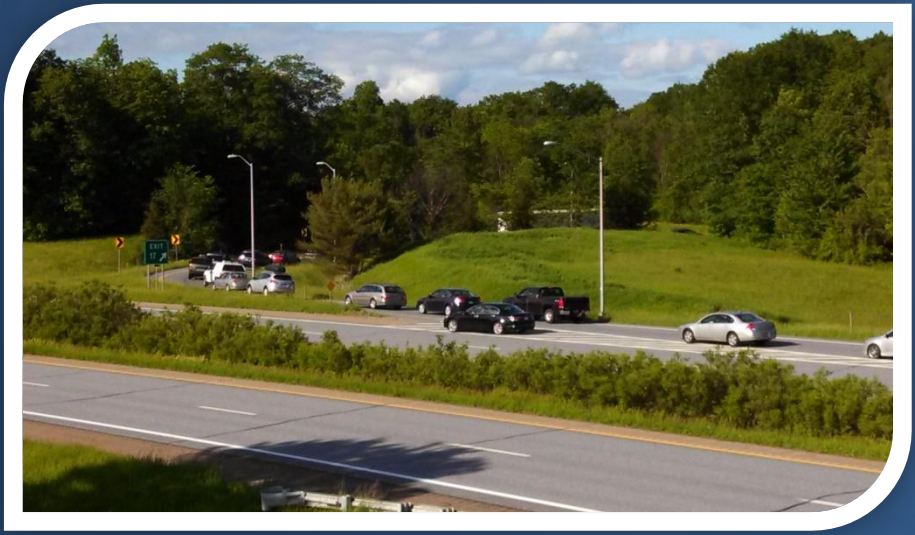
Exit 17 Scoping Study

Second Update on Alternatives Analysis



May 2014

Town of Colchester Selectboard
Colchester, Vermont

PARSONS BRINCKERHOFF

CHITTENDEN COUNTY RPC

Meeting Agenda

- **Introductions**
- Study Status and Review
- Alternatives Analysis
- Next Steps

Study Team

Agencies and Towns

- CCRPC
- VTrans
- Town of Colchester
- Town of Milton
- FHWA
- CCTA
- Local Motion
- LCRCC

Consultant Team

- Parsons Brinckerhoff
  Lead consultant, transportation planning and conceptual engineering
- Third Sector Associates
  Public outreach
- EIV Technical and Hartgen Associates
  Natural and cultural resources
- Vermont Survey & Engineering
  Mapping and surveying

Study Team

CCRPC Project Manager

- Jason Charest
  CCRPC
  JCharest@ccrpcvt.org

Consultant Team

- Joseph Barr
  Parsons Brinckerhoff
  barrje@pbworld.com

- Diane Meyerhoff
  Third Sector Associates
  diane@thirdsectorassociates.com

Meeting Agenda

- Introductions
- **Study Status and Review**
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Study Status

Task 1
Study Admin

- Project Management
- Study Team Meetings

Task 2
Public Outreach

- Project Website
- Stakeholder Outreach
- Public Meetings
  1. Local Concerns
  2. Alternatives Presentation

Task 3
Initial Data Collection and Basemapping

- Initial Basemap
- Review Prior Studies and Plans
- Collect Data

Task 3
NoBuild Traffic and Growth Scenarios

- Existing Conditions (2015)
- Future Conditions (2035)

Task 5
Purpose and Need

- Draft P&N Statement
- Final P&N Statement

Task 6
Develop Build Alternatives

- Design Criteria
- Near-term Alts
- Interchange Upgrade Alts

Task 7
Constraint Mapping

- Survey and Basemap
- ID Natural and Cultural Resources
- ID Hazardous Waste sites
- Constraints Map

Task 8
Refine Alternatives

- Conceptual Design

Task 9
Evaluate Alternatives

- Define Process and Criteria
- Prepare Evaluation Matrix

Task 10
Scoping Report

- Draft Report
- Final Report

Public and Stakeholder Outreach

- Five Study Committee Meetings
  - August 6, 2013
  - September 12, 2013
  - October 10, 2013
  - October 21, 2013
  - December 18, 2013
- Public Meetings – Joint with Colchester Selectboard
  - Local Concerns Meeting – September 10, 2013
  - Preliminary Alternatives Presentation – October 22, 2013
  - Alternatives Presentation (Milton) – May 19, 2014
  - Alternatives Presentation – May 27, 2014

Study Area

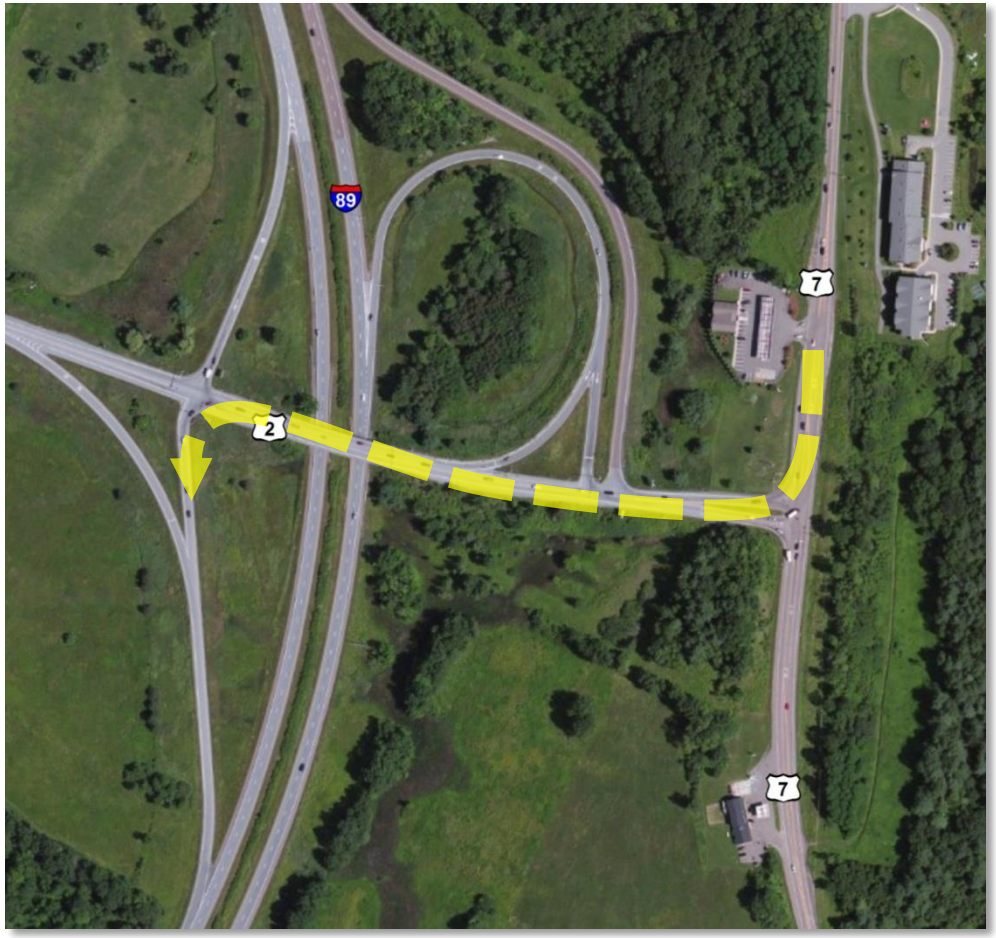
Study Purpose

The purpose of the Exit 17 Scoping Study is to develop alternatives that **enhance the operation** of the Exit 17 interchange by **reducing traffic congestion** at the ramps and the adjacent US 2/US 7 intersection, provide infrastructure for **safe and efficient travel by all users**, and **improve connectivity and access** between the Interstate and nearby communities in Chittenden, Grand Isle and Franklin Counties under current and projected future conditions.

Summary of Congestion Issues

Current

- **Heavy SB US 7 to SB I-89 traffic pattern during AM**
- Significant PM Peak queuing on northbound off-ramp
- SB through and NB left turn movements compete for green time at US 2/US 7 intersection
- EB left turns onto NB I-89 onramp block through movements on US 2



