell Road heading toward Prentice Corner.

Lasell Road/Oakhurst Road

Lasell Road/Oakhurst Road (Lasell Road in Northbridge and Oakhurst Road in Sutton) has a curvilinear alignment, within a 50-foot right-of-way. The pavement width varies along the road between approximately 23 and 27 feet. The roadway provides one lane of travel in each direction, and has no pavement markings. Some sections of the roadway have bituminous curb, but not along the entire length. The pavement condition varies from intact pavement to areas of frost heaves and recent patches. Utility poles are located along the south side of the road and then cross to the north side near #47 Lasell Road. A speed limit is not posted; by law, the default speed limit on a roadway that is not posted is 40 mph. Land use along the road includes vacant undeveloped land, some single family residential lots, and a veterinary clinic.

There is no municipal water available on Lasell Road/Oakhurst Road, although there is a 16-inch water main in Main Street. Similarly, there is no drainage infrastructure in the Sutton portion of the roadway until well past the Sutton Animal Hospital to the east. Four catchbasins, which drain to a detention basin on the south side of the road via a 12" metal cross culvert, were added approximately 8-10 years ago when Worcester Sand and Gravel redeveloped the roadway.



Figure 2. Lasell Road/Oakhurst Road

Lackey Dam Road

In the study area, Lackey Dam Road has a curvilinear alignment and has a pavement width of approximately 26 feet. There is no curbing. The pavement condition varies from intact to areas of minor frost heaves, with some areas of broken pavement at the edges. There are two posted speeds: 35 mph in Sutton and 40 mph in Uxbridge. Land use along the road includes open land, some residential lots, and a commercial construction company near the ramps at Route 146.

There is no drainage infrastructure on Lackey Dam Road from Oakhurst Road south to Route 146.

INTERSECTIONS

Main Street/Lasell Road Intersection

The Main Street/Lasell Road intersection has a “T” configuration with a STOP sign on the Lasell Road approach. All intersection legs include one lane approaches and departures. The westbound approach to Lasell Road includes a wider shoulder area that allows westbound traffic on Main Street to bypass a vehicle attempting to turn left into Lasell Road.

Available sight distance is adequate for the posted travel speeds at the intersection but would require some trimming of roadside vegetation along the south side of Main Street just north of Lasell Road (between the guardrail and the edge of the wetland area) in order to be classified as “adequate” at that location.

This intersection currently operates with low to moderate peak-hour delays. According to a recent development proposal’s traffic impact and access study, travel from Lasell Road turning either right or left onto Main Street functions at a Level of Service “B” during both the morning and afternoon peak hours.



Figure 3. Main Street/Lasell Road Intersection

Oakhurst Road/Lackey Dam Road

The Oakhurst Road/Lackey Dam Road intersection has a “T” configuration with a STOP sign on the Oakhurst approach. All intersection legs include one lane approaches and departures. Available sight distance is adequate for appropriate travel speeds at the intersection, except when looking southeast where, due to a slight rise in the vertical alignment of Lackey Dam Road, sight distance extends approximately 250 feet to Jenna Road (Lackey Dam Estates).



Figure 4. Oakhurst Road/Lackey Dam Road Intersection

Main Street/Route 146 ramps

Given the location of the proposed development area, an evaluation of the intersections of Main Street and Route 146 ramps (northbound and southbound) is important. Both ramp intersections have an offset four-legged configuration. Traffic controls include a STOP sign on the Route 146 off-ramps on the approach to Main Street.

At the Main Street/Route 146 southbound ramps intersection, left turning traffic from Main Street onto the southbound on-ramp operates with low delays. Left turns from the Route 146 southbound off-ramp operate with low to moderate delays during the AM peak hour period, and with moderate to long delays during the PM peak hour. Long delays for this side-road left-turn movement are within intersection capacity and are not atypical of peak-hour left-turn delay experienced at comparable intersections in the region. The Main Street/Route 146 northbound ramps intersection operates with low to moderate peak-hour delays.

Findings from the 2007 Proposed Oakhurst Farm Plaza Traffic Impact and Access Study show that 2012 No Build conditions indicate that the left-turn movements from the southbound and the northbound off-ramps will have a level of service of D and C respectively.



Figure 5. Route 146/Main Street Ramps

Table 2. Existing Traffic Volumes¹

Location	Daily Vehicles ²	Peak-Hour Vehicles ³	
	Average Weekday	Weekday AM	Weekday PM
Main Street at Lasell Road (2010 counts)	8171	516	732
Lasell Road east of Main Street (2006 counts)	800	86	113
Lackey Dam Road north of Rte 146 (2008 counts)	5174	414	472

Main Street carries approximately 8,171 vehicles per weekday in the vicinity of Lasell Road (total of both directions). During the weekday AM peak hour, there are approximately 516 vehicles, with 53 percent of the traffic eastbound. During the weekday PM peak hour, there are approximately 732 vehicles, with 51 percent of the traffic westbound.

Lasell Road/Oakhurst Road carries approximately 800 vehicles per weekday (total of both directions). During the weekday AM peak hour, there are approximately 86 vehicles, with 52 percent of the traffic westbound. During the weekday PM peak hour there are approximately 113 vehicles, with 58 percent eastbound.

¹ Traffic counts conducted by CMRPC in August 2008 and May 2010; 2006 counts from proposed Oakhurst Farm Plaza development project

² Volumes are two-way totals

³ The peak hour volume is the volume of traffic that uses the roadway in question during the hour of the day that observes the highest traffic volumes.

Lackey Dam Road carries approximately 5,174 vehicles per weekday (total of both directions). During the weekday AM peak hour, there are approximately 414 vehicles, with 51 percent of the traffic southbound. During the weekday PM peak hour, there are approximately 472 vehicles, with 51 percent of the traffic westbound.

Recent development proposals within the study area provide useful findings when analyzing the area for future development. Various study documents for one such proposal concluded that the majority of the proposed site traffic would be oriented to/from the west along Main Street, and principally to/from Route 146. This is of interest when looking at Lackey Dam Road, as the proposed site development area has proximate ramp access to/from Route 146 at Lackey Dam Road as well. With appropriate site drive configuration, and potential changes to the layout of Oakhurst Road, truck traffic on Oakhurst Road could be restricted. Given the residential nature of the east end of Oakhurst Road, this is a recommendation in the overall plan proposal (see Section 3.0, Roadway Alternatives).

Major proposed roadway and traffic control improvements recommended in other studies at the Main Street/Lasell Road intersection included:

- Widen Lasell Road leg to Main Street to approximately 40 feet to provide: 12-foot wide left-turn and right-turn lanes approximately 250 feet long approaching Main Street, and a 12-foot wide southbound departure lane and two-foot shoulder offsets; this provides roadway geometry to current design standards.
- Remark the existing paved width of Main Street near the intersection to provide: a 12-foot wide, 100-foot long left-turn lane on the westbound approach to the intersection, one through-travel lane in each direction about 12 feet wide, and variable width shoulder offsets; this will provide standard roadway geometry for access to expanded commercial uses.
- Widen the corner radii on the southeast and southwest corners of the Main Street/Lasell Road intersection to provide for large semi-trailer turns.
- Widen Lasell Road to a 30-foot paved width to the site entrance; paint a double yellow centerline and white fog lines to provide 13-foot travel lanes and two-foot shoulder offsets; this will provide standard roadway geometry for access to expanded commercial uses.

A field GPS survey conducted by CMRPC staff on May 17, 2010 confirmed the location of a large water body and resource area on the proposed project site at the signalized intersection of Main Street and the new Wal-Mart/National Grid facility at Valley Parkway. This will be discussed in more detail in the Alternatives Analysis, but it is mentioned here as a caveat to the above-listed proposed roadway improvements for the trucking facility. Although the location of the existing signalized intersection is a preferred location for the proposed site roadway intersection with Main Street, should the environmental impacts to the resource areas at the Wal-Mart/National Grid signalized intersection prove to be infeasible, then the Lasell Road/Main Street intersection is the next alternative location. Further analysis, as detailed in the Alternatives Analysis, indicates that additional improvements to those listed above will be necessary to provide a fully functioning intersection at full build.

3.0 ALTERNATIVES ANALYSIS

Once we understand the desired development outcome on the property, that being a mix of commercial and/or light industrial uses, and existing conditions affecting the area, the next step is to consider what changes would be appropriate for further review. Specifically, which roadway changes could be considered to further the economic development goals of the area.

