



Chittenden County **I-89 2050 Study**

CCRPC Board

June 17th, 2020



Presentation Overview

1. Project Overview
2. Summary of First Round of Public Engagement
3. Draft Vision, Goals, Objectives
4. Interchange Screening Evaluation - 1st Round
5. Next Steps

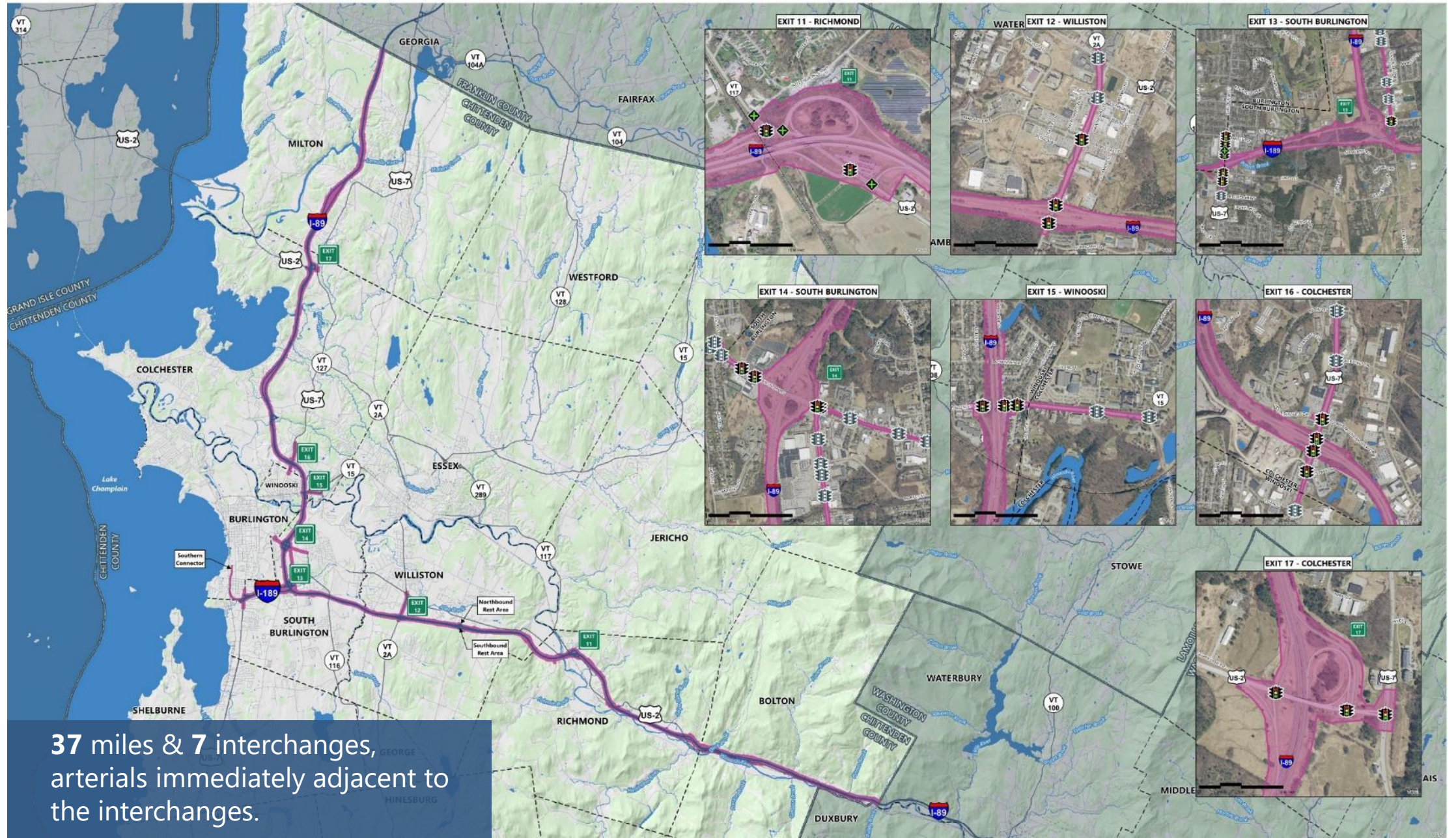




Chittenden County
I-89 2050 Study

Project Overview

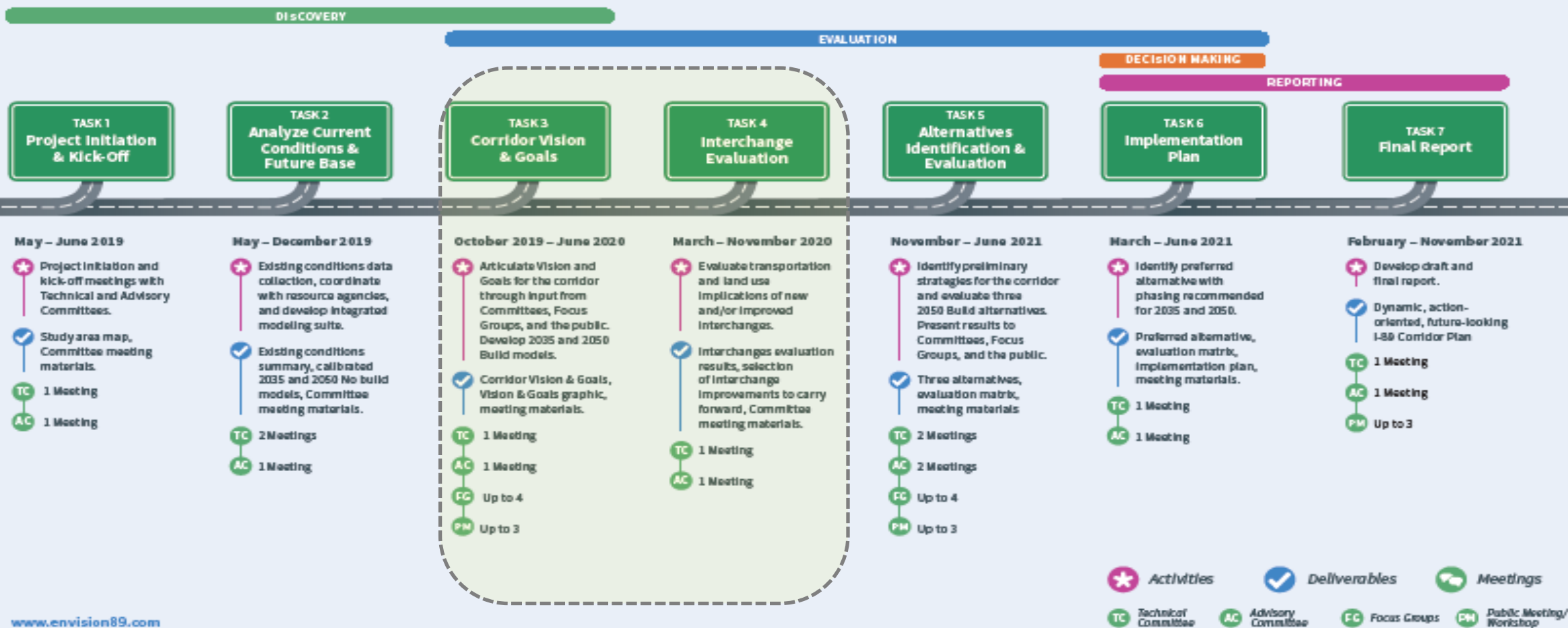
Project Study Area

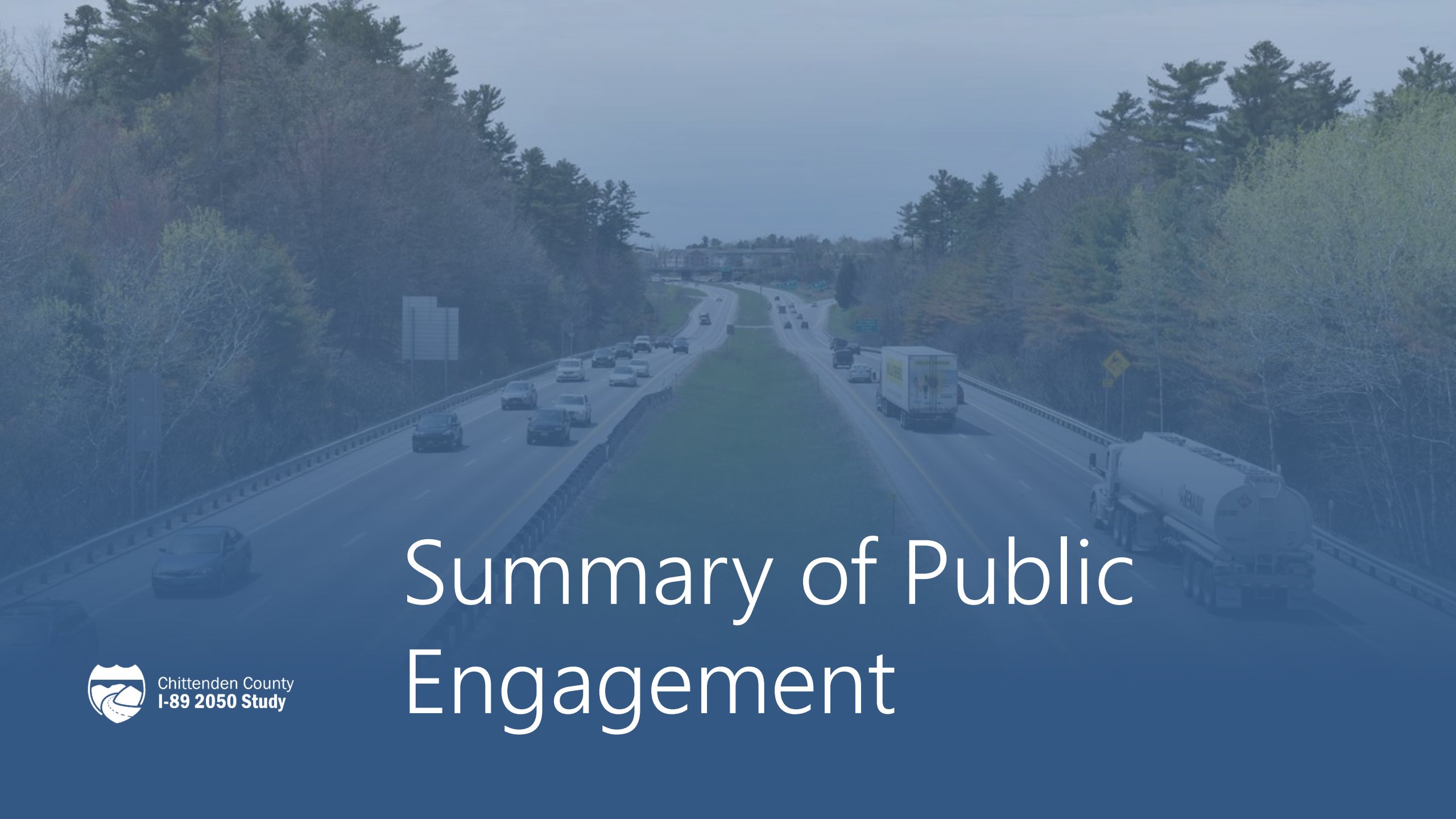


37 miles & 7 interchanges,
arterials immediately adjacent to
the interchanges.

Chittenden County I-89 2050 Study Project Overview

Our schedule for successfully moving from project kick-off through stakeholder engagement and technical evaluations to develop a comprehensive, forward-looking plan for the I-89 corridor.





Summary of Public Engagement



Chittenden County
I-89 2050 Study

First Round Stakeholder & Public Input

■ Public Outreach

- South Burlington: January 31, 2020
- Williston: February 13, 2020
- Winooski: March 11, 2020
- Envision89.com
 - Website Comment Form
 - Website Survey

■ 309 individual comments received

Comment Group	# Comments	% of Comments
Increase Bicycle & Pedestrian Infrastructure Investment	49	16%
Increase Public Transit Investment, Reduce Auto Dependency	67	22%
Promote Livability, Climate Change Concerns	23	7%
Interchange Upgrades - Support	99	32%
Interchange Upgrades - Don't Support	3	1%
Widen I-89 - Support	14	5%
Widen I-89 - Don't Support	12	4%
Other	41	13%



Summary of Public Outreach

First Round of Public Outreach

The first round of public outreach was held from January through March 2020 and focused on introducing the project and soliciting feedback on current issues and opportunities along the corridor as well as requesting input on the draft project Vision and Goals.

The following three public meetings were held as part of the first round of public outreach:

- **South Burlington:** South Burlington City Hall, January 31, 2020
- **Williston:** Williston Town Hall, February 13, 2020
- **Winooski:** Winooski City Hall, March 11, 2020

Each of the public meetings was also live streamed online so interested citizens could participate in the meetings even if they could not attend in person.

In addition to the public meetings noted above, public input was also collected through emails, website comment forms and an online survey posted to the project website during the January to March 2020 outreach period. A total of 309 comments were received from the public during the first round of outreach. These comments are summarized by source in the table below.