Future Potential Issues

- Worsening of current issues

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Future Potential Issues

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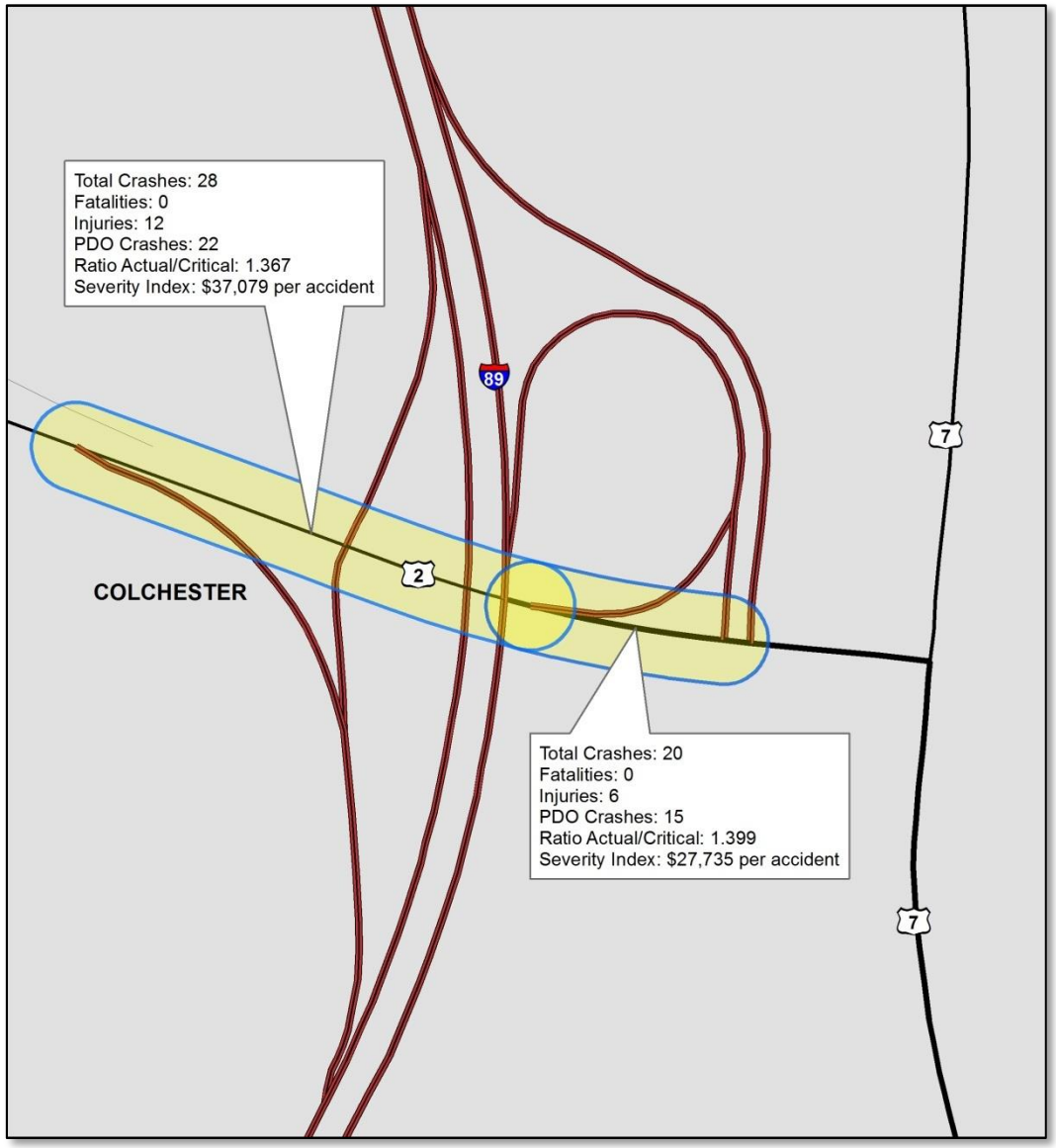
Safety Issues

- Two High Crash Locations at US 2/I-89 northbound and southbound ramps
- Queuing onto northbound onramp
- Weaving movement on westbound US 2
- High speed limits (50 mph)
- No pedestrian or bike accommodation



Other Modes

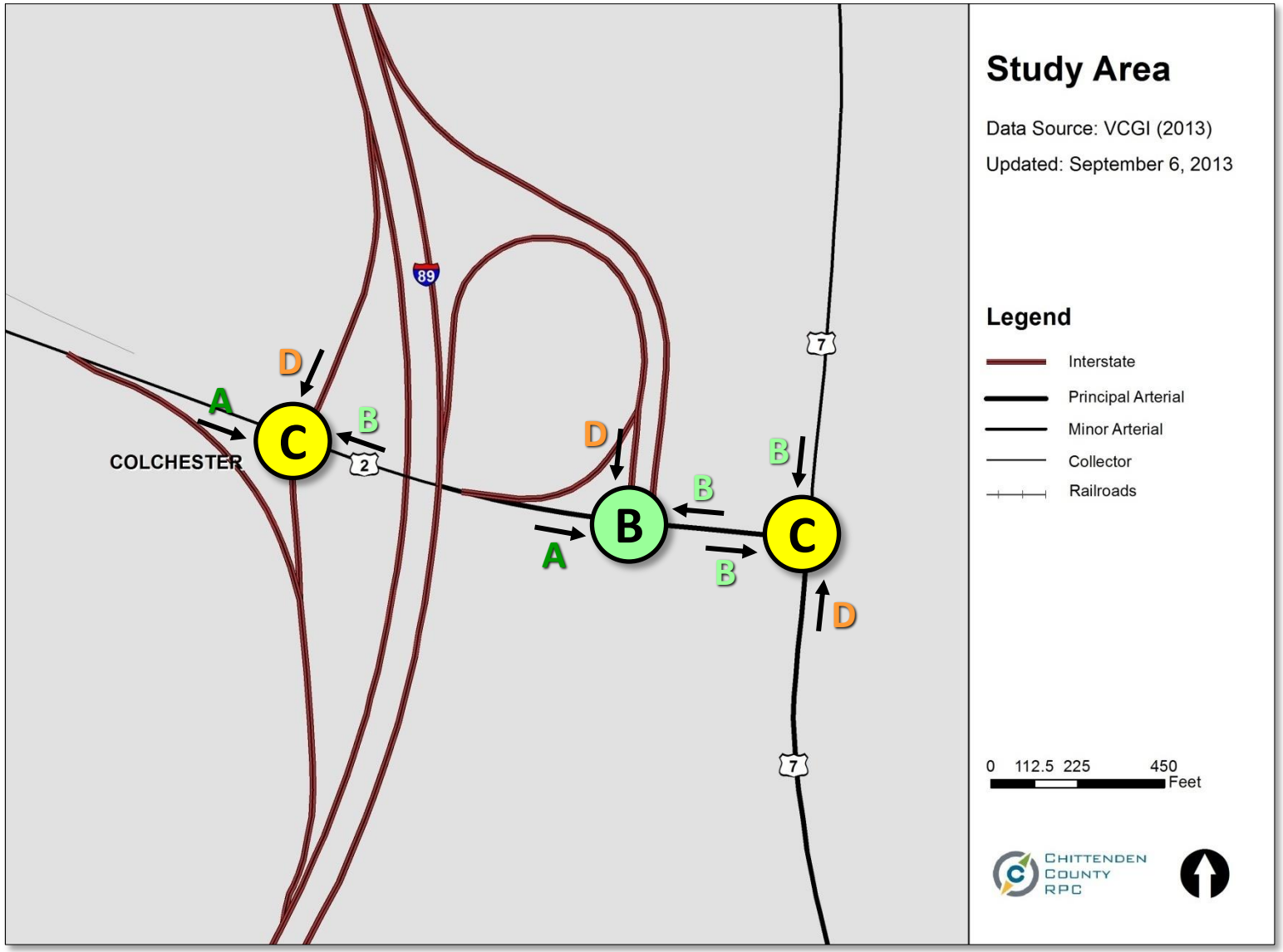
- CCTA Route 56 routing through interchange
- Access to Chimney Corner Park and Ride
- Pedestrian and bicycle accommodation
  - Interchange is an identified “Critical Crossing”
  - US 2 and US 7 are identified Bicycle Routes and part of the Champlain Bikeway

Intersection Performance – LOS

Level of Service (LOS)	Average Delay (seconds per vehicle)	Generalized Description (Signalized Intersection)
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable Flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delays)
F	>80	Forced flow (jammed)