Five alternative connector roadway configurations were developed as part of this project. The premise behind each alternative is to provide vehicular access to the parcels of development potential within the study area. Although access to Main Street utilizing the existing signal at Valley Parkway was identified as an advantage, it is important to consider other alternatives as a resource area crossing would be necessary, which could prove costly. These alternatives were discussed with the Town Planners in Sutton and Northbridge and were then vetted in a meeting with area landowners to get feedback. The alternatives vary slightly from one another in an effort to show the range of possibilities to achieving the desired end result. Small details may prove to be very important when considering the overall roadway design.

In addition to concept maps, the following section describes each of the alternatives and notes various initial details describing the alternative as well as necessary infrastructure upgrades. The maps are organized to show the detailed notes on one map, followed by the concept map without the details to illustrate the overall design concept.

It is important to note that the roadway alternatives are not intended to be definitive engineered roadway plans. Rather they are meant to illustrate alternative approaches to developing access to the site and identify the advantages and potential issues associated with each approach.

The following issues carry through each of the roadway alternatives:

- Maintain access to veterinary clinic
- A disposition plan or design is necessary for surplus public right-of-way created by the alternative roadway design

It is also important to encourage efficient design within the development(s) on the site. Site design should minimize traffic conflicts, promote beneficial sightlines, utilize shared access driveways to minimize the number of curb cuts, etc.

Please see Section 5.0: Public Outreach and Next Steps which outlines the discussion from the public landowners meeting as well as next steps for Towns' consideration.

3.1 ALTERNATIVE 1

Key Features:

- Single north-south connector road with access points at Valley Parkway/Main Street and Lackey Dam Road
- Elimination of Lasell Road west of the new connector road
- End Oakhurst Road to restrict truck traffic to the new connector road and maintain residential access to Oakhurst Road only
- Requires bridge or other crossing at resource area near Valley Parkway
- Eliminates previous direct access from Oakhurst Road to Main Street

Advantages:

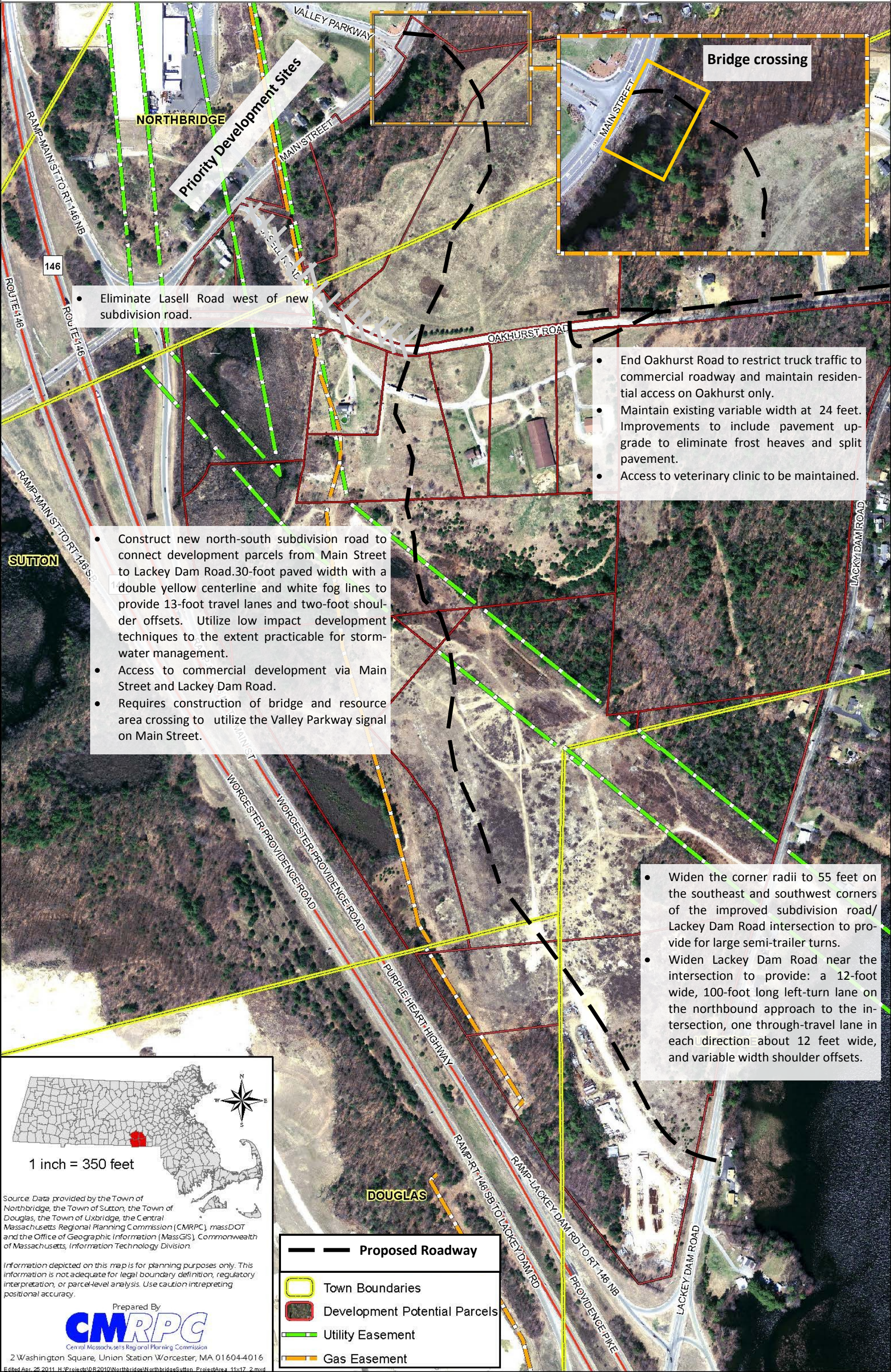
- Creates exclusive commercial use roadway for the site
- Eliminates residential-commercial traffic conflict by closing Lasell Road and ending Oakhurst Road
- Utilizes existing signalized intersection at Valley Parkway

Issues:

- Requires bridge/resource crossing to connect roadway to signal at Valley Parkway. More detailed analysis is necessary to determine the feasibility of relocating the signal and intersection at a more advantageous location northeast on Main Street to avoid significant engineering, cost, and resource area impacts. Shifting the intersection may result in the ability to construct a culvert rather than a bridge for the crossing. Conceptual cost estimates for the bridge decking (and not including engineering, structural work, etc.) are \$300,000 - \$500,000 at this location.
- More detailed analysis is necessary to determine the precise location of the site access from Lackey Dam Road to ensure there is no conflict with the ramps from Route 146. The general rule of thumb is a 300-foot separation between the access drive and the ramps, but that depends on roadway speed and sight distance, and will also depend on the traffic generated by the site access drive, which will be determined by land use.

