I-90 Interchange Study

Working Group Meeting #4

February 7, 2019

5:00 PM to 7:00 PM

MassDOT District 1 Conference Room

270 Main Street, Lenox

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Meeting Agenda

- Welcome and Introductions
- Travel Demand Model Results
  - Demographic Projections
  - Zoning
  - Background Growth
  - Traffic Diversion Mapping
- Updated Interchange Concepts
  - Impacts and Conceptual-Level Cost Estimates
- Other Business, Schedule and Next Steps

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Travel Demand Modeling Introduction

Travel Demand Modeling

- Shows travel demand across study area in 2040 Build and 2040 No-Build conditions, developed from background traffic growth

Background Traffic Growth

- Includes growth at external (border) locations
- Based on demographic inputs
  - Uses new demographic data projections from Pioneer Valley PC and Berkshire Regional PC
- Also uses local zoning as a projection factor
  - Zoning throughout the study area is generally single-family housing on single lots, or single-family housing with agricultural uses
  - PVPC and BRPC have identified priority development areas that in some cases would require rezoning
  - Traffic modeling does not assume changes in zoning with potential interchange in place (community action required for this)

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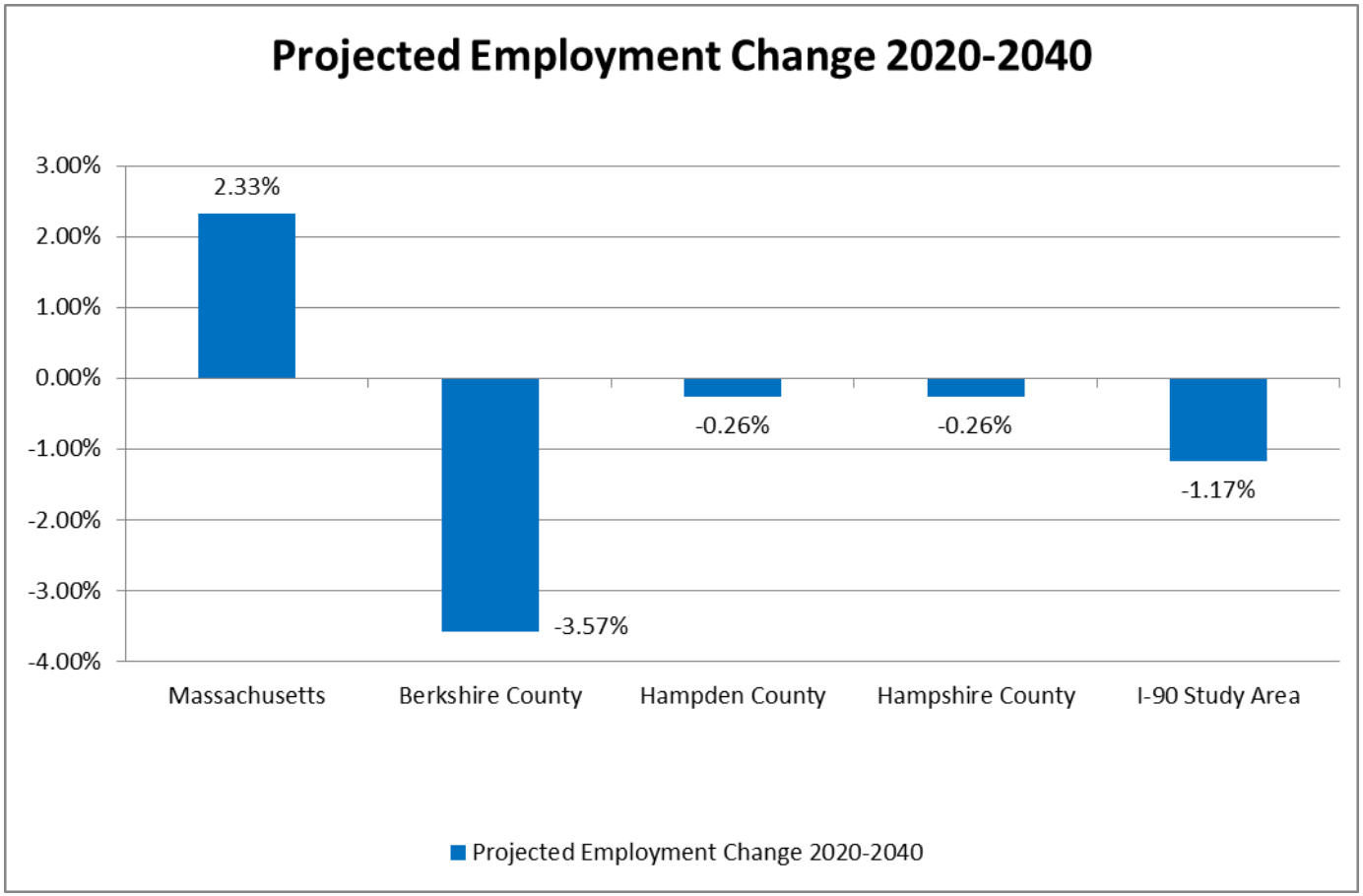
Travel Demand Modeling
Demographic Projections



Source: CTPS/BRPC/PVPC/US Census Bureau

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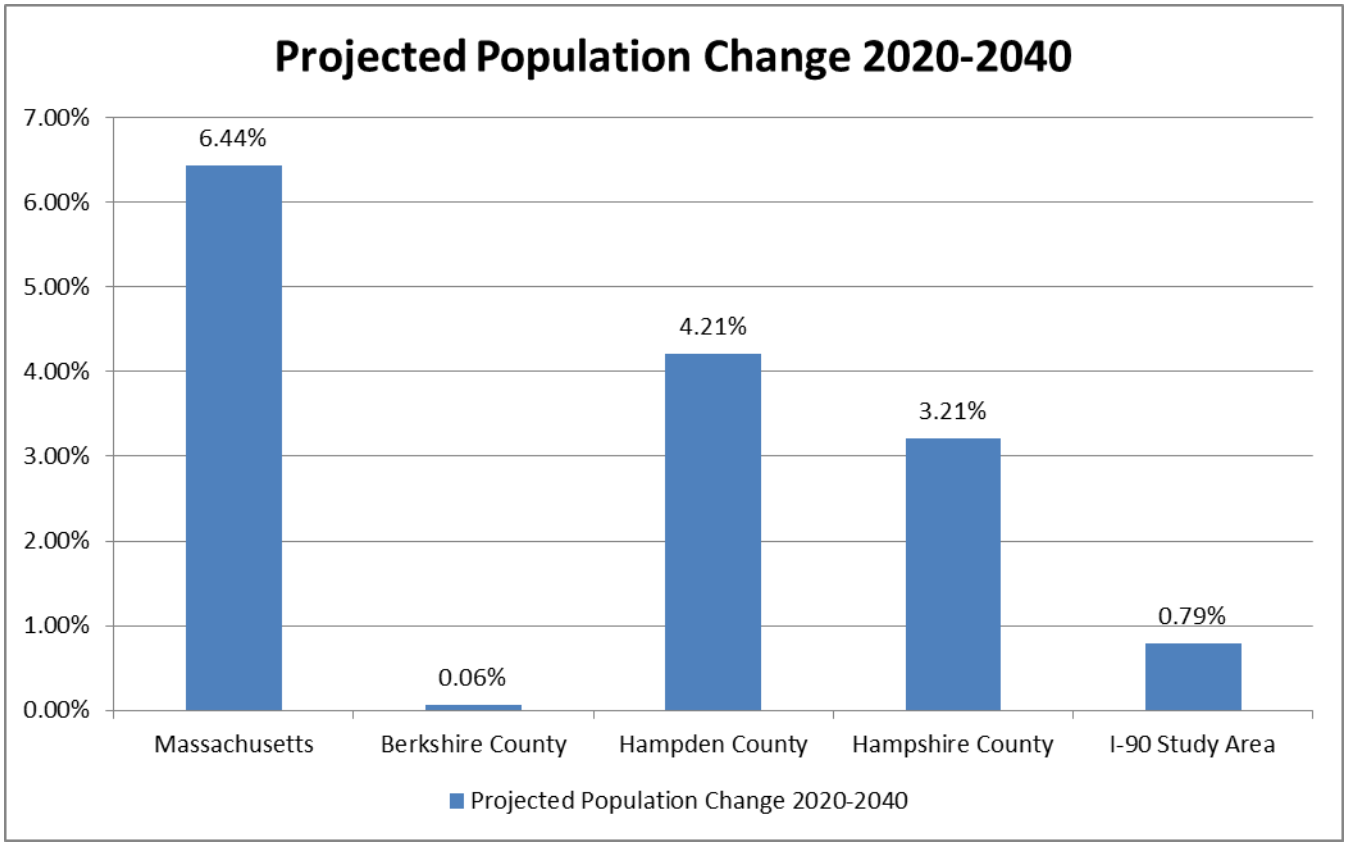
Travel Demand Modeling
Demographic Projections



