VTrans On-Road Bicycle Plan, Phase II

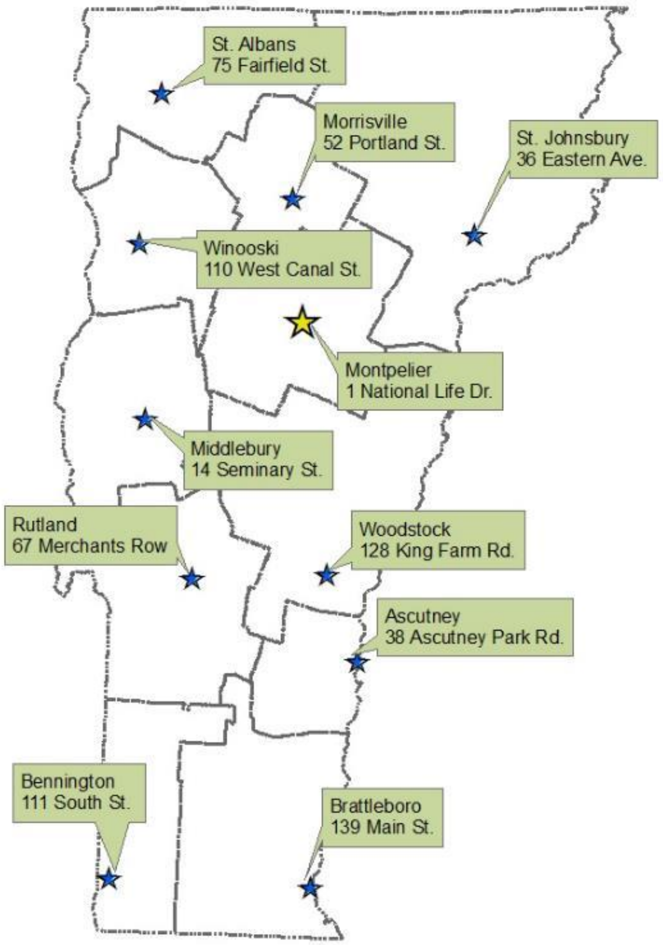
Montpelier, Vermont

STATEWIDE MEETING

December 1, 2016

Meeting Agenda

- Welcome & Introductions
- Check in with Sites
  - In Person – VTrans HQ
  - RPC hubs
  - Live streaming
- Presenters
  - Kevin Marshia, VTrans Chief Engineer, Highway Division
  - Phil Goff, Alta Planning + Design
- Q & A
  - Each location and live chat will be given opportunity to comment
  - Technical Panel available



Purpose of Meeting

- Review Scope of Phase II
  - Gap analysis on high use/priority corridors
  - Bicycle safety hot spot analysis
- Opportunities to Participate
  - Online survey
  - Phase II WikiMap
- Sign up for project updates at vermontbike@gmail.com
- Comment Period closes December 16

VTRANS ON-ROAD BICYCLE PLAN

******** **LATEST NEWS** ********

PHASE II STATEWIDE MEETING

WHEN: December 1, 6 - 8 pm (Snow Date: December 8)

WHERE:

- 1 National Life Drive, Montpelier - In Person
- At your local Regional Planning Commission office - live webinar viewing (see locations here)
- Attend from anywhere using the webinar link : Click here OR copy the link in your browser https://global.gotomeeting.com/join/934719805

Phase I Summary

Purpose of Phase I

Categorize state roads:

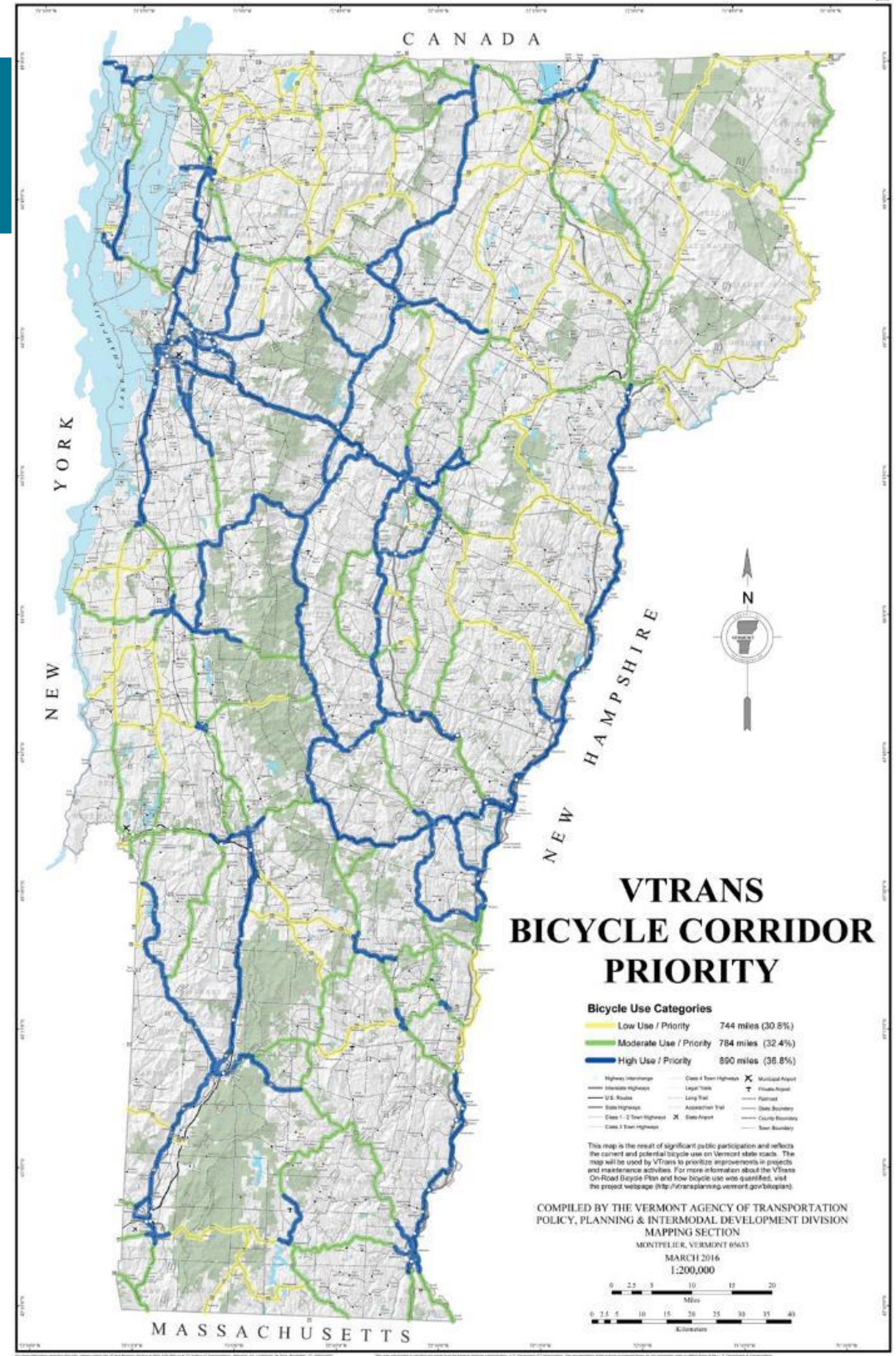
- Into high-, moderate-, and low use/priority
- Based on current and potential bicycle use
- Accounts for transportation and recreational use