Figure 1: Summary of Public Comments by Source

Comment Source	# Comments
Website - Comment Form	42
Website - Survey	186
Public Meetings	81
TOTAL COMMENTS	309

To assist with compiling and summarizing the public input, each of the individual comments was associated with a more general issue, concern, or opportunity. As shown in the table below, these comments were sorted into three main comment groups: 1) promoting alternative transportation modes and livable communities 2) interchange improvements, and 3) interstate widening. Based on this grouping of comments, approximately 45% of the comments related to increased support for alternative transportation modes, 32% of the comments supported some level of interchange upgrades, while almost an equal number of commenters supported the widening of I-89 as those who did not support widening the interstate.



First Round Stakeholder & Public Input

■ Public Outreach

- South Burlington: January 31, 2020
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■ 309 individual comments received

Issue / Opportunity	# Comments
Increased Investment in Public Transportation	38
Additional Bike/Ped Infrastructure	34
Exit 12B - Support	34
Reduce Auto Dependency	22
Exit 13 Full Interchange - Support	17
Exit 14 Bike/Ped Bridge - Support	15
Exit 14 Improvements - Support	14
Widen I-89 - Support	14
US 2 Traffic Improvements at Exit 14	13
Widen I-89 - Not Support	12
Circ Highway - Support	11
Noise Walls - Support	10
Climate Change	8

Issue / Opportunity	# Comments
Exit 10B Bolton Interchange - Support	8
HOV / Transit Lanes	7
Promote Livable Communities	5
Exit 11 - Geometric Improvements	4
Exit 15 Full Interchange - Support	4
IT S/T echnology	4
Vision	3
Exit 12B - Not Support	2
Exit 16 - Support	2
Exit 17N - Support	2
Exit 10B Bolton Interchange - Not Support	1
Exit 17 - Support	1



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Chittenden County
I-89 2050 Study

Draft Vision & Goals

Draft Vision Statement

The 2050 Vision for the I-89 Corridor through Chittenden County is an interstate system (mainline and interchanges) that is safe, resilient, and provides for reliable and efficient movement of people and goods in support of state, regional, and municipal plans and goals

Draft Goals & Objectives

- **Safety: Enhance safety along the I-89 Study Corridor and Adjacent Interchanges for all users.**

- Reduce the frequency and severity of crashes along the I-89 Study Corridor and at adjacent interchanges.
- Enhance safety of bicyclists and pedestrians at interchanges.
- Improve incident response.

