Statewide Action Plans for Pedestrian and Bicyclist Safety

Presented by FHWA Office of Safety, VHB, and UNC HSRC

Elissa Goughnour  VHB  
Dan Gelinne  UNC Highway Safety Research Center  
Christina McDaniel-Wilson  Oregon DOT  
Nick Foster  Kittelson and Associates  
Mark Cole  Virginia DOT
Housekeeping

- Submit your questions

- Webinar archive: [www.pedbikeinfo.org/webinars](http://www.pedbikeinfo.org/webinars)

- Live transcript: [www.streamtext.net/player?event=HSRC](http://www.streamtext.net/player?event=HSRC)

- Certificates and professional development hours

- Follow-up email later today
Meet the Panel

Elissa Goughnour
VHB

Dan Gelinne
UNC Highway Safety Research Center

Christina McDaniel-Wilson
Oregon DOT

Nick Foster
Kittelson and Associates

Mark Cole
Virginia DOT
Guidance for Developing Pedestrian and Bicyclist Safety Action Plans

Elissa Goughnour, VHB
Dan Gelinne, UNC Highway Safety Research Center
Presentation Topics

1. Introduce PBSAPs
2. Motivation for PBSAP Development
3. Guidance for Developing PBPSAPs
4. Components of a High Quality PBSAP
Establishes a framework for focusing a community’s attention on improving conditions for bicycling and walking.

Lays out a vision for improving safety, examining existing conditions, and using a data-driven approach to match safety programs and improvements with demonstrated problems.
Safety Trends

Non-Motorized Fatalities 2009-2019

- **51% increase** since 2009
- **35% increase** since 2009
Why Develop a PBSAP?

• To understand how multiple roadway users interact.
• To improve conditions for bicycling and walking.
• In a society that values choice and freedom, people should be able to bike or walk safely, whether for fun and recreation, errands, getting to work or school, shopping, or other reasons.
Importance of Statewide PBSAPs

• Provide a framework for the entire State’s approach to improving safety
• Reflect and elevate safety concerns demonstrated at the local level
• Support local agencies, MPOs and others working to improve safety
• Direct safety funds to projects supporting vulnerable road users
Combined or Separate?

- Available resources
- Coordination with existing documents and plans
- Agency goals
How Do PBSAPs Relate to Other Types of Plans?

1. Strategic Highway Safety Plans
2. Trails, Parks or Greenways Plans
3. Transportation Plans
4. Pedestrian or Bicycle Master Plans
FHWA Guidance

- Lays out process for developing PBSAPs
- Dives into specific steps like stakeholder engagement, data analysis, and countermeasure selection

https://safety.fhwa.dot.gov/ped_bike/ped_focus/docs/fhwasa17050.pdf
FHWA Guidance

- Lays out process for developing PBSAPs
- Dives into specific steps like stakeholder engagement, data analysis, and countermeasure selection

https://safety.fhwa.dot.gov/ped_bike/ped_focus/docs/fhwasa17050.pdf
Step 1: Establish Goals and Objectives

Determine the scope of the safety action plan and establish goals and targets for improving safety

Clear goals and objectives will help you:
- keep the plan focused
- identify clear metrics for success
- identify plan partners
- ensure ongoing progress towards implementation
Step 2: Analyze Safety Data

Use available data to understand risk factors impacting safety and locations where improvements can be made

Consider pros/cons of traditional spot safety approaches and more proactive, systemic analysis methods
## Step 2: Analyze Safety Data

Table 1. Pedestrian and bicycle crash data and potential risks.

