



Tribal Pedestrian Safety via Pop-Ups and Pedestrian Plans

Cheyenne Room, Huntley Lodge
Big Sky, Montana
September 16, 2019

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Agenda

- 10:00a Why Tribal Pedestrian Safety is a Critical Transportation Issue & Brief Introduction to Pedestrian Safety Action Plans**
- 10:15a Introductions & Listening Session: Key Pedestrian Safety Issues in Your Home Community**
- 11:00a Pop-up Demo Projects & Planning/Design**
- Noon Lunch**
- 1:00p Field Exercise - Big Sky Resort Pop-Up**
- 2:30p Return to Cheyenne Room - Incorporating Pop-Ups into a PSAP + Individual PSAP Work**
- 3:45p Final Wrap-Up**
- 4:00p Adjourn**



Why Tribal Pedestrian Safety is a Critical Transportation Issue & Pedestrian Safety Action Plans

Pedestrian Fatality Statistics

Crash Characteristics

	URBAN CRASHES (%)	RURAL CRASHES (%)
Reservation Jurisdiction		
Yes	0	28.9
No	100	71.1
Time of Day (Crash)		
Dark	24.3	72.3
Daylight	24.3	21.3
Dawn/Dusk	2.8	0.0
Dark/Lighted	48.6	6.4
Alcohol Involvement (BAC>0.8)		
Yes	69.2	54.2
No	30.8	45.8
Day Of Crashes		
Weekday (M-TH)	38.5	60.8
Weekend (F-S)	61.5	39.2
Roadway Profile		
Level	87.5	64.4
Grade	14.3	22.2
Hillcrest/Sag	0.0	13.4

Pedestrian Characteristics

	URBAN CRASHES (%)	RURAL CRASHES (%)
Males	80	70.4
Pedestrian Drinking (Males)		
Yes	54.3	58.6
Top Contributing Factor		
Walking in Road	28.2	54.1
Improper Crossing	20.5	6.2
Not Visible to Driver	7.7	18.8
Dart/Run into Road	23.1	2.1
Failure to Yield	5.1	0.0
Other	15.4	8.8