Result:

High use

Moderate use

Low use



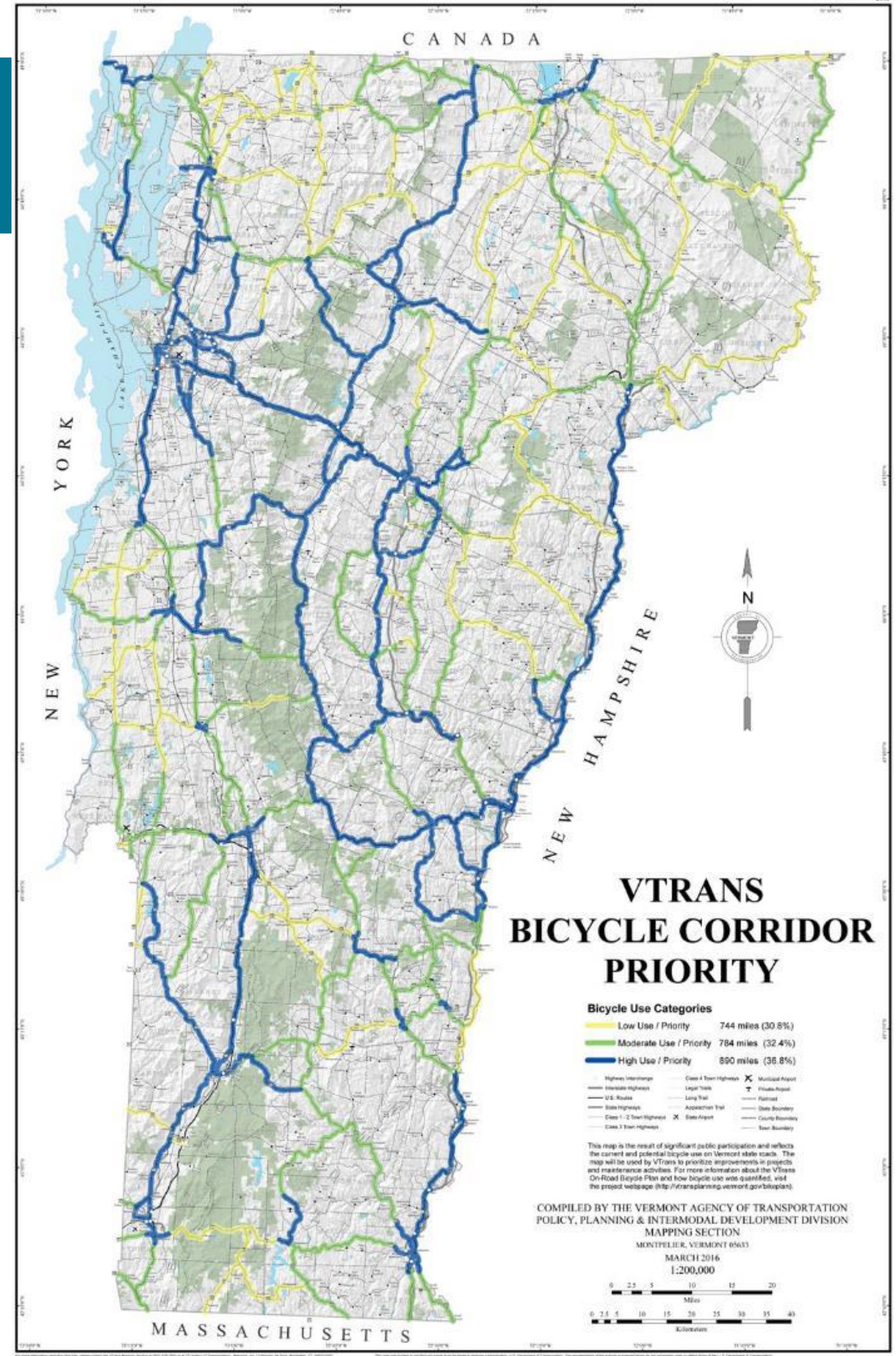
Purpose of Phase II

Three Primary Goals:

1. Conduct Safety Analysis
2. Develop Roadway Evaluation Criteria to identify Gaps
3. Evaluate High-Use Corridors

Next Steps (Phase III):

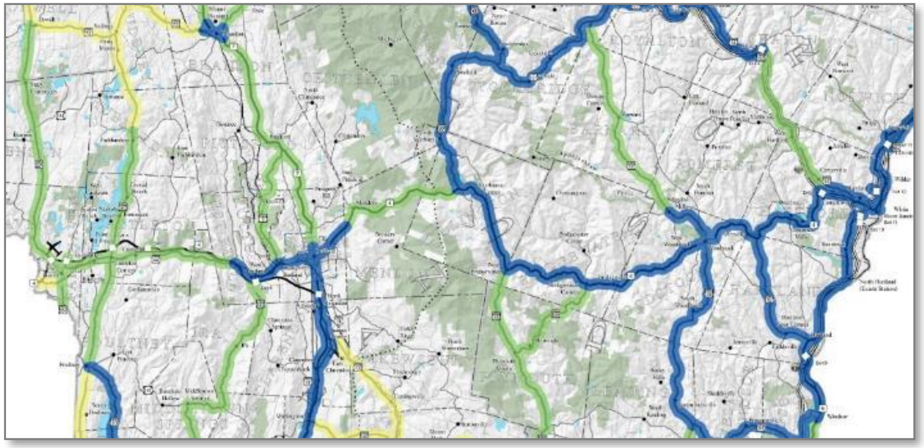
- Information will be used to identify opportunities for bicycle improvements along the high priority bicycle corridors



