Identification and Evaluation of Alternatives

This chapter summarizes the process followed to identify alternatives, and analyze their environmental, land use and transportation impacts. The chapter then presents the results of the technical analysis and the recommendations made at each step of the evaluation process.

IDENTIFICATION OF ALTERNATIVES

Using input provided by the study Working Group, an initial list of alternatives to be analyzed was identified during the Spring of 2007.

BRPC staff attempted to be both deliberate and comprehensive in their development of the Lee Study alternatives. In general, any concept that had the potential to improve regional mobility and connectivity to I-90, or reduce congestion in downtown Lee was considered for inclusion in the study. BRPC staff presented a list of alternatives at the 3rd Working Group meeting held in September 2007. The source for most of the alternatives was either previous transportation studies or suggestions made to BRPC during the earlier Working Group meetings. The list of possible alternatives was further refined using input presented at the first Lee Study public meeting, held in November 2007.

Some of the previous studies consulted during the alternative identification process included:

North Central Berkshire Access Study (2001)
Prepared by a consultant with funding provided by MassDOT, this study attempted to identify transportation and mobility problems throughout North Central Berkshire County. The study included a list of over 20 recommended improvements with an estimated cost of $74 million (2001 dollars).

The North Central Berkshire Access Study is notable for its extensive public participation process, and the high level of community opposition voiced toward some of its recommendations.

Berkshire Regional Transportation Plans (2003/2007)
The RTP provides an overview of regional transportation infrastructure and transportation needs for all modes of travel. The RTP incorporates findings and recommendations from many sub-regional transportation studies.

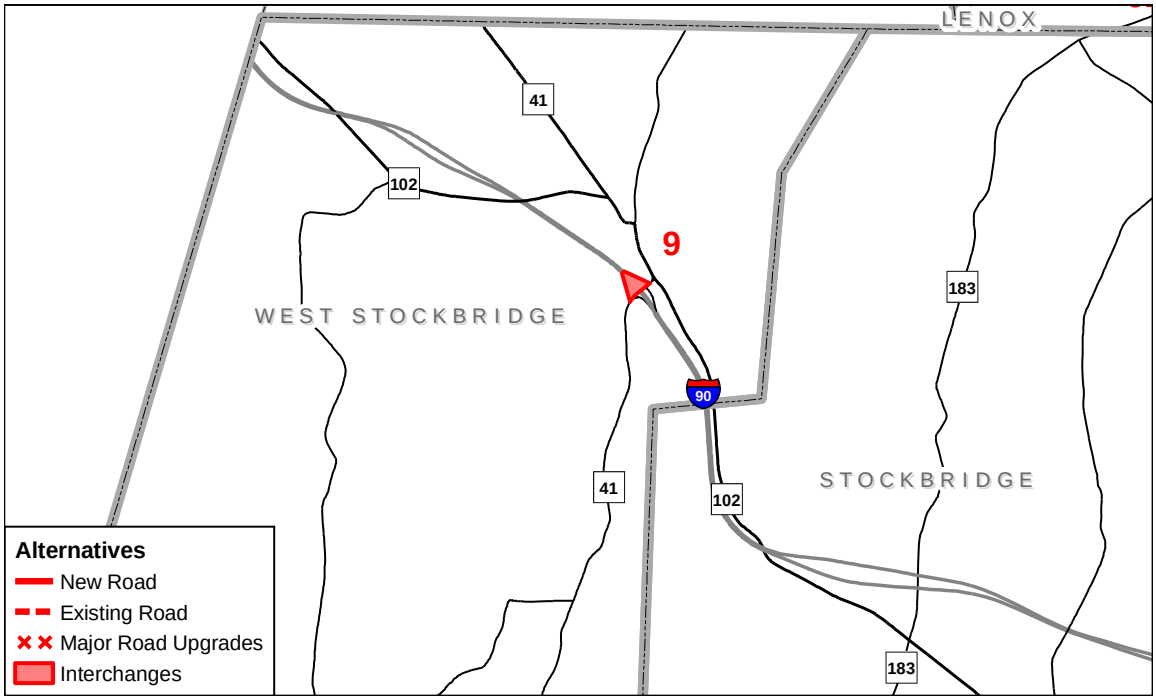
Berkshire Origin/Destination Survey (2003)
While not a direct source of transportation alternatives, this study documents regional and interregional traffic flows throughout Berkshire County. In particular, results from this study pertaining to the traffic that utilizes Mass Turnpike Exits 1 and 2 were used to inform both the definition of study alternatives, and to assist in the calibration of the Berkshire Regional Traffic Model.

In order help manage the large number of alternatives during the evaluation process; these 27 alternatives were organized into five geographic groupings listed below:

Far West Alternatives

Alternative 9: A full Interchange at Mass Turnpike Exit 1

Figure 3-1: Far West Alternatives



Source: BRPC

Near West Alternatives

The ten alternatives in this group are:

Alternatives 4A, 4B, 4C and 4D without Interchanges:

Alternative 4A: Extension of West Road south to Route 102 west of Church Street
Alternative 4B: Extension of West Road south to Route 102 west of Davis Street
Alternative 4C: Extension of West Road south to Quarry Hill Road
Alternative 4D: Extension of West Road to Route 102 at Old Pleasant Street

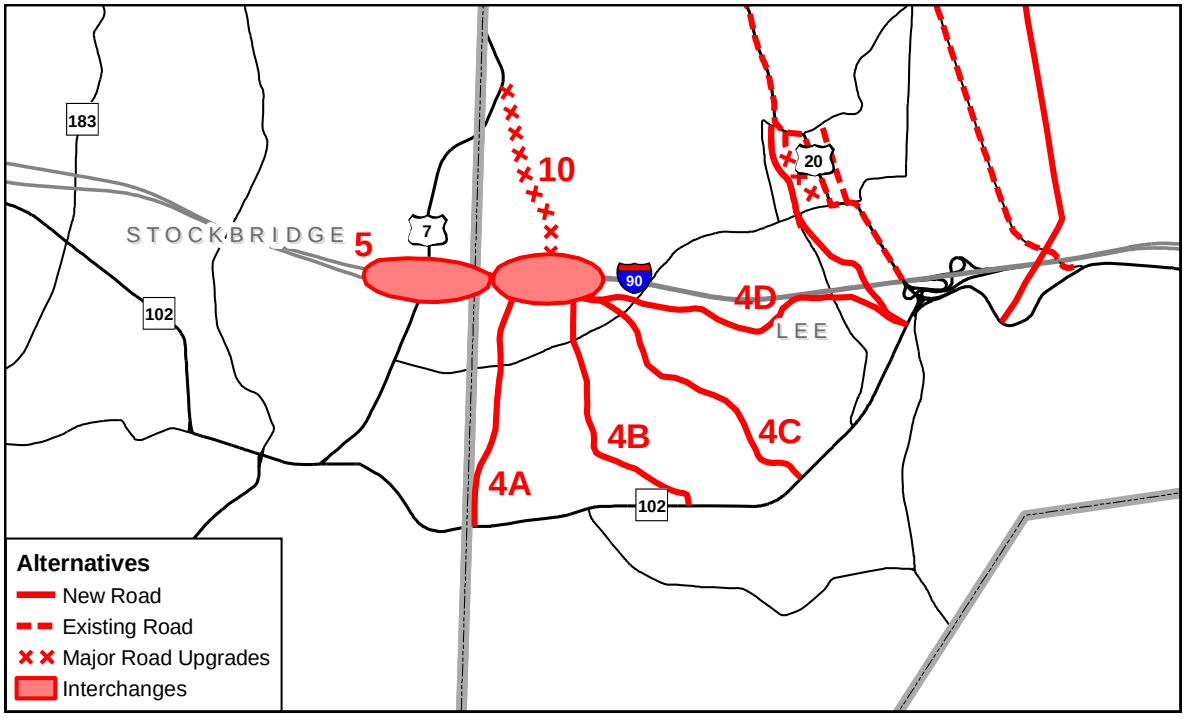
Alternatives 4A, 4B, 4C and 4D with Interchanges:

Alternative 4A: Extension of West Road MassPike Interchange to Route 102 west of Church Street
Alternative 4B: Extension of West Road MassPike Interchange to Route 102 west of Davis Street
Alternative 4C: Extension of West Road MassPike Interchange to Quarry Hill Road
Alternative 4D: Extension of West Road MassPike Interchange to Route 102 at Old Pleasant Street

Alternative 5: Route 7 MassPike Interchange (where MassPike crosses Route 7)

Alternative 10: West Road MassPike Interchange, with widened West Rd. north to Route 7

Figure 3-2: Near West Alternatives



Source: BRPC

Lee Central Alternatives

The five alternatives in this group are:

Alternative 1: Transportation System Management (TSM)
Transportation System Management is a process of managing and operating the existing transportation system more effectively without doing major improvements like road widening or new roadways.

Possible TSM measures could include new signal installations at Housatonic/Park, Park/Main and at Center/Main; the elimination or re-configuration of parking on Main Street, sidewalk widening and/or extension along Route 20 in downtown Lee, driveway consolidation or redesign in specific locations, modifications to intersections to improve traffic flow and/or safety, improved directional or instructional signage, and the addition of BRTA bus pull-outs.

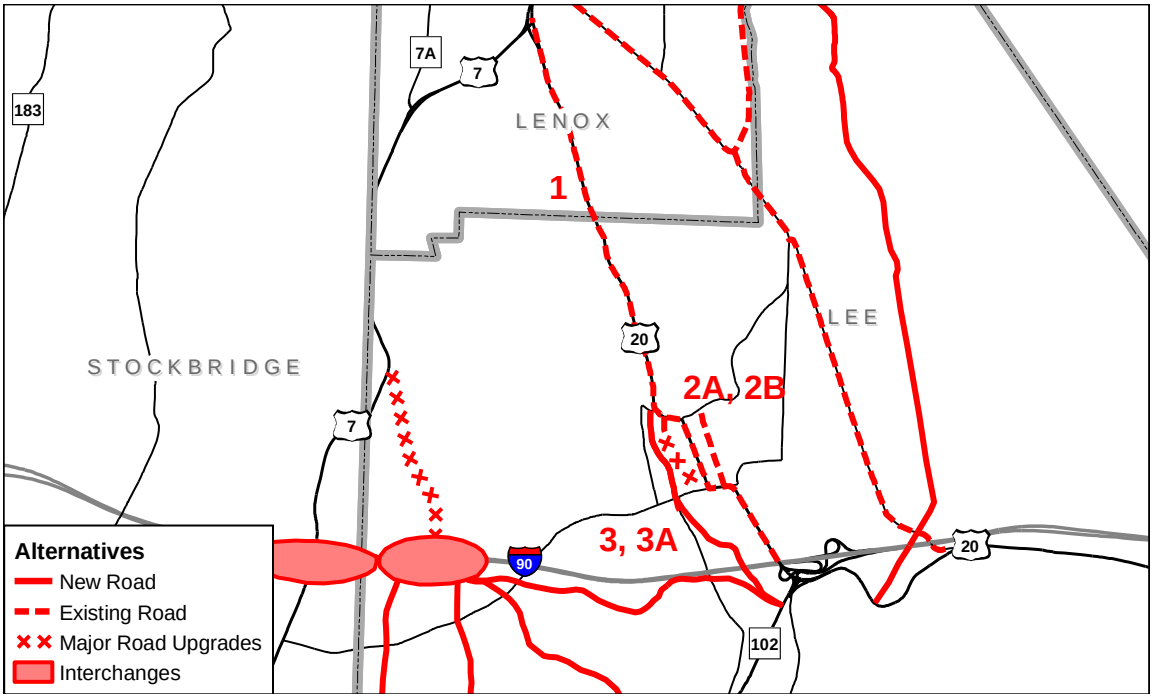
Alternative 2A: One-way pairs - Canal Street/Main Street
One way pairs improve traffic flow by eliminating some types of conflict from the traffic stream, most notably left turns across opposing traffic. However, the improved flow comes at a cost of less direct access to abutting land uses.