Source: CTPS/BRPC/PVPC/US Census Bureau

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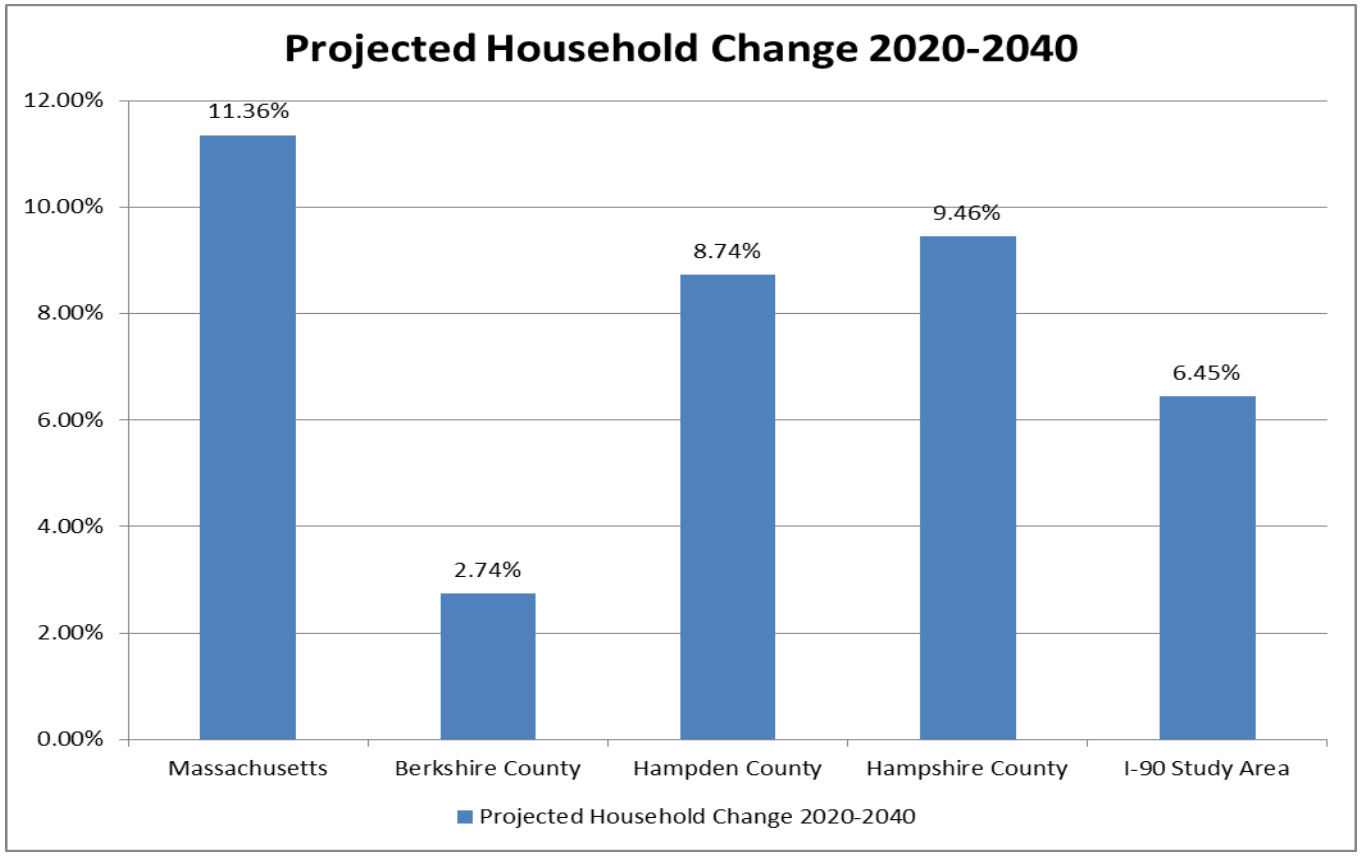
Travel Demand Modeling
Demographic Projections



Source: CTPS/BRPC/PVPC/US Census Bureau

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Travel Demand Modeling
Background Traffic Growth

- Background Traffic Growth
  - Determines future traffic levels for the no-build and three build alternatives
  - Based on demographic inputs
  - Includes growth at external (border) locations
  - Also uses local zoning as a projection factor
    - With few exceptions, zoning throughout the study area allows single-family housing on single lots, or single-family housing with agricultural uses
    - PVPC and BRPC have identified priority development areas that in some cases would require rezoning
    - Traffic modeling does not assume changes in zoning with potential interchange in place (community action would be required for this)

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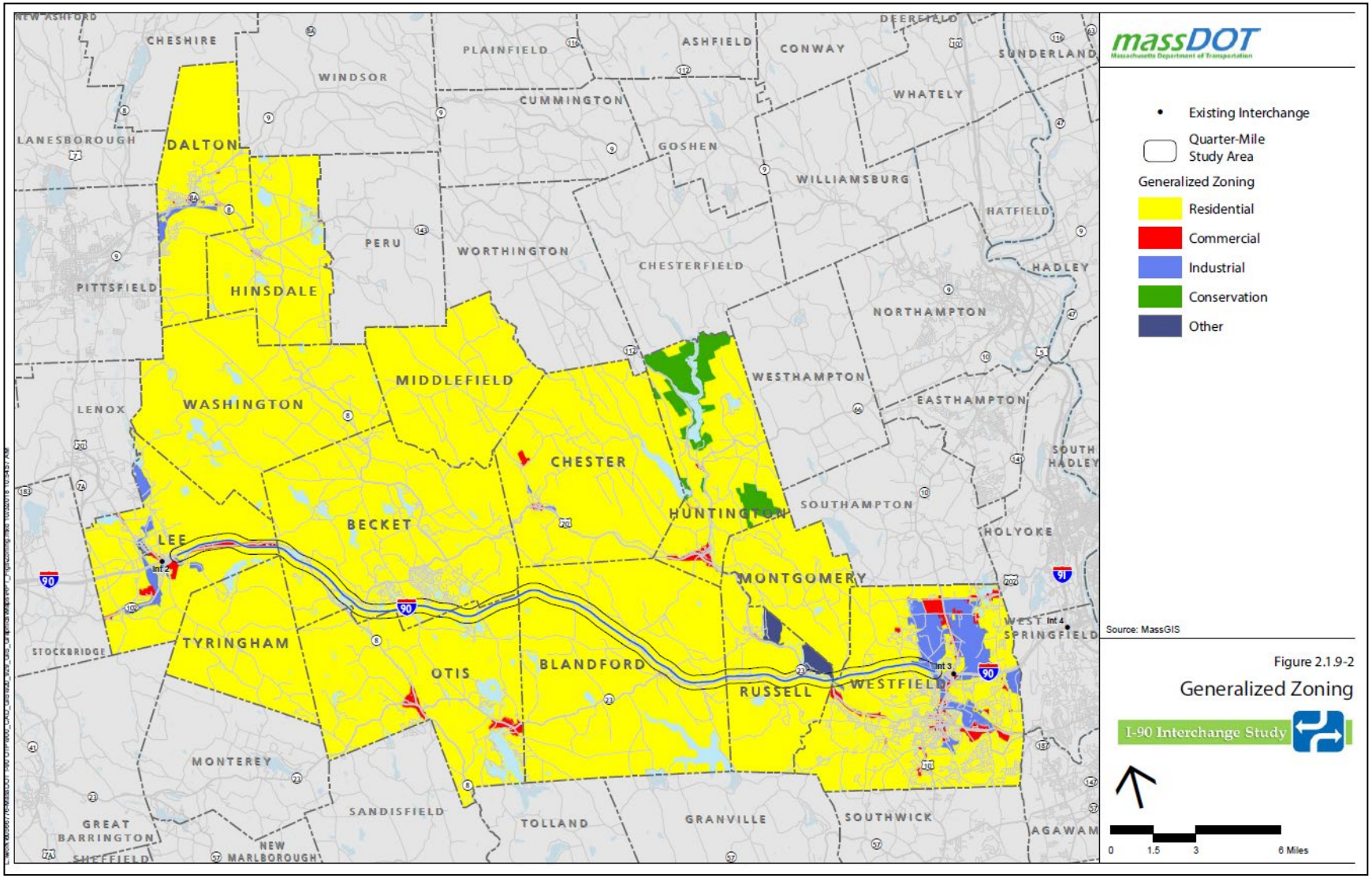
Travel Demand Modeling
Local Zoning
by General Type