VTrans Current Initiatives

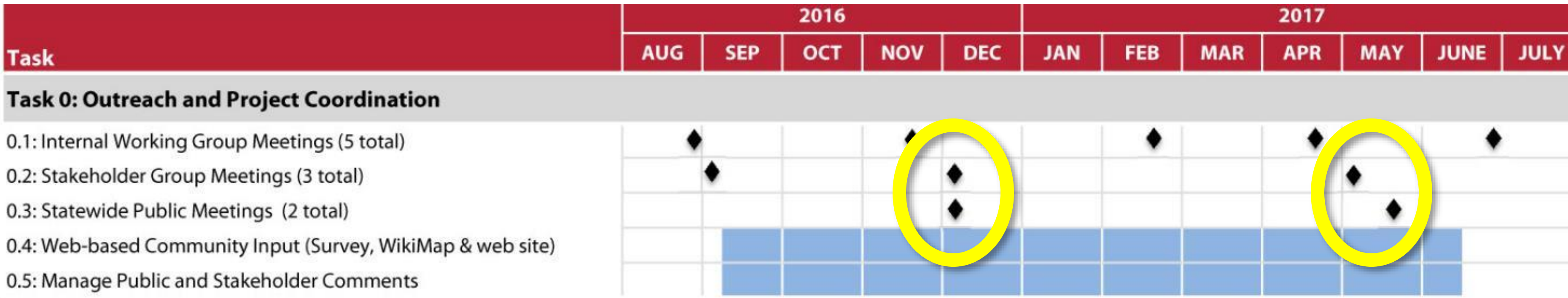
- Design Considerations
  - 11 ft Lanes
  - Adding shoulder widths
- Maintenance Activities
  - Shoulder sweeping
  - Pot holes
  - Minor pavement Maintenance
- Incorporating Bicycle Facilities
  - Road Diets
  - Bicycle Pavement Markings

Summary of Phase II Project Tasks



- Task 1 – Outreach/Public Participation
- Task 2 – I.D. and Analyze Safety Hotspots
- Task 3 – Develop Roadway Evaluation Criteria
- Task 4 – Evaluate High Use/Priority Corridors
- Task 5 – Final Report

Phase II Public Meeting Schedule



Statewide Public Meeting #1

- Review of Phase I results
- Scope and goals for Phase II
- Preliminary findings of the hotspot analysis
- Next steps
- Q&A

Statewide Public Meeting #2

- Summary of Meeting #1
- Review of roadway evaluation criteria
- Draft gap analysis map
- Q&A

FUTURE Online Public Participation

Task 3: Evaluation Criteria Development

(December 2016/January 2017)

- Online survey will be used to ask public to rate draft evaluation criteria
- Survey will provide opportunity to add additional criteria to be considered

Task 4: Evaluation of High Priority Corridors (April/May 2017)

- Preliminary results of gap analysis will be provided to the public via WikiMap
- Public will be asked to review the results and provide feedback

Overview of Crash Analysis

Map Reported Bicycle Crashes

Map Difficult Bicycling Location Points

Conduct Analysis of Overall Crash Trends

Conduct Analysis of Contributing Factors

Develop Hot Spot Scoring Methodology

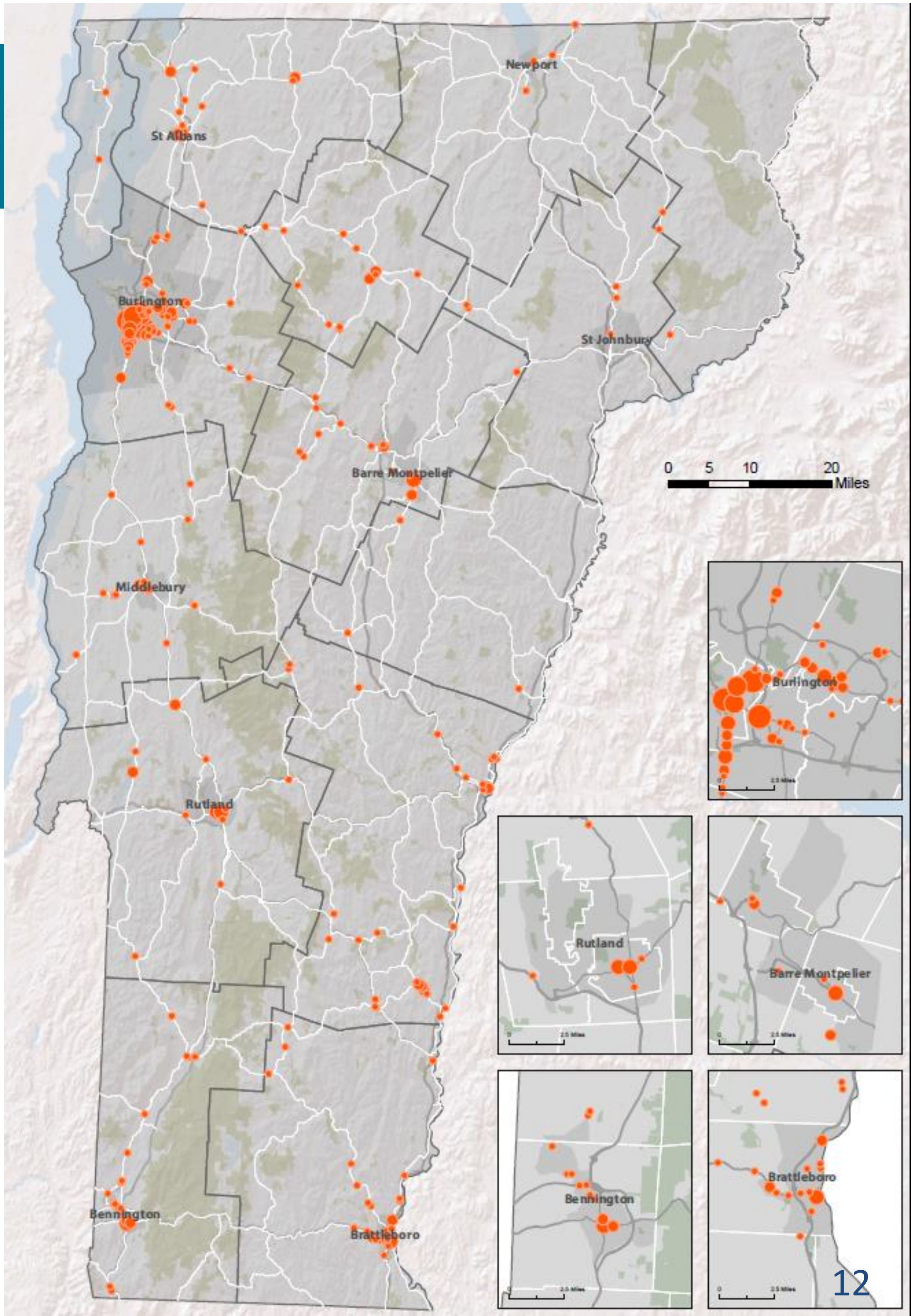
Identify Top 10 Hotspots

Map Reported Bicycle Crashes

Bicycle Crash Data

Summary

- State Roads only
- 10 years total (2006 – 2015)
- 419 *reported* crash records analyzed