- **Livable, Sustainable and Healthy Communities: Promote compact growth that supports livable, affordable, vibrant, and healthy communities.**

- Invest in transportation infrastructure that encourages growth in the urban core of the county and is consistent with state, regional and municipal plans and goals.
- Ensure that transportation improvements do not disproportionately impact low income and minority populations.



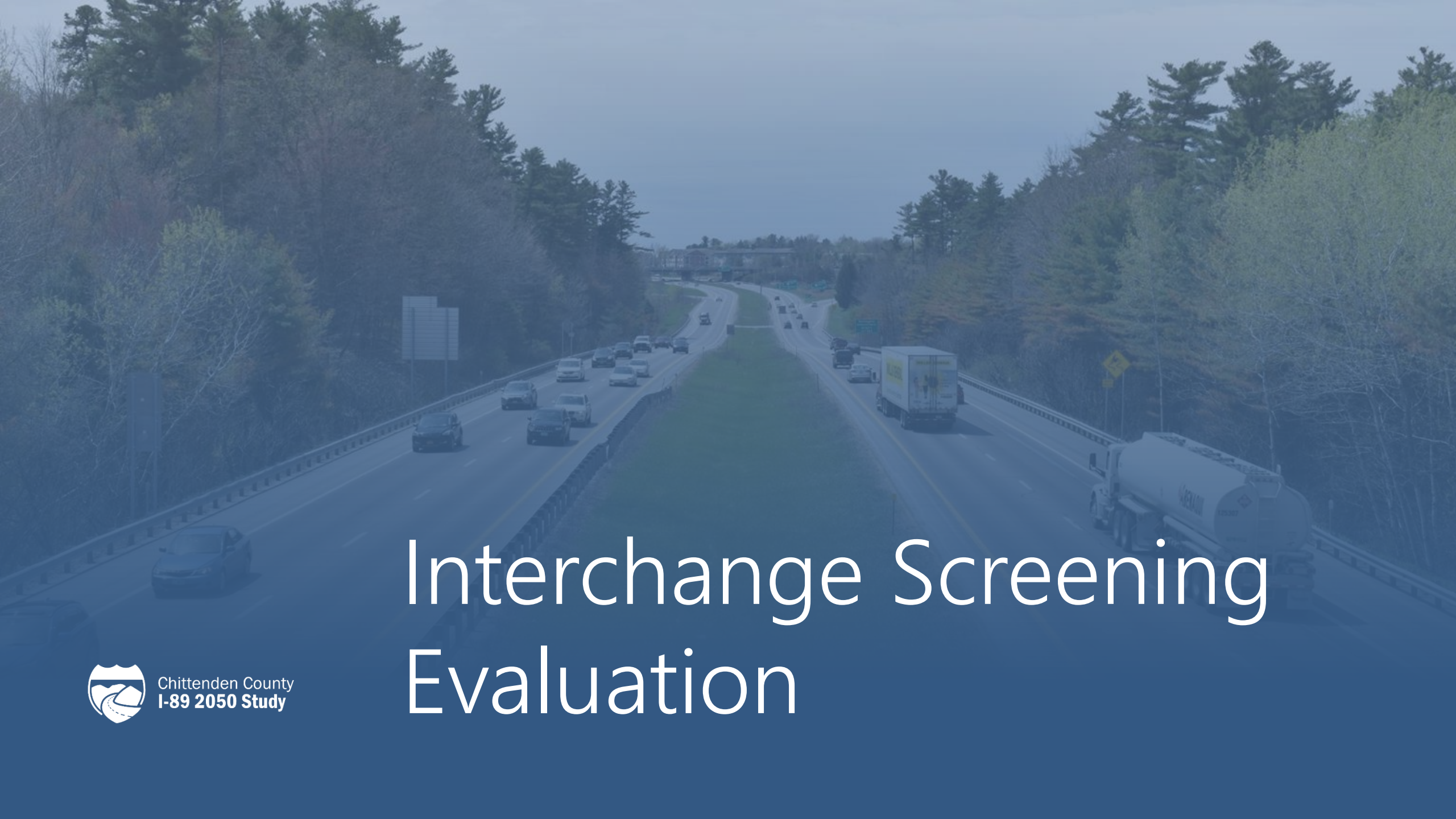
Draft Goals & Objectives

- **Mobility & Efficiency: Improve the efficiency and reliability of the I-89 Corridor and Adjacent Interchanges for all users.**
 - Accommodate current and anticipated future traffic demand, with a particular focus on the urban core (Exits 12-16).
 - Maintain reliable travel times for people and goods along the corridor.
 - Improve network connectivity to support walking & bicycling through the study area interchanges.
 - Increase current and future public transportation access and/or services.
- **Environmental Stewardship & Resilience: Establish a resilient I-89 Corridor that minimizes environmental impacts associated with the transportation system.**
 - Improve water quality and stormwater treatment.
 - Reduce greenhouse gas emissions associated with fossil fuels used in transportation.
 - Improve wildlife and habitat connectivity.
 - Improve the ability of I-89 to withstand and recover from extreme weather events.



Draft Goals & Objectives

- **Economic Access & Vitality: Improve economic access and vitality in Chittenden County.**
 - Support anticipated economic growth in the region.
 - Accommodate freight and goods movement served by the I-89 Corridor.
- **System Preservation: Preserve and improve the condition and performance of the I-89 Corridor.**
 - Provide for sound and effective maintenance and preservation activities to achieve a “State of Good Repair” of the I-89 Corridor.



Interchange Screening Evaluation



Chittenden County
I-89 2050 Study

Screening Process

Process to Develop Recommendations for the I-89 Plan:

1. Interchange Recommendations

- *First Round “High-Level” Interchange Screening (May – June 2020)*
- *Second Round Interchange Evaluation (June – November 2020)*

2. Full Recommendation “Bundles”

- *Inclusive of interchanges and other improvements (November 2020 – June 2021)*

3. Final I-89 Plan

- *Inclusive of interchanges and other improvements (June 2021 – November 2021)*

Interchange Screening Evaluation

- **First Round Interchange Screening**

- Utilized previous interchange scoping / feasibility studies for interchange configuration, impacts, and cost
- Evaluation metrics tied to project goals
- High level screening of eight new or expanded interchanges
 1. Exit 10A – Bolton
 2. Exit 12B – South Burlington
 3. Exit 13 Full Interchange – South Burlington
 4. Exit 13 U-Turn – South Burlington
 5. Exit 13 Hybrid – South Burlington
 6. Exit 14N – South Burlington
 7. Exit 15 Full Interchange – Winooski
 8. Exit 17N - Milton

Draft First Round Interchange Screening Evaluation

Metric descriptions

Eight Interchanges

Evaluation metrics organized by Goals

Greyed-out rows provided for information only (i.e. not scored)

Each metric value assigned a score from 0 (white) to 4 (dark blue)