Alternative 2B: One-way pairs - Main Street/High Street

Alternative 3: A Route 20 bypass on west side of the Housatonic River - from Laurel Street to Park Street

Alternative 3A: A Route 20 bypass on west side of River - from Laurel Street to Park Street and extend south to Route 102 at Old Pleasant Street

Figure 3-3: Lee Central Alternatives



Source: BRPC

Near East Alternatives

The eight alternatives in this group are:

Alternatives 6A, 6B, 6C & 6D:

Alternative 6A: A Route 20 bypass on east side of Lee, along power line right-of-way to Lenoxdale - continue north to Route 7 at Dan Fox Drive

Alternative 6B: A Route 20 bypass on east side of Lee, along power line right-of-way to Lenoxdale - continue west to Route 7/20 via Housatonic Street

Alternative 6C: A Route 20 bypass on east side of Lee, along power line right-of-way to Lenoxdale - continue north on Willow Creek Rd. and west to Route 7/20 at Route 7A intersection

Alternative 6D: A Route 20 bypass on east side of Lee, along power line right-of-way to Lenoxdale - continue north on Willow Creek Rd. to Route 7/20 at Dan Fox Drive

Alternatives 7A, 7B, 7C & 7D:

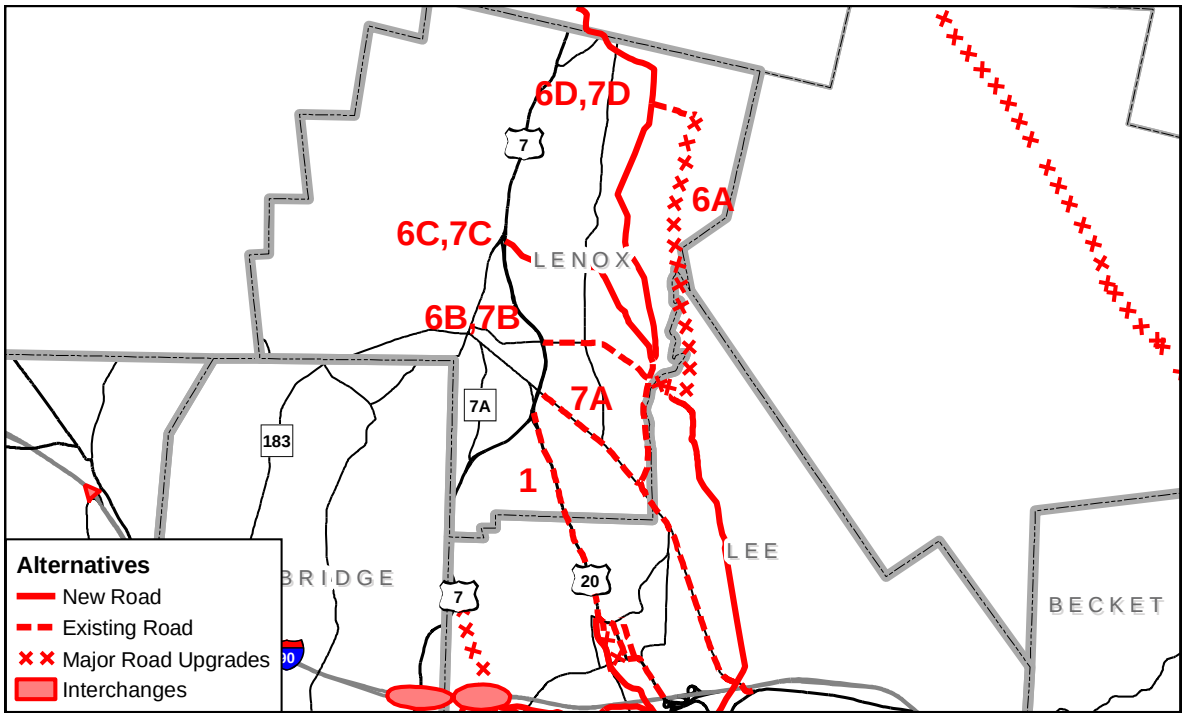
Alternative 7A: Upgrade Maple St/East St/Mill St/Walker St. - continue west on Walker St. to Route 7/20

Alternative 7B: Upgrade Maple St/East St/Mill St/Crystal St/Housatonic St. - continue west on Housatonic St. to Route 7/20

Alternative 7C: Upgrade Maple St/East St/Mill St/Crystal St/Willow Creek Rd. - continue west to Route 7/20 at Route 7/20 & Route 7A intersection

Alternative 7D: Upgrade Maple St/East St/Mill St/Crystal St/Willow Creek Rd. - continue north on Willow Creek Rd. to Route 7/20 at Dan Fox Drive

Figure 3-4: Near East Alternatives



Source: BRPC

Far East Alternatives

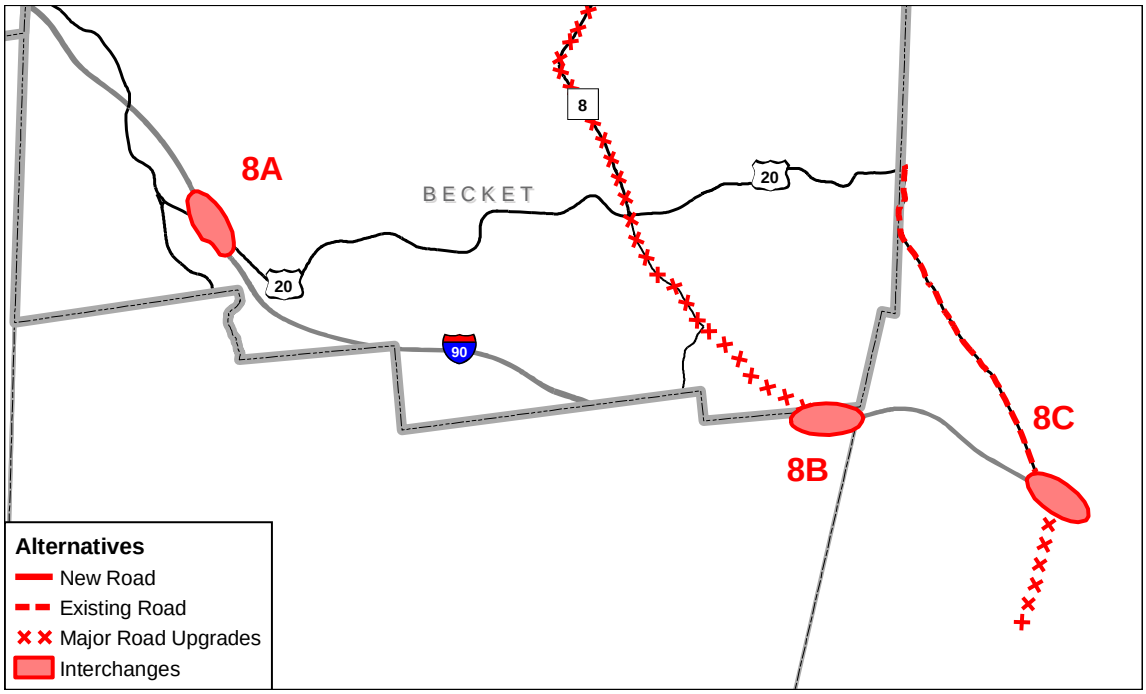
The three alternatives in this group are:

Alternative 8A: Becket/Otis/Blandford MassPike Interchange - Route 20

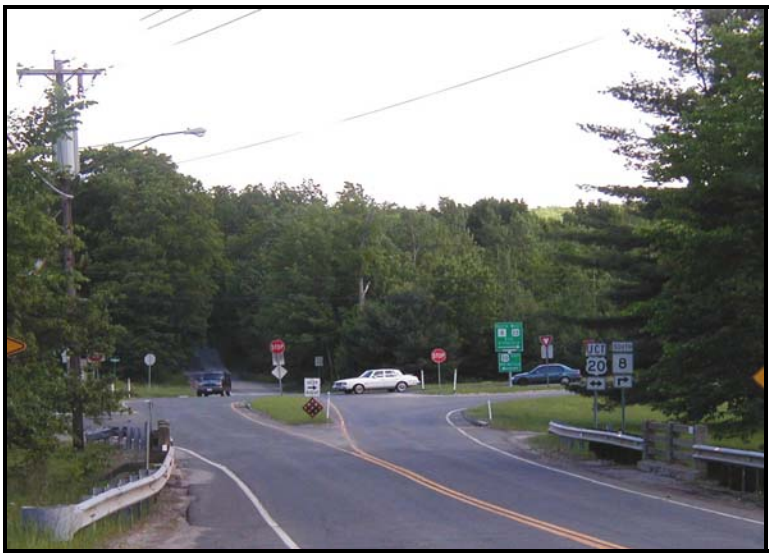
Alternative 8B: Becket/Otis/Blandford MassPike Interchange - Algerie Road

Alternative 8C: Becket/Otis/Blandford MassPike Interchange - Chester Road

Figure 3-5: Far East Alternatives



Source: BRPC



The list of 27 alternatives was presented to the Lee Area Traffic Study Working Group for their endorsement. This Working Group was comprised of representatives appointed by the Select Boards of Lee, Lenox, Becket, Stockbridge, and West Stockbridge; Mass Highway staff; BRPC staff; and representatives from Berkshire Chamber of Commerce and the Berkshire Natural Resources Council. The Working Group met eleven times from April 2007 to December 2008. This group provided input and technical support throughout all phases of the study

EVALUATION OF ALTERNATIVES

Evaluation of the alternatives was performed in two steps. First, a coarse screening of all 27 alternatives was performed and those which did not satisfactorily meet the study objectives were eliminated. Second, a fine screening was performed for the remaining alternatives.