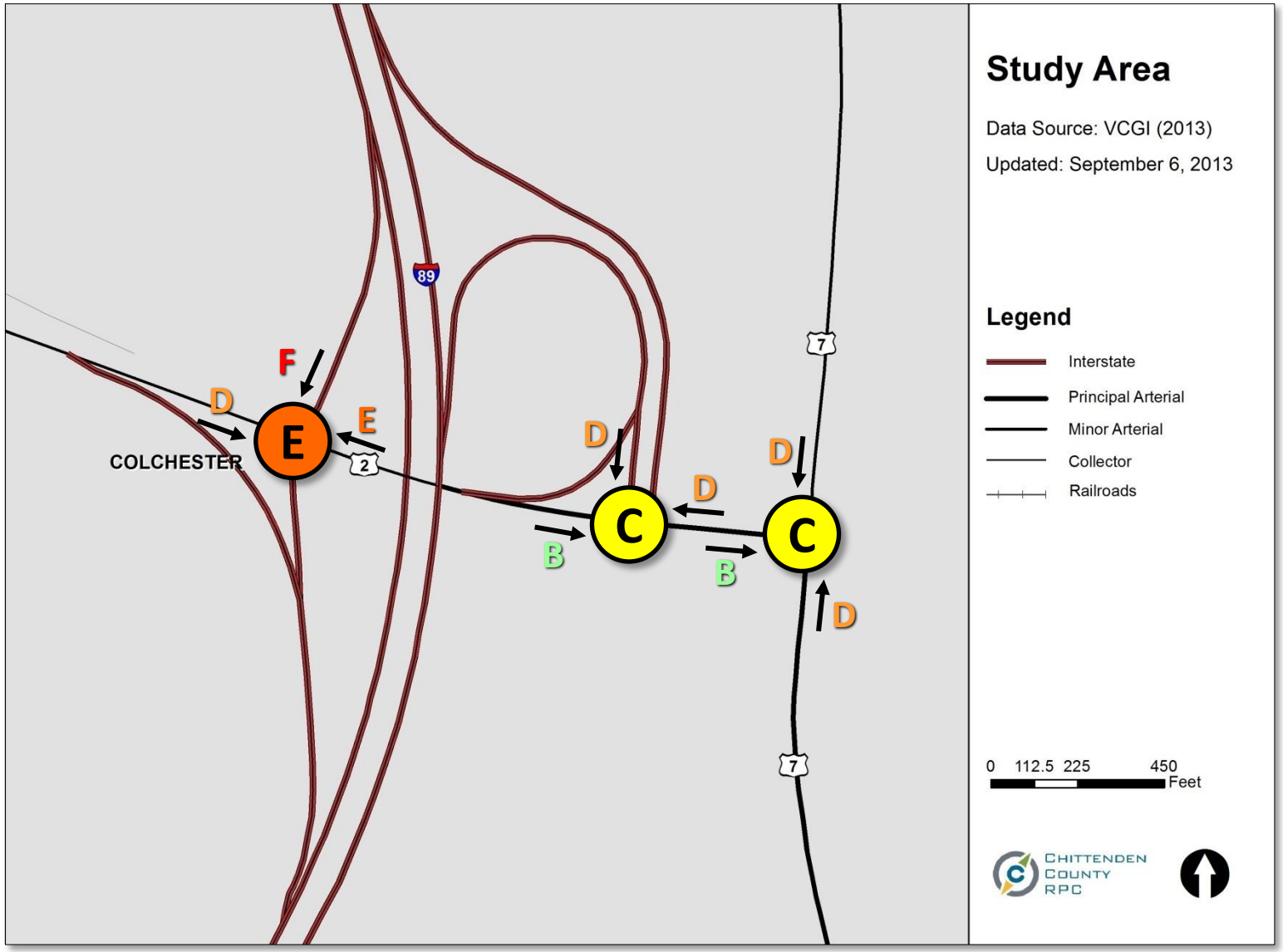
Source: *Highway Capacity Manual*, 2000

Existing AM Peak Traffic Operations



Future (2035) AM Peak Traffic Operations

By 2035, traffic volumes are forecast to increase by 25% to 35%



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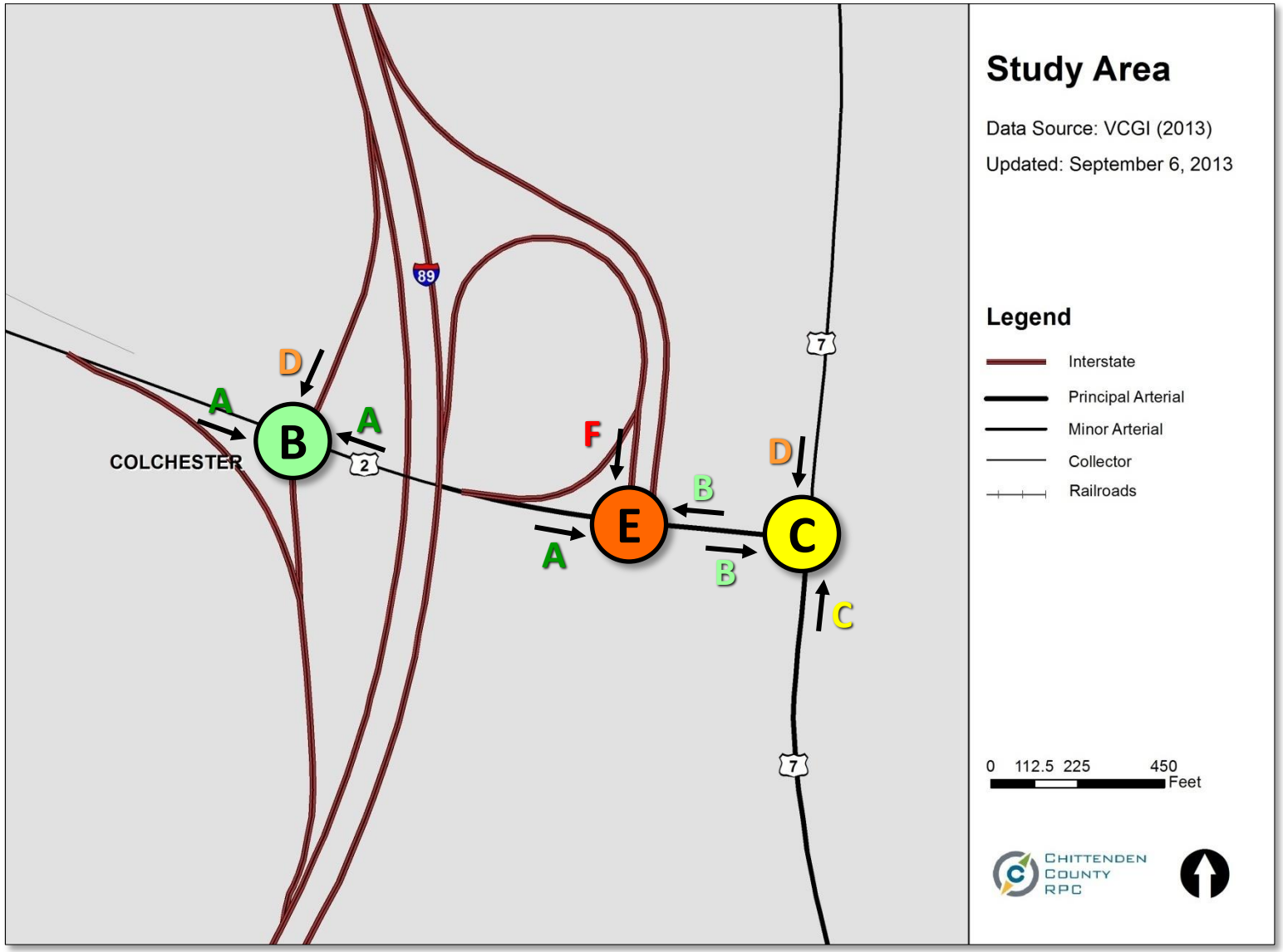

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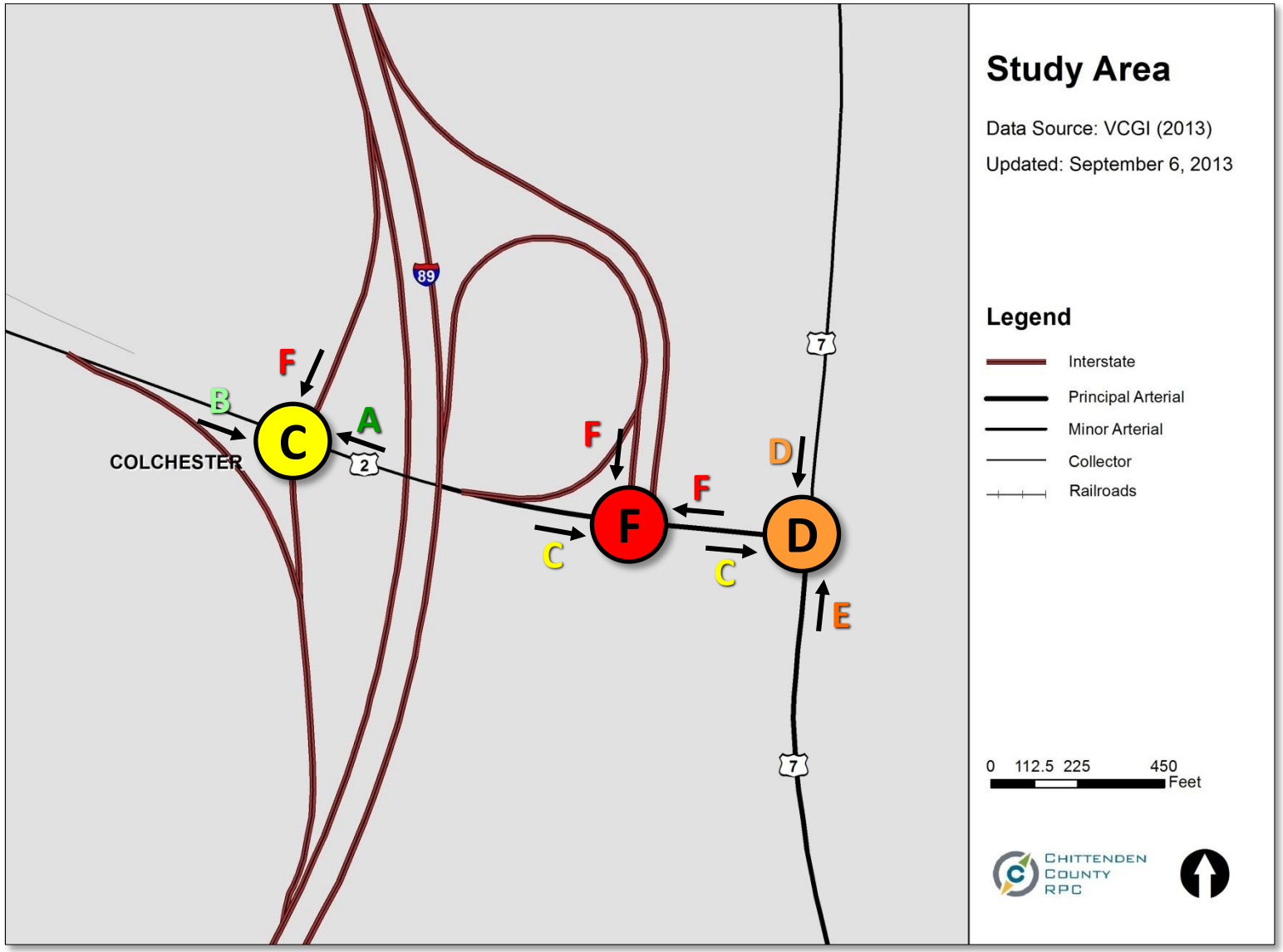