Conduct Analysis of Overall Crash Trends

Overall Crash Trends (2006-2015)

419 Crashes included:

TOTAL	% OF REPORTED BIKE CRASHES	
2	0.5%	FATAL
56	13.4%	INCAPACITATING
263	62.8%	MINOR INJURY/ DAMAGE
80	19.1%	NO INJURY
18	4.3%	UNKOWN

Crash Trends Analysis Findings

Trends	Finding
Severity	Most collisions result in Minor Injury (62.8%)
Annual # of Reported Bicycle Crashes	Crashes per year have been trending slightly down; The average crashes per year = 42
Roads with Most Crashes	Some roads are disproportionately represented with crashes based upon their total lane miles
Time of Day	The great majority of collisions occur during the day (75.4%)
Day of Week	Crashes happen more frequently during the weekdays than weekends
Age of Bicyclist	17–54 years olds were involved in 60% of crashes
Gender of Bicyclists	4 of 5 crashes involve a male bicyclist
Location of Collision	Most collisions occur at intersections (59%)
Traffic Controls Present	Most collisions occur at uncontrolled intersection (55%)

Conduct Analysis of Contributing Factors

Roadway Design Factor Contributions

- Compared prevalence of factors in crashes with prevalence on Vermont State road network design
- *Overrepresentation* in crashes suggests factor may influence crash frequency
- Does not account for the number of bicyclists on a roadway segment

8 Roadway Design Factors Analyzed

Design Factor
Density
Number of lanes
Lane width
Shoulder width
Typical speed
Annualized Average Daily Traffic (AADT)
Turn lane present
Median type

Roadway Design Factor Findings

- Density and AADT have the highest overrepresentations
- Shoulders appear to significantly reduce crashes
- Trends related to bicycle crashes are noticeable in all design factors

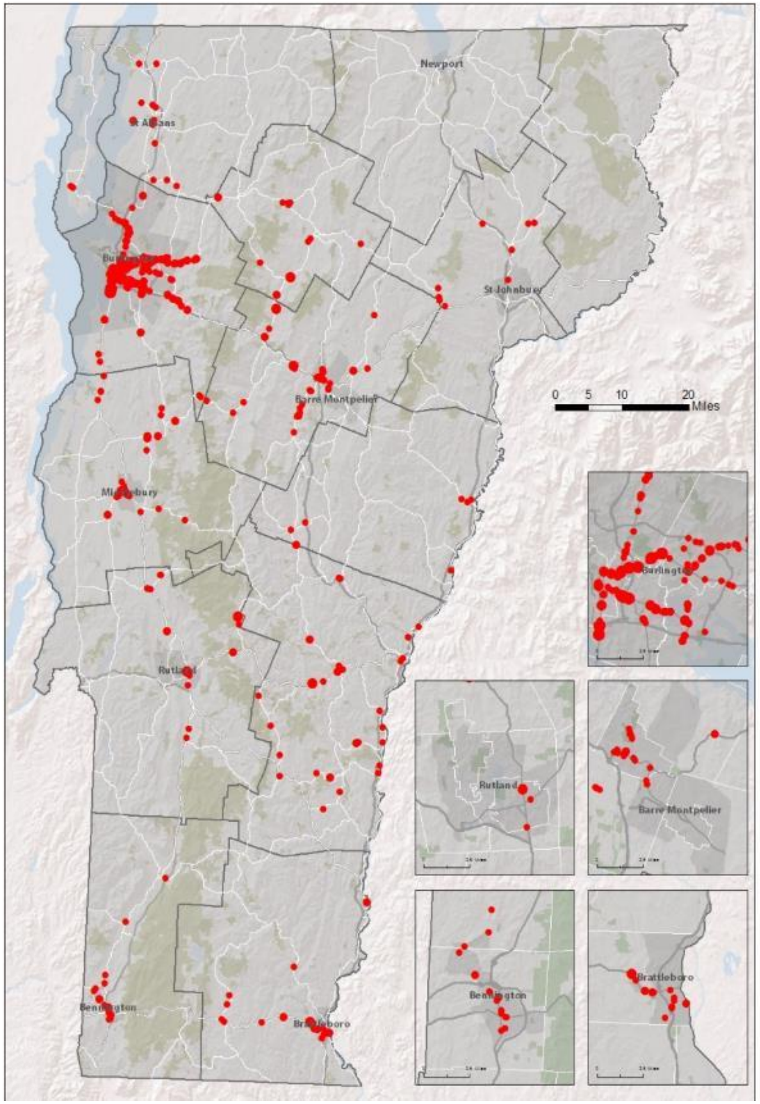
Design Factor	Overrepresented in…
Density	Urban areas
Annualized Average Daily Traffic (AADT)	Higher volumes (5,000 vehicles or more per day)
Number of lanes	More than two lanes
Lane width	12 feet wide or more
Shoulder width	No shoulder present
Typical speed	Slower roads (35 mph or less)
Turn lane present	Presence of a turn lane
Median type	Presence of a median

Develop Hot Spot Scoring Methodology

Hotspot Methodology

INPUT VARIABLES	SOURCE INFORMATION
Safety Issue Data	
Reported Bicycle Crashes	VTrans - 2006 to 2015 (419 records)
Difficult Bicycling Location Votes	Phase I Online Input Map (358 records)
Bicycling Rate	
Phase I Use Score	Developed through Phase I
Length	
Roadway Segment Length	VTrans Road Centerline Data

