

# Risk-Based Roadway Departure Crash Assessment

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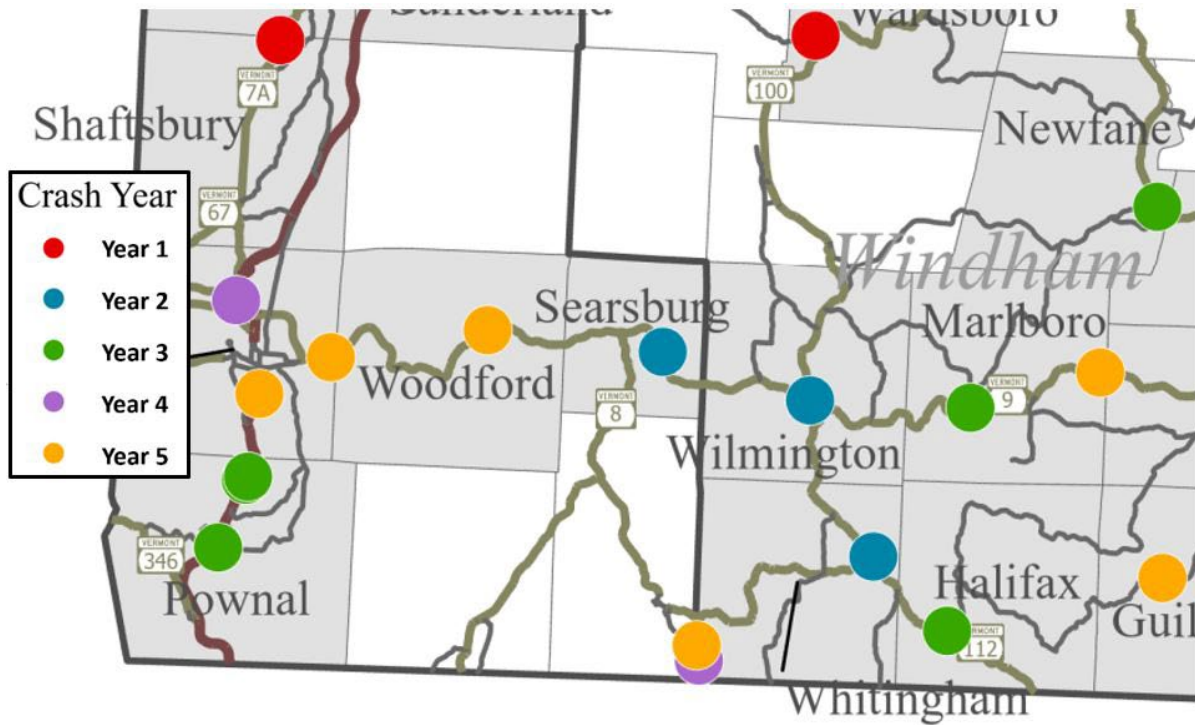


# Partners



Operations and Safety Bureau  
**Data & Analysis**

# The Problem



- RWD = 70% of Fatal and Serious Injury Crashes
- The locations are random

# The Solution: Systemic Safety



- Head-On
- Overturn
- Run-Off Road
- Fixed Object
- Nighttime

- Rural
- Curves vs Tangents
- State vs Local

## Examples:

- Traffic Volume
- Shoulder Width
- Curve Radius
- Presence of Intersection in the Curve

# The Project: Crash Models

- 14 Focus Crash/Facility Type Combinations
- Local Curves
- State Curves & Tangents

	Segment Type		
Crash Type	Tangent	Curve	Interstate
Head-On	Yes	Yes	
Run Off Road	Yes	Yes	
Overturn	Yes	Yes	Yes
Fixed Object		Yes	
Nighttime Run Off Road		Yes	

# The Project: Risk Factors

## 1<sup>st</sup> Logit Regression Modeling

Segment Risk Score Calculation Example

Risk Factor	Risk Factor Value	Segment Value	Risk Weight	Risk Score
AADT	Over 15000 vehicles per day	28200	1	1
Guardrail	None	Right Guardrail Present	1 (if not present)	0
Type A Warning Sign	Present	Present	2	2
<b>Total Risk Score (Sum)</b>				<b>3</b>