Meeting Agenda

- Introductions
- Study Status and Review
- **Alternatives Analysis**
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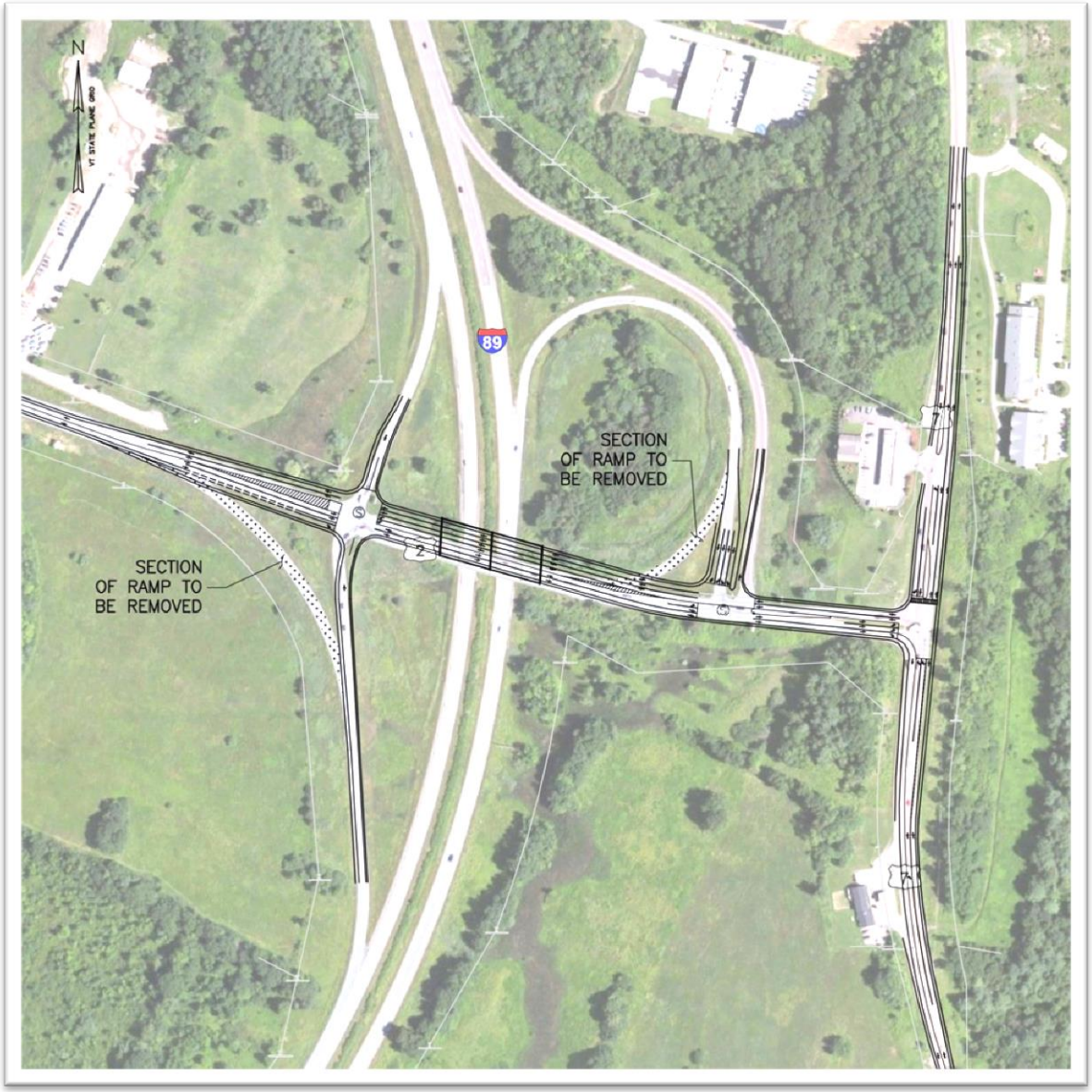
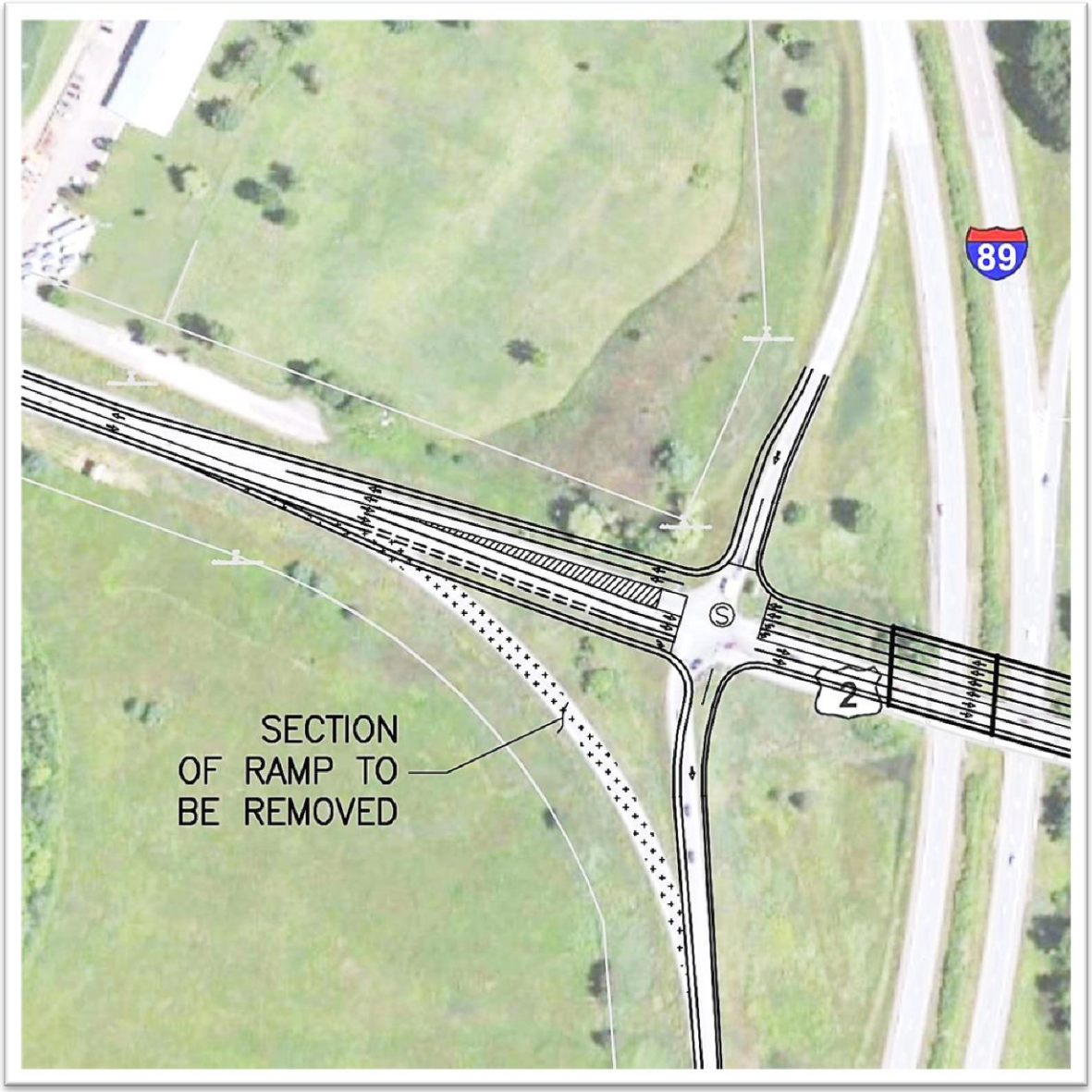
Long Term - Alternatives Analysis

- Two options under consideration
  - Six-Lane Bridge – initial alternative under consideration
  - Loop Ramp – suggested at public meeting
- Conceptual designs
- Traffic performance
- Specific design details
- Concepts evaluated but not given further study
  - Roundabout at I-89 NB ramps
  - New I-89 NB exit ramp to US-2 EB in southeast quadrant

Six-Lane Bridge – Overview

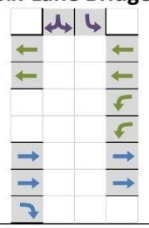
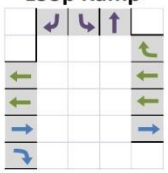


