# Make your town safe for walking and bicycling



### Addison County RPC TAC – 3/17/21

### Agenda

- Top 10 low-cost improvements to make streets safe for walking and bicycling.
- What does Complete Streets really mean and how can you take steps to "complete" local roads.
- Sidewalk design basics including a primer on how to make them accessible to people with disabilities.
- An overview of design resources for street improvements to result in safer bicycling and walking.

### Top 10 (or so) Low Cost Ideas

### Narrow Travel Lanes

Moving the edgeline in creates more shoulder for other uses

- When roads are restriped, mark travel lanes at 10 or 11 feet to gain shoulder width. Research shows that 10 or 11 foot lanes are the safest width (for all users) on roads posted at 40 MPH or less.
- Cost \$0 (assuming that an edgeline would be marked anyway)



# Mark shoulders as bike lanes

- Mark shoulders as bike lanes where appropriate – 4 foot minimum width, 5 foot adjacent to parking
- Cost \$65 \$100 per bike symbol.
  Approximately 10 per mile
- 35% Reduction in crashes



# Maintain existing shoulders

 Sweep shoulders so they are useable



# Enhance Sign Visibility

- Use fluorescent yellow-green (FYG) for pedestrian warning and crossing signs (required for School-related signs)
- Minimal added cost



# Enhance Sign Visibility

- Add appropriate color strip to sign posts to enhance visibility (same as sign background
- Cost \$25 per sign post treated



# **Enhance Sign Visibility**

 Make sure signs are visible by clearing brush, tree limbs, etc.
that may be obscuring them



## Provide Crosswalks

- Mark crosswalks using the block pattern – highest visibility
- Cost \$500 for typical two lane crossing
- 40% reduction in pedestrian crashes



## Make Crosswalks Visible

 Locate parking relative to crosswalks, driveways and intersections to provide clear sight lines. State statute prohibits parking within 20 feet of crosswalks at intersections. This is good guidance for midblock crosswalks.



- Add an in-street pedestrian sign at existing crosswalks
- Cost Approximately \$300 per sign
- Need a permit to install on state highways



- Provide pedestrian refuges at crossings
- Especially useful for multi-lane or excessively long crossings
- Cost \$1500 to \$2500 depending on size
- 46% reduction in crashes



- Add bulbouts to existing crosswalks to make them more visible (can do a trial with hay wattles, temporary paint or other materials)
- Benefit Better sight lines for pedestrians and drivers. Shorter crossing distance
- Cost \$13,000 per corner



- Install Rectangular Rapid Flashing Beacons (RRFB)
- Use for vulnerable pedestrian populations or high ped volume crossings or at crossings with known compliance problems
- Cost \$10,000 to \$15,000 per crosswalk



### **Provide Sidewalks**

- Fill in small gaps in the sidewalk network.
- Address "goat trails" by providing sidewalks
- Cost \$35/FT uncurbed to \$150/FT curbed



# Winter Maintenance

- Have a policy about clearing sidewalks of snow in the winter – Prioritize access to schools, transit stops, public buildings
- Winter maintenance is an accessibility (ADA) issue
- Cost varies



### **Provide Secure Bicycle Parking**

- Provide bike racks at key locations – schools, public buildings, shopping destinations, large employers
- Covered parking for long-term locations
- Cost \$160 per rack



# **Benefits of Pop-up Projects**

- Try out a design before making it permanent
- Quick implementation
- Can be seasonal
- Low Cost
- Gather data
- Public input



Understanding and implementing Complete Streets

### What are Complete Streets?



Complete Streets are streets for everyone, no matter who they are or how they travel.

### Some streets are unsafe for walking

### No sidewalks

 Too dangerous to cross on foot

### Some streets are unsafe for bicycling

### No space on the roadway

### Complete Streets:

Is a high-level policy direction

Changes the everyday decision-making processes and systems

Represents an incremental approach

Has long-term results



### Complete Streets is <u>not</u>:

- One "special" street project
- A design prescription
- A mandate for immediate retrofit
- A silver bullet; other issues must be addressed:
  - Land use (proximity, mixed-use)
  - Environmental concerns
  - Transportation Demand Management

# Look for opportunities to make incremental improvements

- Water and sewer line work
- Repaying
- Line striping
- Redevelopment
- Bridge work
- New development





# May require developers to provide infrastructure

- Sidewalk connections
- Bike parking
- Pedestrian access within site
- Transit stops





### How to create Complete Streets?





Complete Streets: A Guide for Vermont Communities



Complete Streets-



Cycletrack in Montreal



Bicycle Lane in Montpelier

#### VT Guide funded by VT Department of Health

### How to create Complete Streets?



#### FHWA "STAR" Guide

#### Signs

Pedestrian Warning Sign (W11-2) paired with an "ON ROADWAY" legend plaque may be used to indicate to drivers to expect pedestrians within the paved road surface.