Difficult Bicycling Location Data



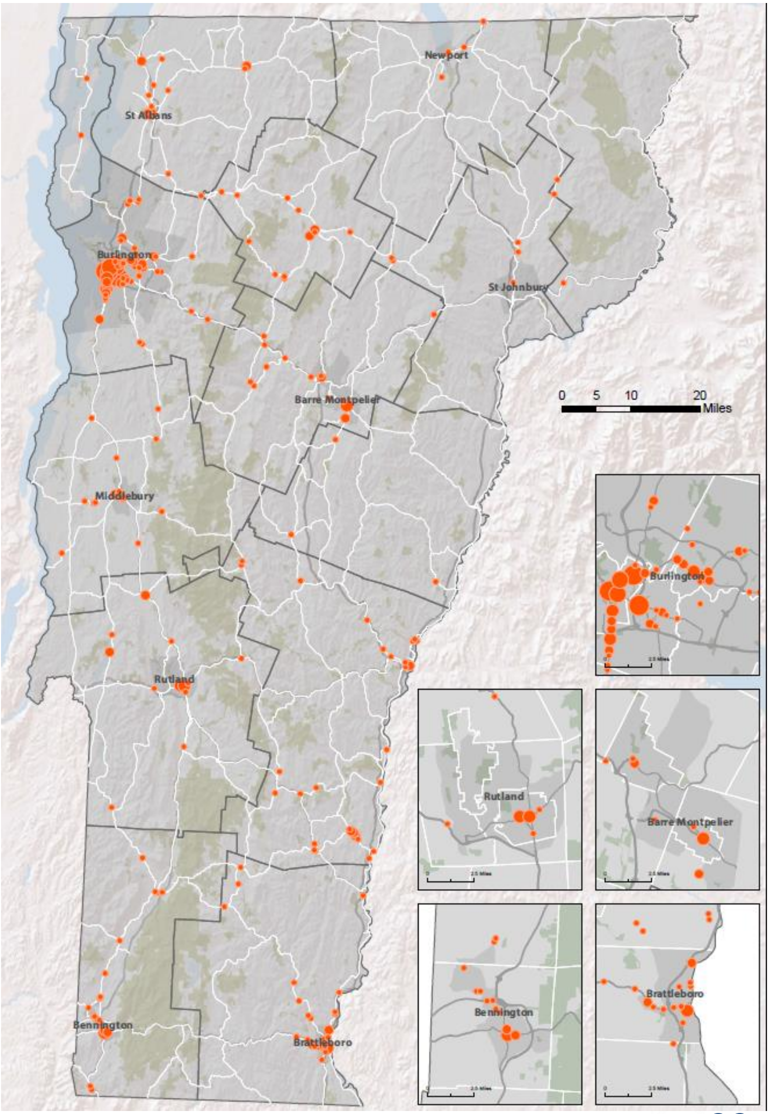
Summary

- Data from Phase I Wikimap
- 358 records analyzed
- 845 total “votes”

Top 10 Hot Spots

- Methodology
  - 5 spots **within** Chittenden County
  - 5 spots **outside** Chittenden County

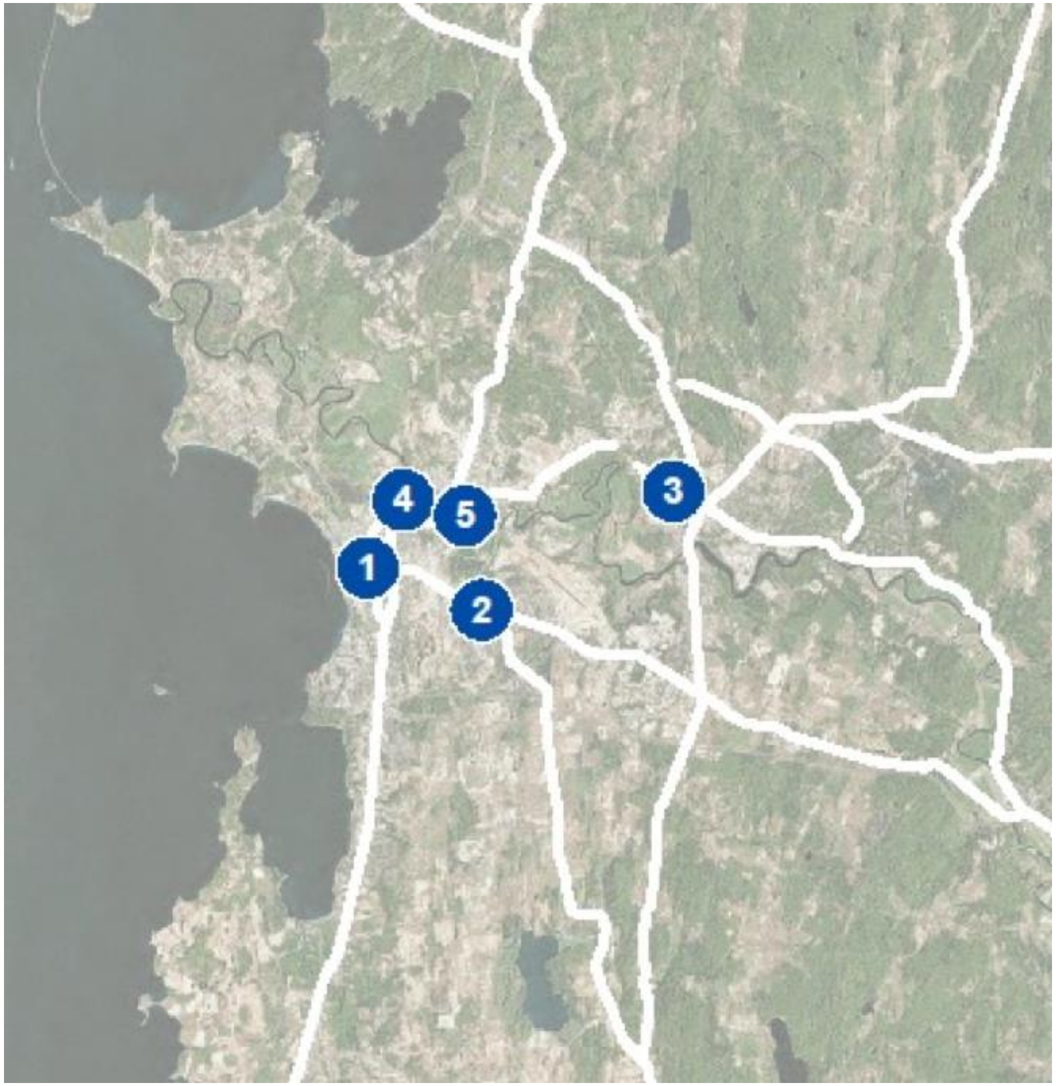
- The Hot Spots represent 0.11% of the total miles of state roadways, but account for:
  - 16% of *bicycle crashes* statewide
  - 18% of the *difficult bicycling locations* statewide



Identify
Top 10 Hotspots

Hot Spots within Chittenden County

1. S Winooski Ave (ALT-7), Burlington
2. Williston Rd (Rt. 2), South Burlington
3. Pearl St (Rt. 15), Essex
4. Riverside Ave. (Rt. 2), Burlington
5. Colchester Ave (Rt. 2), Burlington