Coarse Screening

A coarse screening of the 27 alternatives was performed by BRPC staff with the help of Working Group members. Only those alternatives which showed the potential of effectively addressing Study Area traffic issues were considered for further detailed environmental, land use and transportation analysis.

At the coarse screening stage, the alternatives were assessed against five evaluation criteria. Of the five criteria, two evaluated environmental impacts, one evaluated residential impact, and the remaining three criteria evaluated transportation impacts.

The process used for evaluation of environmental criteria attempted to account for the spatial relationship between a given alternative and a designated area of environmental sensitivity. The assessed impact of an alternative was deemed lesser or greater depending on how far the alternative was from an established buffer zone. Impacts for environmental criteria were either measured as a direct impact, or as falling within 100 ft, 200 ft, 500 ft, or 1000 ft buffer zones. Sizes of buffers used for analysis were determined based on judging the likely extent of impacts for each factor analyzed.

More detailed data and the tables used for the coarse screening analysis are included in Appendix A. The five evaluation criteria used for coarse screening are described in detail below.

Assessment of Environmental Impacts:

Endangered Species Habitat

The location of Endangered Species Habitat is based on the Natural Heritage Endangered Species Program's 2007 Priority Habitat of Rare Species. The direct, 100 ft and 200 ft impacts were measured.

Water Resources

The location of Water Resources is based on Massachusetts Department of Environmental Protection's Wetland data. The proximity of the alternative alignments to wetlands was measured within direct, 100 ft, 200 ft and 500 ft buffer zones. The level of impact was determined by acreage lying within each buffer. Similarly, the proximity of alignments to streams was measured within direct, 100 ft, 200 ft and 500 ft buffer zones, and the level of impact was determined by linear feet within each zone.

Assessment of Residential Impacts:

Buildings

Building locations were digitized from MassGIS's 2005 ortho-photos. Alternatives were evaluated based on the number of buildings within 100 ft, 200 ft, 500 ft and 1,000 ft Buffer zones.

Assessment of Transportation Impacts:

Reduction in Regional Vehicle Miles of Travel (VMT) and Vehicle Hours of Travel (VHT)

The Berkshire Regional Travel Demand Model was used to estimate changes in Vehicle Miles of Travel (VMT) and Vehicle Hours of Travel (VHT) for each of the 27 alternatives.

As a baseline, the regional model was used to estimate year 2030 VMT and VHT under 'no-build' conditions (meaning with no improvements to the existing transportation network). Year 2030 VMT and VHT were estimated for each alternative, and compared with the 2030 no-build VMT and VHT. Alternatives which showed a reduction in regional VMT and VHT were ranked positively under this criterion.

Diversion of North-East Traffic through Lee

The Berkshire Regional Travel Demand Model was used to estimate the amount of traffic that each alternative would divert from Route 20(Main Street) in Lee.

Summary of the Coarse Screening Process

The coarse screening process reduced the number of alternatives from 27 to 13 alternatives. Figure 2-7 on the next page shows the 13 alternatives identified for further analysis after coarse screening.

At a May 6th, 2008 Working Group meeting, members came to a consensus about eliminating some of the 27 alternatives from further analysis. At that meeting, members were provided a scoring sheet which summarized the environmental, residential and transportation impacts for each alternative. Each alternative was given a score for each of these measures. The ranking system was based on a 10 point scale with 1 being the best and 10 being the worst. The scoring sheet grouped the different alternatives together based on five location – far east, near east, central Lee, near west and far west. BRPC staff provided recommendations to eliminate some alternatives in each geographic subarea and move forward with further analysis of at least one alternative in each geographic group. A scoring sheet used for coarse screening which summarizes the environmental, residential and transportation impacts for each alternative is included in Appendix A.

The Working Group decisions are summarized below:

Far East: The alternatives in this group had limited residential impacts. They did very well at reducing regional VMT and VHT. However, these alternatives didn't do particularly well at diverting traffic out of downtown Lee. Out of the three far-east alternatives, 8B achieved the most diversion of Route 20 through traffic from downtown Lee. BRPC staff recommended that alternatives 8A and 8C be dropped and that alternative 8B (Bonnie Rigg Rd. interchange) be moved forward to the next level of screening. Working Group members agreed that out of the three alternatives in the far east group, 8B provided a level of traffic benefit similar to the other two, but with a lesser amount of negative impacts.

Near East: The alternatives in this group had considerable negative impacts on habitat, water resources and residential buildings. None of the alternatives in this group did much to reduce regional VMT and in fact, all of them increased VHT. However, these alternatives performed well at diverting Route 20 traffic from Lee. Alternative 6A did the best at diverting traffic, but it also had the greatest impact on environmental factors. None of the alternatives in this group t incorporated a new interchange with I-90. The Working Group recommended that BRPC staff re-evaluate these alternatives with a new I-90 interchange. Alternatives 6A, 6B, 6D and 7A, all including a new interchange, moved forward to the next level of analysis.

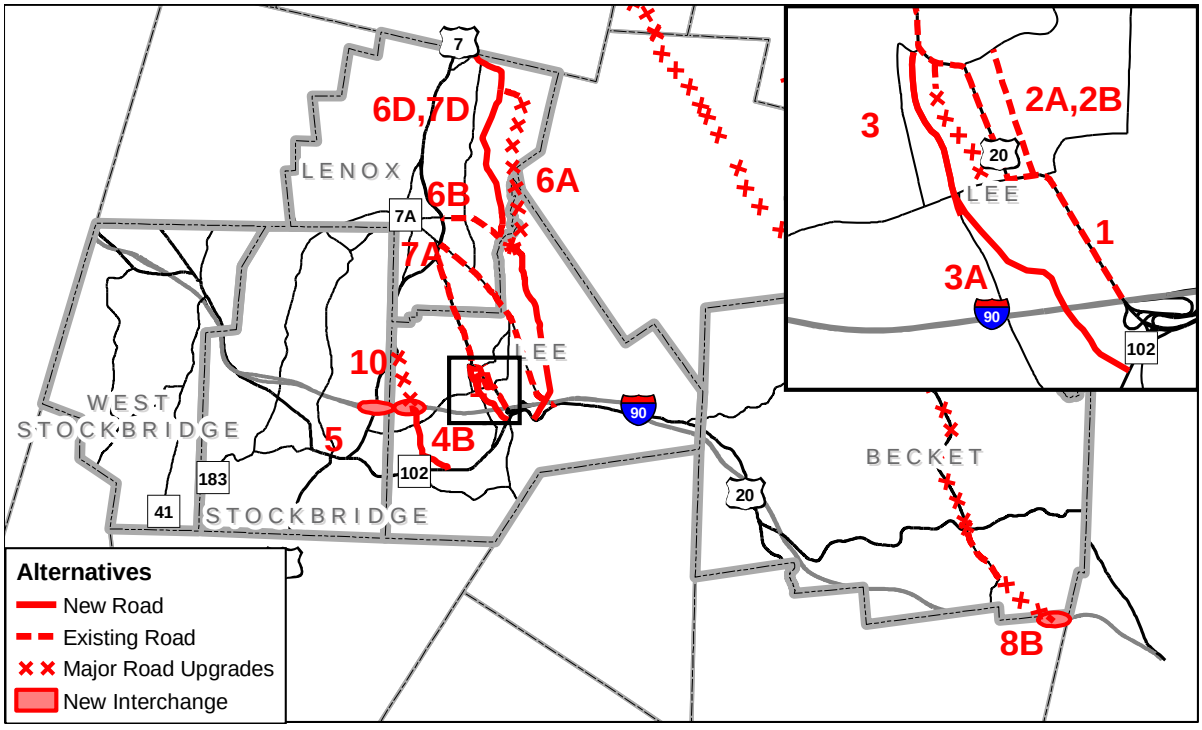
Central Lee: The alternatives in this group included Main Street TSM improvements, one-way pairs, and a new bypass on the west side of the Housatonic River from Park Street to Laurel Street. Compared to other groups, the Central Lee alternatives had low environmental impacts, but had relatively significant residential impacts. Traffic benefits of these alternatives were moderate when compared to the 'east' and 'near west' alternatives. The Working Group recommended keeping all of the alternatives in this group for the next round of analysis.

Near West: There was general discussion about what alternative 5 and alternative 10 would look like. These two alternatives involve constructing a new interchange on I-90 with connection to Route 7. The group determined to move forward with 4B, 5 and 10. At this point, it was suggested that a bypass from Route 102 north to Laurel Street (Route 20) be analyzed. This alternative was added as alternative 3A, a variation to alternative 3.

Far West: BRPC staff recommended dropping alternative 9, a full interchange at Mass Turnpike Exit 1, since this alternative did essentially nothing to reduce traffic congestion in downtown Lee.

Figure 3-6 shows the 13 alternatives identified for further analysis after coarse screening.

Figure 3-6: Alternatives Identified for further analysis after coarse screening



Source: BRPC

Meeting with Massachusetts Turnpike Authority

BRPC staff met with representatives from the Mass Turnpike Authority (MTA) on Monday, August 25, 2008 to discuss the 13 alternatives that advanced after the coarse screening. Several of the 13 alternatives could require either:

- Potential modifications to the existing configuration of Exit 2, or
- A new interchange on the Turnpike either east or west of the current Exit 2.

Modifications to the existing I-90 interchange and construction of a completely new interchange are both improvements that would require MTA support in order to be implemented. For this reason, BRPC staff sought MTA's input on I-90 improvements prior to undertaking the second phase of their alternatives evaluation.

At the meeting, MTA representatives stated that MTA could not provide the funding to build a new interchange. The funding issue aside, MTA was open to the possibility of a new interchange if there would be sufficient support from communities that would adjoin the interchange.

One main consideration for MTA (and MassDOT) in reviewing a proposed interchange would be interchange spacing. In a rural setting, FHWA design policy specifies a minimum separation of two miles between interchanges. This minimum separation is recommended so that adequate distances are provided to safely accommodate conflicts between weaving movements (entering traffic and exiting traffic). It was the position of BRPC that while interchange separation would be a consideration in locating a new interchange, other factors such as traffic impacts on secondary roads, interchange cost, and environmental considerations would also have to be considered in preliminary design of such an improvement.