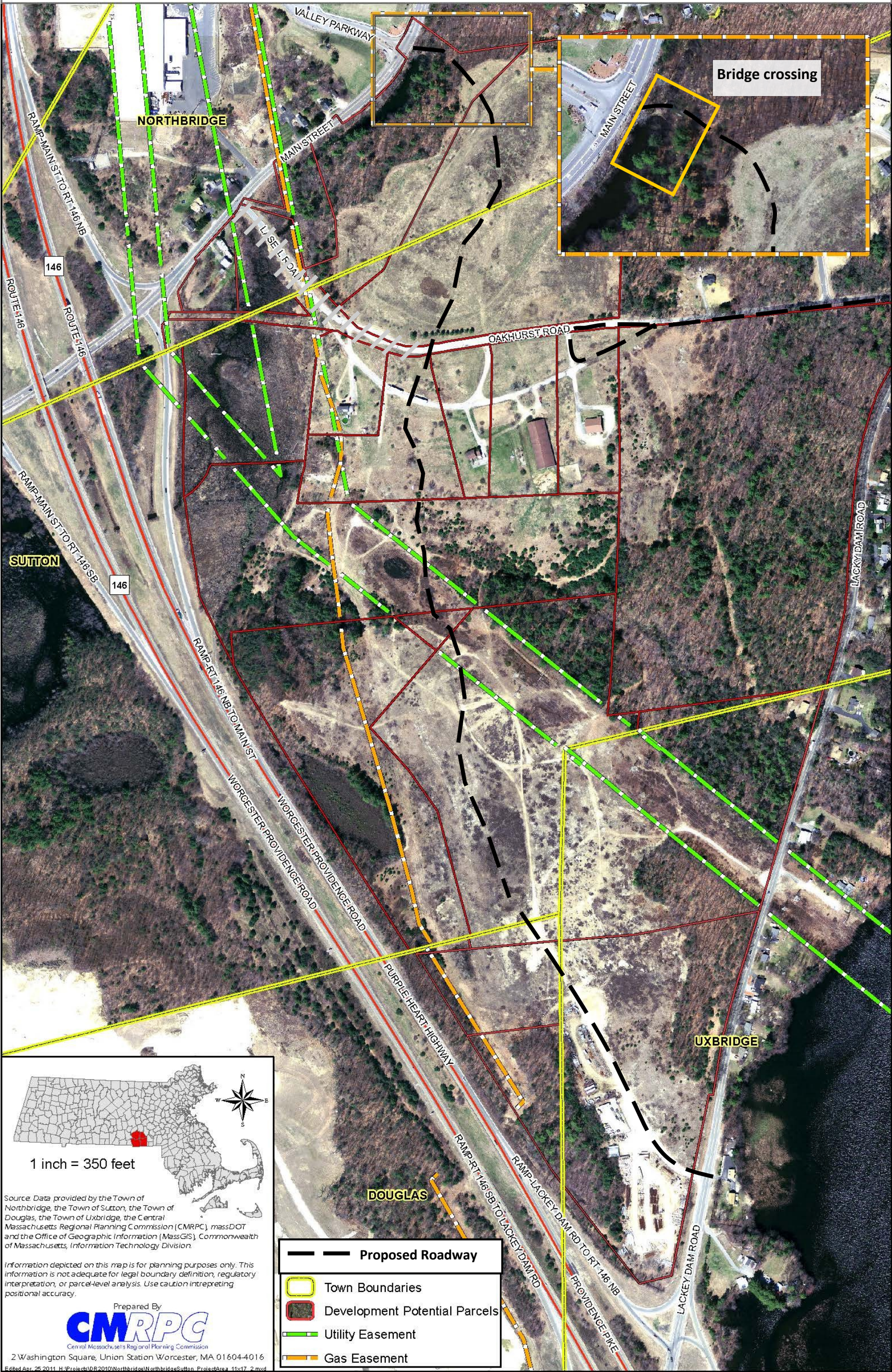
ALTERNATIVE 1

East Side Road Project Area



ALTERNATIVE 1

East Side Road Project Area



3.2 ALTERNATIVE 2

Key Features:

- Single north-south connector road with access points at Valley Parkway/Main Street and Lackey Dam Road
- Lasell Road remains open, but with a truck exclusion
- Oakhurst Road is narrowed and has a truck exclusion
- Requires bridge or other crossing at resource area near Valley Parkway

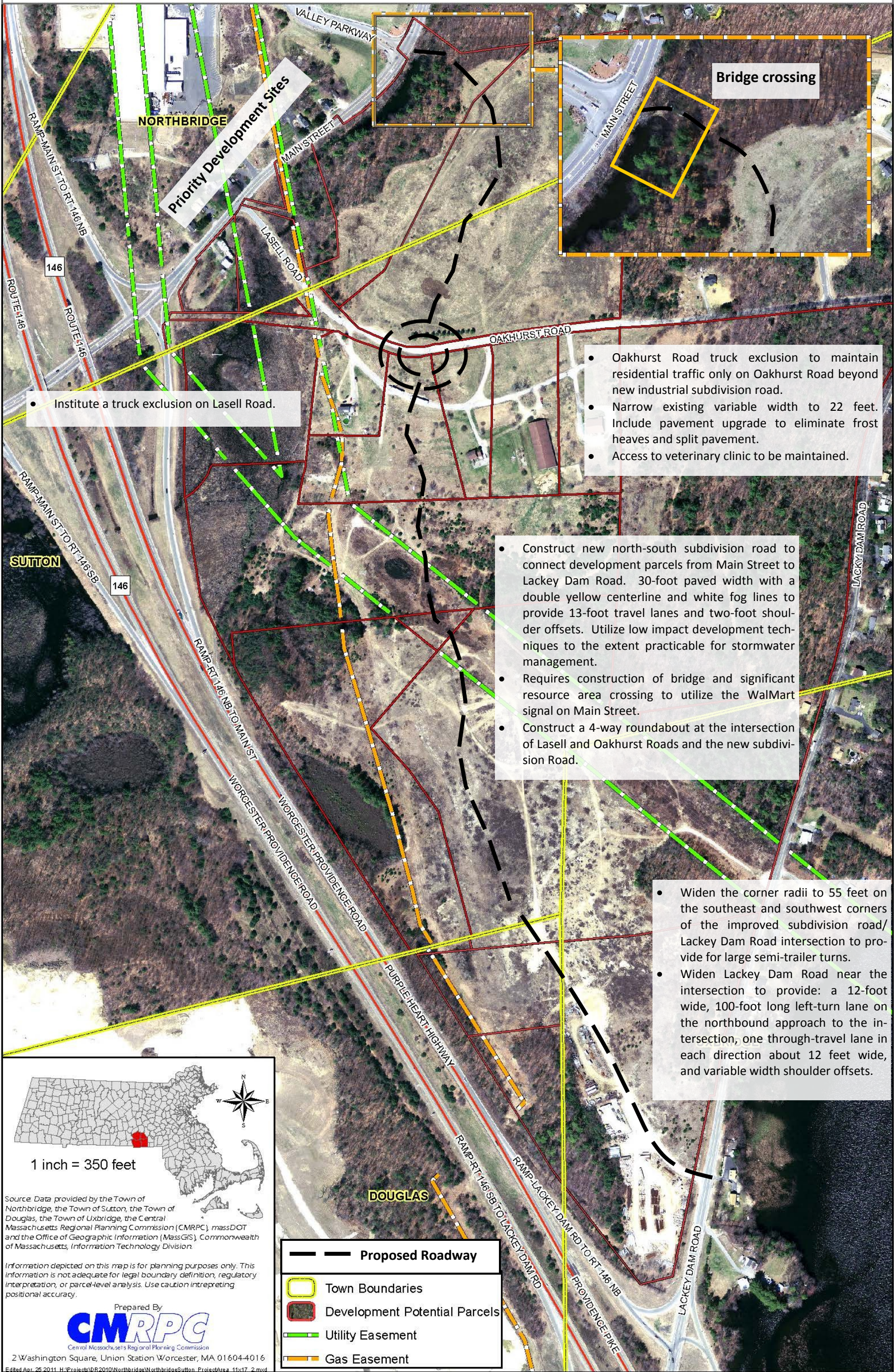
Advantages:

- Creates exclusive commercial use roadway for the site
- Discourages residential-commercial traffic conflict by instituting a truck exclusion on Lasell Road/Oakhurst Road and utilizes traffic calming measures by narrowing the pavement width on Oakhurst Road
- Utilizes existing signalized intersection at Valley Parkway
- Utilizes traffic calming measures at the intersection of Lasell Road and the new connector roadway. A four-way stop configuration would be sufficient at this intersection unless the proposed use is retail. If a retail use is proposed, then a roundabout sized for larger tractor trailer trucks would be sufficient.