Hot Spots outside Chittenden County

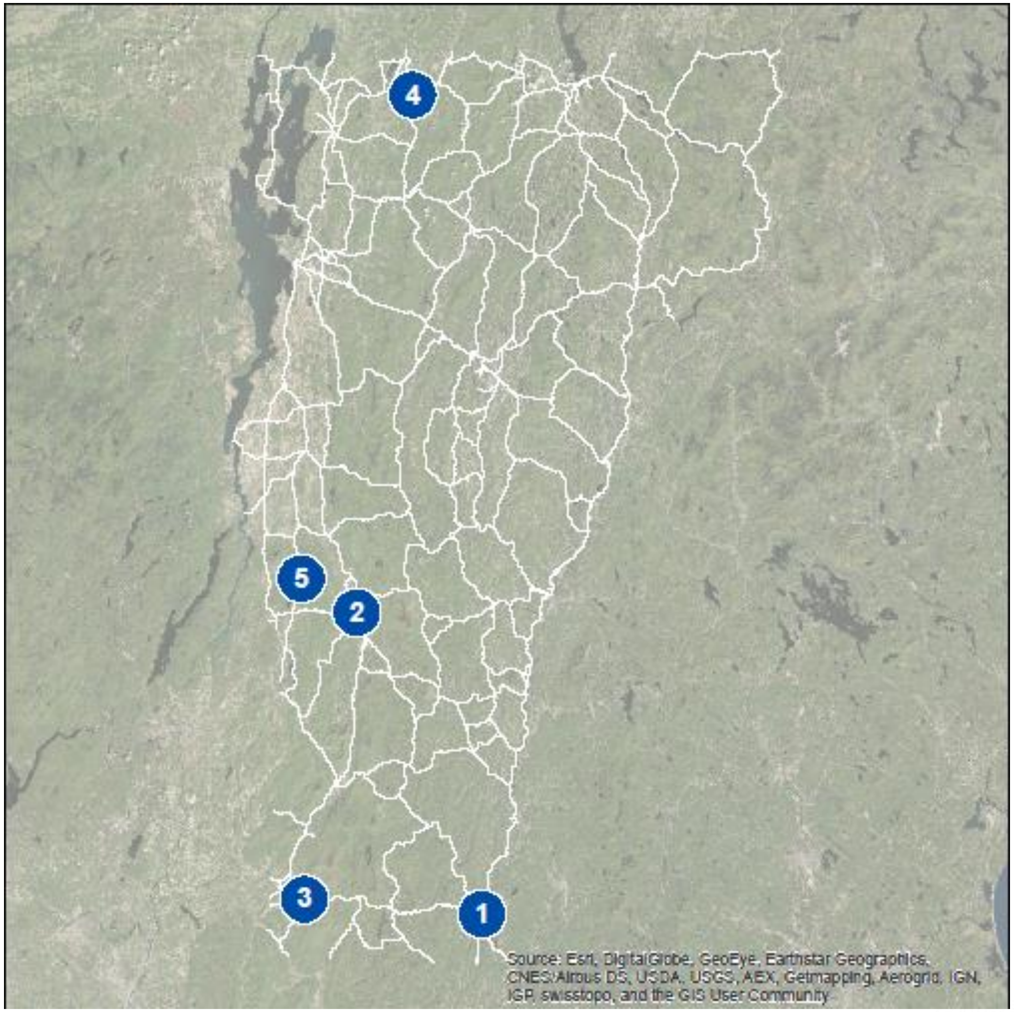
1. Main St (Rt. 5), Brattleboro

1. State St (BUS-4), Rutland

2. North St. (Rt. 7) &
   Main St (Rt. 9), Bennington

3. Elm St (Rt. 105), Enosburg

4. Route 30N, Castleton



Detailed Review of Hotspots

- Reviewed detailed crash narratives for all hotspot crashes
- 67 of 72 crashes had narratives available
- Crash narratives were reviewed for themes and correctable conditions

Hot Spot General Themes

FOUR MAIN THEMES WERE IDENTIFIED:

1. Vehicle driver inattention when turning
    - Exacerbated by complex roadway conditions
        - Large number (>2) of travel lanes
        - Frequent curb cuts
2. Parking related
3. Bicycle riding on sidewalks
4. Bicycle equipment or cyclist-related

Hot Spot General Themes

FOUR MAIN THEMES WERE IDENTIFIED:

1. Vehicle driver inattention when turning
2. Parking related
    - Vehicle occupants opening doors into bicyclist
    - Vehicles moving into the bicycle path while parking
3. Bicycle riding on sidewalks
4. Bicycle equipment or rider-related

Hot Spot General Themes

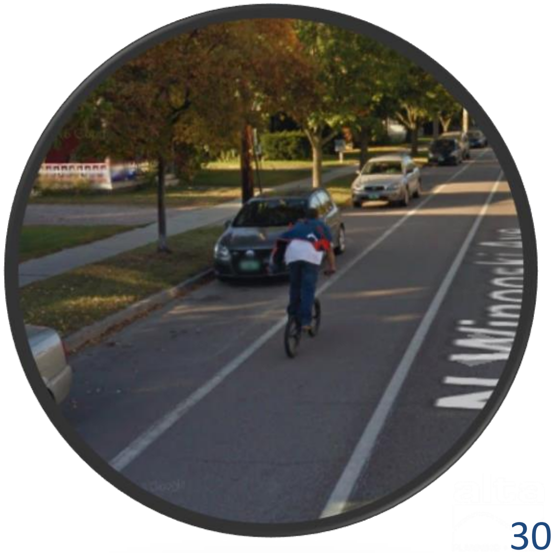
FOUR MAIN THEMES WERE IDENTIFIED:

1. Vehicle driver inattention when turning
2. Parking related
3. Bicycle riding on sidewalks
   - Drivers do not anticipate a bicyclist at driveways and crosswalks
   - Bicyclists do not anticipate vehicles
4. Bicycle equipment or rider-related

Hot Spot General Themes

FOUR MAIN THEMES WERE IDENTIFIED:

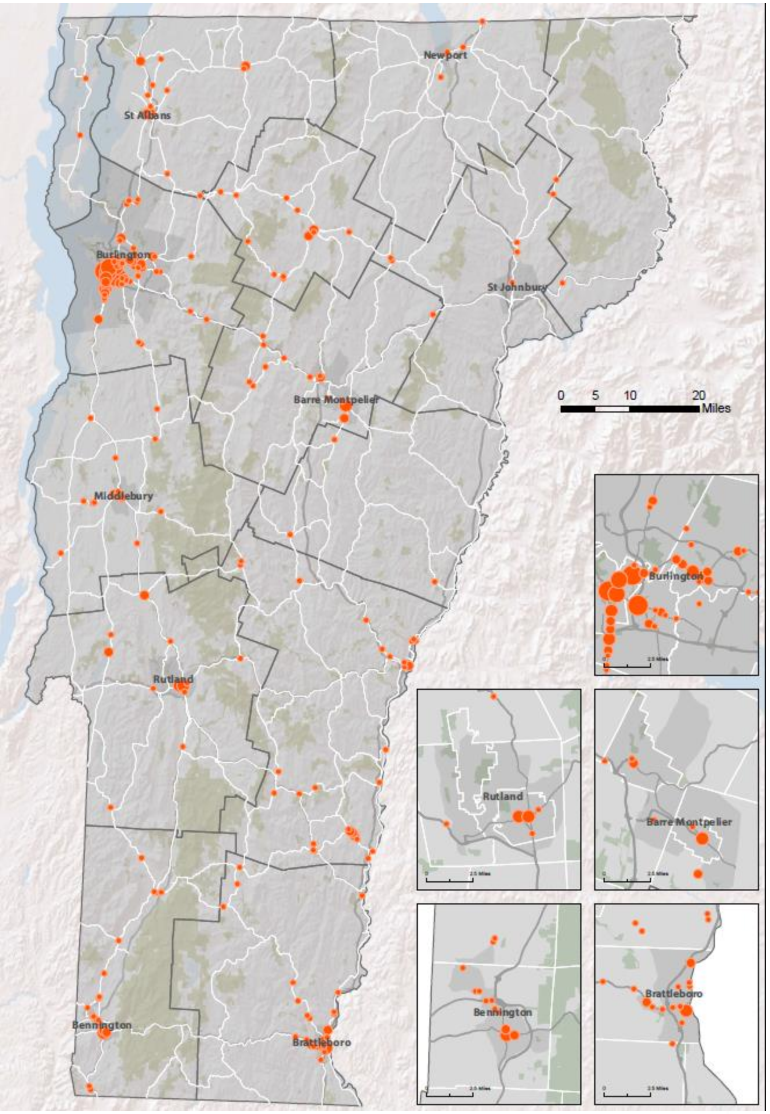
1. Vehicle driver inattention when turning
2. Parking related
3. Bicycle riding on sidewalks
4. Bicycle equipment or cyclist-related
    - Failure to obey traffic laws
    - Faulty equipment
        - Inoperable brakes
        - No working lights at night