Six-Lane Bridge – US-2/I-89 SB

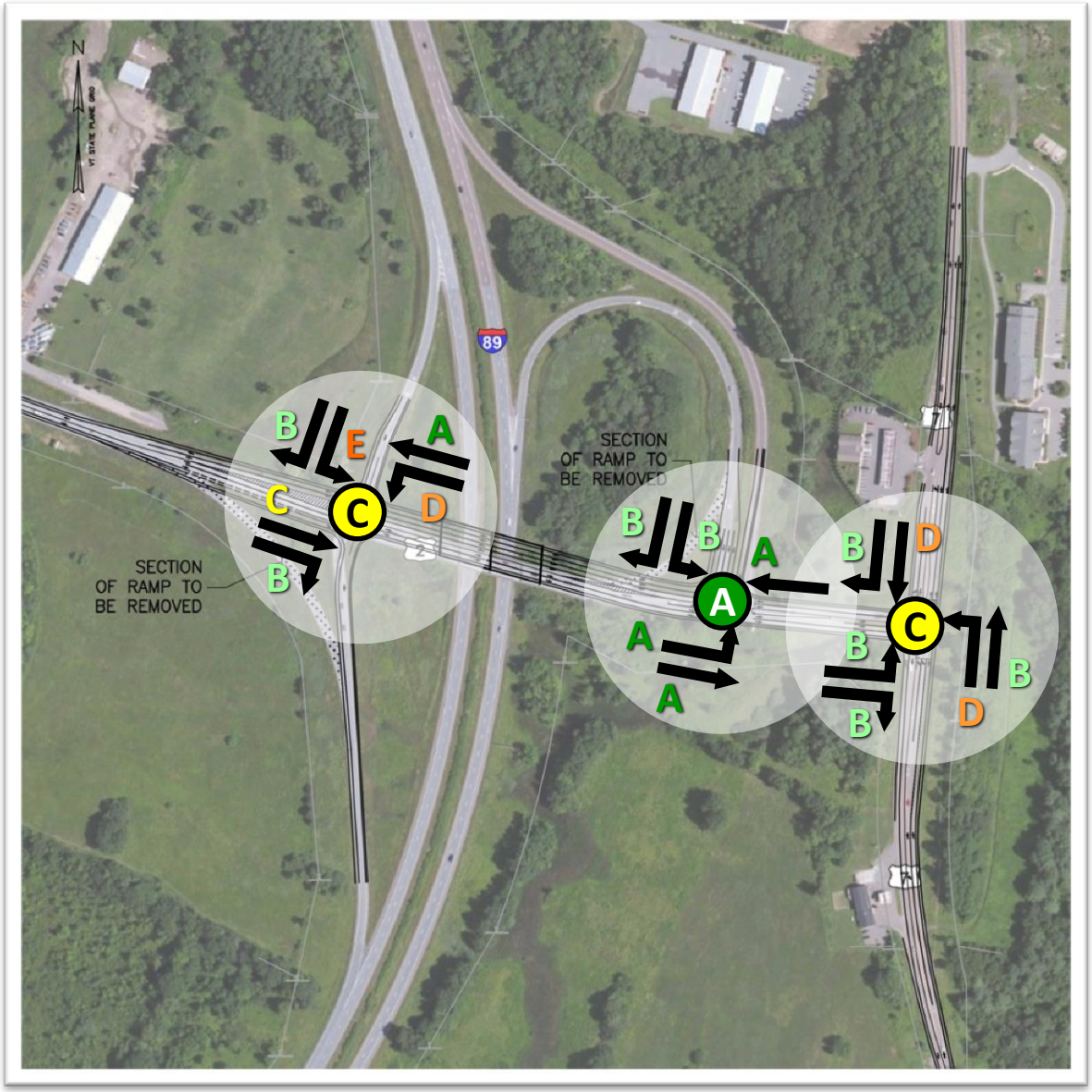


Six-Lane Bridge – US-2/US-7/I-89 NB

Six-Lane Bridge – Traffic Analysis of Lane Options

		Intersection Treatment (SB I-89 Ramps)	
		Six-Lane Bridge 	Loop Ramp 
AM 2035 Peak Traffic	LOS WB Rt	-	A
	LOS WB Thru	A	A
	LOS WB Lt	D	-
	LOS EB Thru	C	B
	LOS EB Rt	B	A
	LOS SB Lt	E	D
	LOS SB Rt	B	A
	VC	WB Lt 0.95 EB Rt 0.84	All < 0.7
	Queuing/Congestion	I-89 SB off-ramp at capacity level	No issues
PM 2035 Peak Traffic	LOS WB Rt	-	A
	LOS WB Thru	A	A
	LOS WB Lt	C	-
	LOS EB Thru	B	A
	LOS EB Rt	A	A
	LOS SB Lt	C	C
	LOS SB Rt	B	B
	VC	All < 0.7	All < 0.7
	Queuing/Congestion	No issues	No issues
Issues	Lanes req'd on Overpass	6	3 or 4 lanes
	Wetlands	Potential impacts North or South of current alignment required to expand bridge	Same as others + NW Quad
	Property Acquisition	Potentially some acquisition to the South for embankment.	NW Quad