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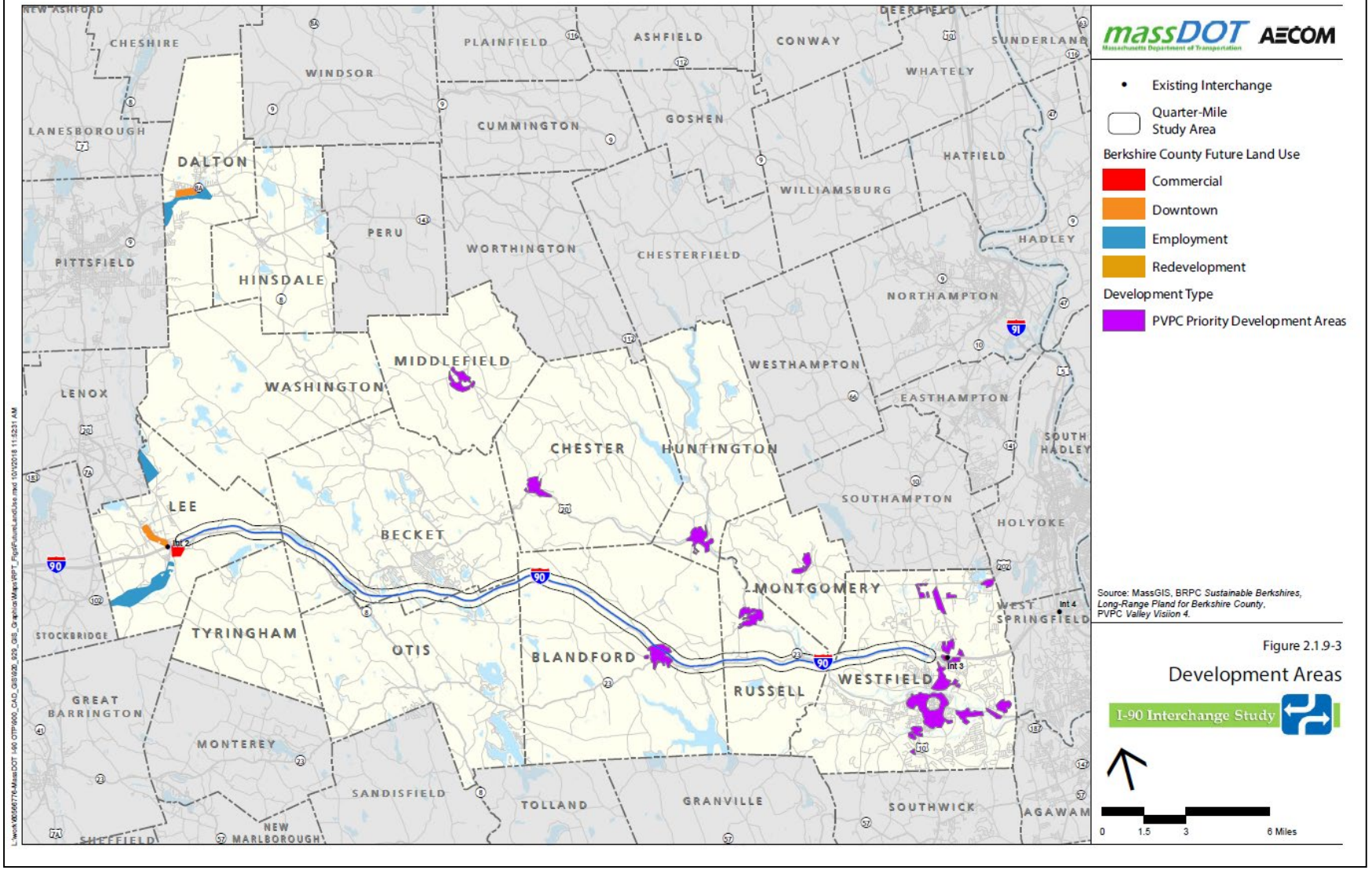
Travel Demand Modeling
PVPC and BRPC Priority Development Areas



Travel Demand Modeling
Traffic Diversion

- Traffic Diversion
  - Modeling tells us how many cars and trucks would be on the roadway in 2040 (background growth)
  - For each alternative, the model reassigns routes based upon origins, destinations and travel time
  - With each alternative, some roadways will receive more traffic and others will lose traffic
    - Diversions tell us, to some extent, which roadways will be affected and to what level

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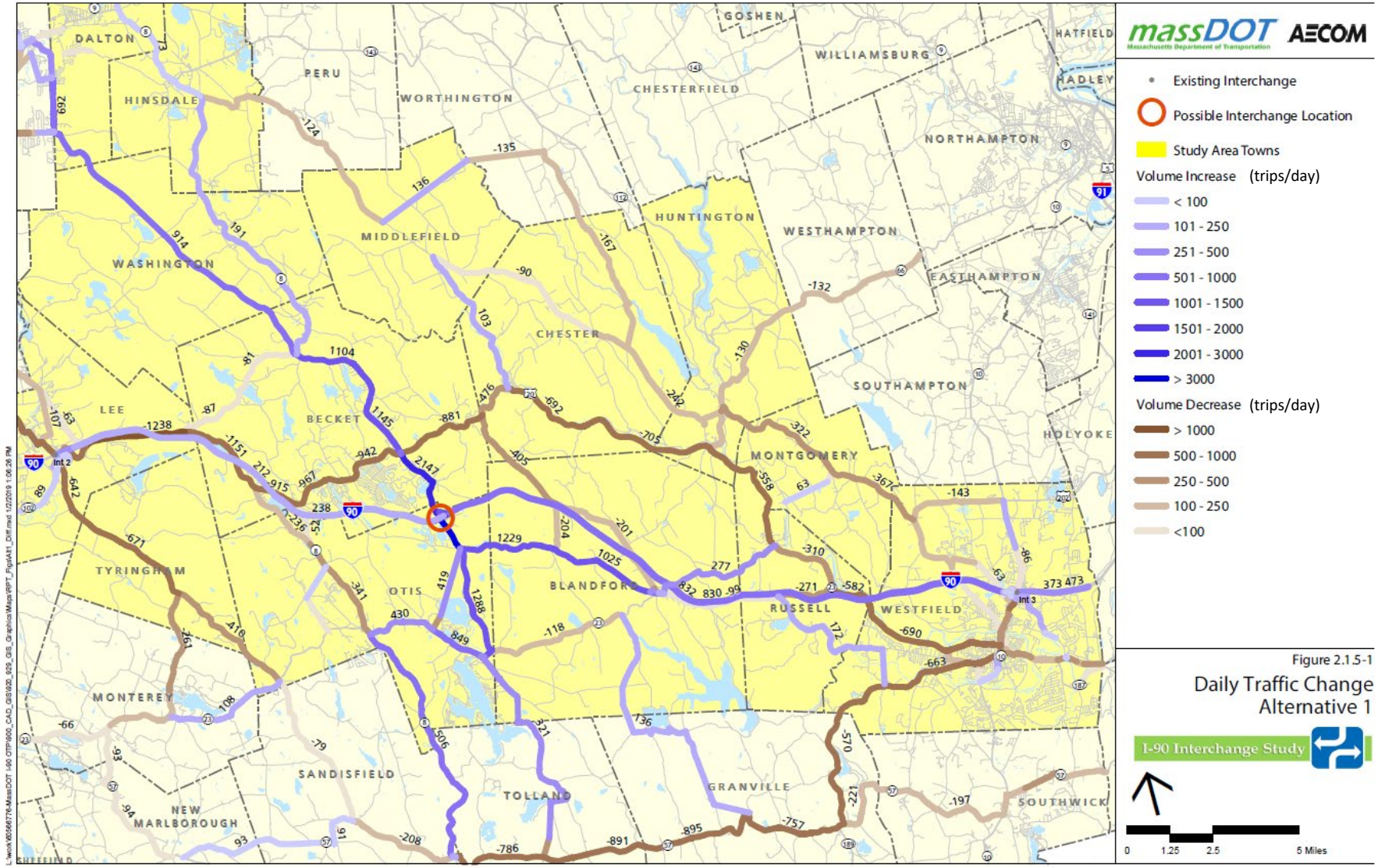
Traffic Diversion
Alternative 1
Algerie Road, Otis