Based on the outcome of the meeting with MTA (note: effective November 1, 2009, MTA is no longer an independent authority, and Massachusetts Turnpike operations are administered by MassDOT), BRPC staff concluded that alternatives including new or modified Turnpike exits should be evaluated in the next phase of the Lee Traffic Study. It should also be noted that the position of MassDOT has evolved since the 2008 meeting with the Turnpike Authority. MassDOT has stated that per their design guidelines, a recommendation for a new Mass Turnpike Interchange would have to be preceded by Interchange Justification and Modification reports. This design process would be overseen by FHWA, which would have final review and approval authority.

Fine Screening

For the fine screening analysis, the remaining 13 alternatives were assessed against 19 evaluation criteria. Of the 19 criteria used in the analysis, eight were environmental criteria, eight were land use criteria, and the remaining three factors addressed transportation impacts. More detailed data and the tables used for the fine screening analysis are included in Appendix A.

BRPC staff developed the following methodology for the fine screening analysis of the remaining 13 alternatives:

- Each of the 13 alternatives was evaluated across 19 different criteria.
- A raw score was assigned to each of the alternatives for each of the criteria.
- Recognizing that there is a large element of subjectivity in developing raw scores, staff further classified those scores into broader categories of 'high' 'medium', 'low', and 'none' for each

criterion. The category ranks of High (3), Medium (2), Low (1), and None (0) were each assigned a numerical value.

- The categorical scores for each criterion were weighted. Different weighting schemes were used for different criteria. A 'weighted score' was calculated by multiplying the categorical score (0-3) by the appropriate weight. A table called "Weights" included in Appendix A shows the weights that were used for each evaluation criterion. In the case of environmental evaluation criteria, weights were based on the physical distance between the given alternative and the environmentally sensitive area. For example, a direct impact on a Wetland was given a weight of 5, 100 ft distance from a Wetland was given a weight of 4, 200 ft was given a weight of 3, 500 ft was given a weight of 2, and 1,000 ft was given a weight of 1.
- The weighted scores for each alternative were then added together to get a total score for that alternative under the Environmental, Land Use, and Transportation categories. These total scores were once again classified into high, medium, low and none categories using natural breaks classification to come up with final rankings for each alternative. These rankings can be found in the overall summary table included in Appendix A.

A more complete description of the nineteen evaluation criteria, grouped by category, is given below.

Assessment of Environmental Impacts

Water Resources (Lakes, Wetlands, Streams)

Water Resources is based on Massachusetts Department of Environmental Protection's Wetland data. The acreage of water bodies and wetlands are measured as a Direct, 100 ft, 200 ft and 500 ft impacts. The linear feet of streams are measured as a direct, 100 ft, 200 ft and 500 ft impacts

Stream/Wetland Crossings

Stream / Wetland Crossings are a manual count of the number of times the alternatives crossed Massachusetts Department of Environmental Protection delineated streams or wetlands.

Floodplains

Floodplains are based on the Federal Emergency Management Agency's 100 year Floodplain maps. The direct impact on floodplain acreage was measured for each alternative as well as the number of floodplain crossings.

Endangered Species Habitat

Endangered Species Habitat is based on the Natural Heritage Endangered Species Program's 2007 Priority Habitat of Rare Species. The direct, 100 ft and 200 ft impacts were measured.

BioMap Core Habitat & Supporting Natural Landscape

The BioMap Core Habitat and Supporting Natural Landscapes rating was developed using Natural Heritage Endangered Species Program data. Direct, 100 ft and 200 ft impacts were measured for each alternative.

Public Water Supplies

Public Water Supplies is composed of Wellhead Zone II's, Interim Wellhead Protection Areas, Surface Water Protection Zone A and Zone B as delineated by the Department of Environmental Protection. The direct, 100 ft, 200 ft and 500 ft impacts were measured for each alternative.

Areas of Critical Environmental Concern

Areas of Critical Environmental Concern are based on the state designated ACEC data. Alternatives were evaluated as having an impact only if they lay directly within the ACEC area (buffer zones were not used).

Conservation Assessment and Prioritization System (CAPS)

CAPS data was created by the University of Massachusetts Landscape Ecology Program. The CAPS data was summed for each alternative based on combined direct and 100 ft impact.

Assessment of Land Use Impacts

Buildings

Building locations were digitized from MassGIS's 2005 orthophotos. Building counts were determined for direct, 100 ft, 200 ft, 500 ft and 1,000 ft impacts.

Residential Land Use

Residential land use is based on the 2005 MassGIS land use data. Land use categories include: Multi-family, Single-family less than ¼ acre lot size, Single-family between ¼ and ½ acre, and Single-family greater than ½ acre lot size. Impacts were calculated for direct, 100 ft, 200 ft, 500 ft and 1000 ft distances.

Commercial/Industrial Land Use

Commercial and Industrial land use is based on the 2005 MassGIS land use data. The impacts were calculated for direct, 100 ft, 200 ft, 500 ft and 1,000 ft distances.

Cultural Sites

Cultural sites were delineated by BRPC and include parks, schools, playgrounds, and cultural attractions. Number of structures and acreage for direct, 100 ft, 200 ft, 500 ft and 1,000 ft distances were calculated.

Historic Sites and Districts

Historic sites and districts are those listed in the US and/or Massachusetts Register of Historic Places. The number of sites for direct, 100 ft, 200 ft, 500 ft and 1,000 ft distances were calculated.

Protected Open Spaces

Protected Open Space is based on MassGIS Open Space data and updated by BRPC. The direct impact was calculated for each alternative.

Prime Agricultural Soil in Existing Agricultural Land

Prime agricultural soil in existing agricultural land is a derivative of two data layers. Prime agricultural soil is based on NRCS soils data and existing agricultural land is based on 2005 MassGIS land use. The intersection of these two layers is what was used to calculate the direct, 100 ft, 200 ft, 500 ft and 1,000 ft impacts.

Environmental Justice

Environmental Justice (EJ), as defined by the US Department of Transportation, was determined using the 2000 Census block group data. The total number of EJ factors that were triggered as well as the total number of block groups triggered for each alternative was calculated.

Assessment of Transportation Impacts

The Berkshire Regional Travel Demand Model was used to estimate the Average Daily Traffic (ADT) and truck traffic at three locations along Route 20 in Lee for the build scenario of the 13 remaining alternatives. 2030 projected ADT's for these alternatives were compared with the no-build ADT's. The ADT impacts were assessed at the following locations:

- Center St/Route 20 (West of Main St)
- Main St/Route 20 (South of Center St)
- Housatonic St/Route 20 (North of Exit Ramp)

Sharp Turns

Sharp turns were determined using visual analysis of the alternatives to determine if there was a sharp turn within the road and if there are sharp turns required at an intersection.

Slope greater than 10%

Slopes greater than 10% was calculated using a slope percentage derived from MassGIS contour data. The distance traversed by alternatives in areas of greater than 10% slope was calculated to determine the level of impact.

Summary of the fine screening analysis

At the August 4th, 2008 Working Group meeting, a consensus was arrived at to eliminate eight of the remaining thirteen alternatives from further analysis.

BRPC staff presented the weighted ranking results for each alternative to the Working Group members. The rankings for transportation, land use and environmental criteria were presented separately. It was not feasible to provide a 'total score' combining the results from each evaluation category, since such an exercise would only serve to hide differences between the alternatives, rather than shed light on those differences.

The overall approach used to either carry forward or eliminate alternatives was the following:

- Each of the three evaluation categories had a rating of 'high', 'medium', or 'low' impact.
- Any alternative which had a rating of 'high' impact in two or more categories was automatically eliminated.
- Any alternative which had a rating of 'high' impact in the transportation category was eliminated as it did not meet the primary objectives of the study: to improve regional access to the Mass Turnpike or reduce through traffic in Lee

A summary of the fine screening analysis for each of the 13 alternatives is provided below:

- **Alternative 1:** (Central Lee) TSM measures to improve upon the existing infrastructure. These might include installing traffic lights at Park/Main, Center/Main and/or at Park/Housatonic or reconfiguring parking and/or intersection geometry. This alternative ranked "low" (or favorably) for both environmental and transportation impacts. However, this alternative ranked "high" (or

unfavorably) for land use impacts because TSM measures would do nothing to divert existing traffic from downtown Lee or along Laurel Street, where numerous homes are in close proximity to Route 20. Alternative 1 was included for further analysis. It should be pointed out that the TSM alternative legally is required to be considered fully as part of further steps in evaluating and permitting any new alternative.

- **Alternative 2A:** (Central Lee) One-way pair with Main Street and Canal Street. This alternative ranked "low" for environmental impacts, "high" for land use impacts and "medium" for transportation impacts. A "medium" transportation ranking implies that this alternative would provide some relief to the traffic problem in Lee, but would not do as much as other alternatives that ranked "low" for transportation impacts. This alternative would require extending Canal Street south to Park Street. The Working Group determined that this alternative should be included for further analysis.

- **Alternative 2B:** (Central Lee) One-way pair with Main Street and High Street. This alternative ranked "low" for environmental impacts and "high" for both land use and transportation impacts. This alternative did not perform as well as most of the other alternatives and would not do very much to improve the traffic problem in Lee. It was determined that this alternative should be dropped from further consideration since it had two "high" impact scores.

- A**lternative 3:** (Central Lee) New bypass located on the west side of the Housatonic River starting from Summer Street near the Laurel Street intersection and extending south to West Park Street. This alternative ranked "low" for environmental impacts and "medium" for both land use and transportation impacts. This alternative was dropped from further consideration because it would still necessitate that traffic go through the south central portion of the downtown and would continue to impact Laurel Street northward into Lenox.

- **Alternative 3A:** (Central Lee) New bypass located on the west side of the Housatonic River starting from Summer Street near the Laurel Street intersection and extending south to West Park Street near the railroad, and continuing south of the Turnpike on the eastern side of Marble Street to Route 102 near the Old Pleasant Street intersection. This alternative ranked "low" for environmental impacts and "medium" for both land use and transportation impacts. Alternative 3A is an extension of Alternative 3 and has comparable impacts to Alternative 3, but provides an alternate route to going through downtown Lee. It was determined that this alternative be included for further analysis.

- **Alternative 4B:** (Western Lee) Extension of West Road south to Route 102 west of Davis Street. This alternative ranked "low" for both environmental and land use impacts and "high" for transportation impacts. Although this alternative performed well for both environmental and land use impacts, it would not significantly improve traffic in Lee. It was determined that this alternative should be dropped from further consideration as it did not meet the primary goals of the study.