Double weighting of these metrics

Chittenden County I-89 2050 Study										
DRAFT First Round Interchange Screening Matrix										
Metric	Metric Description	Units	Exit 10A	Exit 12B	Exit 13	Exit 13	Exit 13	Exit 14N	Exit 15	Exit 17N
			Bolton Interchange	New Interchange	Full Service Interchange	Hybrid	U-Turn on I-89	Airport Access	Full Service Interchange	Milton
SAFETY										
Interchange Spacing	Is the interchange more than 1 mile (urban) or 3 miles (rural) from nearest interchange?	(miles to nearest interchange)	6	1.25	N/A	N/A	N/A	0.85	N/A	3
High Crash Locations	Change in traffic volume at adjacent HCLs with interchange improvement compared to the 2050 base model	# of HCLs with >10% increase in PM peak hour traffic with interchange	0	4	2	2	0	0	0	3
		# of HCLs with >10% decrease in PM peak hour traffic with interchange	7	7	3	3	0	4	0	6
LIVABLE, SUSTAINABLE, & HEALTHY COMMUNITIES										
ROW Impacts	Approximate area of ROW impacts based on an estimated 75' limit of disturbance around the interchange	acres of disturbance	12			2	0	13	3	16
Property Impacts	Number of homes and businesses substantially impacted by the interchange improvements (inclusive of avoidance, mitigation, or acquisition)	number of structures	14			29	0	10	39	3
MOBILITY & EFFICIENCY										
Cost per Trip	Estimated cost for the interchange improvements divided by the total number of 2050 trips estimated to use the interchange	\$/daily trip	\$1,196			\$1,034	\$733	\$3,846	\$4,780	\$602
		Estimated Cost (millions of 2020 dollars) (Excludes PE, ROW, ROW Contingency), Based on previous Scoping Studies	\$8.6			\$12.6	\$2.5	\$51.0	\$26.6	\$11.5
		# of Daily Trips Using New Interchange or Interchange Scenarios (Does Not Include Any Existing Ramp Volume)	7,227	25,849	15,347	12,162	3,410	13,260	5,558	19,191
Congestion Mitigation	Change in 2050 trips at adjacent interchanges with interchange improvement compared to the 2050 base model	% change in PM peak hour trips adjacent interchange	-16%	-17%	-4%	-3%	-2%	-12%	-7%	-35%
			Exit 11	Exit 12	Exit 12	Exit 12	Exit 12	Exit 15	Exit 16	Exit 17
ENVIRONMENTAL STEWARDSHIP										
Wetland Impacts	Approximate area of wetland disturbance buffer impacts based on the estimated limit of disturbance for the interchange improvements	acres impact to 150' wetlands	0	0.2	0	1	0.6	3.3	0	1.4
		acres impact to 500' wetland buffers	0	0.4	0.1	1.0	0.9	1.4	0	1.2
River Corridors	Approximate area of river corridor, floodway, and 100-year flood zone impacts based on the estimated limit of disturbance for the interchange improvements	acres impact to river corridor	0	0	1.9	1.1	1.1	2.8	0	0
		acres impact to floodway	0	0	0	0	0	0	0	0
		acres impact to 100-year flood zone	17.4	0	1.3	3	1.9	1.7	0	0
Natural Habitats	Approximate area of deer wintering yards, and rare, threatened, and endangered (RTE) species impacts based on the estimated limit of disturbance for the interchange improvements	acres RTE	0			0	0	0	0	0
		acres deer wintering yards	1.0			0	0	0	0	0
ECONOMIC ACCESS										
Job Access	Total number of projected 2050 jobs within 1 mile of interchange (based on 2050 employment for TAZs within Chittenden Co that intersect or are within 1 mile buffer of interchange)	number of jobs	203			15,739	10,439	30,855	19,680	2,377
Interchange Trips	Total number of daily trips using the interchange including existing ramps and new ramps	# of Daily Trips Using New Interchange or Interchange Scenarios (Excludes Existing Ramp Volume)	7,227			59,349	53,468	13,260	21,043	19,191
Vehicle Hours of Travel (VHT)	Systemwide change in vehicle hours of travel with interchange improvement compared to the 2050 base model	% change in VHT	-0.35%	-0.27%	-0.07%	-0.07%	-0.03%	-0.02%	-0.11%	-0.28%
CONSISTENCY WITH REGIONAL PLAN & EXIT 14 TRAFFIC IMPACTS										
Consistent with Regional Plan	Are surroundings interchange compatible with ECOS growth sector	% of area within 1 mile buffer that are compatible with ECOS growth sector	2%	82%	89%	90%	92%	84%	94%	37%
Impacts to Exit 14 Traffic	Change in 2050 trips at Exit 14 with interchange improvement compared to the 2050 base model	% change in PM peak hour trips	0%	-11%	-18%	-11%	-3%	-10%	-2%	1%
Impacts to Mainline between Exit 14 and 15	Change in 2050 trips between Exit 14 and 15 with interchange improvement compared to the 2050 base model	% change in PM peak hour trips	0.12%	1.22%	0.67%	0.19%	0.02%	-8.93% / -0.72% South of 14N / North of 14N	-2.10%	1.02%

Chittenden County I-89 2050 Study									
DRAFT First Round Interchange Screening Matrix									
Metric	Metric Description	Units	Exit 10A	Exit 12B	Exit 13	Exit 13	Exit 13	Exit 14N	Exit 15
			Bolton Interchange	New Interchange	Full Service Interchange	Hybrid	U-Turn on I-188	Airport Access	Full Service Interchange
									Milton
SAFETY									
Interchange Spacing	Is the interchange more than 1 mile (urban) or 3 miles (rural) from nearest interchange?	(miles to nearest interchange)	6	1.25	N/A	N/A	N/A	0.85	N/A
High Crash Locations	Change in traffic volume at adjacent HCLs with interchange improvement compared to 2050 base model	# of HCLs with >10% decrease in PM peak hour traffic with interchange	0	4	2	2	0	0	0
		# of HCLs with >10% decrease in PM peak hour traffic with interchange	7	7	3	3	0	4	0
LIVABLE, SUSTAINABLE, & HEALTHY COMMUNITIES									
ROW Impacts	Approximate area of ROW impacts based on an estimated 75' limit of disturbance around the interchange	acres of disturbance	12	13	13	2	0	13	3
Property Impacts	Number of homes and businesses potentially impacted by the interchange improvements (inclusive of avoidance, mitigation, or acquisition)	number of structures	14	13	47	29	0	10	39
MOBILITY & EFFICIENCY									
Cost per Trip		\$ / daily trip	\$1,196	\$2,193	\$2,280	\$1,034	\$733	\$3,846	\$4,780
	Estimated cost for the interchange improvements divided by the total number of 2050 trips estimated to use the interchange	Planning-Level Cost Estimate (millions of 2020 dollars) (Includes PE, ROW, CON & Contingency). Based on previous Scoping Studies. Costs will be refined in Round 2 evaluation.	\$8.6	\$56.7	\$35.0	\$12.6	\$2.5	\$51.0	\$26.6
		# of Daily Trips Using New Interchange or Interchange Segments (Does Not Include Any Existing Ramp Volume)	7,227	25,849	15,347	12,162	3,410	13,260	5,558
Congestion Mitigation	Change in 2050 trips at adjacent interchanges with interchange improvement compared to the 2050 base model	% change in PM peak hour trips	-16%	-17%	-4%	-3%	-2%	-12%	-7%
		adjacent interchange	Exit 11	Exit 12	Exit 12	Exit 12	Exit 12	Exit 15	Exit 16
ENVIRONMENTAL STEWARDSHIP									
Wetland Impacts	Approximate area of wetland/wetland buffer impacts based on the estimated limits of disturbance for the interchange improvements	acres impact to VSW wetlands	0	0.2	0	1	0.6	3.3	0
		acres impact to 50ft wetland buffers	0	0.4	0.1	1.0	0.9	1.4	0
River Corridors		acres impact to river corridors	0	0	1.9	1.1	1.1	2.8	0
	Approximate area of river corridor, floodway, and 100-year flood zone impacts based on the estimated limits of disturbance for the interchange improvements	acres impact to floodway	0	0	0	0	0	0	0
		acres impact to 100 year flood zone	17.4	0	1.3	3	1.9	1.7	0
Natural Habitats	Approximate area of deer wintering yards, and rare, threatened, and endangered (RTE) species impacts based on the estimated limits of disturbance for the interchange improvements	acres RTE	0	9.9	0.2	0	0	0	0
		acres deer wintering yards	1.0	0	0	0	0	0	0
ECONOMIC ACCESS									
Job Access	Total number of projected 2050 jobs within 1 mile of interchange (based on 2050 employment for TAZs within Chittenden Co that intersect or are within 1 mile buffer of interchange)	number of jobs	203	14,180	15,916	15,739	10,439	30,855	19,680
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CONSISTENCY WITH REGIONAL PLAN & EXIT 14 TRAFFIC IMPACTS									
Consistent with Regional Plan	Area surrounding interchange compatible with ECOS growth zones	% of acres within 1 mile buffer that are compatible with ECOS growth zones	2%	82%	89%	90%	92%	84%	94%
Impacts to Exit 14 Traffic	Change in 2050 trips at Exit 14 with interchange improvement compared to the 2050 base model	% change in PM peak hour trips	0%	-11%	-18%	-11%	-3%	-10%	-2%
Impacts to Mainline between Exit 14 and 15	Change in 2050 trips between Exits 14 and 15 with interchange improvement compared to the 2050 base model	% change in PM peak hour trips	0.12%	1.22%	0.67%	0.19%	0.02%	-8.93% / -0.72% South of 14N / North of 14N	-2.10%