LOS Improvements – Six-Lane Bridge – 2035 AM Peak



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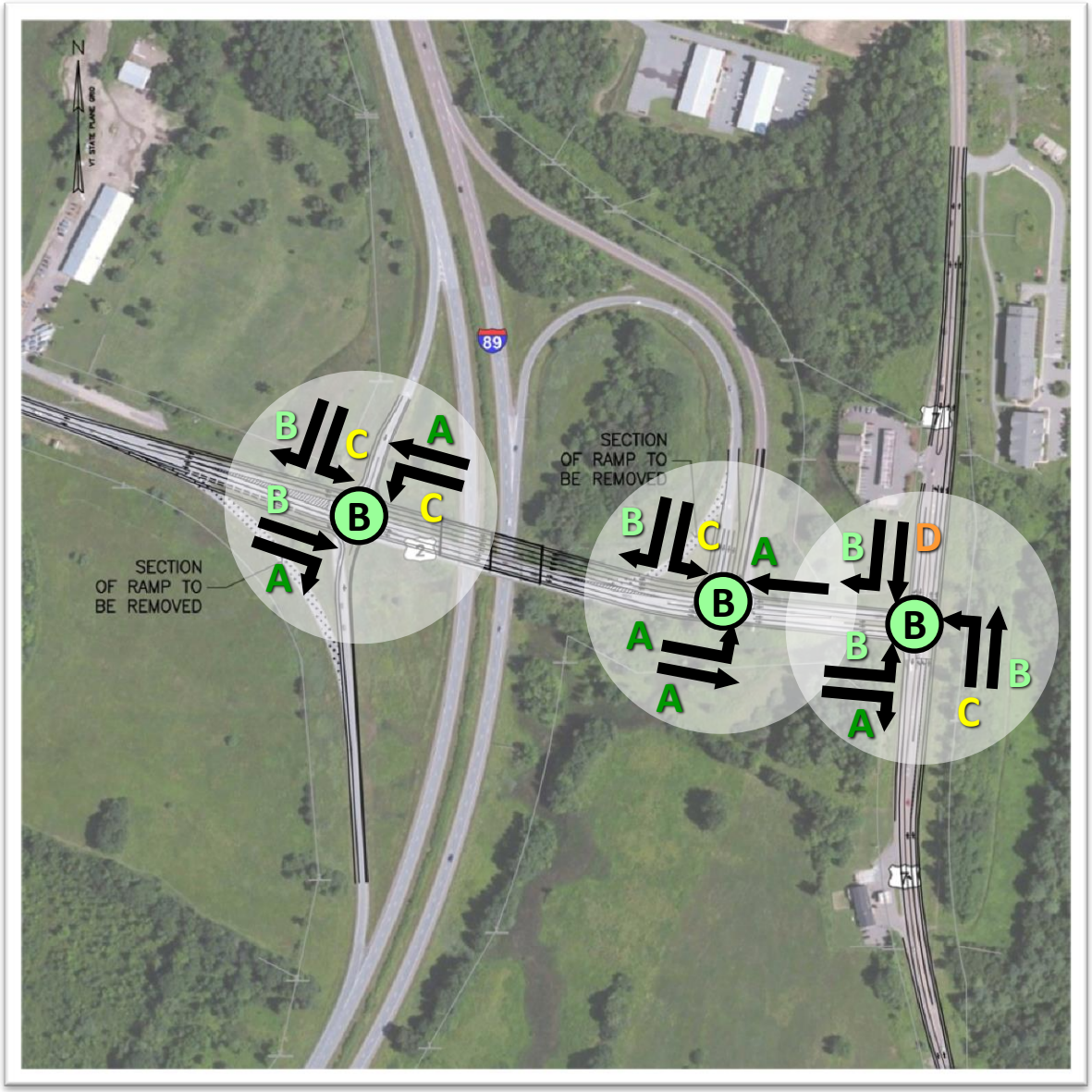
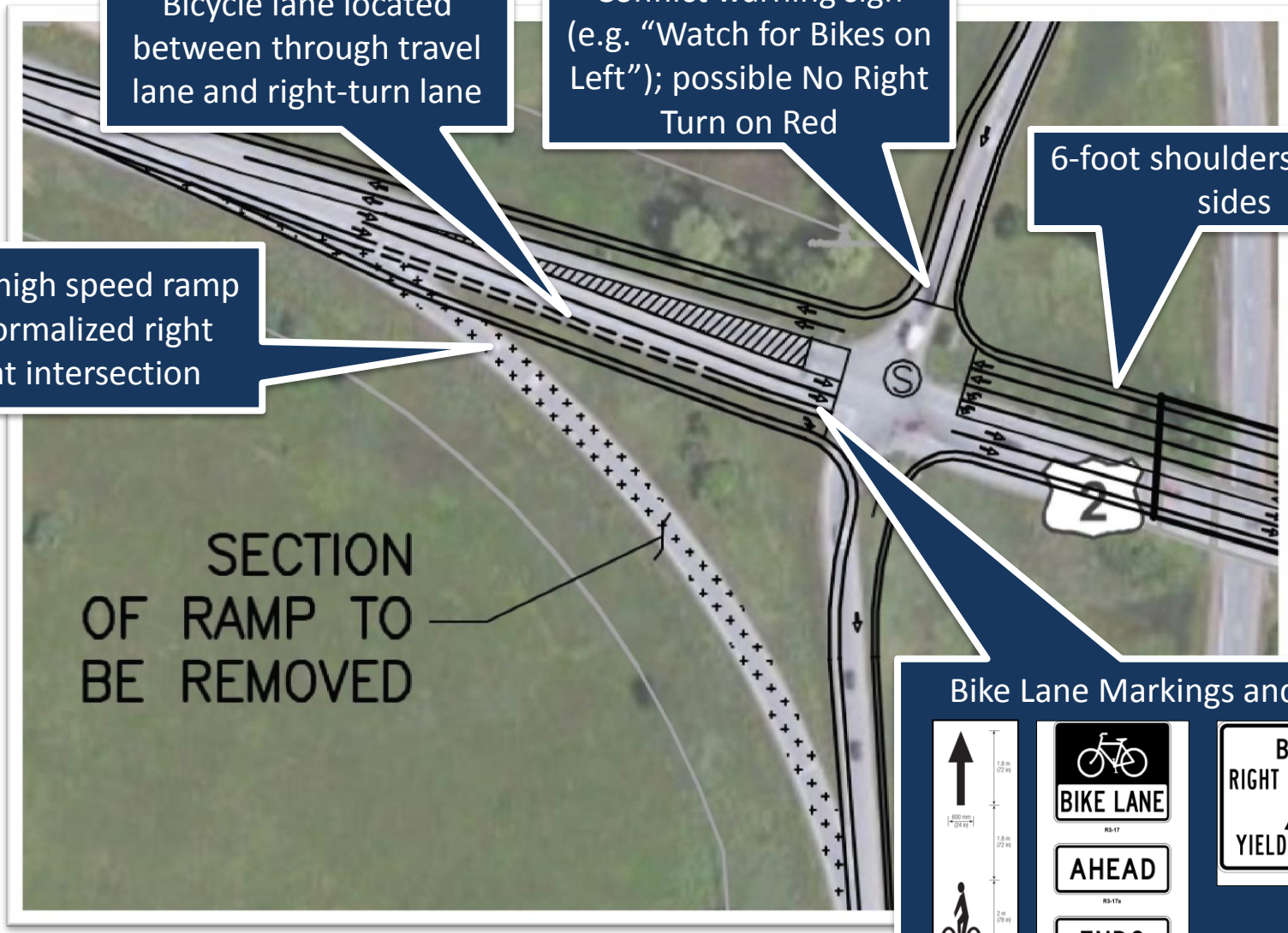
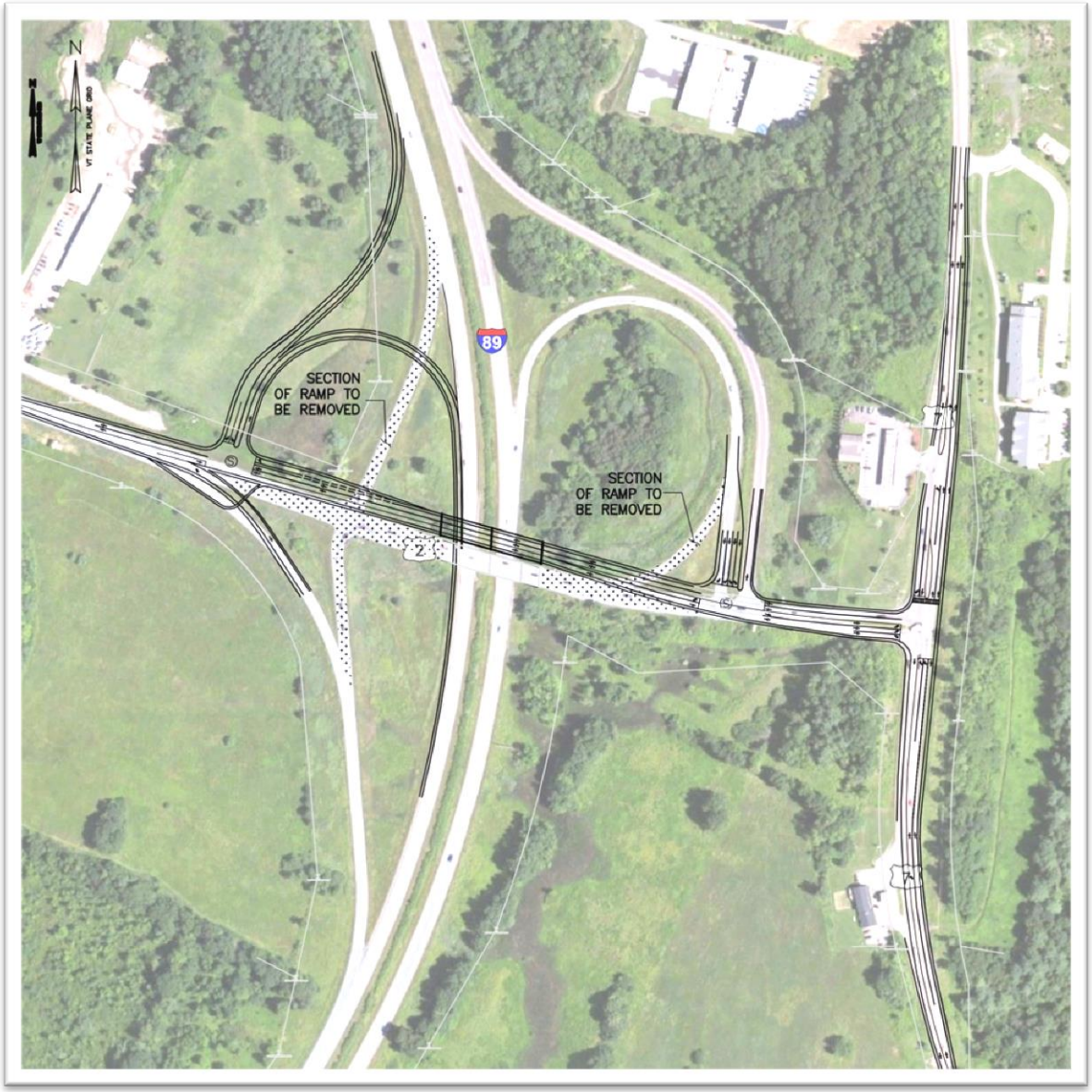