- **Alternative 5:** (Stockbridge) New interchange on Route 7 where Route 7 crosses under the Turnpike. This alternative ranked "medium" for environmental impacts and "low" for both land use and transportation impacts. It was noted that this alternative would have slope impacts since a hill on Route 7 leading into downtown Stockbridge would be part of the roadway alignment. It was determined that this alternative be included for further analysis.

- **Alternative 6A:** (Eastern Lee, Lenox) New bypass located on the east side of Lee using the power line right-of-way to Lenoxdale and continuing north to Route 7 at Dan Fox Drive. This alternative

ranked "high" for environmental and transportation impacts and "medium" for land use impacts. This alternative does reduce the traffic in Lee, but because of the topography, there would be a number of sharp turns and slopes greater than 8%, which increased this alternative's overall transportation impacts. It was determined that this alternative should be dropped from further consideration since it had two "high" impact scores.

- **Alternative 6B:** (Eastern Lee, Lenox) New bypass located on the east side of Lee using the power line right-of-way to Lenoxdale and continuing west to Route 7/20 via Housatonic Street. This alternative ranked "medium" for environmental and transportation impacts and "high" for land use impacts. It was determined that this alternative should be dropped from further consideration.

- **Alternative 6D:** (Eastern Lee, Lenox) New bypass located on the east side of Lee using the power line right-of-way to Lenoxdale and continuing north on Crystal Street and Willow Creek Road to Route 7/20 at Dan Fox Drive. This alternative ranked "high" for environmental and land use impacts and "medium" for transportation impacts. It was determined that this alternative should be dropped from further consideration since it has two "high" impact scores.

- **Alternative 7A:** (Eastern Lee, Lenox) Upgrade Maple St. /East St. /Mill St. /Walker St. and continue west on Walker Street to Route 7/20. This alternative ranked "low" for environmental impacts and "high" for both land use and transportation impacts. Because drivers already use this road to access Route 7, this alternative did not demonstrate much of a reduction in traffic. It was determined that this alternative should be dropped from further consideration since it had two "high" impact scores.

- **Alternative 8B:** (Becket) New interchange located on the east side of Lee at the Becket/Otis Town Lines using Algerie Road/Bonnie Rigg Hill Road north to Route 20. This alternative ranked "medium" for environmental and transportation impacts and "low" for land use impacts. It was determined that this alternative should be dropped from further consideration.

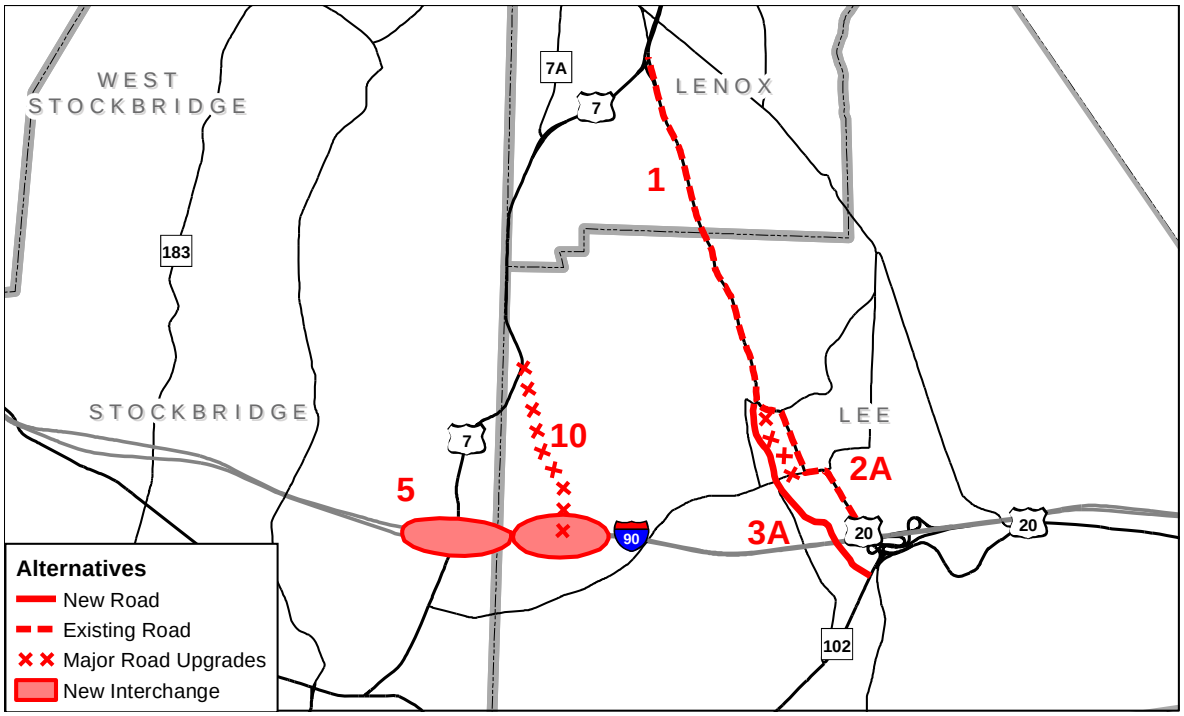
- **Alternative 10:** (Western Lee) New interchange located on the west side of Lee using West Road north to Route 7. This would be a northbound only interchange. This alternative ranked "low" for environmental, land use and transportation impacts. It was determined that this alternative be included for further analysis.

In summary at the August 4th Working Group meeting, 8 of the 13 alternatives were eliminated by the Working Group.

- Alternatives 2B, 4B, 6A, 6B, 6D, and 7A were eliminated because either these alternatives had two "high" scores or a "high" level of transportation impacts (meaning they did not meet the primary study transportation goals to improve regional access to the Mass Turnpike and to reduce through traffic in Lee.
- Alternatives 3 and 8B were eliminated because these alternatives did not have positive transportation impacts.

These remaining five alternatives 1, 2A, 3A, 5 and 10 were recommended for further detailed traffic analysis. Figure 3-7 on next page shows the 5 remaining alternatives following the August 4th Working Group meeting.

Figure 3-7: Five Remaining Alternatives following August 4th Meeting



Source: BRPC

Detailed Analysis of Selected Alternatives

Following the August 4th Working Group Meeting, three additional Working Group Meetings were held in September, October and December of 2008. In addition, BRPC held two open Public Meetings, one in August 2008 and the second in January 2009. During this time period, the selected alternatives were subject to additional analysis and public review. Study recommendations were presented at the January 2009 Public Meeting.

Some milestones in the process of going from the five selected alternatives to the Study recommendations included:

- A revised version of a Becket Area I-90 Interchange (Alternative 8B) was added into the detailed analysis as a sixth alternative.
- BRPC staff completed travel time studies for North (central Pittsfield) to East (I-90 in Becket) regional travel.
- BRPC completed detailed Intersection LOS analysis for the remaining alternatives.
- BRPC utilized the Regional Traffic Model to compare travel times for the remaining alternatives

After meeting with the Lee Select Board on October 7th, BRPC staff determined a further analysis of Alternate 8B was needed. The Select Board felt that without considering improvements to Route 8 north of Route 20, this eastern alternative was not being fairly assessed against other remaining alternatives. Without fully reviewing the environmental and community impacts of the revised alternative, which included either utilizing Route 8 through North Becket Village, Hinsdale and Dalton

into Pittsfield or Route 8 to just south of North Becket Village and then Washington Mountain Road into southeast Pittsfield (Dalton Division Road/Williams Street), a detailed travel time analysis of the revised alternative was conducted.

Further Analysis of Six Selected Alternatives

At the October 27th 2008 Working Group Meeting, the six remaining alternatives were considered.

- **Alternative 8B:** BRPC re-evaluated Alternative 8B and arrived at the following conclusions. Revised Alternative 8B, like the original version, would include an I-90 interchange at the Becket/Otis/Blandford town lines and use Algerie Road/Bonnie Rigg Road to connect to Route 8 in Becket. However, the revised alternative called for further improvements to Route 8 north of Becket, including making the road wider, eliminating curves, and increasing the speed limit in order to make Route 8 more conducive to attracting traffic with origins or destinations in Pittsfield and points further north. The Regional Travel Model was adjusted to reflect the proposed Route 8 improvements under this alternative.

  The revised 8B did not do well at diverting traffic from downtown Lee. However, it did reduce regional VMT and VHT. The decrease in regional VMT/VHT primarily resulted from the provision of more direct Turnpike access for residents and business in Otis and Becket. While this improvement in I-90 accessibility might be beneficial to those two towns, it does not address the larger Lee Study issues of north-south regional mobility and congestion in central Lee. Also, encouraging additional growth in outlying communities is contrary to the Regional Plan for the Berkshires (2001), the adopted regional land use policy plan. In addition, the Becket Select Board had indicated its opposition to this alternative and other towns to the north had previously also been strongly opposed.

  Alternative 8B would have relatively large environmental and land use impacts in comparison to other alternatives. The alternative would require widening and realignment to 23.5 miles of roadways (both local roads and Route 8). These added miles of roadway improvements result in a many more impacts to environmentally sensitive areas; including an Area of Critical Environmental Concern (Hinsdale Flats), the Westfield River (which is federally designated as Wild and Scenic), and residences that adjoin the highway along almost its entire length.

  The Working Group concluded that Alternative 8B should not be considered further unless at least a ten percent travel time improvement could be demonstrated, due to its very high level of environmental and community impacts, which were far higher than for any other remaining alternative (See Travel Time Analysis section below).

Along with reconsideration of Alternative 8B, the Working Group participated in the evaluation of the other five remaining alternatives. Any of these alternatives would need to be reassessed as part of an EIR (Environmental Impact Report) should preliminary design for a construction project be proposed at some future date.

The Working Group considered each of the remaining alternatives in turn.

- **Alternative 1:** Transportation System Management measures to improve upon the existing infrastructure. These measures might include installing traffic lights at Park/Main, Center/Main and/or at Park/Housatonic or reconfiguring parking and/or intersection geometry.

- **Alternative 2A:** One-way pair with Main Street and Canal Street.

  Alternative 2A functions similarly to alternative 3A in the Main Street area of Lee. According to the traffic model, this alternative would decrease traffic on Main Street, but it would also increase traffic on Center Street and Housatonic Street. Essentially, this alternative would take half of the traffic off Main Street by moving it one block over to a new through street. This alternative does not have significant environmental impacts as compared to other alternatives. This alternative has greater direct impacts on commercial/industrial land than alternative 3A.

  Mr. LePrevost, (representative from the Town of Lee) noted that the Lee Traffic Commission does not feel this alternative would be viable or beneficial. The Lee Traffic Commission felt that the outflow of traffic onto Park Street would create more congestion at the intersection with Route 20, especially with the addition of necessary traffic signals. Further, Mr. LePrevost felt that it would be difficult to extend Canal Street south to West Park Street, especially since this would require a railroad crossing and the taking of several businesses..