First Round Interchange Screening Results

RAW VALUES											
		SUBTOTALS	Weighting								
4	Safety	1	12	7	8	8	8	6	8	8	
3	Livable, Sustainable, and Healthy Communities	1	4	4	1	5	8	3	4	4	
2	Mobility & Efficiency	1	6	5	2	4	4	2	0	8	
1	Environmental Stewardship	1	20	23	25	24	24	16	28	22	
0	Economic Access	1	4	6	6	6	4	4	5	5	
Consistency with Regional Plan & Exit 14 Impacts		1	0	12	16	14	10	12	8	2	
TOTAL SCORE			46	57	58	61	58	43	53	49	
			Exit 10A	Exit 12B	Exit 13 (Full)	Exit 13 (Hybrid)	Exit 13 (U-Turn)	Exit 14N	Exit 15	Exit 17N	
NORMALIZED											
		SUBTOTALS	Normalization								
	Safety	2.33	28	16	19	19	19	14	19	19	
	Livable, Sustainable, and Healthy Communities	3.50	14	14	4	18	28	11	14	14	
	Mobility & Efficiency	3.50	21	18	7	14	14	7	0	28	
	Environmental Stewardship	1.00	20	23	25	24	24	16	28	22	
	Economic Access	2.33	9	14	14	14	9	9	12	12	
Consistency with Regional Plan & Exit 14 Impacts		3.50	0	42	56	49	35	42	28	7	
TOTAL SCORE			92	127	124	137	129	99	100	101	
			Exit 10A	Exit 12B	Exit 13 (Full)	Exit 13 (Hybrid)	Exit 13 (U-Turn)	Exit 14N	Exit 15	Exit 17N	

Conclusions and Recommendation - *First Round of Interchange Evaluation*

- Exit 13 (Hybrid), Exit 13 (U-Turn), and Exit 12B scored the highest and exhibited the best regional benefits in the urban core of the county
- Exit 10A (Bolton) and Exit 17N (Milton) have localized transportation benefits and economic benefit potential and may be considered in a separate process at a later date
- Technical Committee Recommendation (5/14) to Advisory Committee
 - **Move Exits 12B, 13, and 14 forward for further analysis (second round of interchange evaluation)**

Second Round of Interchange Evaluation

- Additional metrics associated with each goal
- Secondary Growth - Land Use Metrics
 - Delphi panel - a panel of experts who make suggestions for forecasting growth (*Developers, Municipalities, Environmental Groups*) and provide guidance and direction on anticipated growth resulting from the new/expanded interchanges
 - Use the *Regional Transportation Model* to run the land use scenarios



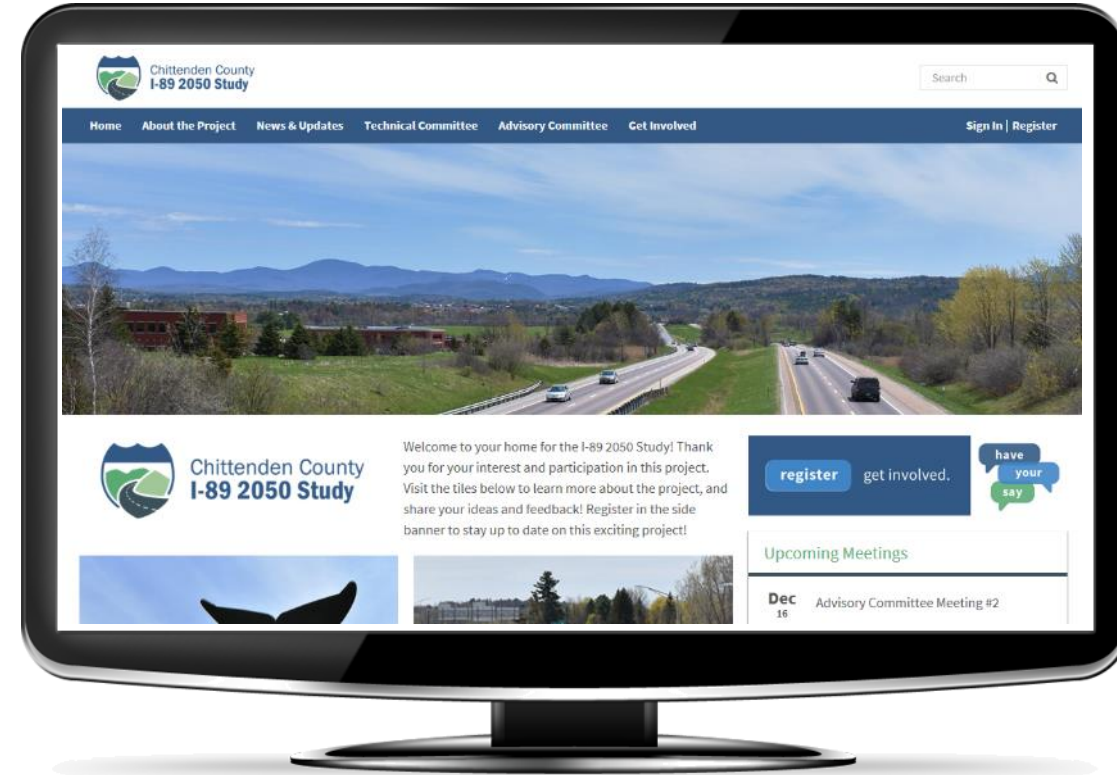
Chittenden County
I-89 2050 Study

Next Steps

Next Steps

- **Advisory Committee Meeting #3 (June 30th)**
 - Finalize Vision, Goals, and Objectives
 - Final List of 2-3 Interchanges to Advance to Second Round Evaluation
- **Second Round Interchange Screening (June – November 2020)**
 - Secondary Growth Evaluation (July)
 - Finalize Second Round Evaluation Metrics
 - Interchange Recommended to be included in Corridor Recommendations
- **Develop Corridor Recommendations (November – June 2021)**
 - Second Round Public Outreach Reviewing Corridor Recommendations (Winter 2020-21)
- **Implementation Plan and Final Report (June – November 2021)**
 - Third Round Public Outreach Reviewing Draft Final Report (Winter 2020-21)

Stay Connected!



Web: www.envision89.com

Twitter: [@envision89](https://twitter.com/envision89)

Facebook: [Envision89](https://www.facebook.com/Envision89)

Thank you!