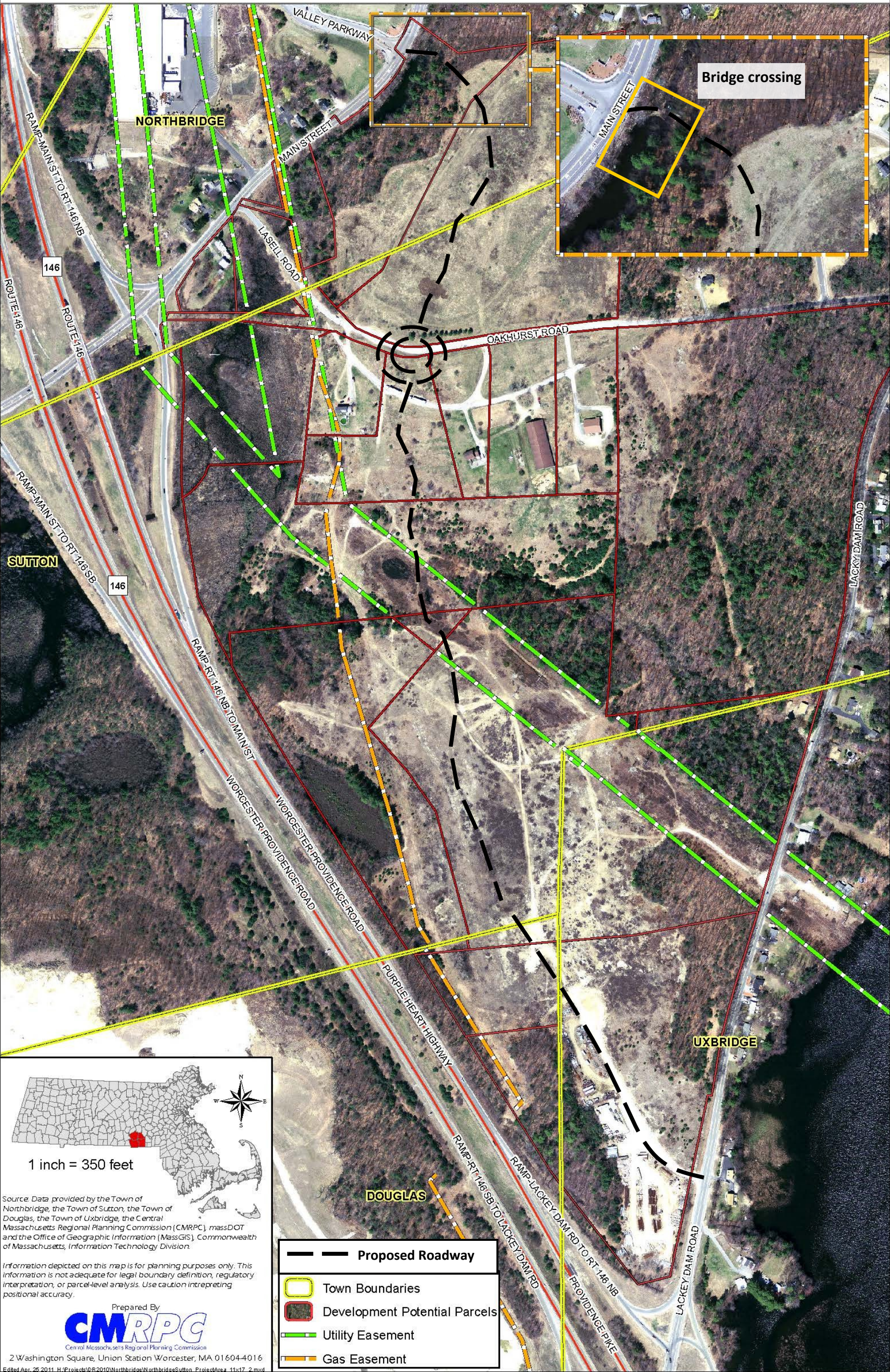
Issues:

- Requires bridge/resource crossing to connect roadway to signal at Valley Parkway. More detailed analysis is necessary to determine the feasibility of relocating the signal and intersection at a more advantageous location northeast on Main Street to avoid significant engineering, cost, and resource area impacts. Shifting the intersection may result in the ability to construct a culvert rather than a bridge for the crossing. Conceptual cost estimates for the bridge decking (and not including engineering, structural work, etc.) are \$300,000 - \$500,000 at this location.
- More detailed analysis is necessary to determine the precise location of the site access from Lackey Dam Road to ensure there is no conflict with the ramps from Route 146. The general rule of thumb is a 300-foot separation between the access drive and the ramps, but that depends on roadway speed and sight distance, and will also depend on the traffic generated by the site access drive, which will be determined by land use.

ALTERNATIVE 2
East Side Road Project Area



ALTERNATIVE 2
East Side Road Project Area



3.3 ALTERNATIVE 3

Key Features:

- Single north-south connector road with access points at Main Street/Lasell Road and at Lackey Dam Road
- Oakhurst Road is narrowed and has a truck exclusion to maintain residential access to Oakhurst Road only

Advantages:

- Creates exclusive commercial use roadway for the site
- Discourages residential-commercial traffic conflict by instituting a truck exclusion on Oakhurst Road and utilizes traffic calming measures by narrowing the pavement width on Oakhurst Road
- Does not utilize the existing signalized intersection at Valley Parkway and thus does not require a bridge/resource area crossing

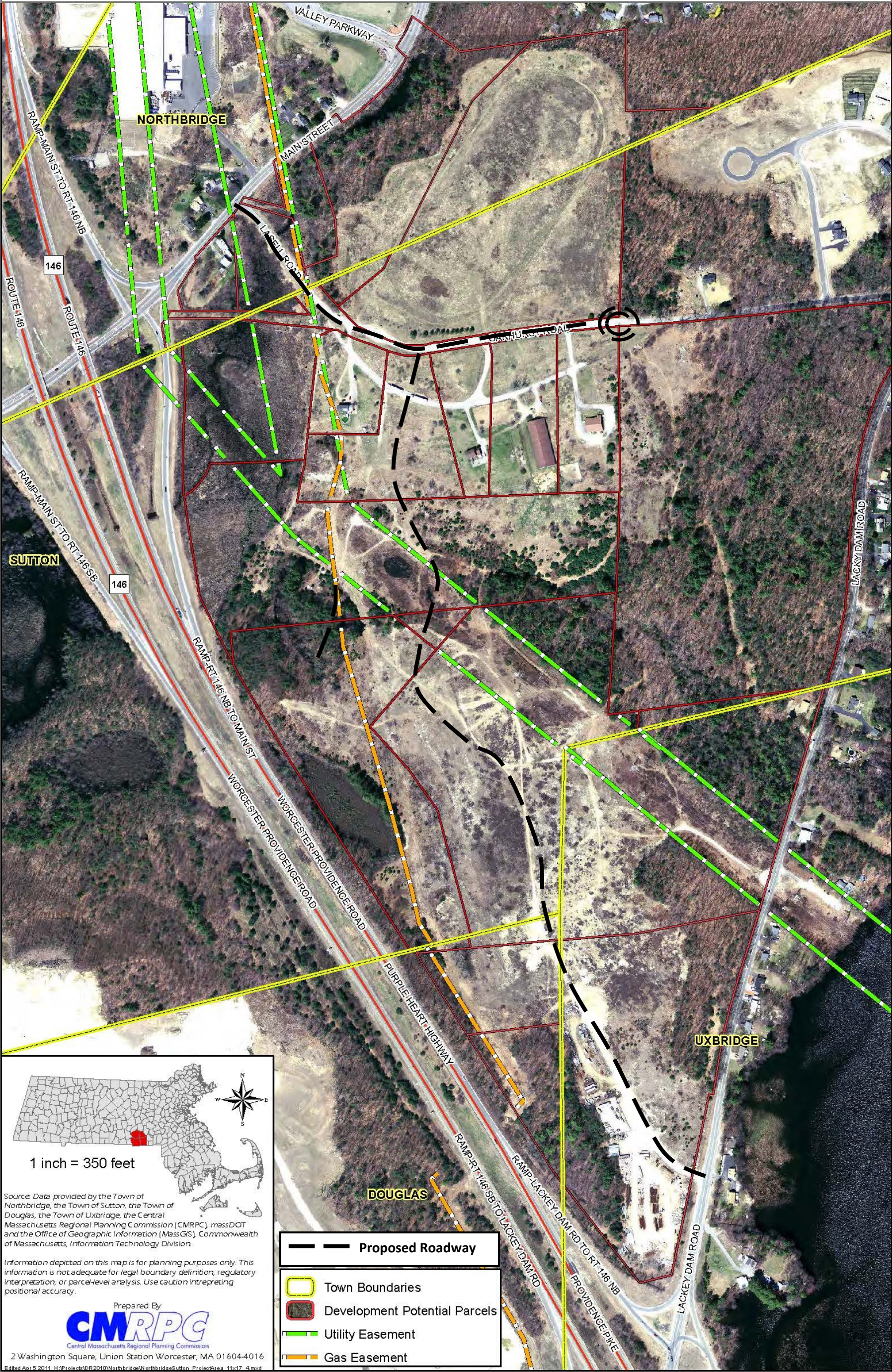
Issues:

- Existing resource area at the Main Street/Lasell Road area creates constraints to roadway improvements
- More detailed analysis is necessary to determine the precise location of the site access from Lackey Dam Road to ensure there is no conflict with the ramps from Route 146. The general rule of thumb is a 300-foot separation between the access drive and the ramps, but that depends on roadway speed and sight distance, and will also depend on the traffic generated by the site access drive, which will be determined by land use.
- More detailed analysis on the Main Street/Lasell Road intersection will be necessary when a proposed land use for the site is determined. The proposed land use will determine if a signal is warranted. If a signal is warranted, it is likely that the ramps at Route 146 would need to be altered which, given that there is the potential for 200 acres of developable land, is not unreasonable. The ramps are what restrict the signalization of the intersection.