  The Working Group voted unanimously to eliminate this alternative from further consideration.

- **Alternative 3A:** New bypass located on the west side of the Housatonic River starting near the Summer Street/ Laurel Street intersection and extending south to West Park Street near the Marble Street intersection, and continuing south of the Turnpike on the eastern side of Marble Street to Route 102 near the Old Pleasant Street intersection.

  This alternative is the only remaining alternative besides alternative 1 that does not involve a new interchange. The traffic model indicates this alternative would reduce traffic on Main Street as well as on Housatonic Street, but it would also increase traffic on Center Street, as people from other parts of Lee and the Lenoxdale area would use Center Street to access the new bypass south to Route 102. This alternative would not decrease traffic on Laurel Street (Rte. 20 north of the Housatonic River).

  Due to its proximity to the Housatonic River, alternative 3A has a greater impact on water resources than 2A. Alternative 3A also has more impacts on residential land uses than 2A in terms of acreage, but neither alternative's impact is dramatically high. Because alternative 3A involves a longer roadway than alternative 2A, the greater amount of acreage impacted is expected. This alternative does have some impacts to commercial/industrial land within a 1,000 foot proximity as well as a small amount of impact to protected open space and almost one mile of roadway with slopes greater than 8%.

  The Working Group voted unanimously to include this alternative for further analysis.

- **Alternative 5:** New interchange on Route 7 where Route 7 crosses under the Turnpike.

  Alternative 5 was modeled based on a full interchange. At its current design, alternative 5 reduces traffic at a level comparable with alternative 10. Alternative 5 and 10 are very similar and there is only a 0.8 mile difference in travel distance between alternative 5 and alternative 10 from where West Road crosses the Turnpike up to the intersection with Route 7 heading toward Lenox versus taking Route 7 north to that same intersection. Therefore, it should be noted that the decrease in traffic calculated by the traffic model is overly sensitive to the time/distance relationship.

  Mr. Shippey, (representative from the Town of Stockbridge) commented that alternative 5 would have a detrimental effect on Kampoosa Bog, which is one of the most protected and pristine bogs

in the Commonwealth. Based on the comments made at the 2nd public meeting in August 2008, Mr. Shippey emphasized that Stockbridge residents do not want an interchange on Route 7. Mr. Shippey also noted that an interchange on Route 7 would impact the area south of Route 7. Mr. Karns of BRPC explained that further analysis would assess the impacts from the Route 102/Route 7 intersection north past Highlawn Farm to the controlled access portion of Route 7 in southern Lenox. Mr. Moore (Mass Highway District 1, Staff) noted that both alternatives 5 and 10 would need to be examined during the EIR phase. Mr. Moore specified that an EIR is needed for any major project. Mass Highway typically combines the EIR with the MEPA process.

Five Working Group members voted to include this alternative for further consideration. The vote carried with the Stockbridge representative opposed.

- **Alternative 10:** New interchange located on the west side of Lee using West Road north to Route 7.

  This alternative was modeled as a northbound only interchange and is similar to alternative 5. Alternative 10 reduces traffic at a level comparable with alternative 5. Alternative 10 does have some impacts to open space and land use. Mr. Karns noted that further analysis of this alternative would include an assessment of the impacts on Route 7 past Highlawn Farm. Mr. Karns acknowledged that this alternative does not have the impacts to Route 7 south of the Turnpike that Alternative 5 has. Mr. Moore noted that from an engineering standpoint, the West Road/Route 7 intersection would be realigned to a more standard "T" design to improve visibility. Mr. Karns added that modifications may be needed on West Road south of the Turnpike in order to control access southbound to keep traffic out of residential neighborhoods to the south.

  The Working Group voted unanimously to include this alternative for further consideration.

Pittsfield to I-90 Travel Time Analysis

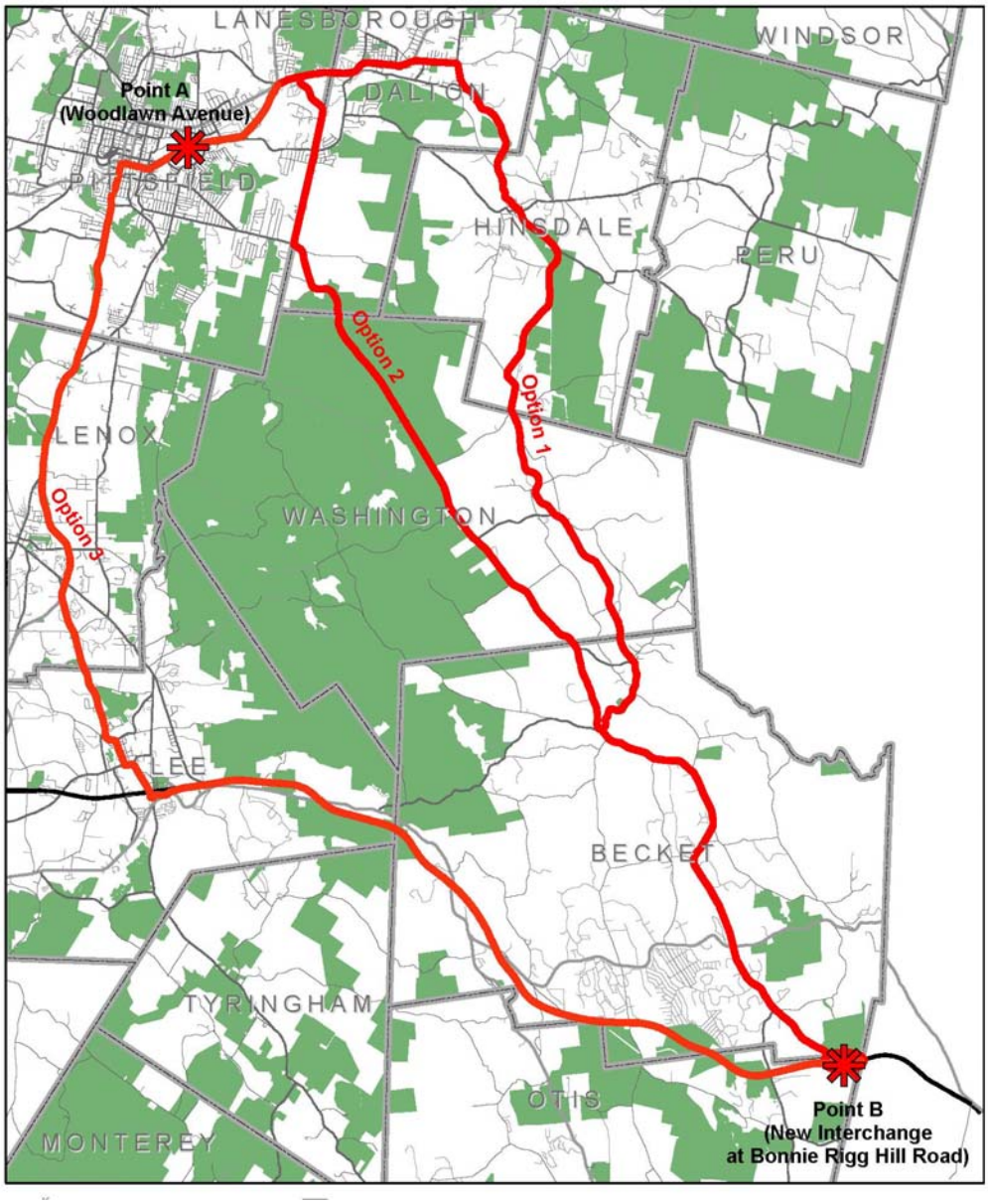
To further analyze the performance of the Becket Interchange as requested at the October 27th Working Group meeting, BRPC staff performed travel time studies between a selected location in central Pittsfield (**Point A**: the East Street/Woodlawn Avenue intersection) and the proposed location of a new I-90 Becket Interchange (**Point B**). The travel time analysis utilized the 'floating car' technique, wherein the driver attempts to approximate average travel speed of the overall traffic stream.

The travel time analysis was done for three different routes:

- Option 1 – Route 8/Dalton Avenue/Merrill Road/East Street.
- Option 2 – Route 8/Washington Mountain Rd/Dalton Division Rd/Hubbard Ave/Dalton Ave/Merrill Road/East Street.
- Option 3 – I-90/Route 20/Route 7&20/East Street

Figure 3-8 on next page shows the alignments of three routes.

Figure 3-8



Two different route options were analyzed for proposed improvements north of the Becket Interchange. The existing Route 8 (Option 1) is a fairly curvy route. Its serpentine character results in a somewhat indirect and slow driving experience. Utilizing Washington Mountain Road (Option 2) instead of Route 8 results in more of a 'straight shot' between Pittsfield and Becket, albeit with more severe vertical grade changes than are found under Option 1.

Table 3-1 presents the results of the floating car analysis for the three options, and projected 2030 travel times as estimated by the Regional Traffic Model

Table 3-1: Travel Time Analysis for Alternative 8B (From Woodlawn Avenue (Point A) to New I-90 Interchange at Algerie Road (Point B))

Options	Description	Distance (Miles)	Existing NB (counted on 11/12/08)	Existing SB (counted on 11/12/08)	Berkshire Regional Traffic Model estimate of Exisitng Travel Time	Berkshire Regional Traffic Model projection of 2030 Build with Improvements to Route 8 N, Washington Mountain Rd, & Algerie Rd
Option 1	From Point A to Point B using East St - Merrill Rd - Dalton Ave - Route 8 - Algerie Rd	26.26	42 Minutes 30 Secs	43 Minutes	42 Minutes	41 Minutes
Option 2	From Point A to Point B using East St - Merrill Rd - Dalton Ave - Hubbard Ave- Division Rd- Washington Mountain Rd Mcnerney Rd - Route 8 - Algerie Rd	23.32	39 Minutes	39 Minutes 10 Secs	39 Minutes	38 Minutes
Option 3	From Point A to Point B using East St - South St - Route 7 &20 - Route 20 to Exit 2 and using I-90 from Exit 2 to New interchage at Algerie Rd	26.25	34 Minutes 32 Secs	35 Minutes	34 Minutes	34 Minutes

The analysis results show that under both existing and forecast conditions, Option 3 (I-90 to Exit 2, Route 7/20 to Pittsfield) was the fastest route point to point. Option 2 (Washington Mountain Rd) was second fastest, and Option 1 (Route 8) was the slowest.