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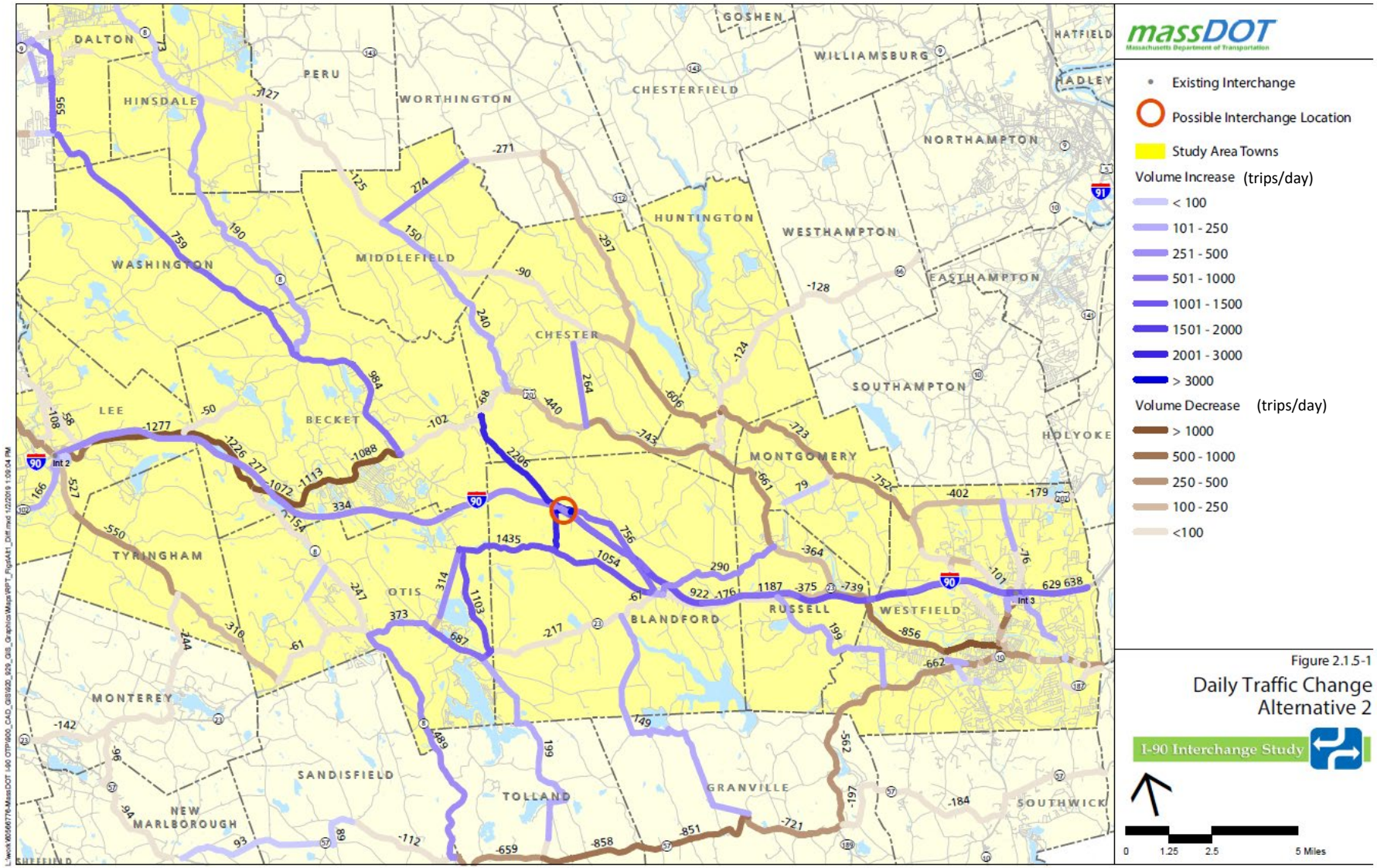
Traffic Diversion
Alternative 2
Blandford Maintenance Facility,
Blandford



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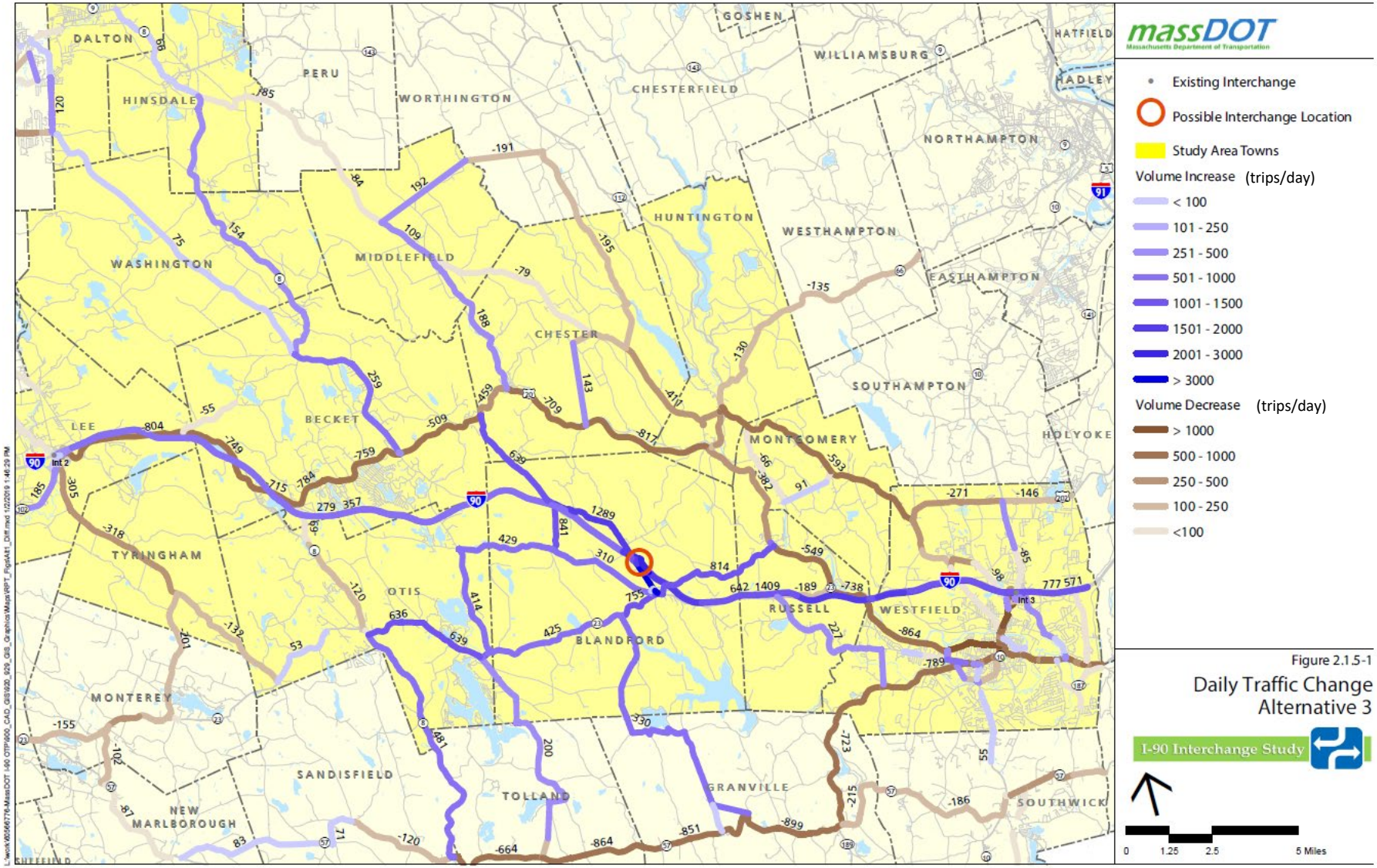
Traffic Diversion
Alternative 3
Blandford Service Plaza,
Blandford