<table>
<thead>
<tr>
<th>Data Types</th>
<th>Risk Types</th>
<th>Location Types</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crash Data</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Time or Distance Exposed to Traffic</td>
<td>Intersections and Segments</td>
</tr>
<tr>
<td>Contributing factors and crash types</td>
<td>Behaviors</td>
<td>Corridors</td>
</tr>
<tr>
<td>Environmental and temporal factors</td>
<td>Speed</td>
<td>Areas</td>
</tr>
<tr>
<td></td>
<td>Conspicuity</td>
<td>System-wide Problems</td>
</tr>
<tr>
<td><strong>Behavior and Observational Data</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersection conflicts</td>
<td>Behaviors</td>
<td>Corridors</td>
</tr>
<tr>
<td>Motor vehicle speeds</td>
<td>Speed</td>
<td>Areas</td>
</tr>
<tr>
<td>Citations and convictions</td>
<td>Conspicuity</td>
<td>System-wide Problems</td>
</tr>
<tr>
<td>Use of bicycle lights/reflectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Volume and Count Data</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic volumes and projections</td>
<td>Volume and Type of Road Users</td>
<td>Intersections and Segments</td>
</tr>
<tr>
<td>Pedestrian crossing counts or estimates</td>
<td>Time or Distance Exposed to Traffic</td>
<td>Corridors</td>
</tr>
</tbody>
</table>

Source: How to Develop a Pedestrian and Bicyclist Safety Action Plan (Ch. 3, p. 21)
Step 3: Gather Stakeholder Input

Identify stakeholders and provide venues and opportunities to gather their input and priorities

Consider factors such as:

- Equity and inclusion
- Convening a steering committee / panel for ongoing input
- Traditional meetings vs. web-based or other engagement tools
- External and internal (within Department) engagement
Step 3: Identify Safety Improvements & Recommendations

Integrate a range of policy, program and countermeasure strategies to respond to safety problems

<table>
<thead>
<tr>
<th>Policy</th>
<th>Engineering</th>
<th>Behavioral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy measures with system-wide impacts on key issues like speed</td>
<td>Deployment of proven countermeasures and design strategies to address identified risk factors</td>
<td>Safety messaging and engagement with community members to support other interventions</td>
</tr>
</tbody>
</table>
Step 5: Implement and Evaluate

Set your plan up to be successful, show results, and work toward your goals.

Implementation considerations:
• How will you fund your plan’s recommendations?
• Assigning responsibilities and timelines
• How often to review and report progress? What are your interim targets/milestones?
• What resources will your agency need (e.g. staff capacity)?
Considerations for Agencies

- What plans do we have now, and what gaps would a PBSAP fill?
- What is our motivation for developing a plan?
- What data can we use in our analysis?
- Which stakeholders and partners do we need to engage?
- How can we structure the plan to support implementation and achieve our goals?
- What emerging and future challenges will need to be captured in your plan?
Thank You!

Elissa Goughnour  
VHB  
egoughnour@vhb.com

Dan Gelinne  
UNC HSRC  
gelinne@hsrc.unc.edu
Oregon’s Pedestrian and Bicycle Safety Implementation Plan Update

Pedestrian and Bicycle Information Center (PBIC) Webinar
Nick Foster, AICP, RSP- Associate Planner, Kittelson & Associates, Inc.
Christina McDaniel-Wilson, P.E., RSP- State Traffic Safety Engineer, Oregon Department of Transportation
April 13th, 2021
Overview

• Background
• NCHRP Research Report 893
• Project goals & objectives
• Differences between the old plan and the update
• Implementation
Pedestrian and Bicycle Crash Trends, Oregon

On average, between 2014 and 2018:

- About 1 in every 7 of the fatal and severe injury crashes each year involved pedestrians and bicycles.
Pedestrian and Bicycle Crash Trends

Fatal and Serious Injury Crashes involving Pedestrians

Fatal and Serious Injury Crashes involving Bicycles

[Charts showing trends over years for both categories]
ARTS program principles

- Blind to jurisdiction and meets all requirements of HSIP (to be eligible for federal funding)
- Engage local agencies in the project selection process
- Funding allocation to Regions based on fatal and serious injury crashes
- Combination of Hot Spots and Systemic
- Projects selected by ODOT Regions and local agencies
Pedestrian and Bicycle Safety

• Three primary focus areas for infrastructure safety in the Oregon Transportation Safety Action Plan

• Systemic Safety Plans
  • Roadway Departure
  • Intersections
  • Pedestrian and Bicycles
NCHRP Research Report 893 – Systemic Pedestrian Safety Analysis