According to this analysis, a new Becket Interchange would not provide any travel time advantage for vehicles traveling between central Berkshire County and points in central and eastern Massachusetts. [1] Based on these results, and on its high number of potential environmental and land use impacts, the Becket Interchange option was eliminated from further consideration as a recommendation of this Study.

[1] For this analysis Option 2 used a routing of Hubbard Avenue to Dalton Avenue inside the City of Pittsfield. This route is not the most direct one available within the City. Proceeding west on East Street from the Hubbard Avenue intersection would be 1.3 miles shorter than proceeding north to Dalton Avenue. The estimated travel time for Option 2 using East Street is 34 minutes, which is comparable to Option 3.

Capacity and Level of Service (LOS) Analysis

As the next step in the evaluation, capacity and level of service (LOS) analysis was completed for the four remaining alternatives (Alternative 1, Alternative 3A, Alternative 5 and Alternative 10), and for the 'no-build' scenario.

Tables 3-2 presents the forecast 2030 no-build and build traffic conditions at eight key Study Area intersections. The numbers shown in Table 3-2 assume that no improvements will be made for new traffic signals along Route 20 in downtown Lee. BRPC prepared these 'no signal' numbers since the installation of new traffic signals in the downtown is a divisive issue in the community. Without new signals, for purposes of a traffic model analysis, the TSM Alternative (Alternative 1) is essentially the same as the no-build scenario.

Table 3-2 results show that none of the three build alternatives significantly improve minor street approach delay at the three downtown Lee intersections identified as problem locations in the existing conditions analysis (Main St @ Center St; Main St @ Park St; Park St @ Housatonic St.). While there was some nominal reduction in vehicle delay at these three intersections under the build alternatives (this improvement is due to some traffic being diverted from Route 20), their intersection LOS is forecast to remain at F.

What these results indicate; even with construction of a new I-90 Interchange (Alternatives 5 and 10), or with construction of a west Lee downtown bypass (Alternative 3A), without new traffic signals all three downtown intersections will still experience high side street delay. The net effect of such delay would be that cars waiting in long queues to enter the Route 20 traffic stream would either:

- Avoid Route 20 altogether, diverting their trip route to residential side streets
- Look for alternate locations to access Route 20, again resulting in more traffic on side streets and/or an increase of out-of-direction travel
- Defer their trip to some less congested time period
- Potentially create an increase in accidents as frustrated drivers attempt to enter the traffic stream in inappropriate gaps.

Table 3-2: 2030 No-Build and Build Conditions without Improvements to traffic signals along Route 20

Intersection	No-Build/ Alternative 1 (TSM)		Alternative 3A		Alternative 5		Alternative 10	
	ADPV	LOS	ADPV	LOS	ADPV	LOS	ADPV	LOS
Main Street @ Center St*	**>1000**	**F**	**78.6**	**F**	**>1000**	**F**	**168.6**	**F**
Main St @ Price Chopper Dr*	13.8	B	11.0	B	13.0	B	11.3	B
Main St @ Park St*	**>1000**	**F**	**>1000**	**F**	**>1000**	**F**	**196.3**	**F**
Park St @ High St*	28.3	D	22.8	C	22.5	C	15.2	C
Park St @ Housatonic St*	**>1000**	**F**	**>1000**	**F**	**>1000**	**F**	**582.7**	**F**
Housatonic St @ I-90 Off Ramp	12.3	B	12.7	B	12.2	B	12.2	B
Housatonic St @ I-90 On Ramp & Route 102	19.8	B	20.1	C	18.2	B	19.7	B
Rout 20 @ Prime Outlets Dr	13.0	B	13.0	B	13.0	B	13.0	B

ADPV= Average Delay per Vehicle, in Seconds
LOS = Level of Service (A is excellent, E and F are undesirable)

* For STOP sign-controlled intersections, the conditions represent the left turn from the side street

= STOP sign controlled intersections

Tables 3-3 presents the forecast 2030 no-build and build traffic conditions at eight key Study Area intersections. The numbers shown in Table 3-3 assume that under the four 'build scenarios', new traffic signals will be installed at these intersections: Main St @ Center St; Main St @ Park St; Park St @ Housatonic St. As a result of the three intersections being signalized, the LOS analysis shows improvement under all four build scenarios. However, while the reported intersection LOS does improve with signalization, the delay experienced by the through movement (Route 20) at each signal would increase. Any future analysis of signalization options in the downtown will need to evaluate the trade-off being keeping downtown Lee 'traffic signal free' (which benefits to regional traffic flow) versus installation of new traffic signals (which benefits local circulation).

While all four build alternatives indicate acceptable Intersection LOS for the locations show in Table 3-3, there are differences in how the alternatives perform in diverting through traffic from Route 20 in downtown Lee.

Alternative 1 (TSM) does not provide an alternate route for through traffic, but could conceivably include some measures to increase the capacity of Route 20 through downtown Lee. TSM actions that can help to increase urban arterial capacity include removal of on-street parking, parking prohibitions during peak travel periods, and provision of turn lanes (lane channelization) for significant turning movements. The feasibility of these actions, and other TSM type improvements, would need to be assessed in future studies.

As opposed to the TSM option, Alternatives 3A (west Lee bypass) 5 and 10 (new I-90 Interchanges) all provide an true alternate route for the through traffic that is now using Main Street (Route 20) in downtown Lee. These alternatives would allow Turnpike bound traffic to either utilize new roadways (a west Lee bypass), or existing roadways (Route 7) that now have available capacity.

Table 3-3: 2030 No-Build and Build Conditions with Improvements
(Adding traffic signals: Main St @ Center St; Main St @ Park St; Park St @ Housatonic St)

Intersection	No-Build		Alternative 1 (TSM)		Alternative 3A		Alternative 5		Alternative 10	
	ADPV	LOS	ADPV	LOS	ADPV	LOS	ADPV	LOS	ADPV	LOS
Main Street @ Center St	**>1000**	F	17.6	B	8.1	A	15.1	B	8.7	A
Main St @ Price Chopper Dr*	13.8	B	13.8	B	11.0	B	13.0	B	11.3	B
Main St @ Park St	**>1000**	F	14.3	B	9.6	A	10.5	B	7.0	A
Park St @ High St*	28.3	D	29.3	D	28.6	D	23.2	C	15.2	C
Park St @ Housatonic St	**>1000**	F	32.2	C	33.0	C	31.2	C	14.5	B
Housatonic St @ I-90 Off Ramp	12.3	B	10.0	B	9.7	A	9.7	A	9.5	A
Housatonic St @ I-90 On Ramp & Route 102	19.8	B	15.0	B	14.8	B	14.2	B	14.9	B
Rout 20 @ Prime Outlets Dr	13.0	B	9.8	A	9.8	A	9.8	A	9.8	A

ADPV= Average Delay per Vehicle, in Seconds
LOS = Level of Service (A is excellent, E and F are undesirable)

* For STOP sign-controlled intersections, the conditions represent the left turn from the side street

= STOP sign controlled intersections

Regional Traffic Model Travel Time Analysis

To further assess relative performance, the Regional Traffic model was used to estimate year 2030 travel times between two selected locations for the remaining alternatives.

Table 3-4 shows year 2030 travel times for regional trips between Pittsfield and I-90 at the eastern edge of the County. The selected termini for this analysis were Point A (Woodlawn Avenue in Pittsfield) and Point B (I-90/Bonnie Rigg Hill Road in Becket).

Table 3-4: 2030 build and no-build travel time (Point A to Point B)

Alternatives	Description (From Point A to Point B)	Distance (Miles)	2030 Travel Time (No Improvements to traffic Signal along Rt 20)	2030 Travel Time (adding traffic Signal along Rt 20)
No-Build	From Point A to Point B using East St - South St - Route 7 &20 - Route 20 to Exit 2 and using I-90 from Exit 2 to Bonnie Rigg Hill Rd in Becket	26.25	34.5 Minutes	
Alternative 1 (TSM)	From Point A to Point B using East St - South St - Route 7 &20 - Route 20 to Exit 2 and using I-90 from Exit 2 to Bonnie Rigg Hill Rd in Becket	26.25	34.5 Minutes	35.1 Minutes
Alternative 3A	From Point A to Point B using East St - South St - Route 7 &20 - Route 20 to Summer St in Lee - New road on West side of the river to Route 102 - Route 102 to Exit 2 and using I-90 from Exit 2 to Bonnie Rigg Hill Rd in Becket	26.54	34.1 Minutes	34.1 Minutes
Alternative 5	From Point A to Point B using East St - South St - Route 7 &20 - Route 7 to New Interchange at Route 7 in Stockbridge and using I-90 to Bonnie Rigg Hill Rd in Becket	28.72	34.2 Minutes	34.2 Minutes
Alternative 10	From Point A to Point B using East St - South St - Route 7 &20 - Route 7 - West Rd to New Interchange at West Rd in Lee and using I-90 to Bonnie Rigg Hill Rd in Becket	27.98	33.9 Minutes	33.9 Minutes

The 2030 travel time for Alternative 1 (TSM) increases when compared to the No-build scenario due to the three new traffic signals added along Route 20. The new traffic signals reduce delay for side street traffic, but in so doing would slow down Route 20 through traffic.

The other three alternatives show similar small improvements in overall travel time for North to East regional travel. To some extent, the travel speed advantages of Alternatives 5 and 10 are offset by the additional distance required for travel to/from I-90 East. Trips originating from or destined to I-90 West would not have this component of added distance, and would realize a greater travel time advantage.

Summary of Study Findings

At the outset of the Lee Area Traffic Study, a determination was made that the Study be comprehensive in the scope of transportation alternatives to be evaluated. **The most important conclusion of the Study process is the alternatives that did not advance through the final screening phase are not viable solutions to the area's traffic problems**. Among the 'screened out' alternatives are:

- Improvements to the existing Exit 1 Interchange, which does not serve the predominant flow of study corridor traffic between the Berkshires and eastern Massachusetts
- New local connector roads between Route 102 and Route 7 that would bypass downtown Lee. Travel times for these alternate routes would not compete with Route 20, and the out-of-direction travel required to access them results in their low potential for diverting Route 20 traffic.
- New 'eastside Lee' local roads that would bypass downtown Lee. These routes all had significant environmental, residential, and business impacts.
- A new I-90 Interchange on the eastern side of Berkshire County. This group of alternatives all had significant environmental and residential impacts. In addition, major improvements would be required to the north-south roads that would connect to a new eastern I-90 interchange. Finally, the grade changes along these north-south roads would be a significant impediment to truck usage.

Of the alternatives that remained at the end of the screening process, none stand out as an ideal solution. All of them face opposition from a variety of community interests. Given the multi-million dollar costs involved for any of the alternatives, finding funding to implement them will be a significant constraint in the context of the limited financial resources available to meet basic regional transportation needs.