ALTERNATIVE 3
East Side Road Project Area



ALTERNATIVE 3
East Side Road Project Area



3.4 ALTERNATIVE 4

Key Features:

- Single north-south connector road with access points at Main Street/Lasell Road and at Lackey Dam Road
- End Oakhurst Road to restrict truck traffic to the new connector road and maintain residential access to Oakhurst Road only
- Requires bridge or other crossing at resource area near Valley Parkway
- Eliminates previous direct access from Oakhurst Road to Main Street

Advantages:

- Creates exclusive commercial use roadway for the site
- Discourages residential-commercial traffic conflict by instituting a truck exclusion on Oakhurst Road and utilizes traffic calming measures by narrowing the pavement width on Oakhurst Road
- Does not utilize the existing signalized intersection at Valley Parkway and thus does not require a bridge/resource area crossing

Issues

- Access to veterinary clinic must be maintained
- Existing resource area at the Main Street/Lasell Road area creates constraints to roadway improvements
- Necessary to establish design for area of public right-of-way to be eliminated
- More detailed analysis is necessary to determine the precise location of the site access from Lackey Dam Road to ensure there is no conflict with the ramps from Route 146. The general rule of thumb is a 300-foot separation between the access drive and the ramps, but that depends on roadway speed and sight distance, and will also depend on the traffic generated by the site access drive, which will be determined by land use.
- More detailed analysis on the Main Street/Lasell Road intersection will be necessary when a proposed land use for the site is determined. The proposed land use will determine if a signal is warranted. If a signal is warranted, it is likely that the ramps at Route 146 would need to be altered which, given that there is the potential for 200 acres of developable land, is not unreasonable. The ramps are what restrict the signalization of the intersection.

ALTERNATIVE 4
East Side Road Project Area

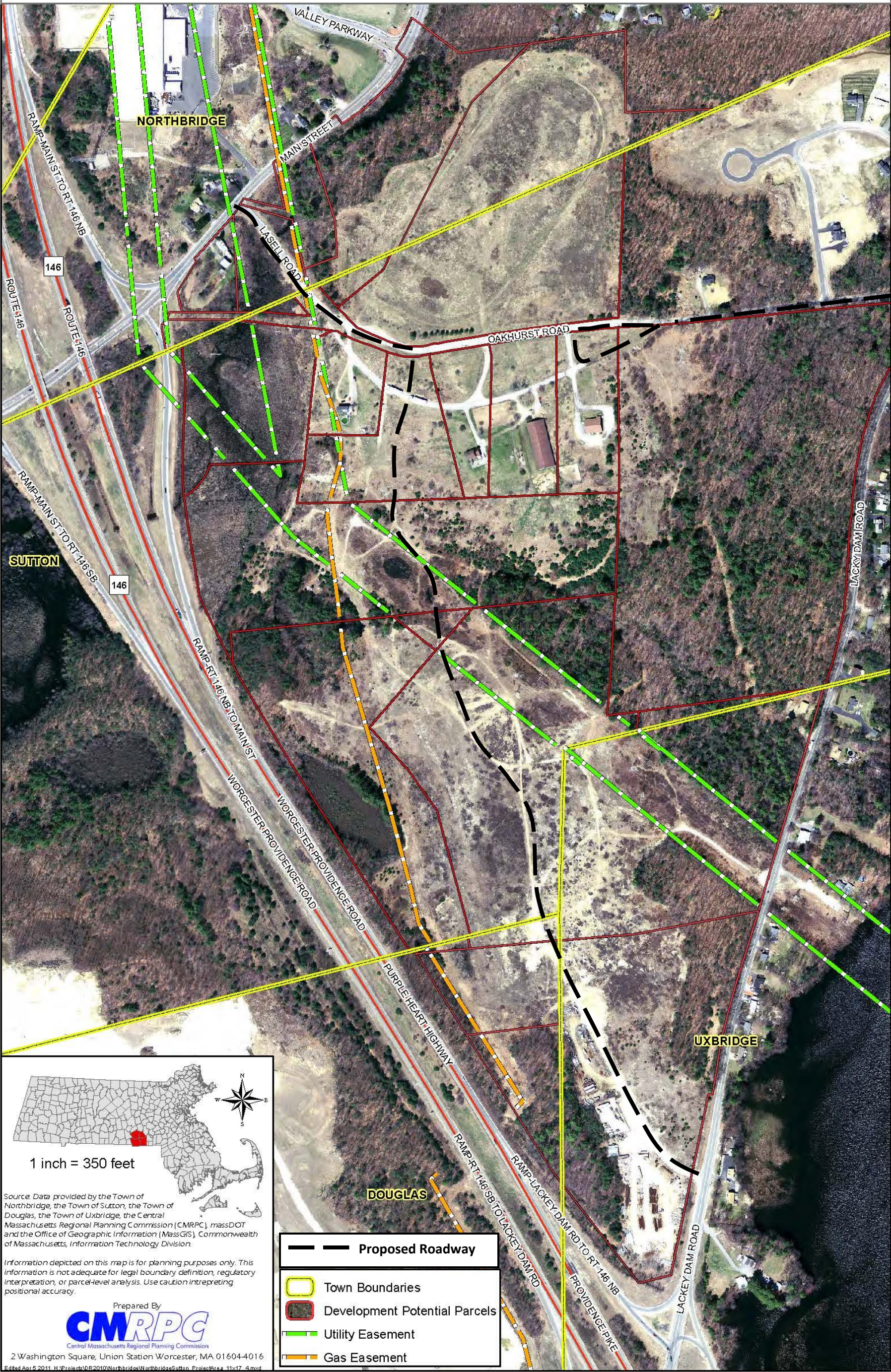


- Widen Lasell Road leg to Main Street to approximately 40 feet to provide: 12-foot wide left-turn and right-turn lanes approximately 250 feet long approaching Main Street, and a 12-foot wide southbound departure lane and two-foot shoulder offsets
- Remark the existing paved width of Main Street near the intersection to provide: a 12-foot wide, 100-foot long left-turn lane on the westbound approach to the intersection, one through-travel lane in each direction about 12 feet wide, and variable width shoulder offsets
- Widen the corner radii to 55 feet on the southeast and southwest corners of the Main Street/Lasell Road intersection to provide for large semi-trailer turns
- Widen Lasell Road to a 30-foot paved width to the site entrance; paint a double yellow centerline and white fog lines to provide 13-foot travel lanes and two-foot shoulder offsets

- End Oakhurst Road to restrict truck traffic to commercial roadway and maintain residential access on Oakhurst only.
- Maintain existing variable width at 24 feet. Improvements to include pavement upgrade to eliminate frost heaves and split pavement.
- Access to veterinary clinic to be maintained.

- Construct new north-south subdivision road to connect development parcels from Lasell Road to Lackey Dam Road. 30-foot paved width with a double yellow centerline and white fog lines to provide 13-foot travel lanes and two-foot shoulder offsets. Utilize low impact development techniques to the extent practicable for stormwater management.
- Access to commercial development via Main Street and Lackey Dam Road.
- Widen the corner radii to 55 feet on the southeast and southwest corners of the improved subdivision road/Lackey Dam Road intersection to provide for large semi-trailer turns.
- Widen Lackey Dam Road near the intersection to provide: a 12-foot wide, 100-foot long left-turn lane on the northbound approach to the intersection, one through-travel lane in each direction about 12 feet wide, and variable width shoulder offsets.