#### Intersections

Configure pedestrian lanes with treatments to provide for a safe, clear, and accessible passage at street crossings.

- Define the corner at intersections with a double solid white line to reduce motor vehicle encroachment into the pedestrian areas. Use flexible delineators where a more robust treatment is desired.
- Place stop lines or yield lines outside of the crosswalk area.
- Crosswalks may be marked to clearly delineate the crossing paths of pedestrians.
- Provide detectable warnings in advance crosswalks, even in the absence of a curb ramp transition.



Figure 3-14. Where clarity of street crossings for persons with vision impairments are a concern, detectable warning strips may be used in advance of the intersection area. This transition can indicate a crosswalk, or a transition out of the pedestrian



Advisory bike lanes in NH

Designing Pedestrian Facilities for Accessibility

Sidewalk Design

### Sidewalk Width Minimums

- 5x5 ft. passing area required every 200 ft. (ADAAG and PROWAG) results in <u>min 5 ft.</u> wide pedestrian zone
- 4 ft. minimum pedestrian access route width in right-ofway (PROWAG)
- 3 ft. minimum accessible route width on sites (ADAAG)







4 ft. for user with dog guide or sighted guide 5 ft. for turning a wheelchair

### **Obstacles in Pedestrian Zone**

Three alternative ways to provide access:

- Plan/design to limit objects in pedestrian zone
- Eliminate or move objects (Poles, utility boxes, signal cabinets)
- 3. Provide access route around objects





# Sidewalk alignment adjusted around tree

# **Running Slope Guidelines**

 R302.5.1 Within Street or Highway Right-of-Way. Except as provided in R302.5.3, where pedestrian access routes are contained within a street or highway right-of-way, the grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway.

 R302.5.2 Not Within Street or Highway Right-of-Way. Where pedestrian access routes are not contained within a street or highway right-of-way, the grade of pedestrian access routes shall be 5 percent maximum (but...)

### **Cross Slope Guidelines**

- 0% best for wheelchair users
- Some slope needed for drainage
- Max cross slope 2%
- "Level" means 2% max





### Maintaining cross-slope across driveways



Single grade across driveway results in inaccessible cross-slope

### Det. Warning placement









### **ADA Summary**

- Sidewalk width 5 ft (can reduce to 4 ft for up to 200 ft)
- No obstacles in, or protruding into, the sidewalk
- Smooth, stable surface no textures within walkway
- Cross-slope 2% max., especially at driveways
- Running slope 5% max., but can be the same as the street
- Curb ramps 8.33% (1:12) max. slope and need detectable warning at streets

### Overview of Design Resources Web page

 VTrans Bike/Ped Design Resources page is at https://vtrans.vermont.
gov/highway/localprojects/bikeped/resources

VERMONT OFFICIAL STATE WEBSITE	VERMONT
STATE OF VERMONT Agency of Transportation	SZANCH
Home A-2 Browse About Maintenance Policy, Planning & Research Finance & Administration Highway Better Roads CADD Help Construction & Materials CADD Help Construction & Materials CADD Help Construction & Materials CADD Help Construction & Materials Cast Estimating Highway Safety Municipal Assistance - Local Projects Park and Rides Sign Information Structures & Hydraulics Project Delivery/Environmental Simper	<image/> <section-header></section-header>
Survey Transportation Systems Management & Operations Bicycle and Pedestrian Bicycle & Pedestrian Bicycle & Pedestrian Dealan Resources	Jon Kaplan Telephone: <u>(802) 498-4742</u> E-mail address: <u>Jon.Kaplan@vermont.gov</u>
Municipal Highway and Stormwater Mitigation Program Transportation Alternatives	FHWA Resources: FHWA: Bicycle and Pedestrian Facility Design Flexibility FHWA: Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts
Rail	FHWA: Strategic Agenda for Padestrian and Bioycle Transportation FHWA: Bioycle and Padestrian Provisions of Faderal Transportation Legislation FHWA: Proven Staffor Countermassures
Public Transit	Entrol Francisco Solitienteesese Entrol Francisco Enterformational Guida EthVik Blourie and Endestrian Eurofina Design and Environmental Beview Common Misconcentions

### VTrans Bike/Ped Grant Program

- 3 Categories of grants
  - Large-scale construction Federal Aid 80% Federal/20% Local
  - Scoping (feasibility study) 80% Federal/20% Local
  - Small-scale construction State funds 50% State/50% Local

### • Timeline

- April Application materials available
- June Applications due
- **August** Project selection complete
- Fall 2021 Grant Agreement
- Early 2022 Start project work

### Small-scale Grants

- Eligible projects include:
  - crosswalk enhancements
  - bicycle lane markings/signs
  - edgeline markings
  - addressing ADA compliance issues
  - critical gaps in sidewalk networks
  - reconstructing important sidewalk links

# THANK YOU!!

### Questions?

• Contact Jon Kaplan, P.E.

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