In formulating the recommendations of this Study, BRPC staff and its planning partners acknowledge that the macro level analysis undertaken in this report is only the starting point for the next steps in a more focused project feasibility analysis. A more focused feasibility analysis of the remaining alternatives would have to consider:

- Specific roadway alignments and alignment alternatives, as opposed to the more conceptual alignments evaluated in this study
- Quantification of property impacts, including right-of-way requirements and potential acquisition/demolition/adaptive reuse of specific properties
- A more complete assessment of environmental impacts and potential mitigation measures
- Development of preliminary cost estimates and an analysis of financial feasibility
- A detailed description of required steps in the project development process, including anticipated project schedules and milestones. Incorporated in this description would an explanation of the Federal Highway Administration requirements for an Interchange Justification Report (IJR), and conditions and findings necessary before an IJR could be undertaken in the Berkshire region

In sum, the main finding of the Lee Area Traffic Study is that further and more focused study is needed before the next steps in project development are taken for any of remaining transportation alternatives. Furthermore, the recommendations presented below should given equal consideration for their implementation.

Recommendations

Based on findings from their technical analysis and input received from study Public Meetings and Working Group members, BRPC staff developed the following recommendations for the consideration of the Commission, the Metropolitan Planning Organization and the Towns of Lee, Lenox, and Stockbridge.

1. **Implement Alternative 1, Transportation System Management (TSM) along Route 20 from the Mass Turnpike to the intersection of Routes 7 and 20 in Lenox.**

    a. Seek inclusion of the TSM alternative in the 2011 Regional Transportation Plan;
    b. Actively monitor traffic conditions at these three intersections along Route 20 in Downtown Lee,
        i. Center St @ Main St;
        ii. Main St @ Park St;
        iii. Park St @ Housatonic St;
    c. Carry out an analysis of traffic operations at the above three intersections and propose actions to address excessive side street delay and other traffic operations issues. These actions may include:
        i. Widening of the side street approaches to provide separation for right and left turning vehicles
        ii. Provision of additional storage for left turning vehicles
        iii. Left turn prohibitions from the side streets with provision of downstream U-Turn opportunities for vehicles desiring to turn left
        iv. Traffic signal warrant analysis
        v. Feasibility analysis for rotaries
    d. Monitor traffic at High St @ Park St for future analysis should conditions deteriorate;
    e. Monitor pedestrian activity and make provisions for improved pedestrian flows in the Downtown; including modifications to sidewalks, consolidation of crosswalks, and installation of pedestrian actuation buttons at future signalized cross streets;
    f. As part of a broader strategy to enhance roadway capacity in downtown Lee
        i. Evaluate on-street parking modifications on Main Street (Route 20);
        ii. Evaluate expansion of off-street parking opportunities and directional signage to improve motorists' ability to locate parking
        iii. Evaluate implementation of Motorist Information Systems and similar ITS measures that can address parking and circulation issues
        iv. Evaluate implementation of turn restrictions
        v. Initiate a more comprehensive Route 20 Corridor Study, that will examine opportunities and constraints for all of the above, as well as additional access management controls and revisions to the downtown circulation system
    g. Identify other improvements to Route 20 (Laurel St and Lee Road) north of central Lee that will improve traffic flow and safety. These improvements could include provision of wider lanes, shoulders, improved sight lines, signage and traffic controls, and similar measures that will allow the road to better accommodate high volumes of automobile and truck traffic.

TSM actions often are short term measures intended to mitigate traffic problems while long term solutions are under consideration. Not all potential TSM actions would be beneficial to the traffic flow on mainline Route 20. Adding traffic signals at the three Route 20 intersections in the Downtown would reduce peak hour traffic delays for the side street approaches and improve overall intersection Level of Service (LOS). It would, however, increase the amount of delay experienced by Route 20 through traffic which is contrary to one of the two study objectives.

2. Advance Alternative 5/10, a new I-90 Interchange connecting to Route 7 close to the Lee/Stockbridge Town Lines, to the next phase of a project feasibility analysis.

This recommendation is for a planning study to provide a more detailed assessment of conceptual design, project cost, environmental impacts, and the required next steps in the implementation process of a new I-90 Interchange. The analysis required for Recommendation 2 should be undertaken in coordination with the analysis for Recommendation 1. There is an interrelationship between the feasibility of a new Interchange and the feasibility of improvements that are more focused on the Route 20 Corridor.

In the context of this current study, Alternatives 5 and 10 provide similar transportation benefits. They also have a comparable level of environmental and community impacts. Therefore, these two study alternatives have been combined into one study recommendation. One requirement of the project feasibility analysis would be to specifically identify a new I-90 interchange location between West Road in Lee and Route 7 in Stockbridge that provides the associated transportation benefits while minimizing environmental and community impacts.

Adding a new exit on I-90 that connects to Route 7 meets these two Lee Study objectives:

1. Decrease through traffic in Downtown Lee
2. Improve Regional Access to the Turnpike.

A new interchange would be a project of high cost and complexity in relationship to other highway projects in Berkshire County, although not in comparison to some projects undertaken in other parts of the Commonwealth. A transportation improvement of this scope has not been completed in Berkshire County for many decades. The interchange would face significant obstacles, including opposition from factions in the adjoining communities. The detailed project feasibility analysis recommended herein will provide essential information on project costs and project impacts to better inform future debate on Lee Area transportation solutions. It is also important to understand the feasibility analysis is just the first step in what would be a fairly lengthy process of requisite planning and environmental studies. The full process of planning, designing, and constructing a new Interchange on the Interstate system can easily be 15 to 20 years in duration.

The feasibility analysis should also address design measures to restrict the traffic flow between the new interchange and Stockbridge. Traffic to or from the south of Stockbridge is already adequately served by Rte. 102, and there is no evidence of access problems from that orientation (except in the middle of Stockbridge itself, a situation that is beyond the scope of this study). Also, additional traffic coming south on Rte. 7 turning onto Rte. 7/102 in Stockbridge could potentially create problems at that intersection. A new interchange could incorporate design features that would funnel traffic to a northern orientation, so that it exclusively serves traffic heading to/from Lenox and central/northern Berkshire County.

During the Lee Study's public involvement process, it was firmly established that no community wants to see land use changes occur along Route 7. The area between the Turnpike and the Lenox Bypass is scenic and contains one of the largest working farms remaining in Berkshire County, High Lawn Farm. Any proposed transportation project that could lead to increased development pressure or changes in land use should be accompanied by strongly protective land use controls in all three towns. Strict access controls should be put in place as part of any roadway project by MassDOT. As mitigation for any proposed project, adjoining properties, particularly High Lawn Farm, should have conservation restrictions purchased from the property owners to ensure that the area remains as one of the most scenic agricultural views in the Berkshires

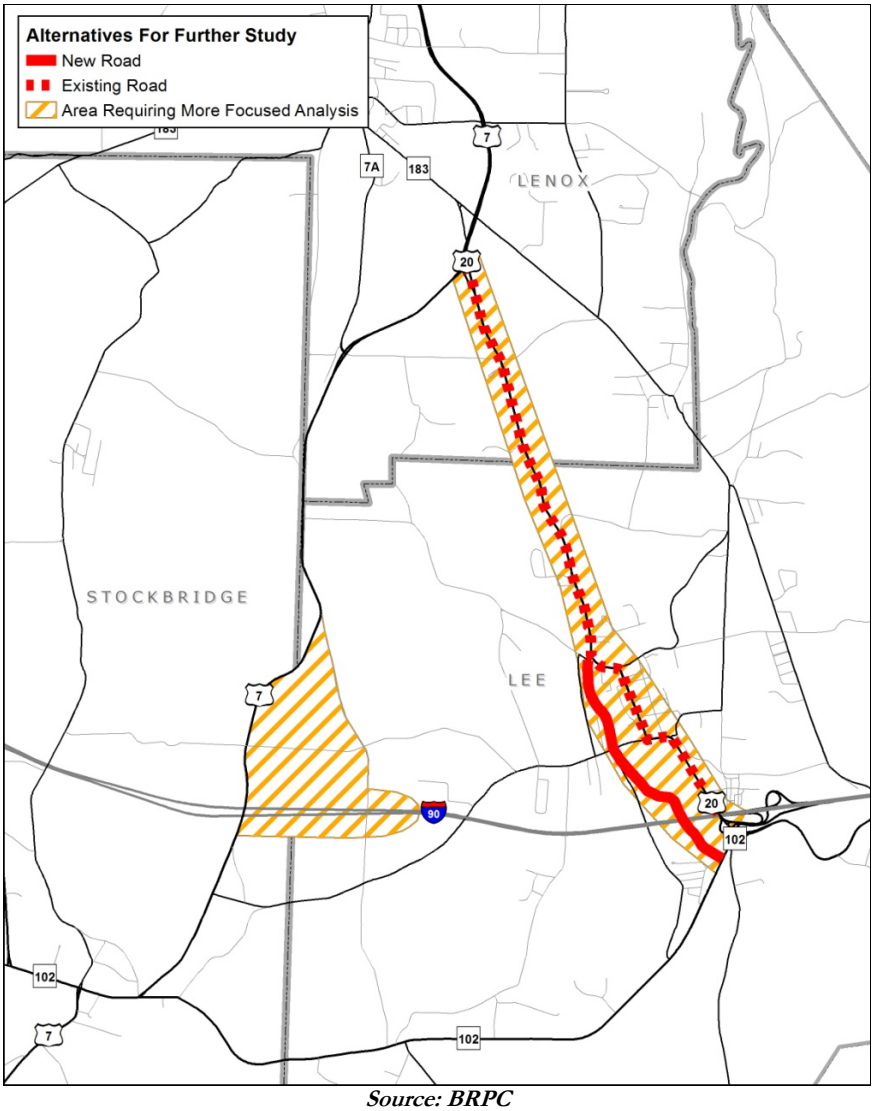
3. **Advance Alternative 3A, a new road on the west side of the Housatonic River from Old Pleasant Street (Route 102) to Laurel Street (Route 20) to the next phase of a project feasibility analysis.**

   Given its proximity to Route 20 in downtown Lee, the west Lee bypass road is one of the options that would be analyzed as part of the more focused Route 20 Corridor Study discussed under Recommendation 1.

4. **Conduct additional analysis of truck traffic in the Downtown Lee area.**

   Throughout the study process, public input emphasized that truck traffic through the downtown is of significant concern. This recommendation calls for a more focused analysis of Lee area truck traffic, including collection of vehicle classification counts for a defined cordon around the downtown.

Figure 3-9: Study Recommendations



Source: BRPC