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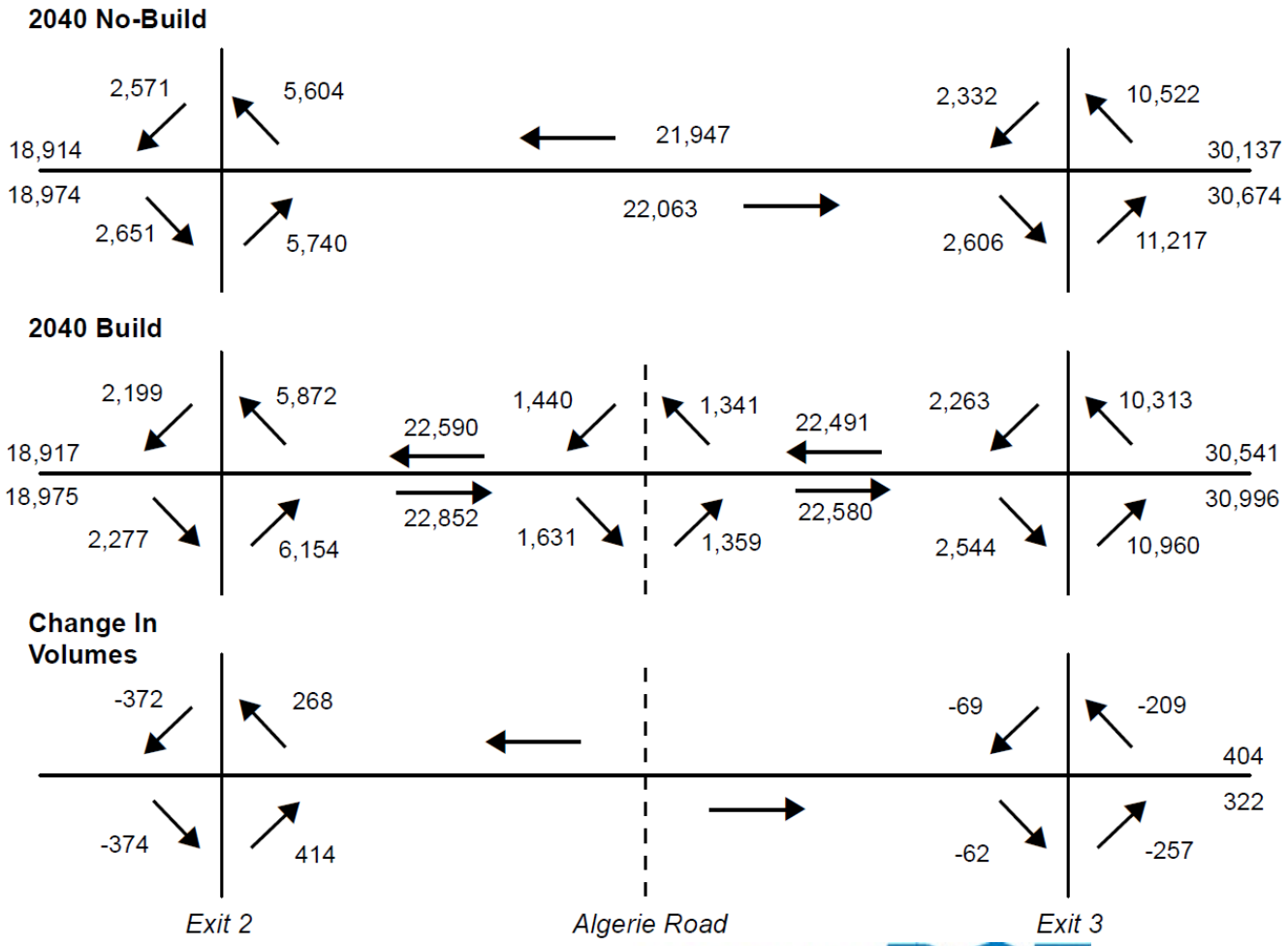
Traffic Diversion
Alternative 1
Algerie Road, Otis



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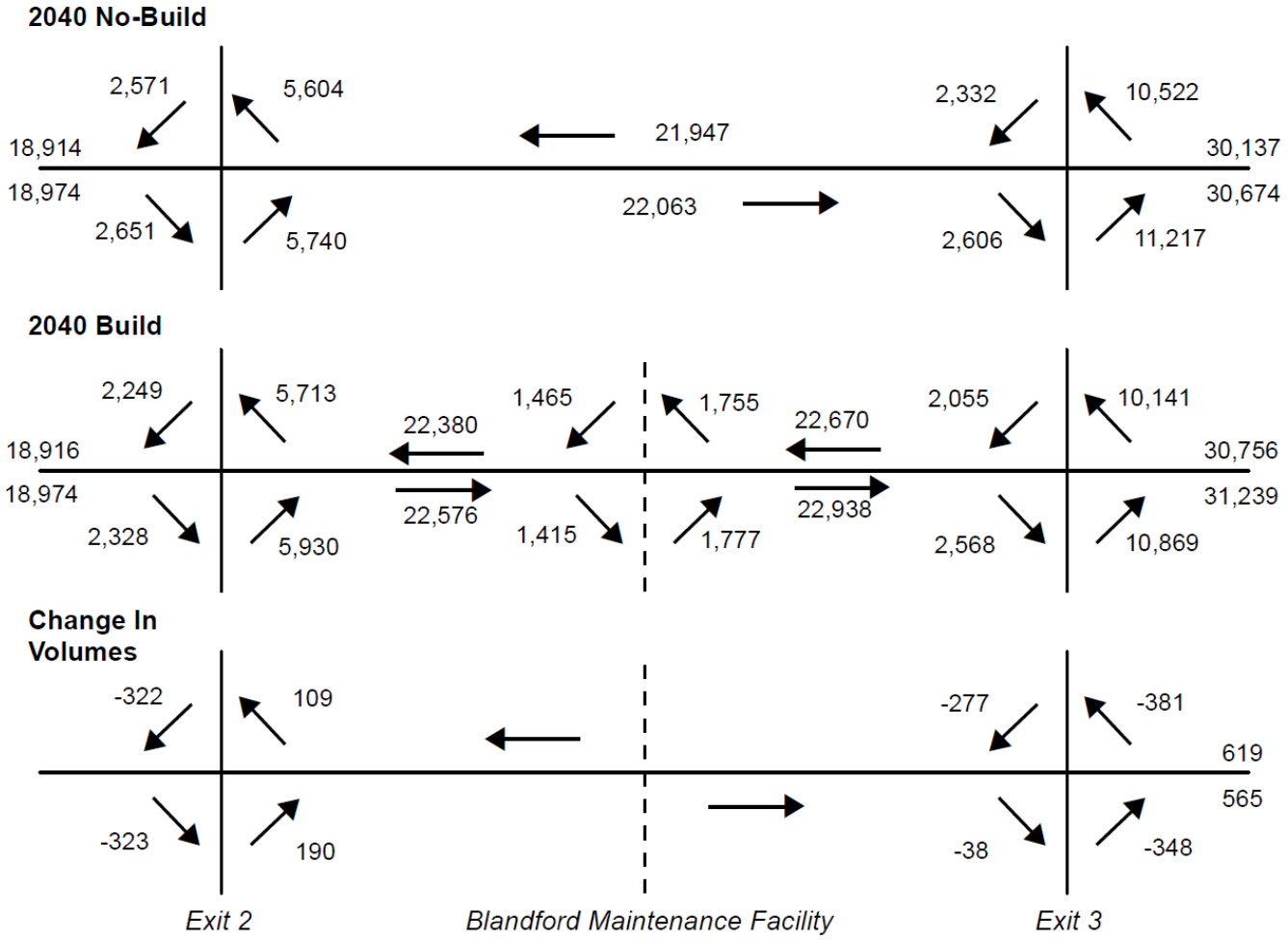
Traffic Diversion
Alternative 2
Blandford Maintenance
Facility, Blandford