Summary of Crash Analysis

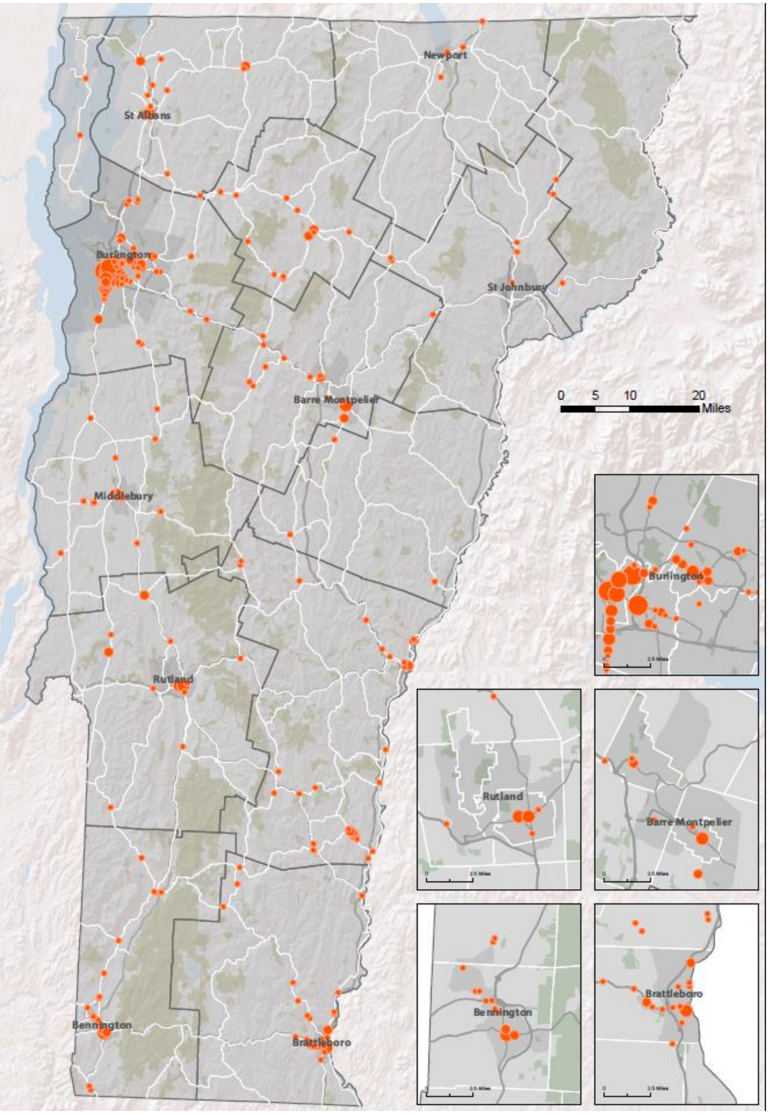
Overall Findings from Crash Analysis

- The data shows bicycle crashes greatest in downtown/village centers
  - Greatest number of conflicts points (turning vehicles, driveways, pedestrian, intersections)
  - Presence of on-street parking
  - Greater density of both bicyclists and motorists
- 9 out of 10 hotspots on Class 1 Town Highways
- Crashes concentrated on roads with higher traffic volumes and no roadway shoulders