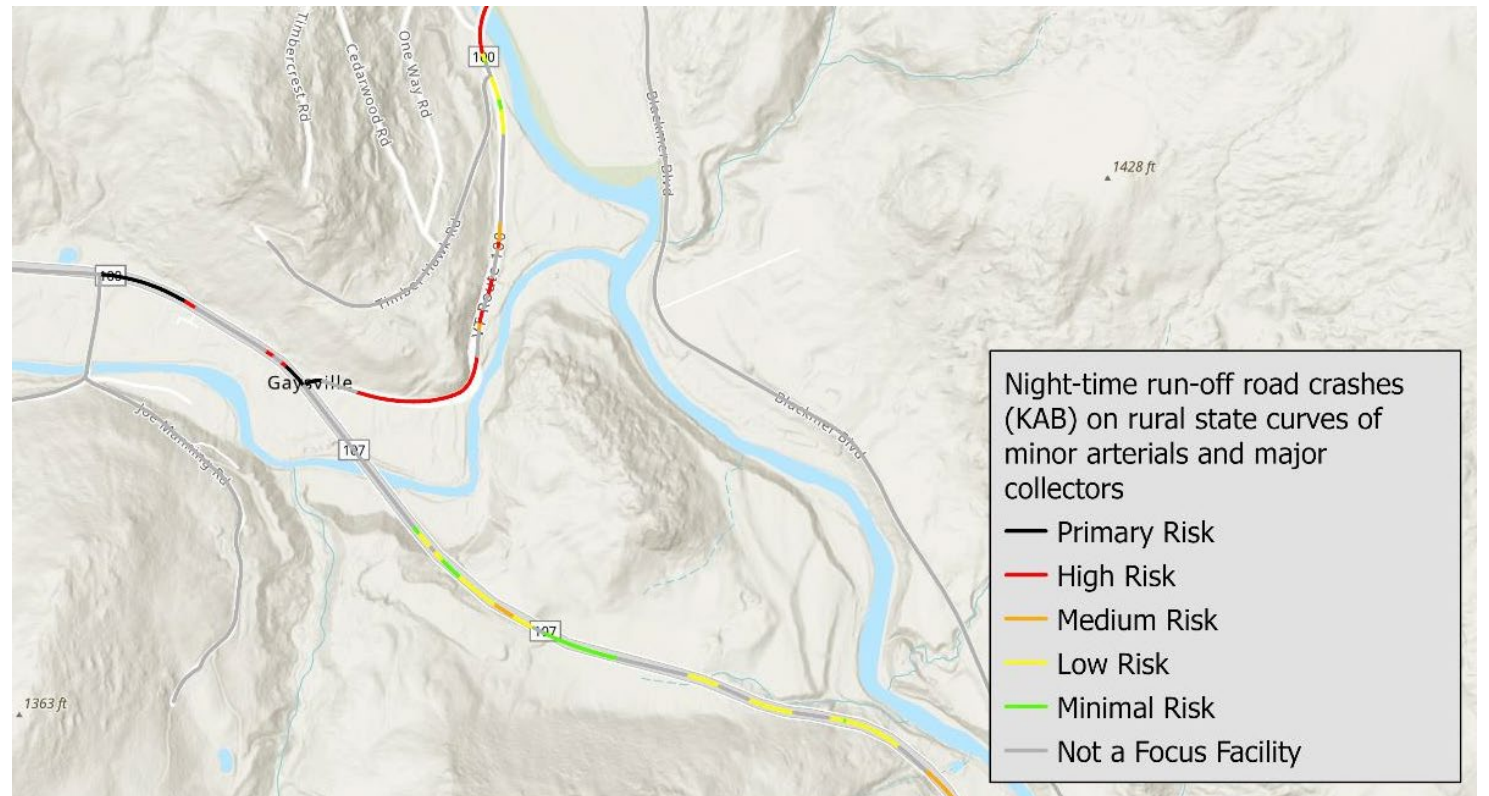
## 2<sup>nd</sup> Scoring Method

Risk Category	Percentile Score Range	Color
Primary Risk	95-100	Black
High Risk	85-94	Red
Medium Risk	60-84	Orange
Low Risk	30-60	Yellow
Minimal Risk	0-30	Green
Not a Focus Facility	N/A	Gray