- Describes a Safety Analysis Method for:
  - Pedestrian Systemic Safety Analyses Considering:
    - Pedestrian Activities/Behavior
    - Roadway Features
    - Other Contextual Risk Factors (e.g., land-use)
  - Identifying Cost-effective Countermeasures
  - Prioritizing Locations

http://www.trb.org/Publications/Blurbs/178087.aspx
Systemic Safety Benefits

- Comprehensive Decision-making Basis
  - Cost-effective
    - Typically Low-cost Treatments at Similar Sites
- Data-driven
- Proactive
- Consistency

http://www.trb.org/Publications/Blurbs/178087.aspx
Step 1: Define Study Scope

- Study Area – Statewide
- Target Facility/Location Types – State Highways
  - Emphasis on Urban Areas (population >5,000)
- Target Crash Types
  - Pedestrian
  - Bicycle
### Step 2: Compile Data

#### Data Type

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Eugene</th>
<th>Portland</th>
<th>Bend</th>
<th>ODOT</th>
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<tr>
<td>Ped Counts</td>
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<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Vehicle Counts</td>
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<td>Schools</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Transit Stops</td>
<td></td>
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<td></td>
<td>x</td>
</tr>
<tr>
<td>Functional Class</td>
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<td>Traffic Signals</td>
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<tr>
<td>Enhanced Crossings</td>
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<tr>
<td>Crashes 2007 - 2017</td>
<td></td>
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<tr>
<td>SPIS Data 2009 – 2015</td>
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Figure 3. Steps in a systemic pedestrian safety analysis process.

http://www.trb.org/NCHRP/Blurbs/178087.aspx
### Step 3: Determine Risk Factors (Pedestrian)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Facility Type</th>
<th>Urban</th>
<th>Rural</th>
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</thead>
<tbody>
<tr>
<td><strong>Roadway Characteristics</strong></td>
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<tr>
<td>Principal Arterial</td>
<td>General</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Number of Lanes (&gt;= 4 Lanes)</td>
<td>Segment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>High-Access Density</td>
<td>Segment</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>No Sidewalks (or Only One Side)</td>
<td>Segment</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Posted Speed (&gt;=35 mph)</td>
<td>Segment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Use Zoning</td>
<td>General</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Other Zoning</td>
<td>General</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Proximity to Schools (1 Mile)</td>
<td>General</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Proximity to Transit Stops (1/4 Mile)</td>
<td>General</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Population over the Age of 64</td>
<td>General</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Other Risk Factors (Not Used in Screening Due to Data Availability)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>High-turning Volumes at Intersections</td>
<td>Intersection</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Left-turn Signal Phasing (Permissive)</td>
<td>Intersection</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Lighting</td>
<td>Intersection</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Propensity for Mid-block Crossings</td>
<td>Intersection/Mid-block</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Exposure</td>
<td>Intersection</td>
<td>X</td>
<td>X</td>
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</table>

Figure 3. Steps in a systemic pedestrian safety analysis process.

http://www.trb.org/NCHRP/Blurbs/178087.aspx
### Step 3: Determine Risk Factors (Bicycle)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Facility Type</th>
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</thead>
<tbody>
<tr>
<td><strong>Roadway Characteristics</strong></td>
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<td>Principal Arterial</td>
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<td>Minor Arterial</td>
<td>General</td>
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<td>X</td>
</tr>
<tr>
<td>Number of Lanes (&gt;= 4 Lanes)</td>
<td>Segment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>High-Access Density</td>
<td>Segment</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>No Bike Lanes</td>
<td>Segment</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Posted Speed (&gt;=35 mph)</td>
<td>Segment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Context</strong></td>
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</tr>
<tr>
<td>Mixed Use Zoning</td>
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</tr>
<tr>
<td>Proximity to Schools (1 Mile)</td>
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<td>X</td>
</tr>
<tr>
<td>Proximity to Transit Stops (1/4 Mile)</td>
<td>General</td>
<td>X</td>
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<tr>
<td><strong>Demographics</strong></td>
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<tr>
<td>High Population over the Age of 64</td>
<td>General</td>
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<tr>
<td><strong>Other Risk Factors (Not Used in Screening Due to Data Availability)</strong></td>
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<td></td>
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<tr>
<td>High-turning Volumes at Intersections</td>
<td>Intersection</td>
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<td>X</td>
</tr>
<tr>
<td>Left-turn Signal Phasing (Permissive)</td>
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<tr>
<td>Time of Day/Lighting</td>
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<td>X</td>
</tr>
<tr>
<td>Scenic Bikeways</td>
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<td>X</td>
</tr>
<tr>
<td>Exposure</td>
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<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Figure 3. Steps in a systemic pedestrian safety analysis process.