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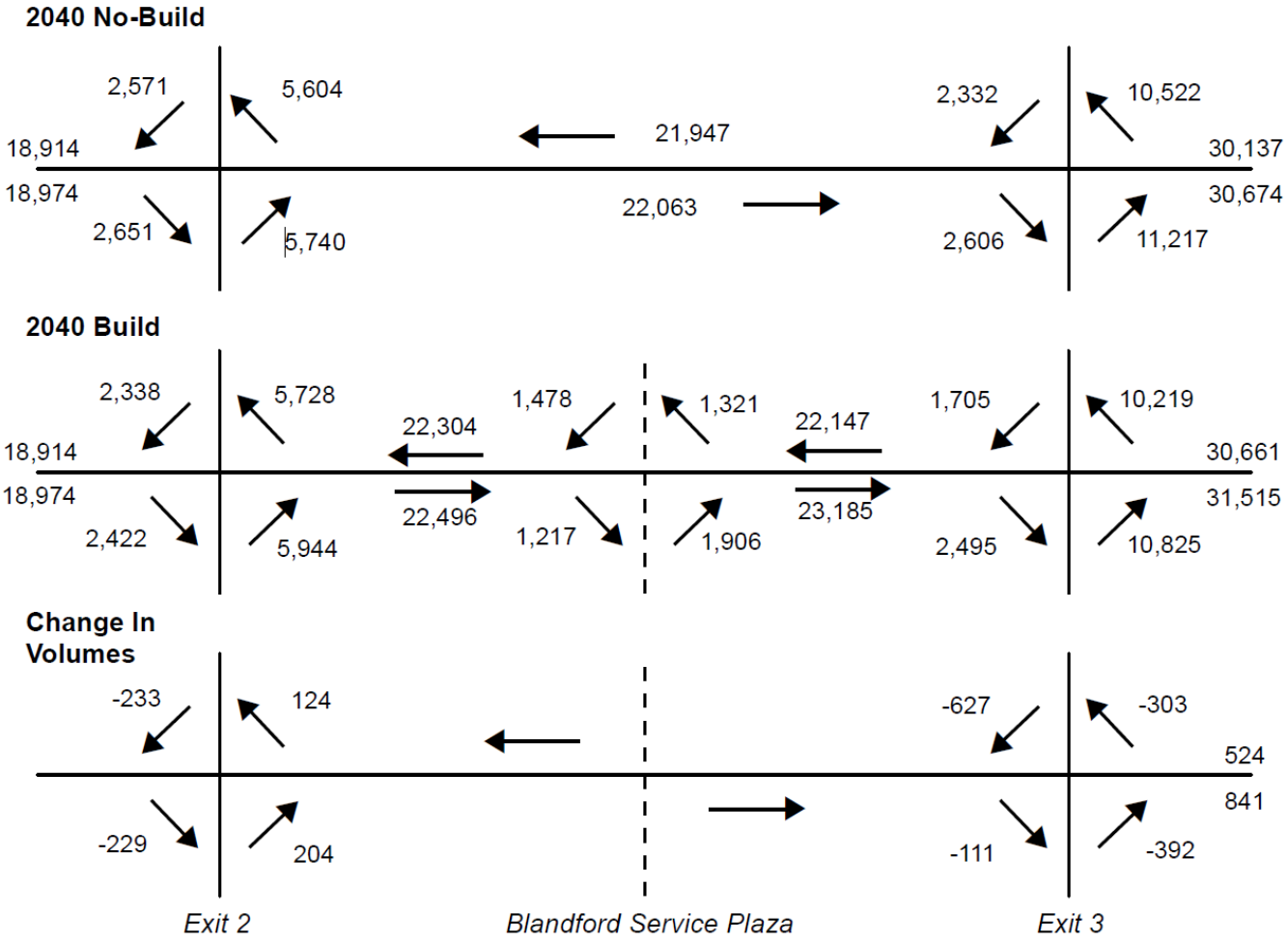
Traffic Diversion
Alternative 3
Blandford Service Plaza,
Blandford



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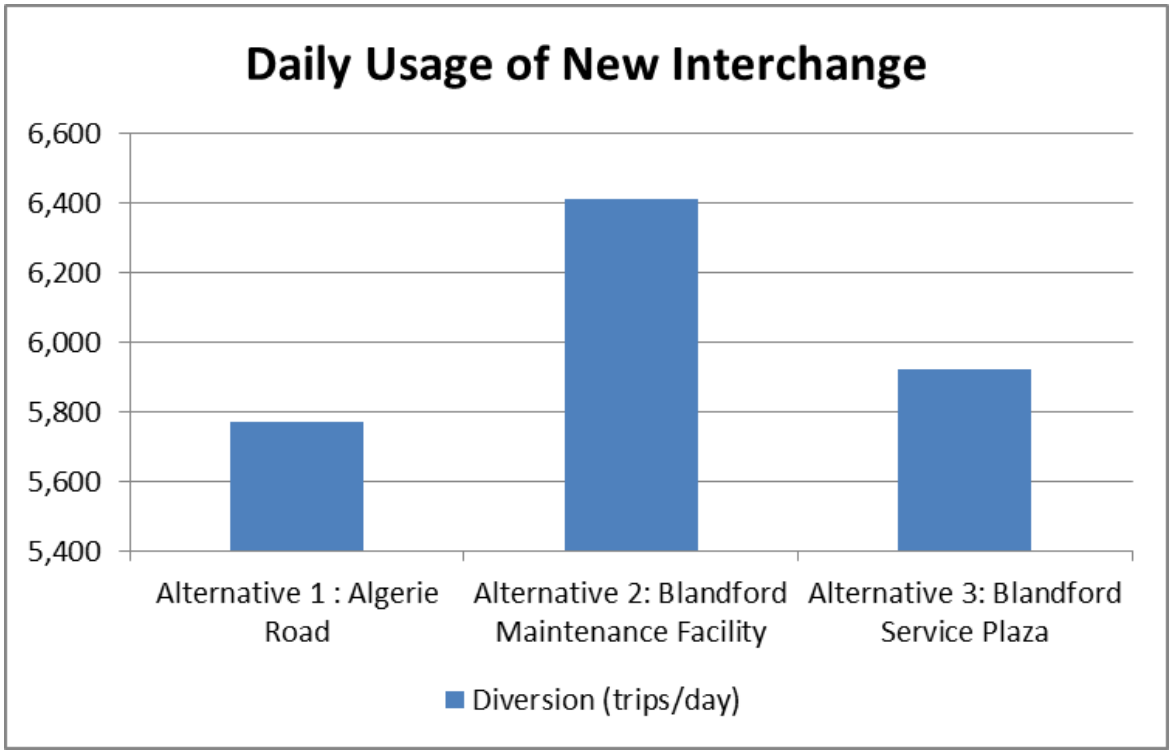
Traffic Modeling Summary



- The proposed interchanges would attract 5,700 to 6,400 trips per day

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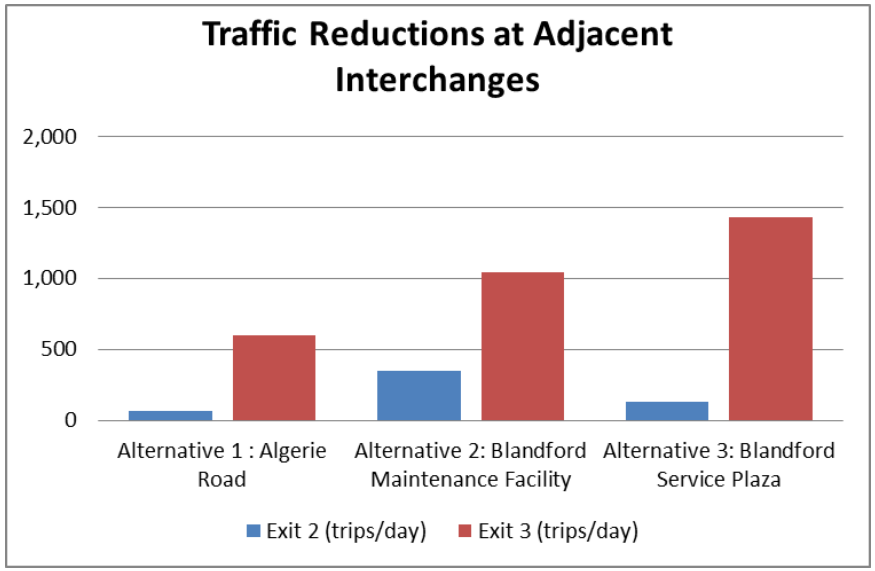
Traffic Modeling Summary

- Adjacent interchanges would experience traffic reductions
- Changes at Exits 2 and 3 are net reductions
- Traffic patterns will change on local roads and between existing interchanges and the new interchange
- New ramp volumes reflect combination of new I-90 users and existing users selecting different routes



	Alt. 1 Algerie Road	Alt. 2 Blandford Maintenance Facility	Alt. 3 Blandford Service Plaza
Diversion to:	5,771 trips/day	6,412 trips/day	5,922 trips/day
Diversion from:			
Exit 2, Lee	-64 trips/day	-346 trips/day	-134 trips/day
Exit 3, Westfield	-597 trips/day	-1,044 trips/day	-1,433 trips/day