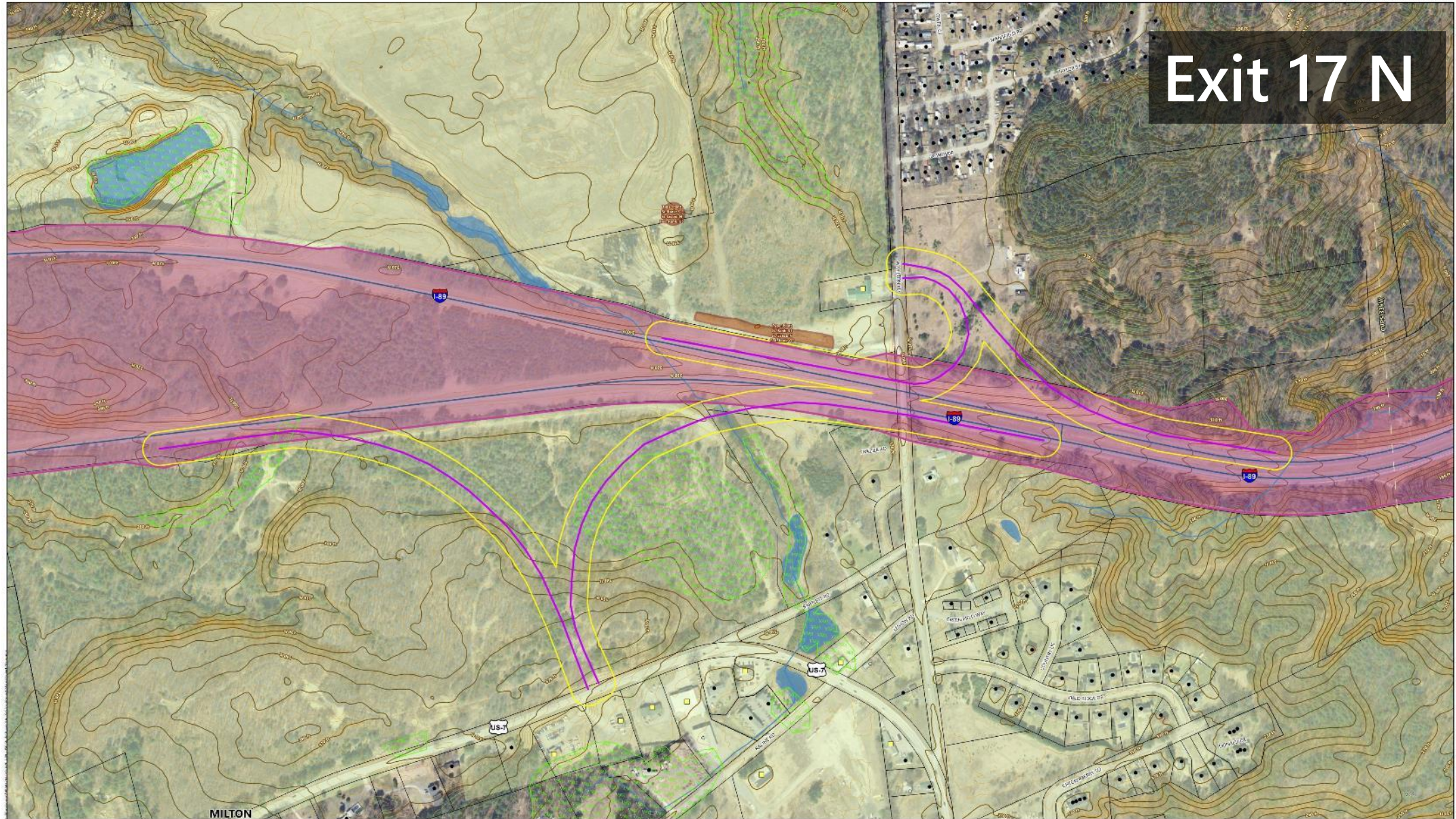
Chittenden County
I-89 2050 Study



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I-89 2050 Study

Interchange Maps

Exit 17 N



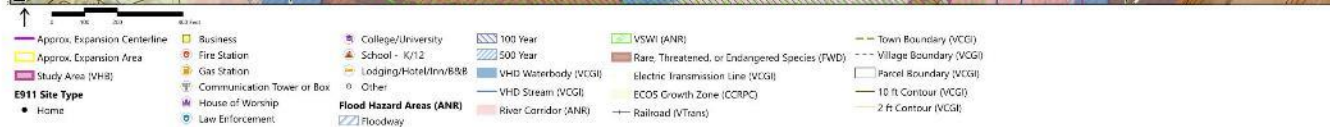
Chittenden County I-89 2050 Study

Source:
Background Imagery by VDOT (Collected in 2018)
ANR (Natural Resources Agency of Vermont) Data - Various Dates
CORPC (Chittenden County Regional Planning Commission) - 2019
Flood Information from USGS (Various Dates)
VGLI (Vermont Geographic Information System) - 2011-2018
VTR - 2020

Chittenden County, Vermont

First Round Interchange Screening
Map Series
Exit 17N

Exit 15



Chittenden County I-89 2050 Study

Source:
Background Imagery by VDOT (Collected in 2018)
ANR (Vermont Agency of Natural Resources - Various Dates)
CCRPC (Chittenden County Regional Planning Commission - 2019)
FWD (Vermont Fish & Wildlife Department - 2019)
VGLD (Vermont Geographic Information System - 2019)
VTrans (Vermont Agency of Transportation - 2019)

Chittenden County, Vermont

First Round Interchange Screening
Map Series
Exit 15

Exit 14 N



E911 Site Type

- Home
- Business
- Fire Station
- Gas Station
- Communication Tower or Box
- House of Worship
- Law Enforcement

Flood Hazard Areas (ANR)

- 100 Year
- 500 Year
- VHD Waterbody (VCGI)
- VHD Stream (VCGI)
- River Corridor (ANR)
- Floodway

Other Features

- College/University
- School - K/12
- Lodging/Hotel/Inn/B&B
- Other
- 100 Year
- 500 Year
- Village Boundary (VCGI)
- Parcel Boundary (VCGI)
- 10 ft Contour (VCGI)
- 2 ft Contour (VCGI)
- Town Boundary (VCGI)
- Electric Transmission Line (VCGI)
- ECOS Growth Zone (CCRPC)
- Railroad (VTrans)

Chittenden County I-89 2050 Study

Source:
Background Imagery by VDOT (Collected in 2018)
ANR (Vermont Agency of Natural Resources - Vermont State)
CCRPC (Chittenden County Regional Planning Commission - 2019)
ECOS (Vermont State Department of Transportation - 2019)
VCGI (Vermont State Department of Transportation - 2019)
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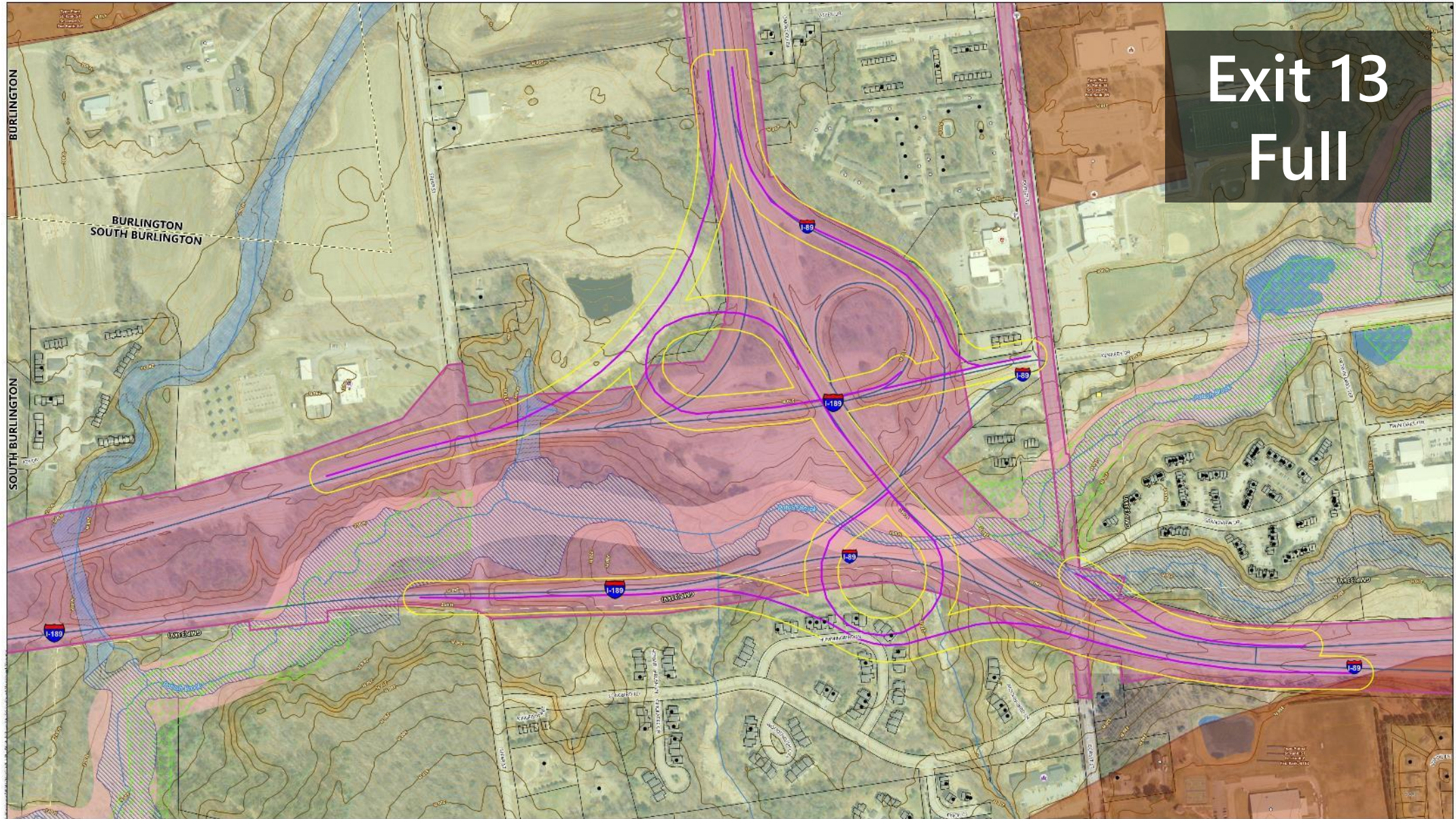
Chittenden County, Vermont