http://www.trb.org/NCHRP/Blurbs/178087.aspx
Step 4: Identify Potential Treatment Sites

Figure 3. Steps in a systemic pedestrian safety analysis process.

http://www.trb.org/NCHRP/Blurbs/178087.aspx
### Step 5: Select Potential Countermeasures

- **Establish a Selection Framework**
  - Effectiveness
  - Program/Crash Type Relationship
  - Cost
  - Feasibility
- **Develop Potential Countermeasure List**
- **Select Countermeasures**

---

#### Table: Potential Countermeasures Evaluation

<table>
<thead>
<tr>
<th>CR</th>
<th>ARTS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>2</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
</tbody>
</table>

**SITE NO**: 2  
**LOCATION/ROADWAY**: OR SSE  
**BEGIN MILE POI**: 18.16  
**END MILE POI**: 24  
**ODOT BUD CONTEXT**: Commercial Corridor  
**Crash Patterns**: Vehicle vs. bicycle at driveway  
**Risk Factors**:  
- Principal Arterial  
- 4-lanes  
No sidewalks  
Other Zoning  
**Potential Countermeasure**:  
1. Install urban green bike lanes at conflict points  
2. Reduce urban driveway density from 48 to 28  
3. Install Cycle Track  
4. Installation of raised bicycle crossing or other speed reducing measure for vehicles entering or exiting the side road
How is the New Plan Different?

• This Plan Provides:
  • Framework for Conducting Systemic Pedestrian and Bicycle Safety Analyses
  • Risk Factors to Identify Locations for Treatments
  • Example Applications and Treatment Options
• This Plan Does Not Provide:
  • A Project List
Transferability and Other Considerations

- Data Availability and Consistency is Critical
  - Some Agencies May Need to Enhance Datasets to Conduct Similar Analyses
  - Existing Research Can Be Used to Fill in Data Gaps
  - Regularly Maintain/Update Data
- Exposure Models/Data Would Enhance Analyses
- Syncing Datasets Improves Analysis Efficiency
- States Could Engage Local Agencies If Plan Will Affect Project and Program Funding
- Do Not Let Perfect Get in the Way of Good
Follow up Research and Next Steps

- Apply Results Statewide
- More Detailed Analysis at Intersections
- Developing Flexible Approaches to Estimating Exposure
- Continue to Expand Understanding of Safety Effects of Treatments
Questions?
Resources and References

- ARTS Program: https://www.oregon.gov/odot/Engineering/Pages/ARTS.aspx
- NCHRP 893: http://www.trb.org/NCHRP/Blurbs/178087.aspx
- ODOT Pedestrian and Bicycle Plan: https://www.oregon.gov/odot/Engineering/Pages/Highway-Safety.aspx
Contact Information:

Nick Foster, AICP, RSP- Associate Planner: nfoster@kittelson.com
Christina McDaniel-Wilson, P.E., RSP- State Traffic Safety Engineer: Christina.A.MCDANIEL-WILSON@odot.state.or.us
VIRGINIA’S PEDESTRIAN SAFETY ACTION PLAN

Statewide Action Plans for Bicyclist & Pedestrian Safety Webinar

Mark A. Cole, PE, Virginia Department of Transportation

April 13, 2021
Virginia Traffic Deaths and Serious Injuries (2005 - 2019)

Virginia Traffic Deaths By Traveler Type (%)

- Motorists: 73%
- Pedestrians: 14%
- Bicyclists: 11%
- Motorcyclists: 2%

Deaths

- Road Departure: 436, 388, 451
- Intersection: 167, 203, 239, 227, 228
- Vulnerable Users: 80, 121, 116, 124, 126