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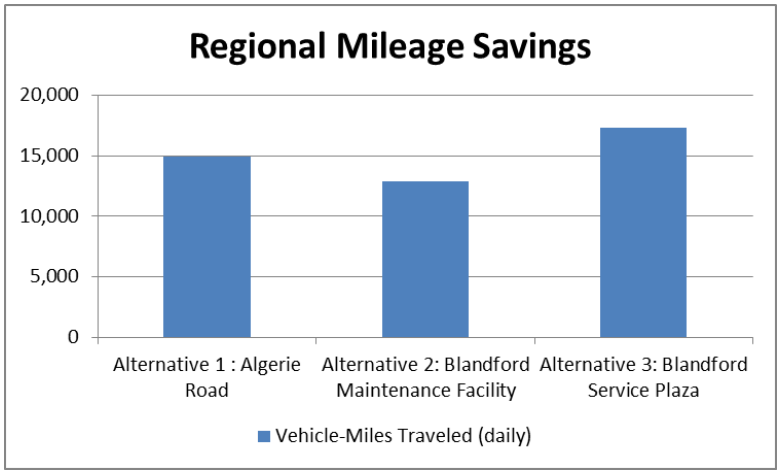
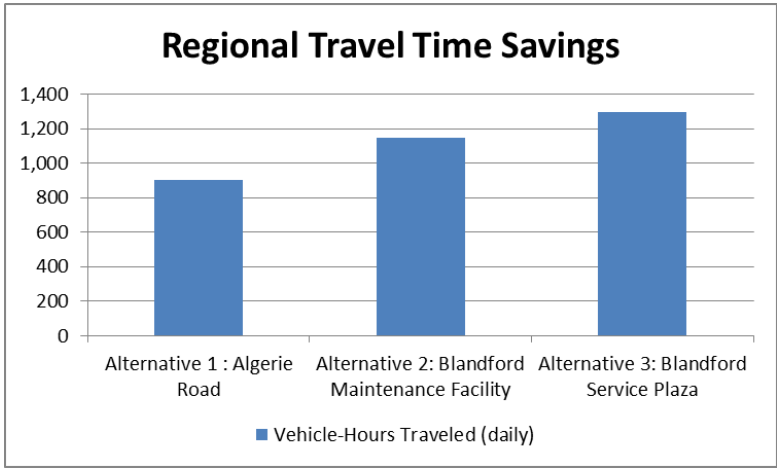
Traffic Modeling Summary
Changes in VMT and VHT

- Reductions in vehicle-miles traveled (VMT) of 12,500 to 17,500 miles/day
- Reductions in vehicle-hours traveled (VHT) of 900 to 1,300 hours/day
- Overall annual benefits
  - Fuel savings of 200,000 to 282,000 gallons/year (using EPA factors)
  - 328,000-475,000 fewer hours per year in vehicle travel time
  - Greenhouse gas reductions of 1,775 to 2,500 metric tons/year





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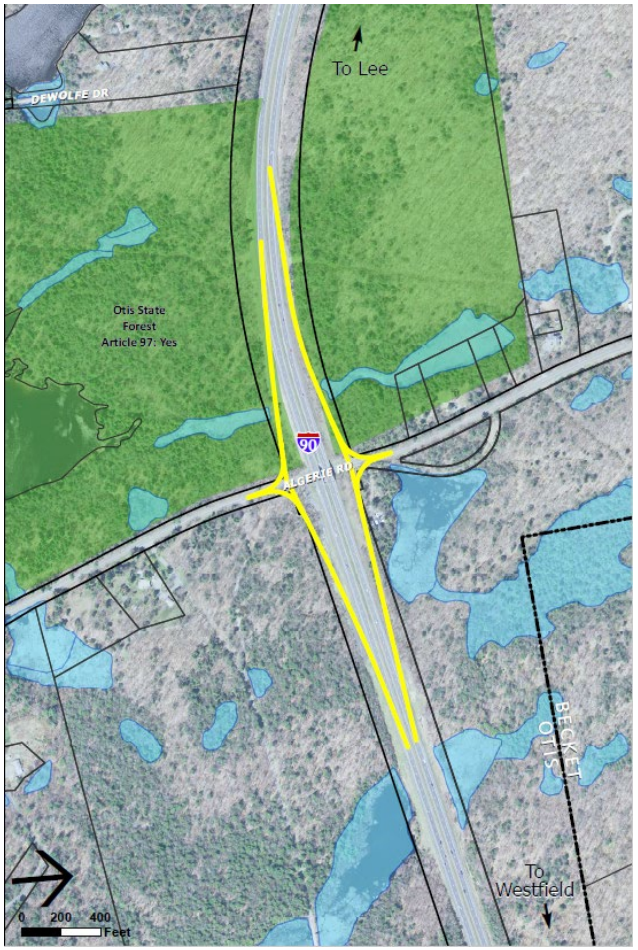
Interchange Concepts

- Since last meeting, interchange concepts have been developed in further detail
  - Accuracy in the concepts aides in alternatives analysis
- On-screen walkthrough of interchange concepts using design software

I-90 Interchange Study

Concept Design
Alternative 1
Algerie Road, Otis

- Finalized concept design
  - Wetland impacts:
    Less than 500 square feet (SF)
  - Open space/Article 97 impacts:
    Approximately 3,100 SF
  - ROW impacts:
    Approximately 17,000 SF
  - Residences within ¼ mile: 7
  - Potential property taking:
    4 parcels (2 Commonwealth of Massachusetts)



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Concept Design
Alternative 1
Algerie Road, Otis

I-90 bridge over Algerie Road (looking north)

I-90 bridge piers restrict widening on Algerie Road

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Concept Design
Alternative 1
Algerie Road, Otis

Emergency ramp from Algerie Road to I-90 eastbound

Steep grade from Algerie Road onto existing I-90 eastbound emergency ramp

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I-90 Interchange Study

Concept Design
Alternative 1
Algerie Road, Otis

- Comments / attributes / cost estimate
  - Bridge piers are a constraint
  - High truck traffic component
  - Construction estimate (not including ROW takings):
    - Interchange: Approximately $26.3 million
    - Local Road upgrades: Approximately $11.5 million
      - Algerie Road: 5.5 miles from interchange to Route 23 and to Bonny Rigg Road
      - Bonny Rigg Road: 1.25 miles from Algerie Road to Route 8
    - Total: Approximately $37.8 million

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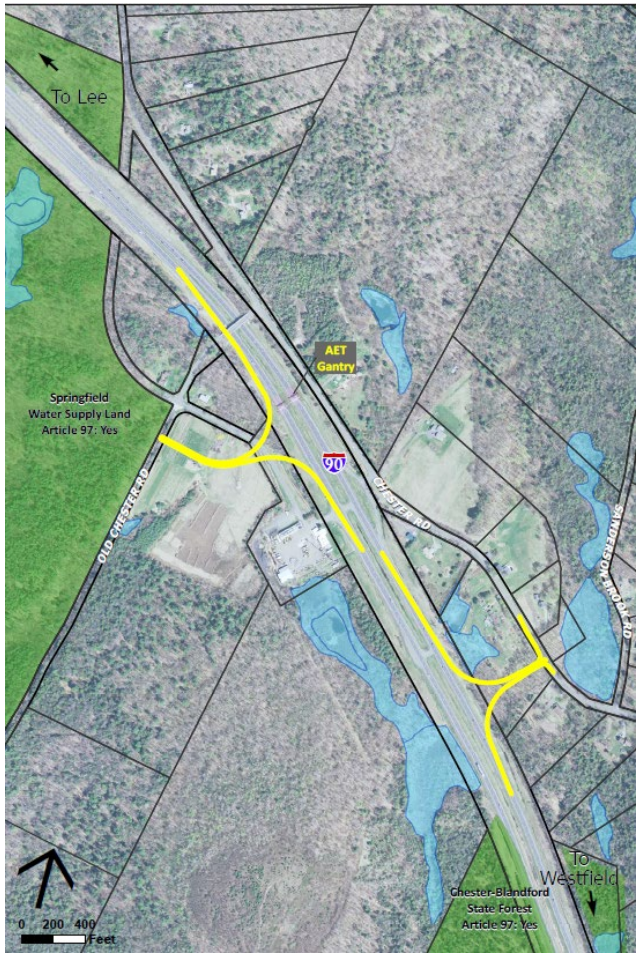
Concept Design
Alternative 2
Blandford Maintenance Facility, Blandford

- Finalized concept design
  - Wetland impacts: None
  - Water resources impacts: Approximately 180,000 SF
  - Open space/Article 97 impacts: Less than 300 SF
  - ROW impacts: Approximately 92,000 SF
  - Residences within ¼ mile: 18
  - Potential property taking: 4 parcels