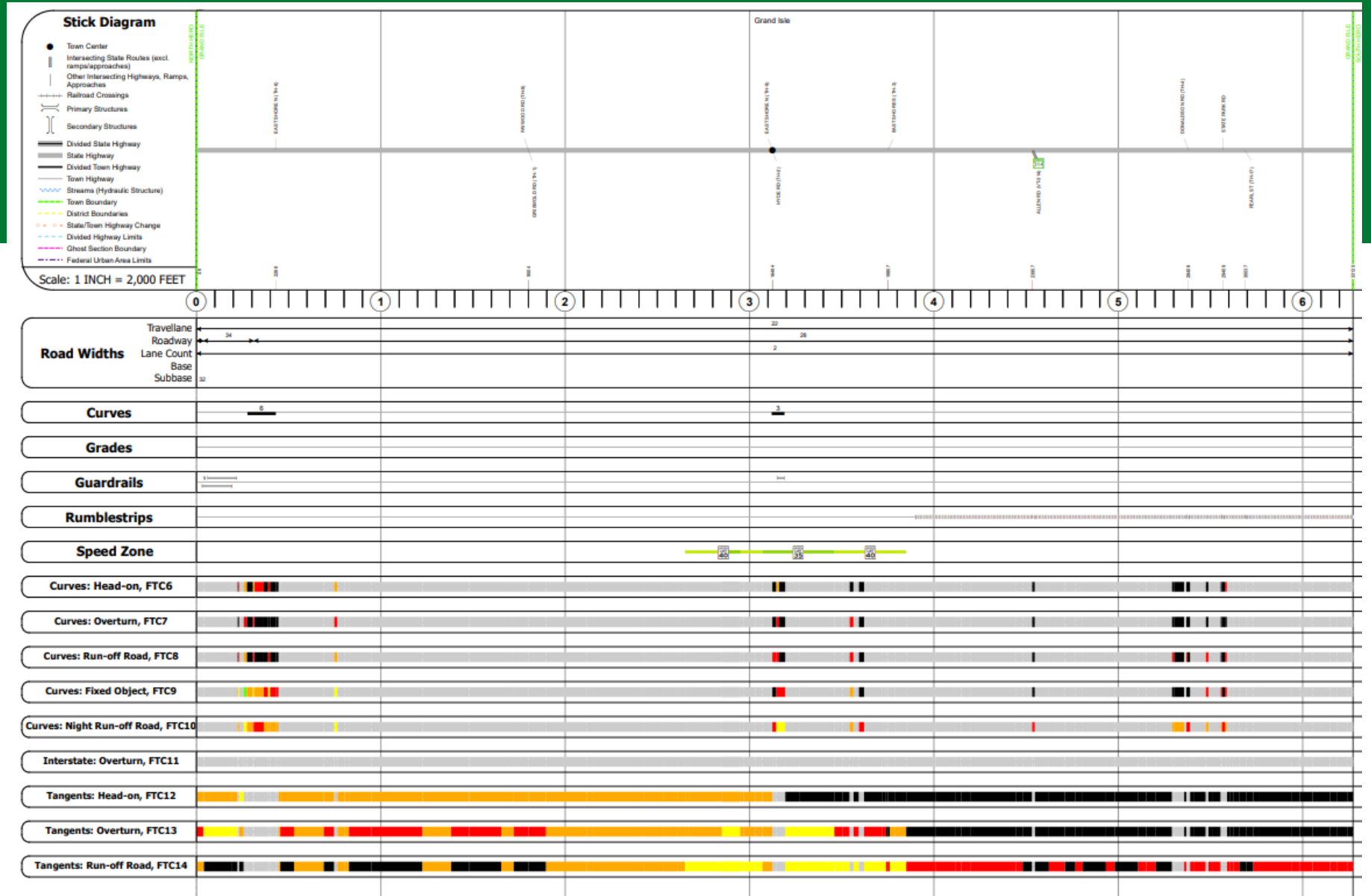
# Risk Maps

- 14 Focus Risk Maps





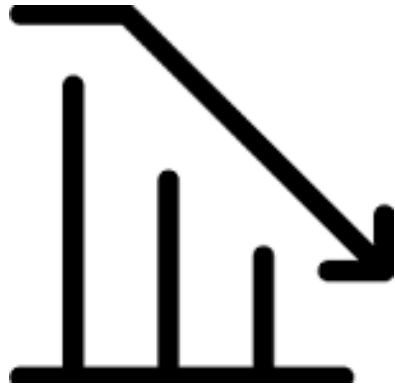
# Risk Route Logs



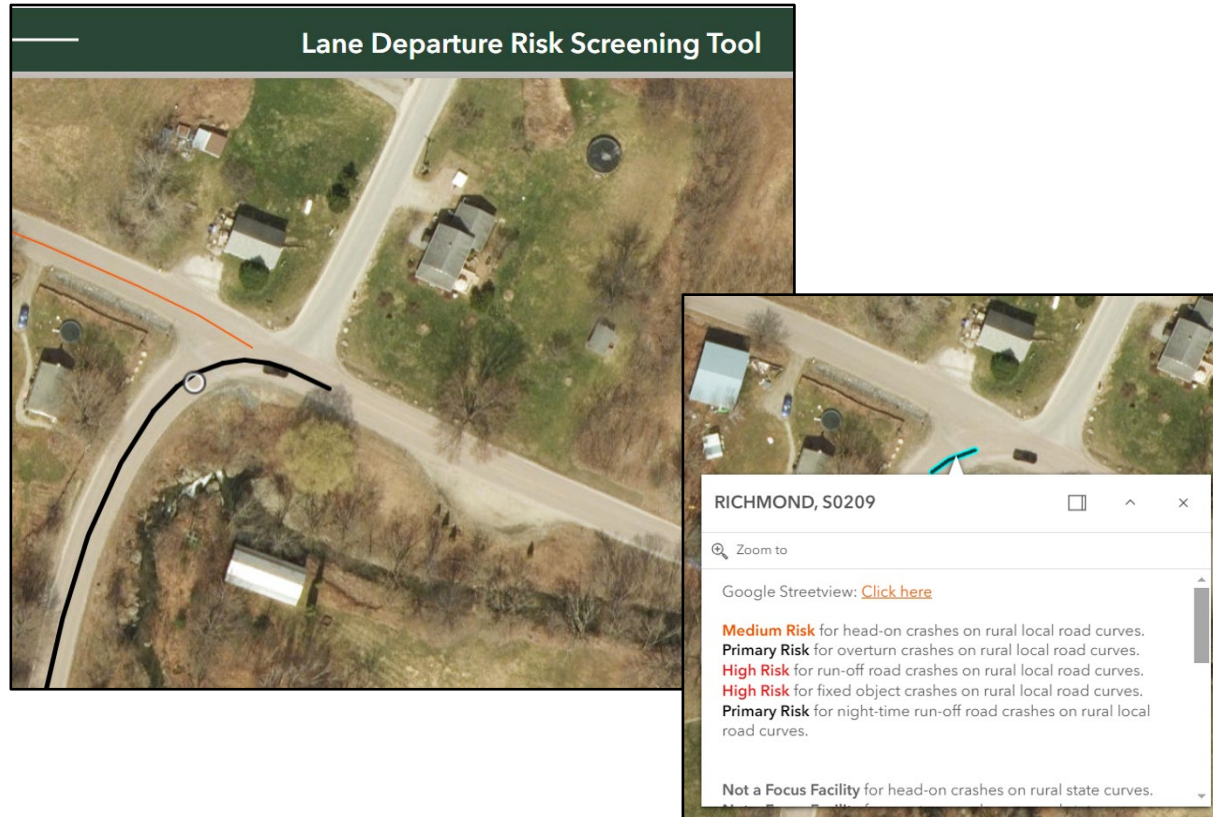


# Vermont Impacts/Benefits of the Project

- Identified sites at the highest risk of lane departure crashes
- Ability to implement targeted measures
- Proactive