Pedestrian Deaths

- 2015: 80
- 2016: 121
- 2017: 116
- 2018: 124
- 2019: 126

Virginia's Implementation of Pedestrian Safety Improvements
Talking Points

- Virginia Pedestrian Crash Assessment
- The Virginia Health Opportunity Index (HOI)
- Virginia’s Pedestrian Safety Action Plan (PSAP)
- Tips for using data to examine traffic safety
Virginia Pedestrian Crash Assessment

- Analyzes pedestrian crashes
- First published in 2016
  - updated in 2017 and 2020
- Uses a variety of data sources to:
  - Understand common factors among crashes
  - Identify crash trends across time
5 Big Things We Learned From the Crash Assessment

1. Over 90% of Pedestrian deaths Occur while Crossing the Street/Road
   However, crossing infrastructure is not available most of the time.

2. Land Use Matters
   If its urban or suburban, pedestrians will almost always be present and need to cross the road.

3. Speed Can be Deadly
   Chance of death increases with speed, especially for pedestrians

4. Visibility is Crucial
   77% of pedestrian deaths occur in limited light conditions.

5. Healthy Communities Have Better Pedestrian Safety Outcomes
   60% of pedestrian deaths & injuries occur in locations with low or very low health opportunity
1. Over 90% of Ped Deaths Occur while Crossing the Road

Where Virginia’s Fatal Pedestrian Crashes Happen (%):
- Signalized Intersection: 35%
- Unsignalized Intersection: 28%
- Mid-Block: 12%
- Intersection/Mid-Block: 22%
- Other: 3%

Virginia’s Fatal Pedestrian Crashes & Marked Crosswalk Availability (%):
- Crosswalk Available - Pedestrian Struck In Crosswalk: 20%
- Crosswalk Available - Pedestrian Not In Crosswalk: 12%
- No Crosswalk Available: 68%
2. Land Use Matters

Pedestrian Crashes By Land Use (2014-2018)

Pedestrian Fatal Crashes
- 21% Residential/Commercial/Recreational Land Uses
- 79% Rural/Industrial Land Uses

Pedestrian Injury Crashes
- 11% Residential/Commercial/Recreational Land Uses
- 89% Rural/Industrial Land Uses
3. Speed Can be Deadly

Virginia Pedestrian Crash Severity By Speed Limit (2014-2018)

- **25 MPH or less**: 7% fatal, 93% injury
- **30 and 35 MPH**: 20% fatal, 80% injury
- **40 and 45 MPH**: 36% fatal, 64% injury
- **50 MPH or greater**: 47% fatal, 53% injury
4. Visibility is Crucial

Pedestrian fatal crashes by:
  • light condition
  • Month
  • time of day
5. Healthy Communities Have Better Pedestrian Safety Outcomes

Almost 60% of deaths and injuries occur in locations with VERY LOW or LOW Virginia Health Opportunity Index (HOI) Scores

Distribution of Pedestrian Crashes by HOI Category (2014-2018)

- Very Low: 35.6% KABC, 31.3% KA
- Low: 21.8% KABC, 22.5% KA
- Average: 17.1% KABC, 18.1% KA
- High: 15.0% KABC, 17.2% KA
- Very High: 10.5% KABC, 10.9% KA
What is the Virginia Health Opportunity Index?
Virginia Health Opportunity Index (HOI)

- First developed in 2012 as part of the Virginia Health Equity Report

- "Examines how where you live, work and play influences the opportunity to live long, healthy lives."

- Each profile is made up of 13 indices covering the spectrum of quality of life indicators (affordability, healthcare access, air quality, etc.)

- Complex interactions that generate the final HOI

Source: Virginia Department of Health
What is the Virginia Health Opportunity Index?