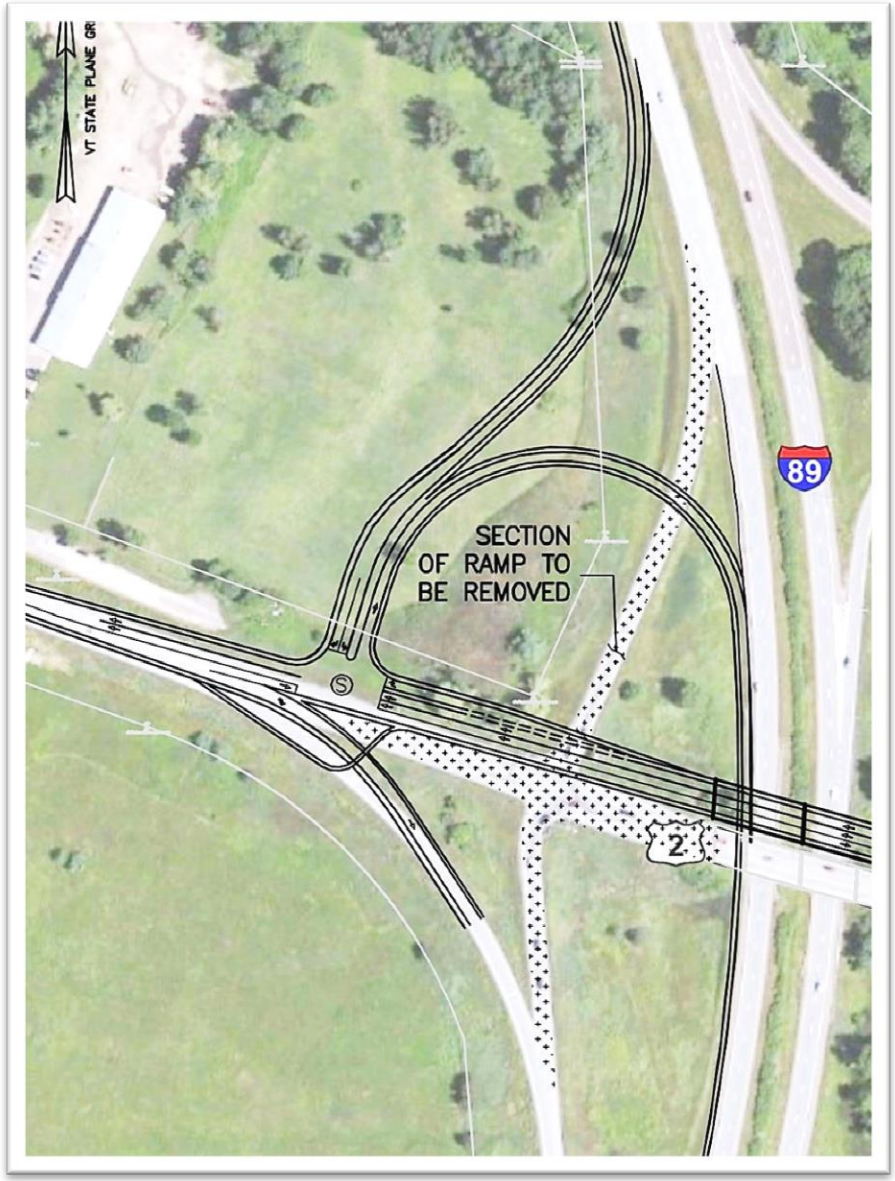
Six-Lane Bridge – Design Details



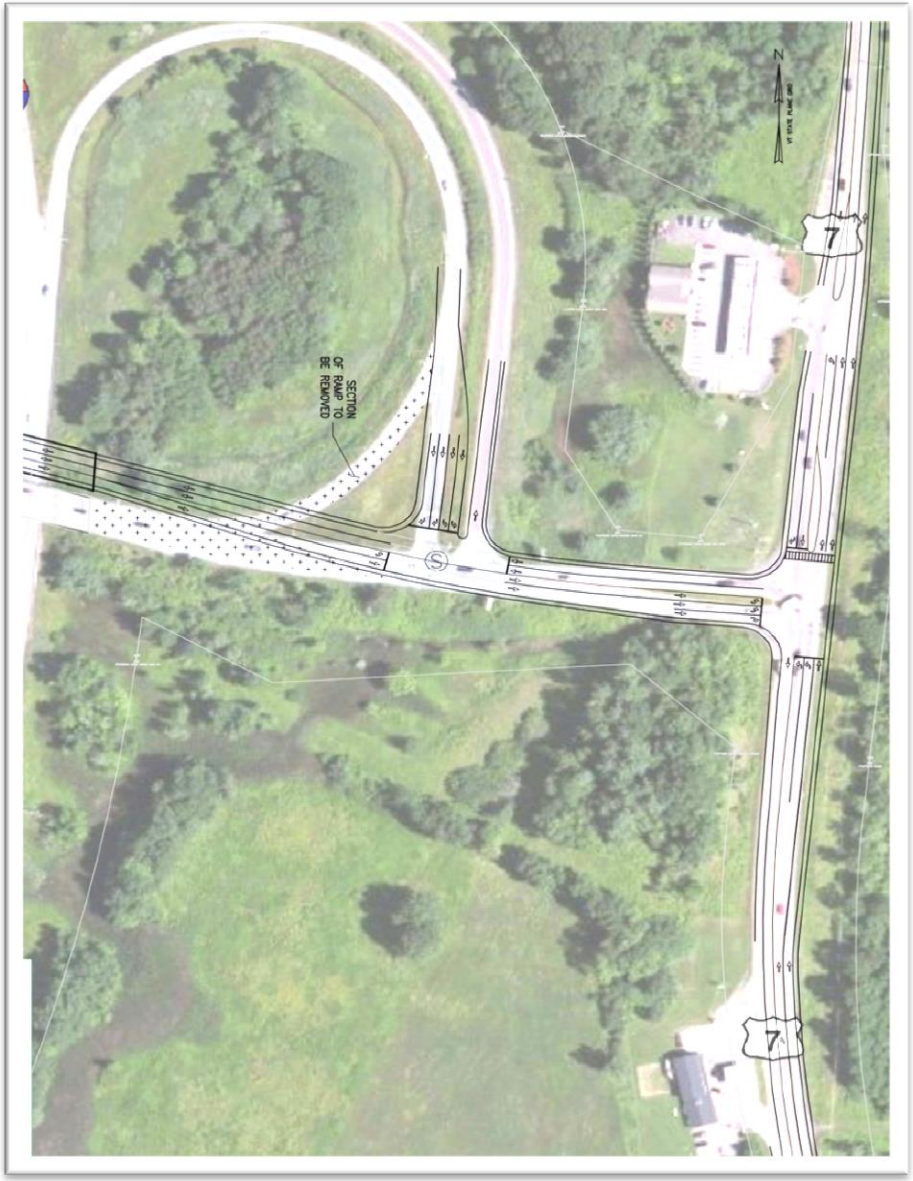
Loop Ramp – Overview



Loop Ramp – US-2/I-89 SB



Loop Ramp – US-2/US-7/I-89 NB



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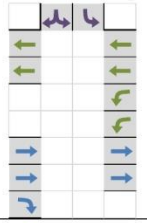
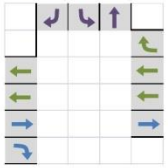
		Six-Lane Bridge 	Loop Ramp 
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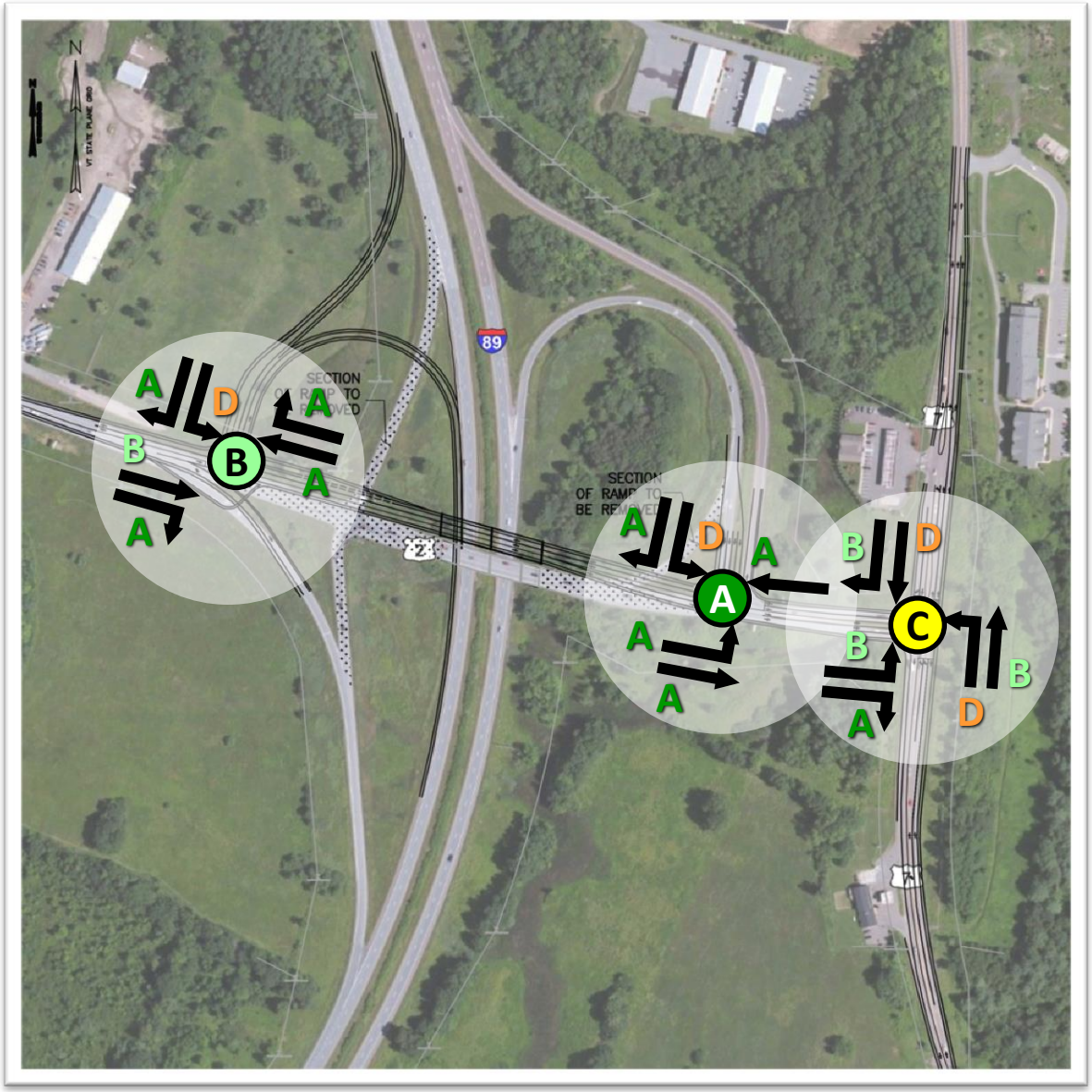
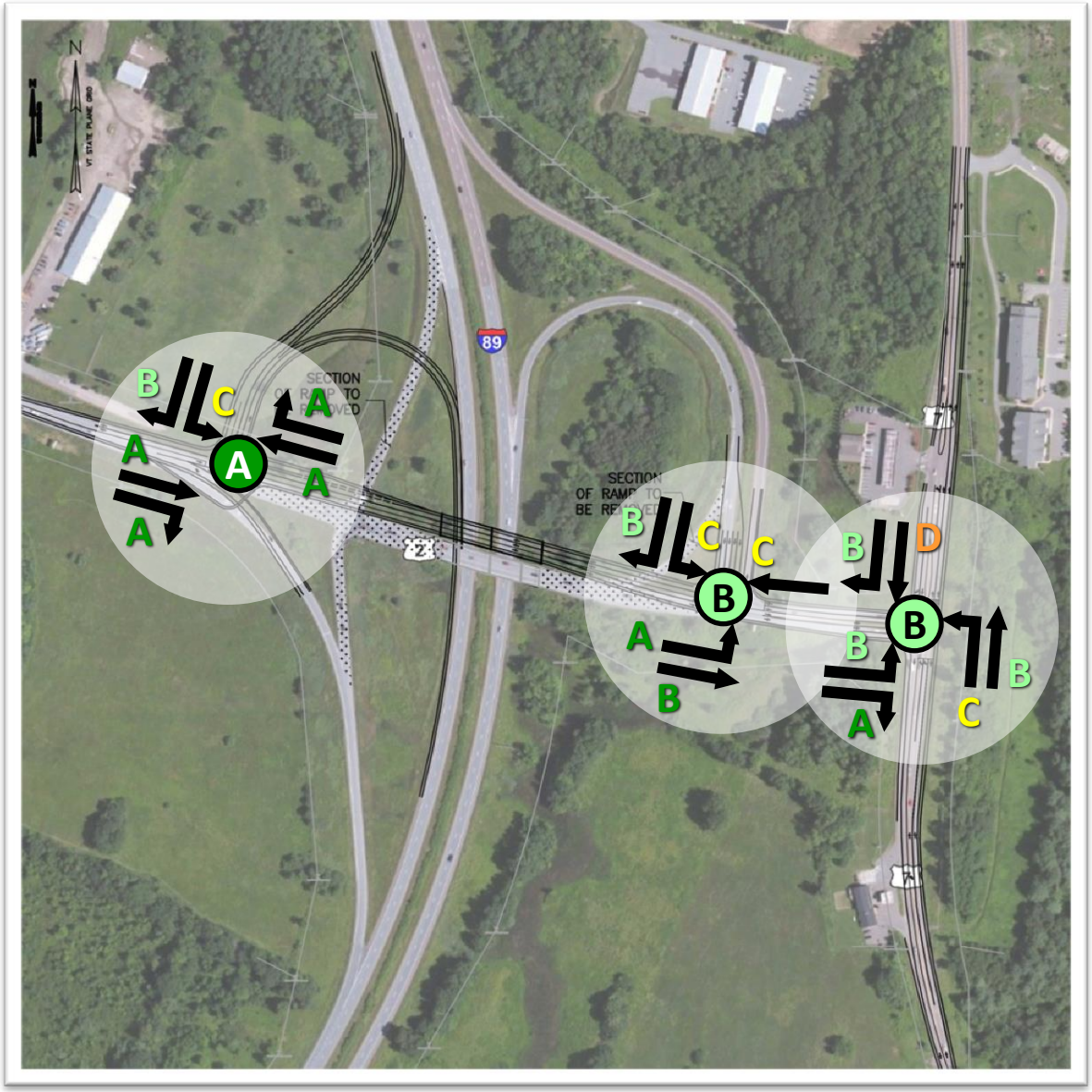