ALTERNATIVE 4
East Side Road Project Area



3.5 ALTERNATIVE 5

Key Features:

- Single north-south connector road with access points at Valley Parkway/Main Street and Lackey Dam Road
- No truck exclusion is established on Lasell Road/Oakhurst Road
- Access to veterinary clinic is maintained
- Requires bridge or other crossing at resource area near Valley Parkway

Advantages:

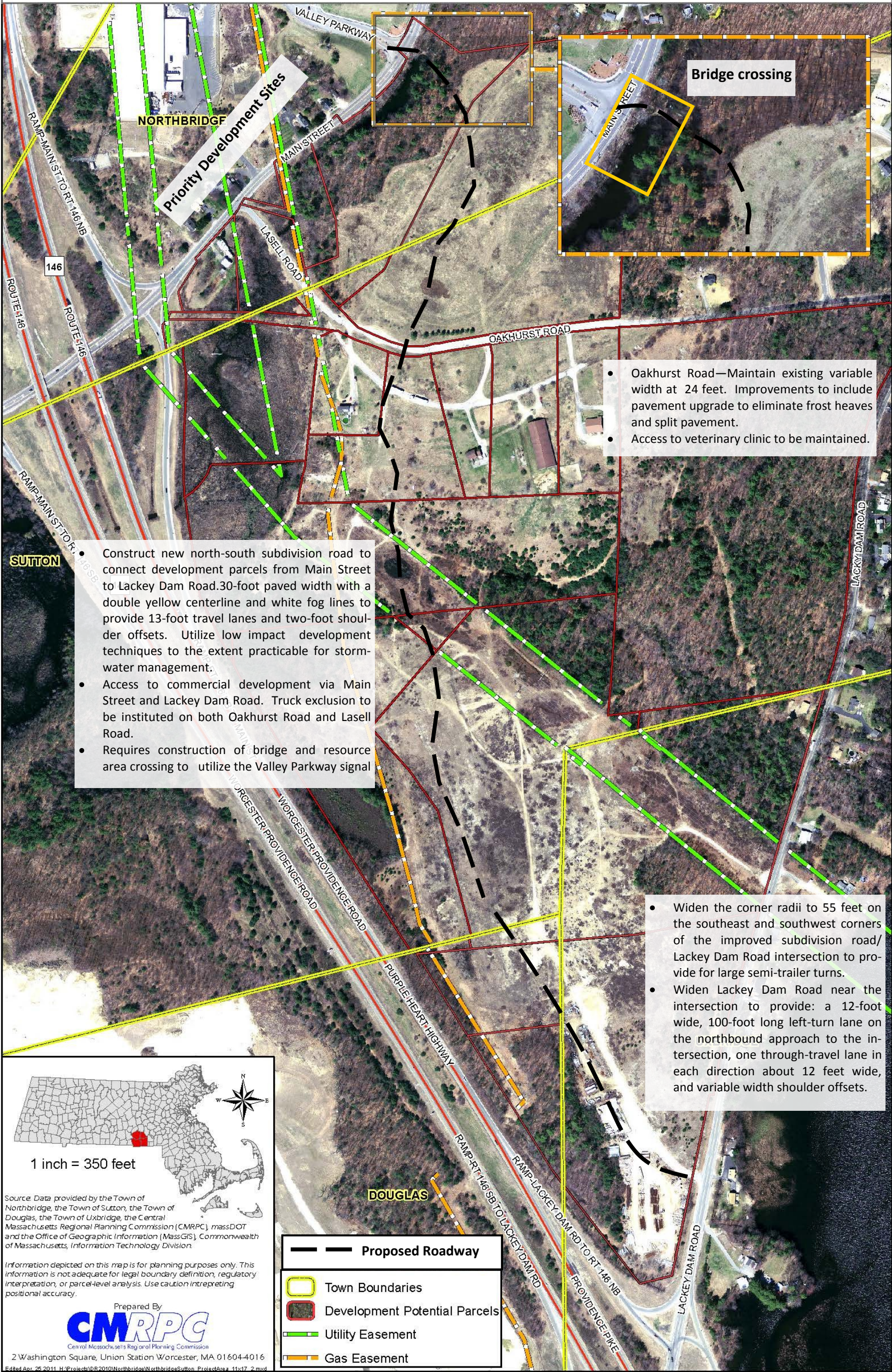
- Creates exclusive commercial use roadway for the site
- Utilizes existing signalized intersection at Valley Parkway
- Utilizes traffic calming measures at the intersection of Lasell Road and the new connector roadway. A four-way stop configuration would be sufficient at this intersection unless the proposed use is retail. If a retail use is proposed, then a roundabout sized for larger tractor trailer trucks would be sufficient.

Issues:

- Maintains roadway access for all traffic (commercial and residential) on Lasell Road/Oakhurst Road – potential use conflict if site tenants do not encourage use of main connector road
- Requires bridge/resource crossing to connect roadway to signal at Valley Parkway. More detailed analysis is necessary to determine the feasibility of relocating the signal and intersection at a more advantageous location northeast on Main Street to avoid significant engineering, cost, and resource area impacts. Shifting the intersection may result in the ability to construct a culvert rather than a bridge for the crossing. Conceptual cost estimates for the bridge decking (and not including engineering, structural work, etc.) are \$300,000 - \$500,000 at this location.
- More detailed analysis is necessary to determine the precise location of the site access from Lackey Dam Road to ensure there is no conflict with the ramps from Route 146. The general rule of thumb is a 300-foot separation between the access drive and the ramps, but that depends on roadway speed and sight distance, and will also depend on the traffic generated by the site access drive, which will be determined by land use.