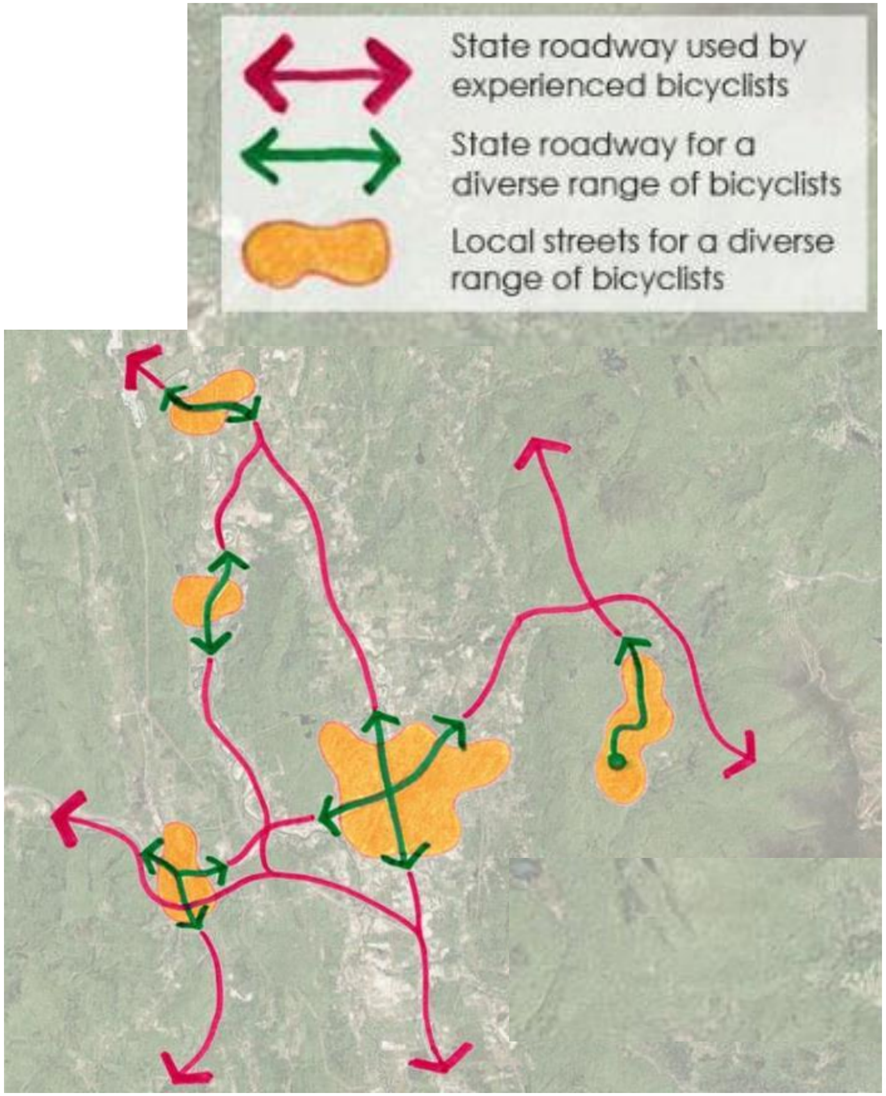
Incorporating the Crash Analysis

- Incorporate the findings in the evaluation criteria for Phase II
- Evaluate opportunities to incorporate into existing grant programs (eg. Transportation Alternatives)
- Use this analysis as an input in Phase III
- Use this analysis for VTrans projects, as applicable (e.g. bridges, paving)



Next Steps

Task 3: Roadway Evaluation Criteria



1. Evaluation Criteria Inputs:

- Phase I Use Scores (transportation, recreation, or both)
- Roadway Variables

2. On-line Survey:

Seek feedback to inform the final evaluation criteria

3. Finalize Evaluation Criteria

For use in Task 4

Examples of Roadway Evaluation Criteria

Research indicates that certain roadway variables make bicycling more comfortable:

- Presence/Absence of designated bicycle facility
- Presence/Absence of shoulder
- Presence/Absence of a Median
- Presence of a traffic control
- Pavement Condition
- Number of Travel Lanes
- AADT
- Speed
- Percentage of Heavy Trucks

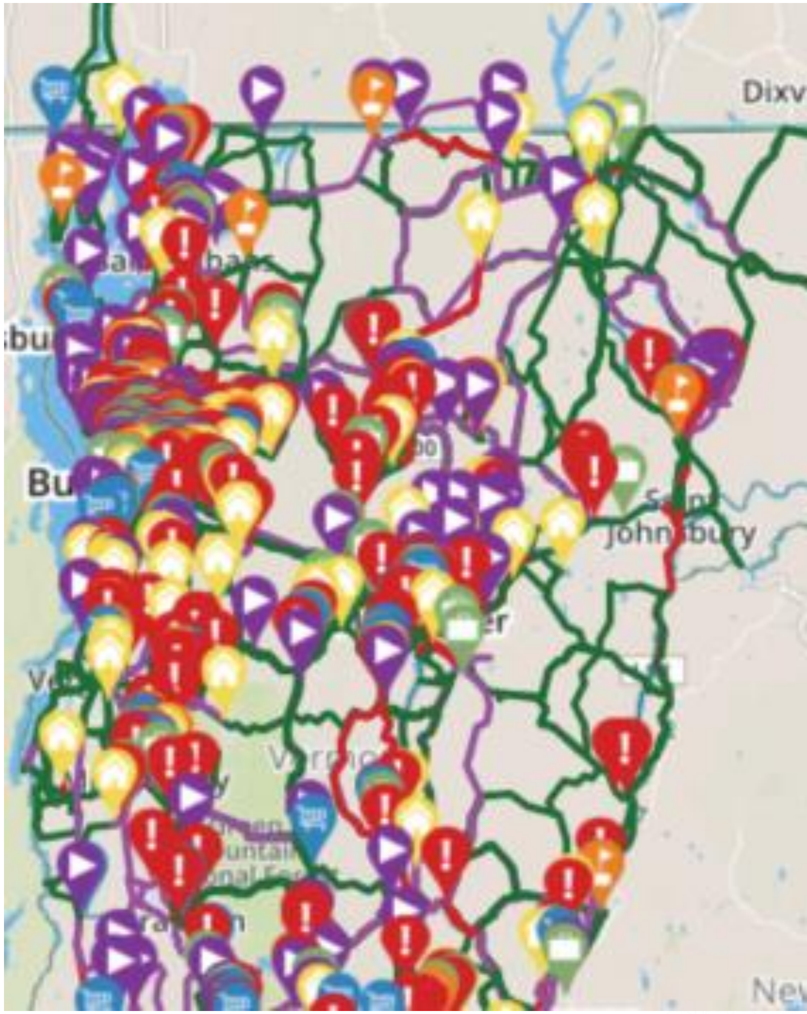
Task 4: Evaluate High Use Corridors

1. Use the evaluation criteria to **score the high use corridors** identified in Phase I

2. **Seek Feedback** – via the Phase II Wikimap

3. **Revise results** of scoring process based on public feedback

4. **Final Gap Analysis Map** showing the comfort levels for bicycling on the high use bicycle corridors



Phase II Public Participation

Task	2016					2017						
	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY
Task 0: Outreach and Project Coordination												
0.1: Internal Working Group Meetings (5 total)	◆			◆			◆		◆		◆	
0.2: Stakeholder Group Meetings (3 total)		◆			◆					◆		
0.3: Statewide Public Meetings (2 total)					◆					◆		
0.4: Web-based Community Input (Survey, WikiMap & web site)												
0.5: Manage Public and Stakeholder Comments												

- December/January: On-line Survey to seek input on the draft roadway evaluation criteria
- March/April: Phase II Wikimap
- Throughout: Project web site to provide draft materials and solicit additional public input

Questions?

- Panelists
  - Amy Bell
    - VTrans Policy Planning & Intermodal Development Division - Planning Coordinator
  - Jesse Devlin
    - VTrans Project Delivery Bureau, Highway Safety & Design - Manager
  - Jon Kaplan
    - VTrans Municipal Assistance Bureau - Bicycle and Pedestrian Program Manager
  - Erica Wygonik
    - RSG – Senior Engineer
  - Sam Piper
    - Alta Planning + Design – Senior Planner

VTrans On-Road Bicycle Plan Phase II

Comment Period until December 16, 2016

Project email:
vermontbike@gmail.com

Project Manager:

Sommer Roefaro Bucossi, 802-828-3884

Project Webpage:
http://vtrans.vermont.gov/planning/bikeplan

Consultant Team:
Phil Goff, Alta Planning + Design
Sam Piper, Alta Planning + Design
Erica Wygonik, RSG