LOS Improvements – Loop Ramp – 2035 PM Peak



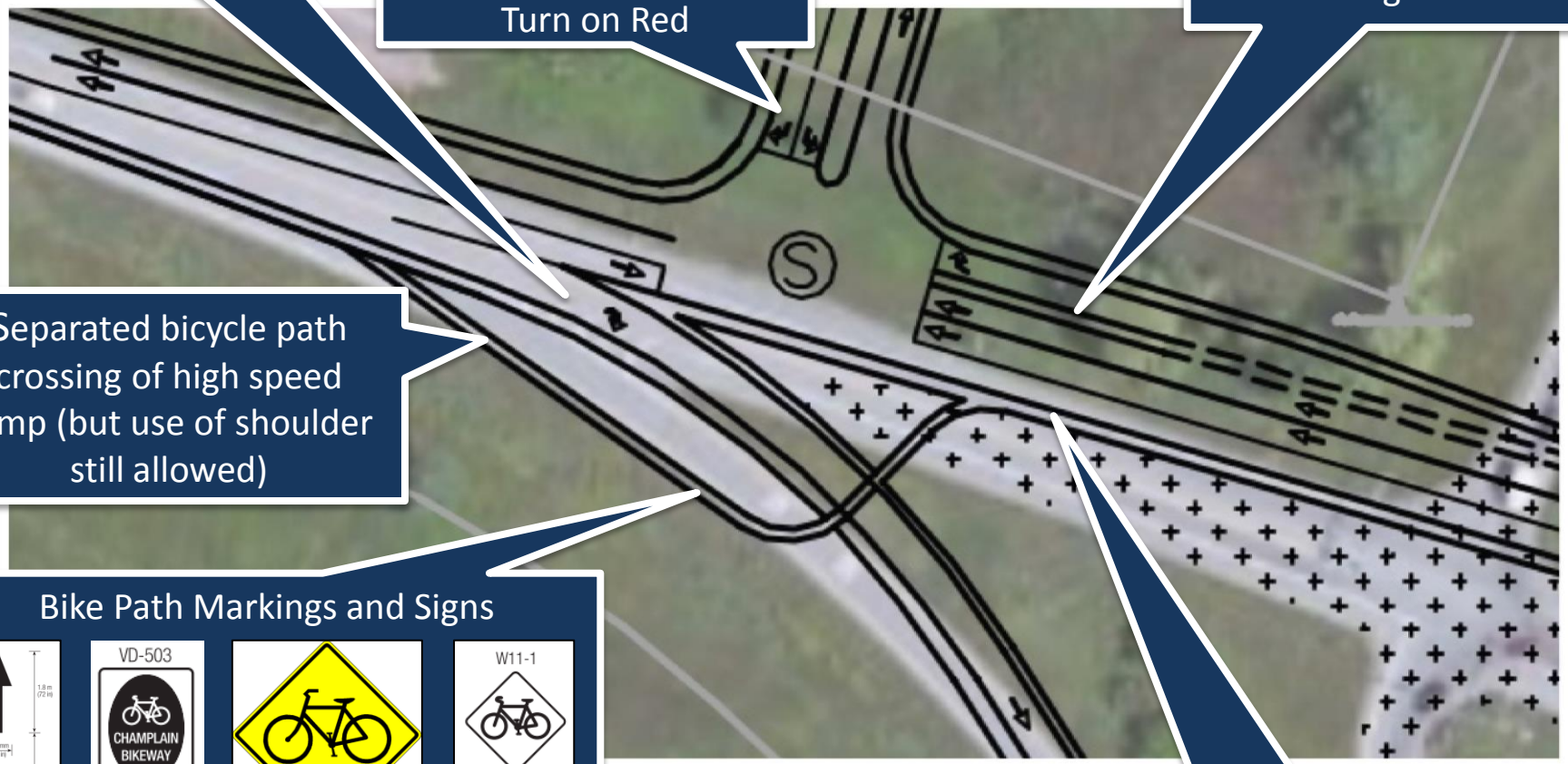
Loop Ramp – Design Details

Minor realignment of high speed ramp

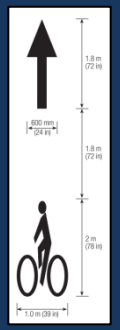
Conflict warning sign (e.g. “Watch for Bikes on Left”); possible No Right Turn on Red

WB bicycle lane located between through travel lane and right-turn lane

Separated bicycle path crossing of high speed ramp (but use of shoulder still allowed)



Bike Path Markings and Signs

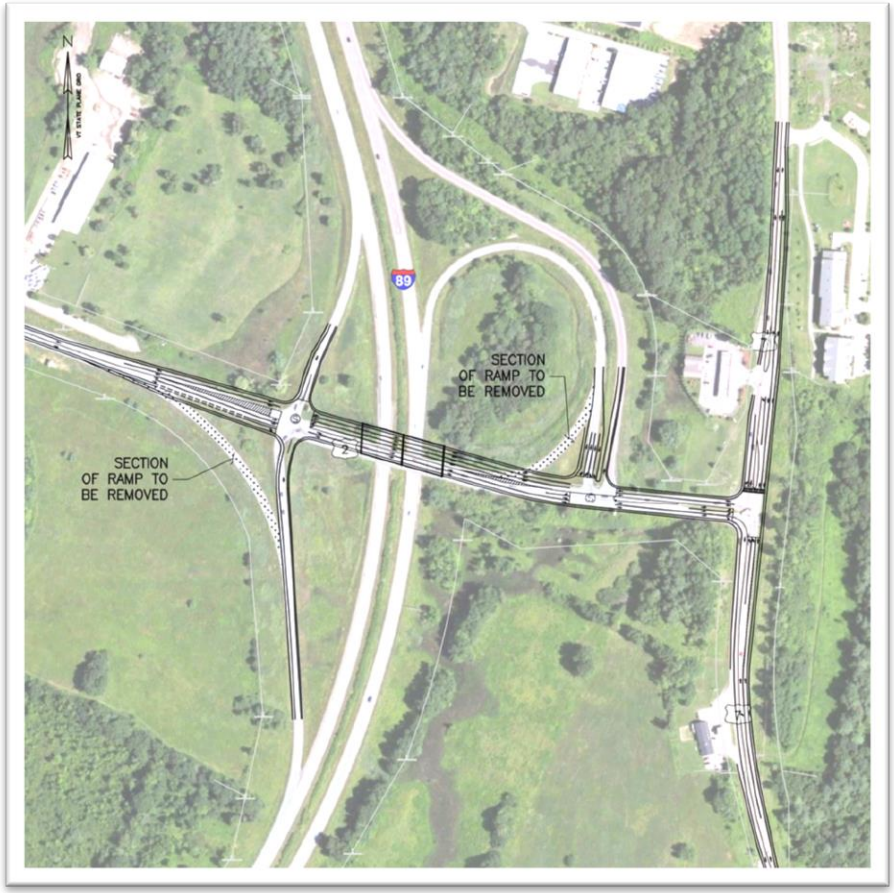


Sources:
MUTCD, Vermont Pedestrian and Bicycle Facility Planning and Design Manual

6-foot shoulders on both sides

Six-Lane Bridge and Loop Ramp Comparison

Six-Lane Bridge



Loop Ramp

Cost Comparison

- Six-Lane Bridge: $22.6M
- Loop Ramp: $17.0M
- Cost estimates include:
  - Demolition of old bridge and approach ramps
  - Construction of new bridge and approach ramps
  - 30% contingency (includes design costs)
- Cost estimates do not include right-of-way acquisition

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Next Steps

- Receive feedback on alternatives
- Alternative endorsement from Colchester Selectboard
- Complete scoping report
- Post to project website

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