# Why you should visit the poster



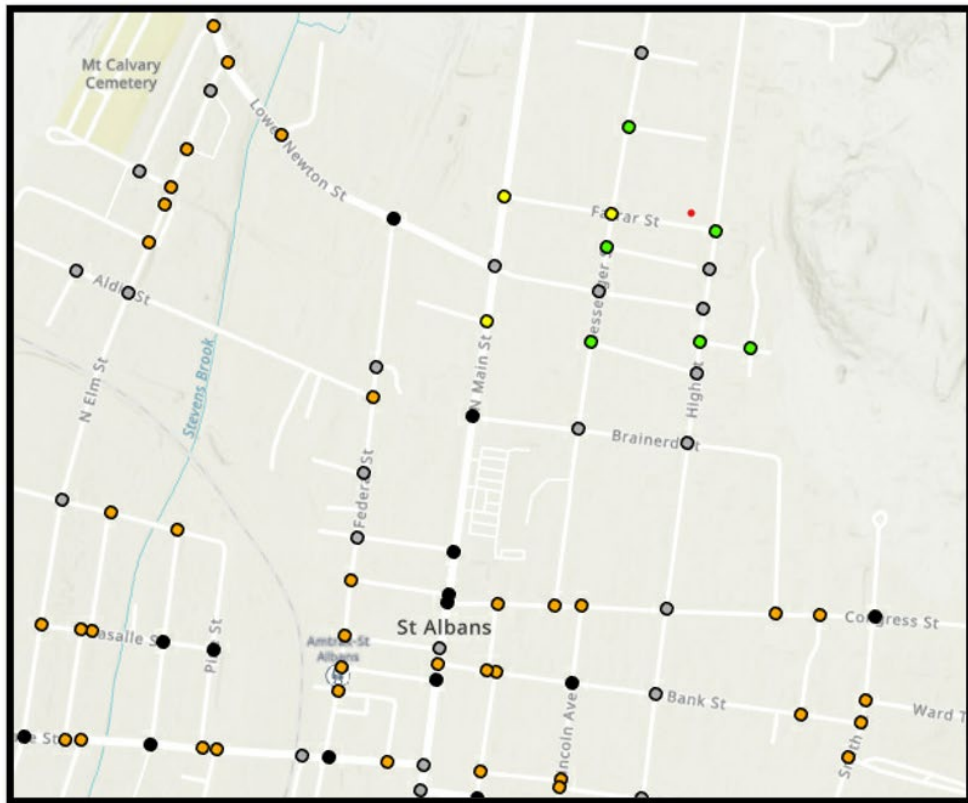
**Overturn Crashes on Local Rural Curves**  
 Risk Level: **Primary Risk** | Risk Score: 3/9 | Percentile: 96  
 Segment ID: 311120  
 LRS ID: S02090411  
 Town MM Begin: 2.394  
 Town MM End: 2.401

**Risk Score Details:**  
 Average shoulder width over 1 foot: 0/1  
 Road is a minor or major collector: 2/2  
 Presence of an intersection in the segment: 0/2  
 Curve is not independent: 1/1

**Primary Risk Mitigation Strategies**    High Risk Mitigation Strategies    Medium Risk Mitigation Strategies

CM_Description	RiskLevel	CrashReduction_1	Cost
Dynamic Chevrons	Primary	44%, 60% (F/I)	N/A
Flashing Beacons on Curv...	Primary	N/A	\$6000 sold
In-Pavement Curve Warnin...	Primary	30.7% (K/I), 35.1% (nightti...	\$18 per le
Removal of Trip Hazards	Primary	38% (remove/relocate fixe...	\$1,000 pe
Roadside Barrier	Primary	48% (KABC), 57% (fatal + i...	\$35 per LF
Slope Flattening	Primary	Flatten sideslope 1V:3H to...	\$10 yd3 ea

# Why you should visit the poster



## Intersection Crash Types

- Angle
- Left Turn
- Rear-End
- Pedestrian
- Bike
- Nighttime Pedestrian