Source: Virginia Department of Health
# HOI – Relationship between Indexes and Profiles

<table>
<thead>
<tr>
<th>Index</th>
<th>Profiles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Community Environment</td>
</tr>
<tr>
<td>Affordability</td>
<td>- (↑)</td>
</tr>
<tr>
<td>Income Inequality</td>
<td>- (↑)</td>
</tr>
<tr>
<td>Townsend-Deprivation</td>
<td>- (↑)</td>
</tr>
<tr>
<td>Job Participation</td>
<td>+ (↓)</td>
</tr>
<tr>
<td>Employment Access</td>
<td>+ (↓)</td>
</tr>
<tr>
<td>Education</td>
<td>+ (↓)</td>
</tr>
<tr>
<td>Population Churning</td>
<td>- (↑)</td>
</tr>
<tr>
<td>Population- Weighted Density</td>
<td>+ (↓)</td>
</tr>
<tr>
<td>Segregation</td>
<td>+ (↓)</td>
</tr>
<tr>
<td>Food Accessibility</td>
<td>- (↑)</td>
</tr>
<tr>
<td>Walkability</td>
<td>+ (↓)</td>
</tr>
<tr>
<td>Healthcare Access</td>
<td>- (↑)</td>
</tr>
<tr>
<td>Environmental Quality</td>
<td>- (↑)</td>
</tr>
</tbody>
</table>

*Indicates the effect on each profile value

*Indicates the effect on HOI

Source: Virginia Department of Health
HOI – Relationship to Health Outcomes

**Infant Mortality per 1,000 Live Births**

- Low HOI: 9.6
- Second Quintile: 6.7
- Third Quintile: 6.3
- Four Quintile: 5.1
- High HOI: 4.9

**Low Birth Weight (%)**

- Low HOI: 9.5
- Second Quintile: 8.4
- Third Quintile: 7.8
- Four Quintile: 7.2
- High HOI: 6.8

Source: Virginia Department of Health
Almost 60% of deaths and injuries occur in locations with VERY LOW or LOW Virginia Health Opportunity Index (HOI) Scores.

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Virginia’s Pedestrian Safety Action Plan (PSAP)
Virginia Pedestrian Safety Action Plan (PSAP)

3 Major Components:

1 – VDOT Policy Recommendations to ensure pedestrian safety

2 – Safety Analysis to determine which specific road locations pose the greatest risk for pedestrians

3 – Pedestrian safety countermeasure toolbox
Safety Analysis – Crash Clusters and Priority Corridors

Crash clusters
• Density map of actual crash locations
• Look back

Priority Corridors
• Top ranked corridors based on scoring criteria that used various data sources indicating pedestrian presence or risk
• Predictive
## Priority Corridor Criteria – Original Method (2018)

### 2018 PSAP Corridor Scoring Factors: 181 Priority Corridors

<table>
<thead>
<tr>
<th>High</th>
<th>Medium</th>
<th>Low</th>
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<tbody>
<tr>
<td>• Annual average daily traffic (AADT)</td>
<td>• Roadway geometry</td>
<td>• Population living below the poverty line</td>
</tr>
<tr>
<td>• Posted speed limit</td>
<td>• Urban/rural context</td>
<td>• Pedestrian crash history</td>
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<tr>
<td>• Zero-vehicle households</td>
<td>• Employment density</td>
<td>• Proportion of alcohol related crashes (by district)</td>
</tr>
<tr>
<td>• Population density</td>
<td>• Proximity to a school</td>
<td>• Proximity to a park</td>
</tr>
</tbody>
</table>
HOI and zero vehicle households were the strongest indicators of pedestrian crashes – both all injury crashes and fatal/severe only crashes.

Employment density was another strong indicator.

Population density and density of persons in poverty were poorer performers.

- Poverty alone was dropped in the PSAP scoring.
## Priority Corridor Criteria – 2019 Update

### 2019 PSAP Corridor Scoring Factors

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</tr>
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</table>
PSAP Pedestrian Safety Infrastructure Projects

- Fall 2018 – Initial $8M for ped crossing projects at 25 PSAP locations

- Fall 2019 – Additional $25 Million approved for PSAP improvements
  - All VDOT signals on PSAP priority corridors will be evaluated to receive crosswalks and ped countdowns over a five-year period (over 370 signals in NOVA)

- Summer 2021 – Pedestrian Pilot Project on Suburban Arterials
  - 5 to 10 locations Total
  - Screening Criteria:
    - PSAP corridors
    - 40 mph plus posted speed
    - 15,000 plus AADT
    - 4 or more lanes
Virginia’s PSAP
2019 National Roadway Safety Award Winner

NOTEWORTHY PRACTICES GUIDE
WINNERS

Recognizing proven lifesaving achievements by public agencies from across the country

2019 National Roadway Safety Awards

WINNER (PPDE): Virginia’s Pedestrian Safety Action Plan (PSAP)

The Safety Concerns: Between 2012 and 2016, over 450 pedestrians died and over 8,000 were injured while walking across or along public roads in Virginia.