First Round Interchange Screening

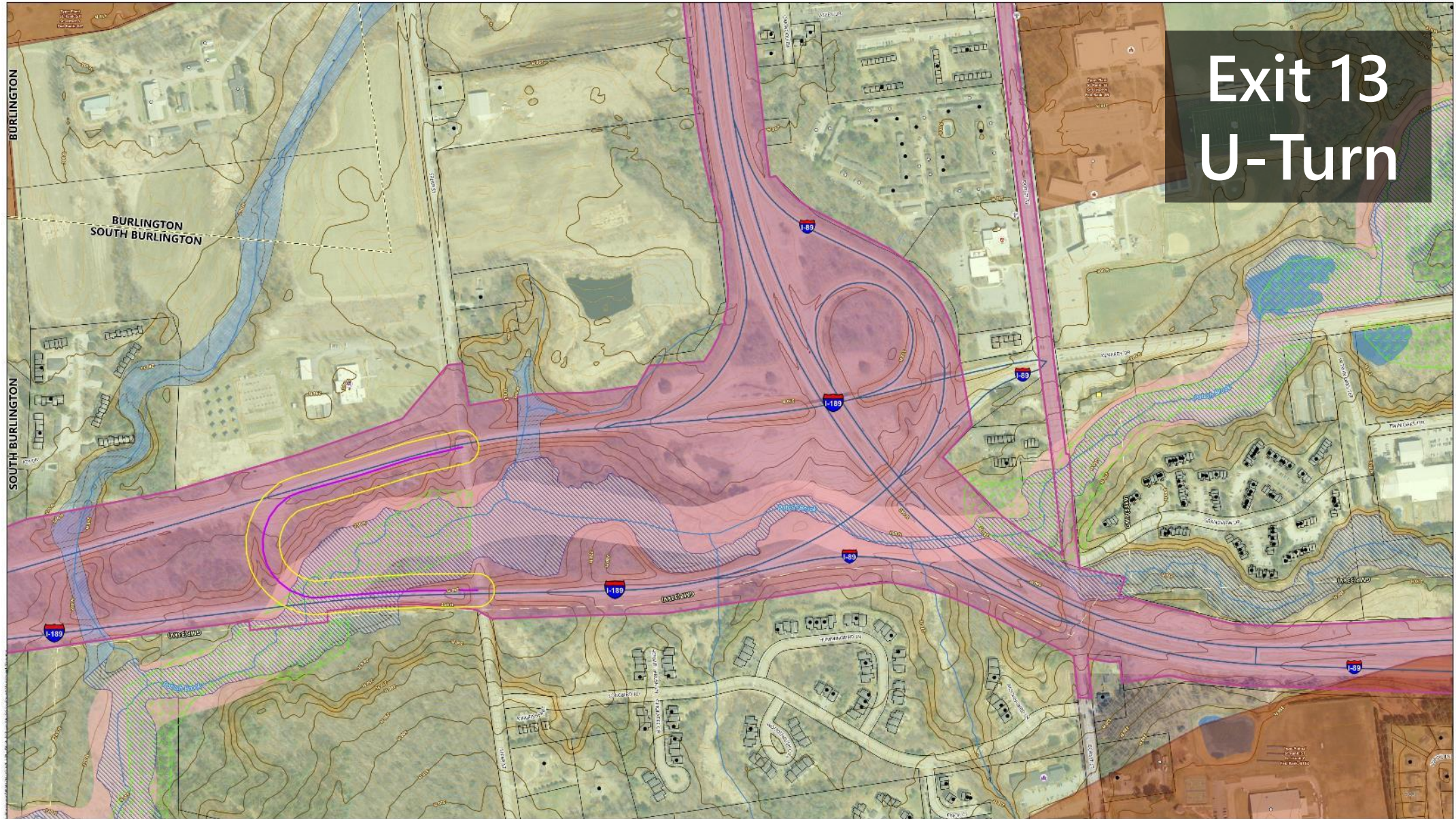
Map Series

Exit 14N

Exit 13 Full



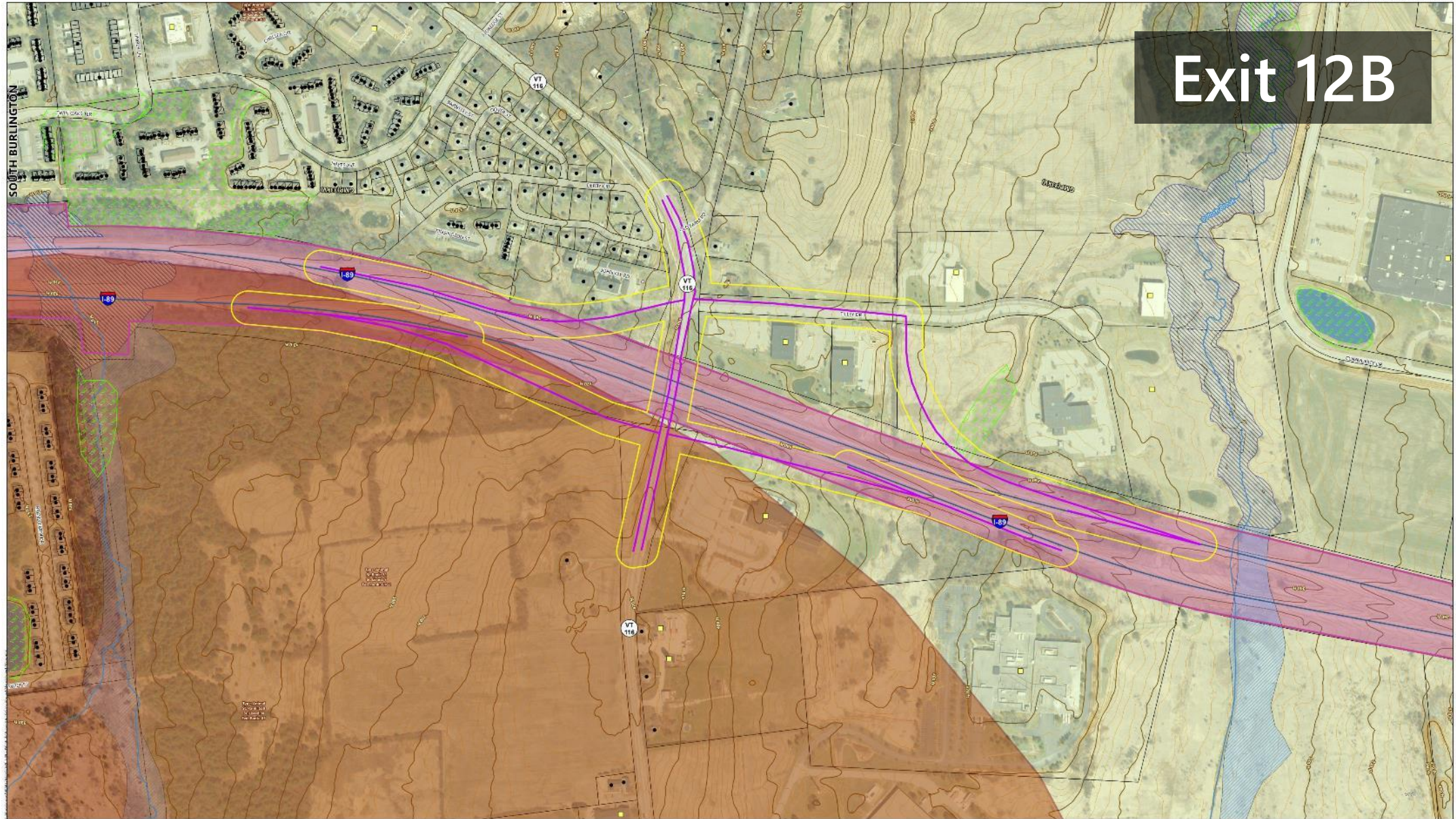
Exit 13 U-Turn



Exit 13 Hybrid



Exit 12B



↑
0 50 100 150 Feet
Approx. Expansion Centerline
Approx. Expansion Area
Study Area (VHR)
E911 Site Type
• Home

Business
Fire Station
Gas Station
Communication Tower or Box
House of Worship
Law Enforcement

College/University
School - K/12
Lodging/Hotel/Inn/B&B
Other
Flood Hazard Areas (ANR)
Floodway

100 Year
500 Year
VHD Waterbody (VCGI)
VHD Stream (VCGI)
River Corridor (ANR)

VSWI (ANR)
Rare, Threatened, or Endangered Species (FWD)
Electric Transmission Line (VCGI)
ECOS Growth Zone (CCRPC)
Railroad (VTrans)

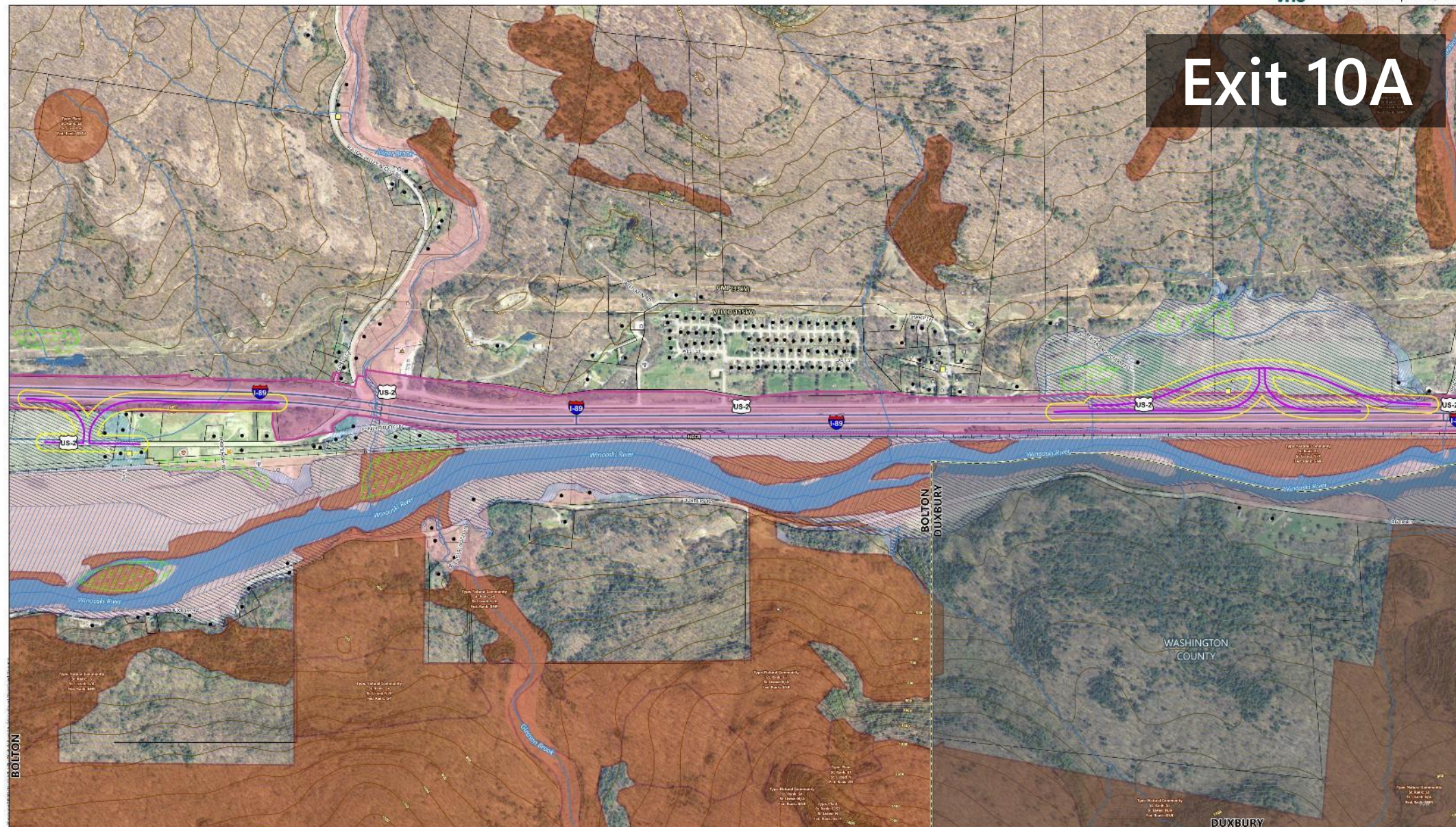
Town Boundary (VCGI)
Village Boundary (VCGI)
Parcel Boundary (VCGI)
10 ft Contour (VCGI)
2 ft Contour (VCGI)

Chittenden County I-89 2050 Study

Source:
Background Imagery by VDOT (Collected in 2018)
ANR (Vermont Agency of Natural Resources - Wetland Data)
CCRPC (Chittenden County Regional Planning Commission - 2019)
FWD (Vermont Fish & Wildlife Department - 2019)
VGLI (Vermont Geographic Information System - 2019)
VTrans (Vermont Agency of Transportation - 2019)
VHR - 2021

Chittenden County, Vermont

**First Round Interchange Screening
Map Series
Exit 12B**



Chittenden County, Vermont

**First Round Interchange Screening
Map Series
Exit 10A**

Sources:
Background Imagery by VDOT (Collected in 2018)
AAR (American Agency of Natural Resources - Various Dates)
CORPC (Chatham County Regional Planning Commission - 2019)
FWD (Furniture and Wildlife Department - 2019)
Vdot (Virginia Department of Transportation - 2019)
VWR - 2022