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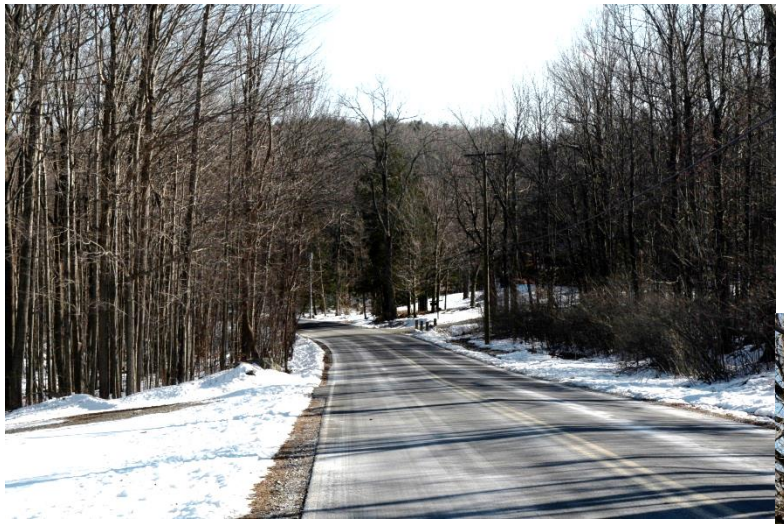
Concept Design
Alternative 2
Blandford Maintenance Facility, Blandford



Chester Road eastbound near proposed I-90 westbound ramps

Chester Road westbound near proposed I-90 westbound ramps

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Concept Design
Alternative 2
Blandford Maintenance Facility, Blandford

Intersection of Chester Road / Old Chester Road at bridge over I-90

Bridge over I-90 and intersection of Chester Road / Old Chester Road

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Concept Design
Alternative 2
Blandford Maintenance Facility, Blandford

- Comments / attributes / cost estimate
  - Condition of bridge over I-90
  - Integration with existing maintenance function
  - Construction estimate (not including ROW takings):
    - Interchange: Approximately $19.4 million
    - Local Road upgrades: Approximately $10.1 million
      - Old Chester Road: 4 miles from interchange to Route 23
      - Chester Road: 3.5 miles from interchange to Route 20
    - Total: Approximately $29.5 million

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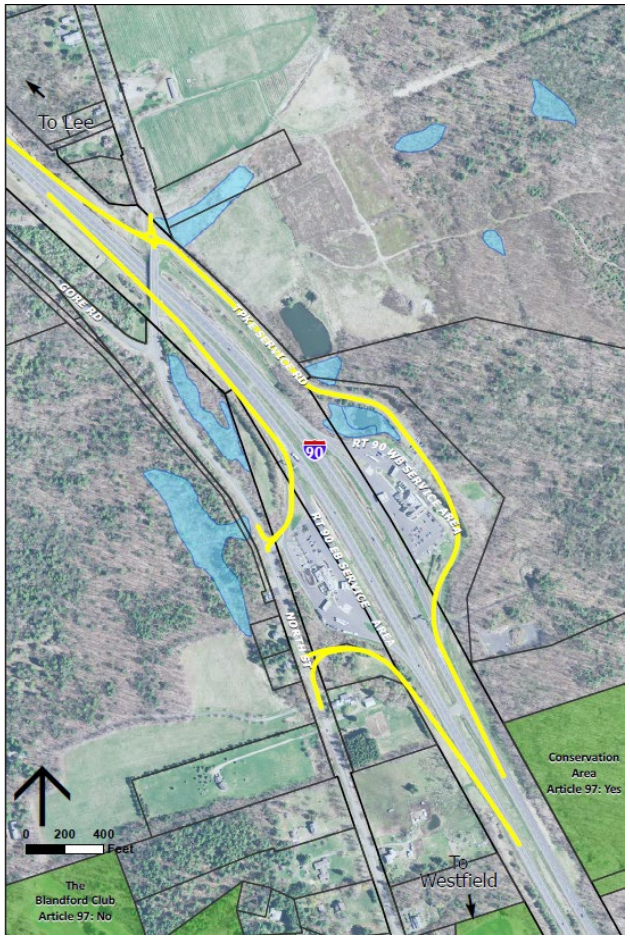
Concept Design
Alternative 3
Blandford Service Plaza,
Blandford

- Finalized concept design
  - Wetland impacts:
    Less than 500 SF
  - Water resources impacts:
    Approximately 106,000 SF
  - Open space/Article 97 impacts:
    None
  - ROW impacts:
    Approximately 21,000 SF
  - Residences within ¼ mile: 15
  - Potential property taking:
    2 parcels



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Concept Design
Alternative 3
Blandford Service Plaza,
Blandford

Off-ramp to I-90 westbound service plaza

Steep grades and low areas behind I-90 westbound service plaza

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Concept Design
Alternative 3
Blandford Service Plaza,
Blandford

Intersection of access road to westbound service plaza and North Street at bridge over I-90

Internal activity points at I-90 westbound service plaza

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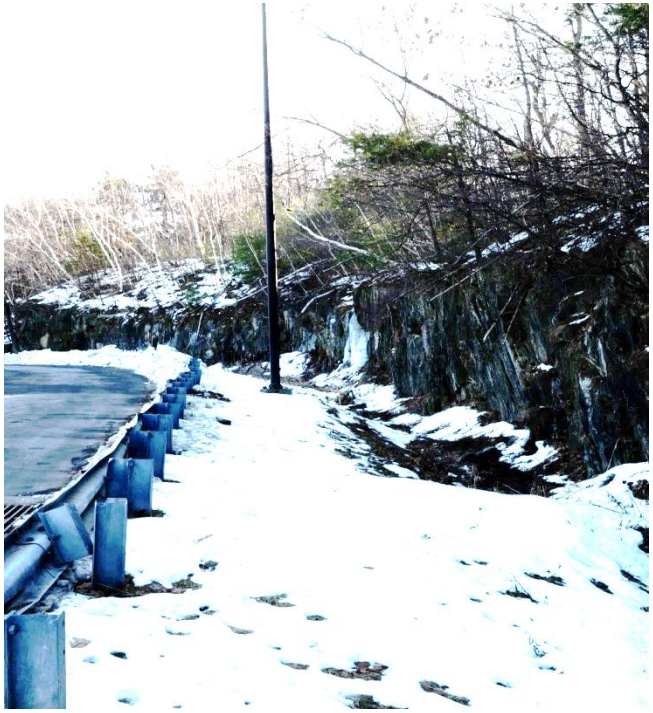
Concept Design
Alternative 3
Blandford Service Plaza,
Blandford

North Street behind I-90 eastbound service plaza

Drainage ditch and ledge at rear of I-90 eastbound service plaza



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Blandford Service Plaza, Blandford

Multiple conflict points within I-90 eastbound service plaza

Multiple conflict points within I-90 eastbound service plaza

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Concept Design
Alternative 3
Blandford Service Plaza,
Blandford

- Comments / attributes / cost estimate
  - Condition of North Street bridge over I-90
  - Integration with existing plaza functions
  - Construction estimate (not including ROW takings):
    - Interchange: Approximately $20.4 million
    - Local Road upgrades: Approximately $13.6 million
      - Chester Road: 6.8 miles from interchange to Route 20 via North Street and Chester Road
      - North Street: 1.3 miles from interchange to Route 23 via North Street
    - Total: Approximately $34.0 million

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Other Business

- Opportunity for public comment

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Next Steps

- Next Steps
  - Complete remaining future conditions analyses
    - Local intersection analyses
    - Economic impact review
    - Health impact review
    - Mobility analysis
  - Develop recommendations
  - Complete draft feasibility report for review
  - Next Working Group meeting: Spring, 2019
  - Next Open House meeting: Spring, 2019

I-90 Interchange Study

Schedule

	2018											2019				
	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May
Task 1: Study Area, Goals and Objectives, Evaluation Criteria, and Public Participation																
Study Area																
Goals and Objectives																
Evaluation Criteria																
Public Participation Plan																
Task 2: Existing Conditions, Future No-Build Conditions, and Issues Evaluation																
Existing Conditions and Data Collection																
Future Year Conditions																
Definition & Evaluation of Issues & Opportunities																
Constraints Identification																
Task 3: Alternatives Development																
Design Development																
Task 4: Alternatives Analysis																
Mobility & Accessibility Analysis																
Safety Analysis																
Environmental Effects Analysis																
Public Health Analysis																
Land Use & Economic Development Analysis																
Community Effects/Title VI/Environmental Justice Analysis																
Cost Analysis																
Task 5: Recommendations																
Recommendations																
Task 6: Final Report																
Draft and Final Report																

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