The Solution: VDOT created a PSAP to better understand Virginia’s pedestrian safety concerns, recommend policy changes, and identify and fund locations for pedestrian safety projects.

The Results: The PSAP report and online map were completed in May 2018 containing over 60 recommendations. VDOT awarded $8 million to 25 pedestrian safety projects at PSAP-identified locations.

Pedestrian safety is a major concern in Virginia. Between 2012 and 2016, over 450 pedestrians died and over 8,000 were injured while walking along or across Virginia public roads. Over 90 percent of Virginia’s pedestrian crashes occur when the pedestrian is crossing the street. More than half (62%) of crashes occur at mid-block pedestrian crossings.

In the spring of 2018, the Virginia Department of Transportation (VDOT) released its first statewide Pedestrian Safety Action Plan (PSAP), a national model focusing on sites where safety countermeasures should be considered to improve pedestrian safety. The PSAP process, led by VDOT and a stakeholder team, evaluated all public road segments in Virginia to determine locations with a history of, or potential for, pedestrian safety concerns. This evaluation demonstrated the intersection between the built environment and pedestrian safety.

During the summer of 2018, VDOT tested a series of workshops across the Commonwealth to walk VDOT, local agency staff and contractors through the final report and interactive website and mapping tool, introducing them to the priority pedestrian corridors and crash clusters in their respective areas.

The educational workshops fostered partnerships with local agencies by quickly identifying low-cost, high-benefit countermeasures. To best fund, proposed projects are prioritized based on a crash cluster’s severity, and priority projects are funded quickly by VDOT and local governments.

Fifty-nine candidate projects, at over $43 million worth, were identified within a few weeks of the first PSAP report. After evaluating submissions from May to June, VDOT awarded $8 million to the top 25 projects. VDOT will continue to monitor projects that are completed to ensure a reduction in pedestrian crashes at locations where PSAP countermeasures are installed.

Agency: Virginia Department of Transportation (VDOT)
Project Contact: Mark A. Cole, State Highway Safety Engineer
Email: mark.cole@dot.virginia.gov
Phone: (804) 786-4196
Tips for Using Data & Developing a PSAP

• Your network of other safety professionals is invaluable
  • Make friends
  • Ask them what data they have and can share
  • Form a multidisciplinary stakeholder team to guide your analysis decisions

• GIS is a powerful tool for network analysis
  • In case of PSAP, used GIS to assign weights and rank statewide network
  • Provides an interactive and visual platform to share the results with others

• If you don’t have the information you need, you may be able to collect the data
  • VDOT used Google Street view, to collect needed data
  • There is a lot of free, publicly available data to use. Think outside of your area of expertise.

• Don’t be afraid to try new things
  • This was first time we used weighted factors to score and rank the network
  • This was also the first time we used Spatial-Bayesian analysis (thanks to our consultant, VHB!)
Thanks!

For more information, view VDOT’s Pedestrian Safety Action Plan (PSAP) report and map tool at:


Mark A. Cole, P.E.
VDOT State Traffic Safety Engineer
Mark.Cole@VDOT.Virginia.gov
(804) 786-4196
Discussion

→ **Send us your questions**

→ **Follow up with us:**
  - Becky Crowe rebecca.crowe@dot.gov
  - Elissa Goughnour egoughnour@vhb.com
  - Dan Gelinne gelinne@hsr.unc.edu
  - Christina McDaniel-Wilson christina.a.mcdaniel-wilson@odot.state.or.us
  - Nick Foster nfoster@kittelson.com
  - Mark Cole mark.cole@vdot.virginia.gov
  - General Inquiries pbic@pedbikeinfo.org

→ **Archive at** www.pedbikeinfo.org/webinars