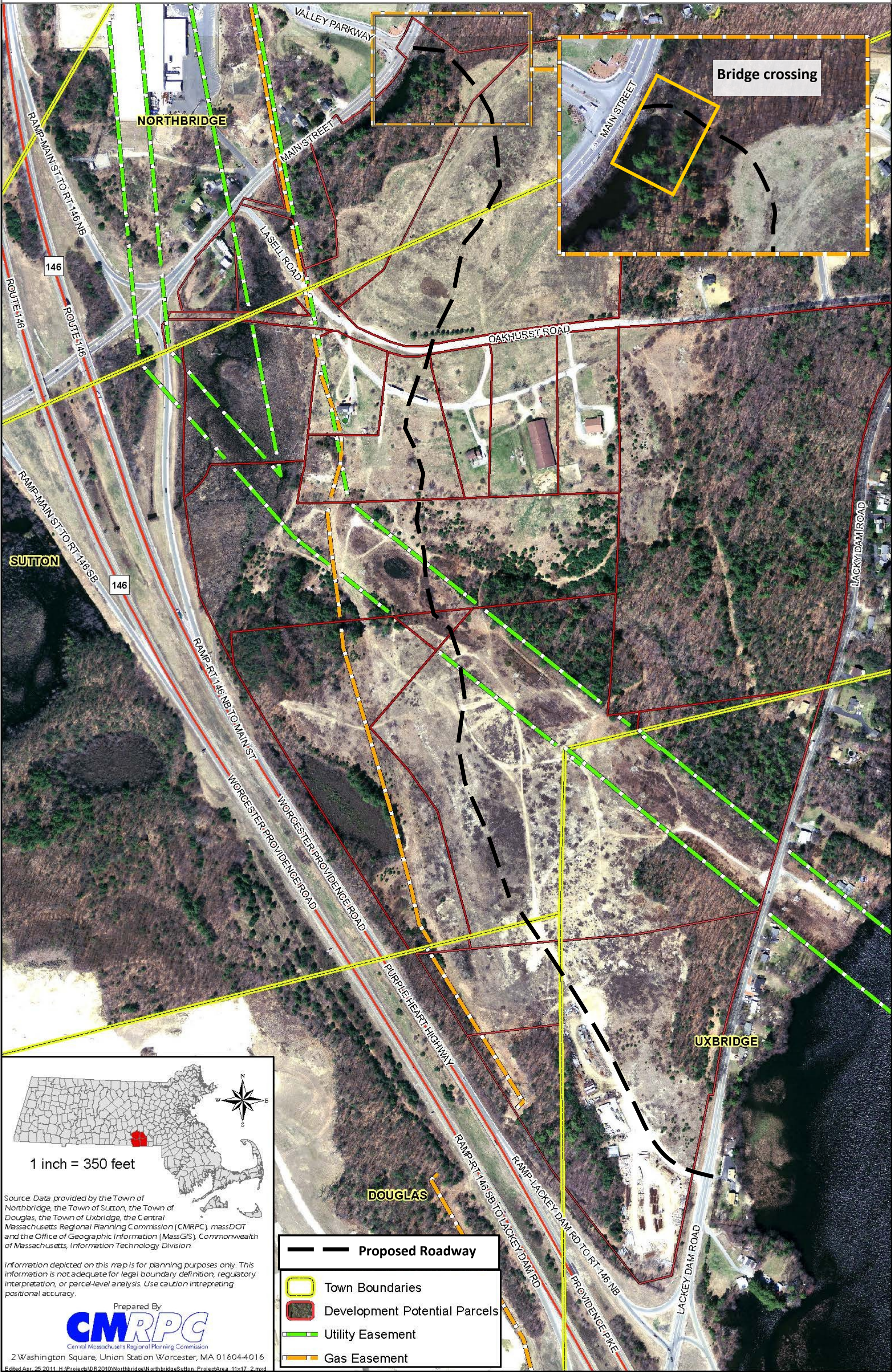
ALTERNATIVE 5

East Side Road Project Area



ALTERNATIVE 5

East Side Road Project Area



4.0 KEY FACTORS FOR CONSIDERATION

The following represent additional factors to keep in mind as the site development process continues. These affect many aspects of the development process, including both on-site development as well as roadway design development.

Land use

The proposed use of the site (retail, office, hotel, light industrial manufacturing, distribution facility, etc.) is a key factor that affects many aspects of the project.

For example, a predominantly office/light industrial use will have a smaller traffic impact than a retail use in terms of volume, but a shift differential for employees will have an impact on the timing of the peak flow.

Another example is an extended-stay hotel, which might be associated with a business park or company. Check-in and check-out times vary from the typical commuting peak hours, so this use would have a different impact on area roadways. Depending on the facility, the average trips per day per room is 6.24 and may range from 5 to 10 trips⁴. The average of 6.24 vehicle-trips per occupied guest room includes guest arrivals, delivery trucks, and employee trips. For an extended-stay hotel with 90 rooms, for example, the expected number of vehicle trips generated per day is typically based on occupancy percentage and a range of trip generation rates. With 100% of the rooms occupied, the expected trips for this extended stay hotel will be approximately 574 trips; at 75% occupancy, 431 trips and at 50% occupancy, 287 trips.

For example:

- Traffic – different uses produce different types and volumes of traffic which occur at different times. For example, a retail use generally results in high traffic volume which also occurs throughout the day and on weekends, whereas an office use has peak volumes at commuting times (unless affected by shift differentials) with little traffic on weekends. A light industrial use may be similar to an office use regarding peak travel time, but will also have heavy truck traffic. Solutions to the traffic impacts of a proposed use will thus vary as well: a retail use may require more significant roadway improvements, such as signalization, which will affect the design and cost of the project. For example, Alternative #3 utilizes Lasell Road as one of the main access points to the site. However, if the proposed use warrants a signal at this intersection due to

⁴ Institute for Transportation Engineers Trip Generation Manual, 2007

estimated vehicular trip generation, then the ramps at Route 146 would need to be altered, adding another dimension to the overall design.

- Relationship to abutting uses – the proposed land use will also have varying impacts on the abutting residential properties. In addition to traffic impacts, noise, lighting, building height, separation/buffers, etc., are all affected by the type of activity proposed on the site.
- Municipal services – provision for water and wastewater will vary depending on the proposed use. Hotels and biotech research facilities, for example, are very high water users as compared to retail or distribution facilities.

Resource areas

There are several natural resource areas that affect the site, including wetlands, streams, and steep slopes. Most of these resource areas are located along Main Street and therefore will affect the intersection design of Lasell Road and Main Street as well as the connection to the signalized intersection at Valley Parkway. In addition to the environmental impacts to the resources areas by roadway designs, the presence of the resource areas may also significantly impact construction and permitting costs.

The bridge/crossing at Main Street and Valley Parkway is related to this issue. While it is reasonable to want to take advantage of an existing signalized intersection (particularly since it is essentially there primarily to coordinate left-turn movements), there are a number of additional items to take into account: the engineering and construction cost of a bridge at the location, in addition to the potential resource area impacts, must be weighed. However, as discussed in the narrative, relocating the signal and re-working the geometry of Valley Parkway in order to accommodate a less intensive structure over the resource area might be an option. Selection of the design option to be pursued requires careful consideration of all factors in order to minimize impacts to environmental resources while optimizing multi-modal transportation options in an efficient and fiscally prudent manner.

Easements

As shown on the study area and alternatives maps, there are two utility easements on the site: Northeast Gas Transmission (natural gas) and National Grid (electrical transmission lines).

Utility easements are strips of land used by utility companies to construct and maintain their utility lines. The property owner owns all the land including the utility easements. However, utilities have right to access that portion of land which has been designated a utility easement.

The utility company, by the rights of the easement, has the power to do what it takes to maintain the utility and there are certain restrictions on land use in an area covered by a utility easement. For example, in the area of the National Grid utility easement, the property owner cannot plant tall trees in the area of the easement, because they could interfere with the power lines. Similarly, another example of a typical prohibited use is the construction of permanent structures within the area of the easement.

Thus, these easements present constraints to the full development of the subject parcels.

5.0 PUBLIC OUTREACH AND NEXT STEPS

Two public meetings were held as part of this project.

The first was held on June 24, 2009 and was intended to kick-off the project. Landowners and affected parties in the immediate area were invited to attend and participate in the introductory meeting; thirteen landowners attended the meeting. The basic parameters of the project, specifics about the properties in question, and the project goal were explained, as well as the base zoning and land use issues of the study area.

The second public meeting was held on February 16, 2011. Twenty-four residents/landowners/abutters were in attendance. The project scope was summarized, followed by an explanation of each of the proposed Alternatives concepts. A summary of the comments and questions regarding the Alternatives is as follows:

- Alternative 1: comments were made that it is very important to maintain access to vet clinic; what are the allowed uses; questions were asked about how would a zoning change occur; a question about what would happen to the land in between the new road and the end of Oakhurst Road was asked
- Alternative 2: a question was asked regarding the proposed roundabout and its design to accommodate both cars and trucks
- Alternative 3: a question was asked that if Lasell Road is to be the main entrance to the commercial uses, would it need a signal? A question inquiring about the proximity of Lasell to the ramps at Route 146 was asked. Visibility issues at the intersection of Lasell Road and Main Street were noted. This alternative was described as “the best one” by residents on Oakhurst Road.
- Alternative 4: similar comments were made regarding land at the vet clinic and Lasell Road being the main entrance.
- Alternative 5: a question was asked about the proposed intersection of the new subdivision road and the existing roads – would it require a signal? Roundabout? 4-way stop?
- General comments and questions: the vet clinic should have access to and from both the residential roads and the new subdivision road (i.e. the vet should not be part of the “commercial” traffic excluded from either Lasell or Oakhurst); proximity of Lackey Dam Road site entrance to the ramps at Route 146 was noted as an area of increased analysis; many asked about a cost comparison between the alternatives to assist in decision-making.

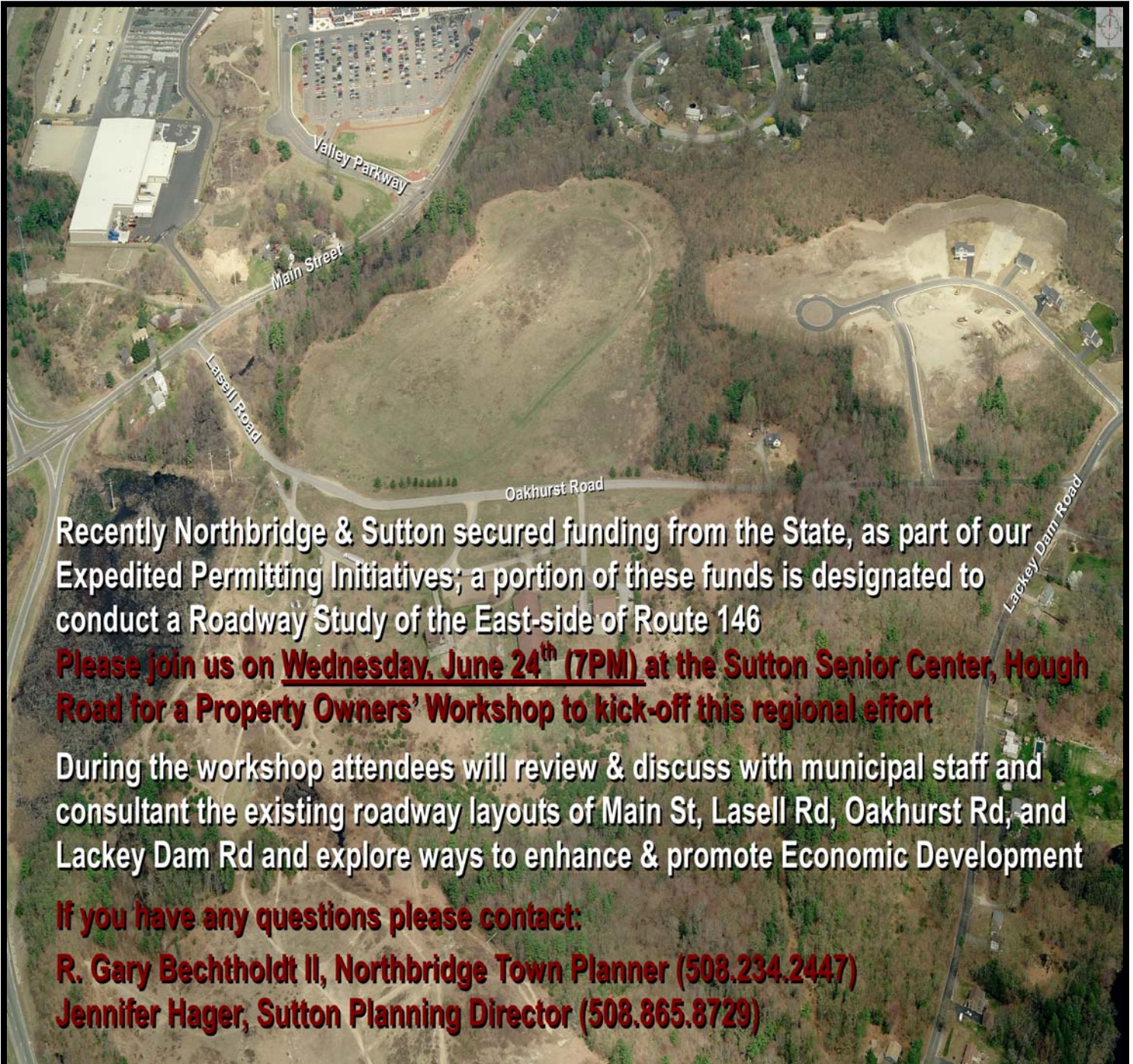
There were also many questions and extensive discussion about the following topics:

- proposed uses and what companies have expressed interest in the property;
- the Tax Increment Financing (TIF) process;
- the inherent conflict between residential and commercial/industrial uses as abutters – protecting residences from adverse impacts and the public hearing/review process;
- potential mitigation during the review process;
- cost of the project and who will pay for the improvements (Town or developer(s))?;
- overall timeframe for the project

The comments received were incorporated in the Alternatives concept plans where possible. Based on the discussion and the comments received at the public meeting, it appears that many are in favor of a concept similar to Alternative #3.

The intent of this project is not to make a recommendation for a specific Alternative. Rather, the process has culminated in five concept alternatives, which have been reviewed and discussed by both the Town Planners and landowners in the immediate neighborhood. This project provides a comparative analysis, with advantages and issues described for each of the five concepts and a list of key items for consideration. The purpose of this project is to provide the towns with the tools they need to make a decision as they move forward with coordinated development of the area. As was noted in Section 4.0 above, there are many factors to be weighed when moving forward with a particular roadway layout. The information provided here will give the towns baseline information and design concepts to consider as they continue promoting the site for economic development.

**Northbridge / Sutton / Uxbridge
Property Owners' Workshop
Roadway Study
Wednesday, June 24th 2009
7:00 PM Sutton Senior Center**



Recently Northbridge & Sutton secured funding from the State, as part of our Expedited Permitting Initiatives; a portion of these funds is designated to conduct a Roadway Study of the East-side of Route 146

Please join us on Wednesday, June 24th (7PM) at the Sutton Senior Center, Hough Road for a Property Owners' Workshop to kick-off this regional effort

During the workshop attendees will review & discuss with municipal staff and consultant the existing roadway layouts of Main St, Lasell Rd, Oakhurst Rd, and Lackey Dam Rd and explore ways to enhance & promote Economic Development

If you have any questions please contact:

R. Gary Bechtholdt II, Northbridge Town Planner (508.234.2447)

Jennifer Hager, Sutton Planning Director (508.865.8729)

MEMORANDUM

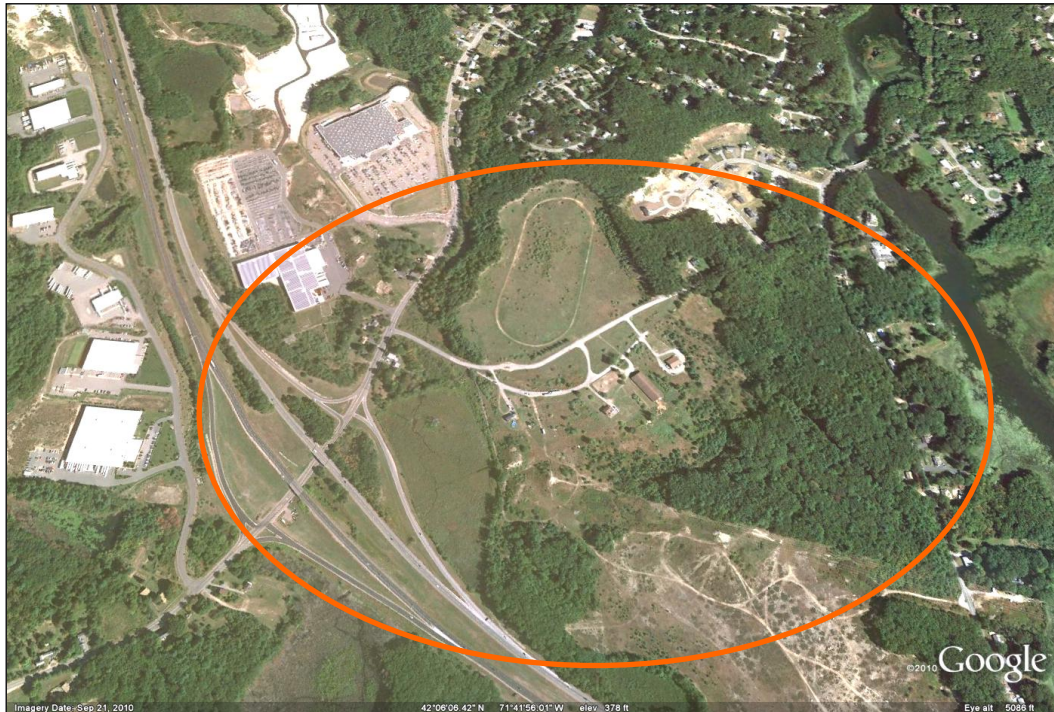
To: East Side Landowners and Interested Parties

From: Jen Hager, Sutton Planning Director
R. Gary Bechtholdt II, Northbridge Town Planner

Date: January 19, 2011

Re: Progress Meeting

As you may know, the towns of Northbridge and Sutton have been working with Central Massachusetts Regional Planning Commission (CMRPC) to evaluate the existing roadway network and properties to the east of Route 146 between the highway and Lackey Dam Road as part of the towns' expedited permitting initiatives.



© 2010 Google –Imagery Date Sep 21, 2010

Back in June 2009, an informal public workshop was held where landowners and other interested parties met with CMRPC and town staff to discuss existing traffic patterns and how the potential buildout of the undeveloped parcels may affect vehicular movement within this area.

The purpose of this follow-up meeting is to discuss the findings of the roadway study and to review a series of (DRAFT) alternative roadway layouts.

Please join us on **Wednesday, February 16, 2011 at 6 PM at the Sutton Senior Center (Hough Road)** to learn more about this effort and offer your input and comments before a final report is issued.

Thank you!