U.S. Department of Transportation
Federal Highway Administration

FHWA-SA-04-007
Technical Report

September 2004

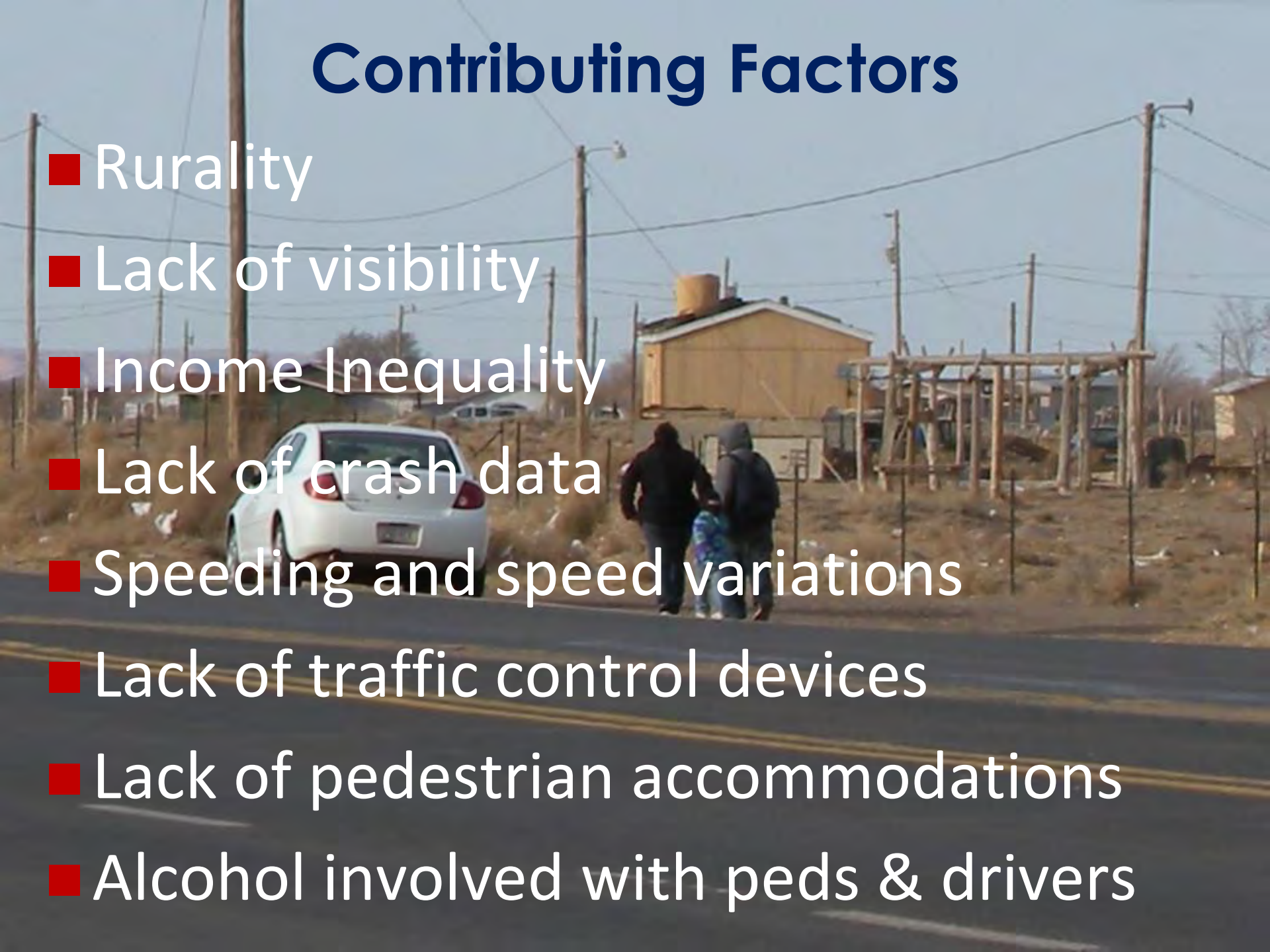
Pedestrian Safety in Native America

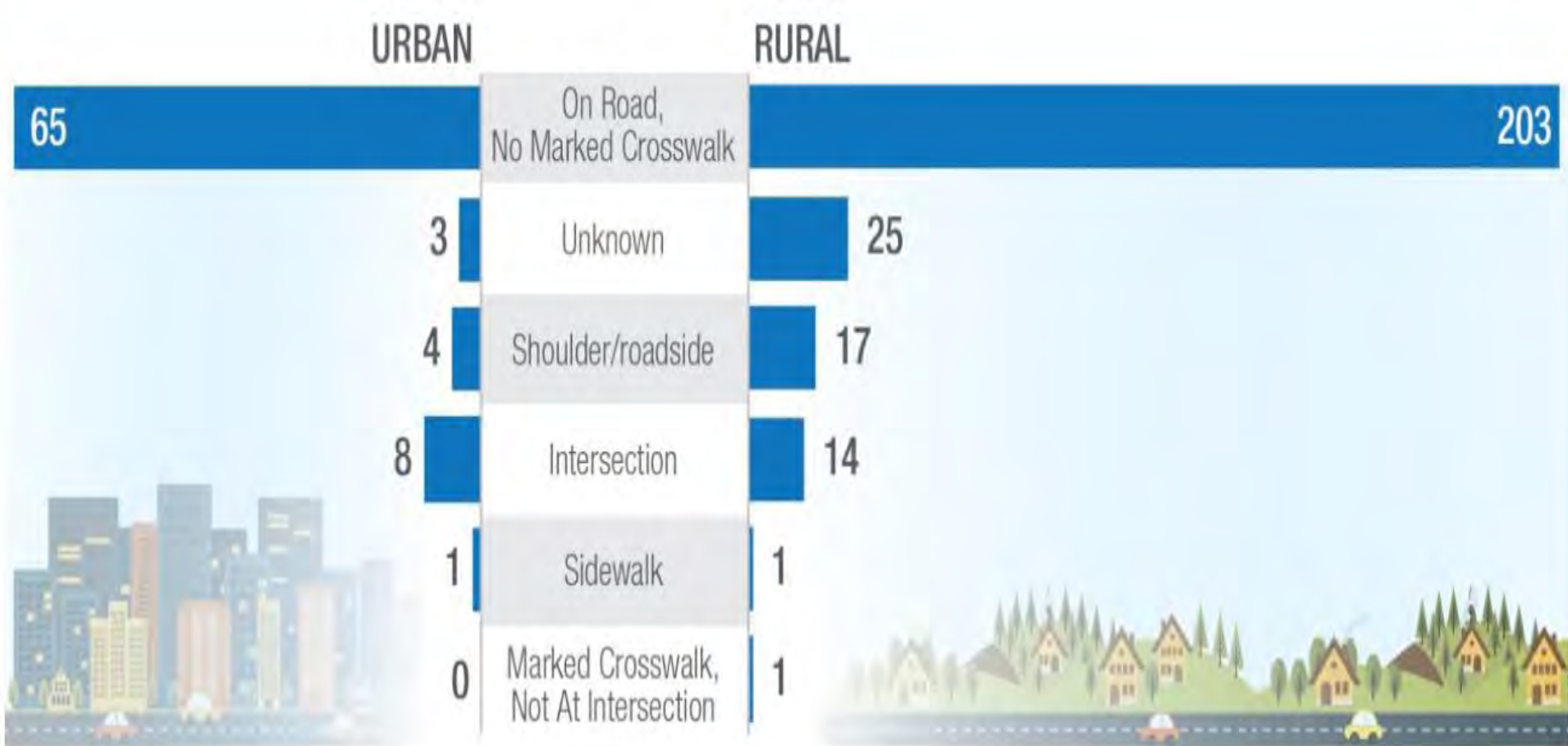


<https://www.tribalsafety.org/pedestrian>

Contributing Factors

- Rurality
- Lack of visibility
- Income Inequality
- Lack of crash data
- Speeding and speed variations
- Lack of traffic control devices
- Lack of pedestrian accommodations
- Alcohol involved with peds & drivers



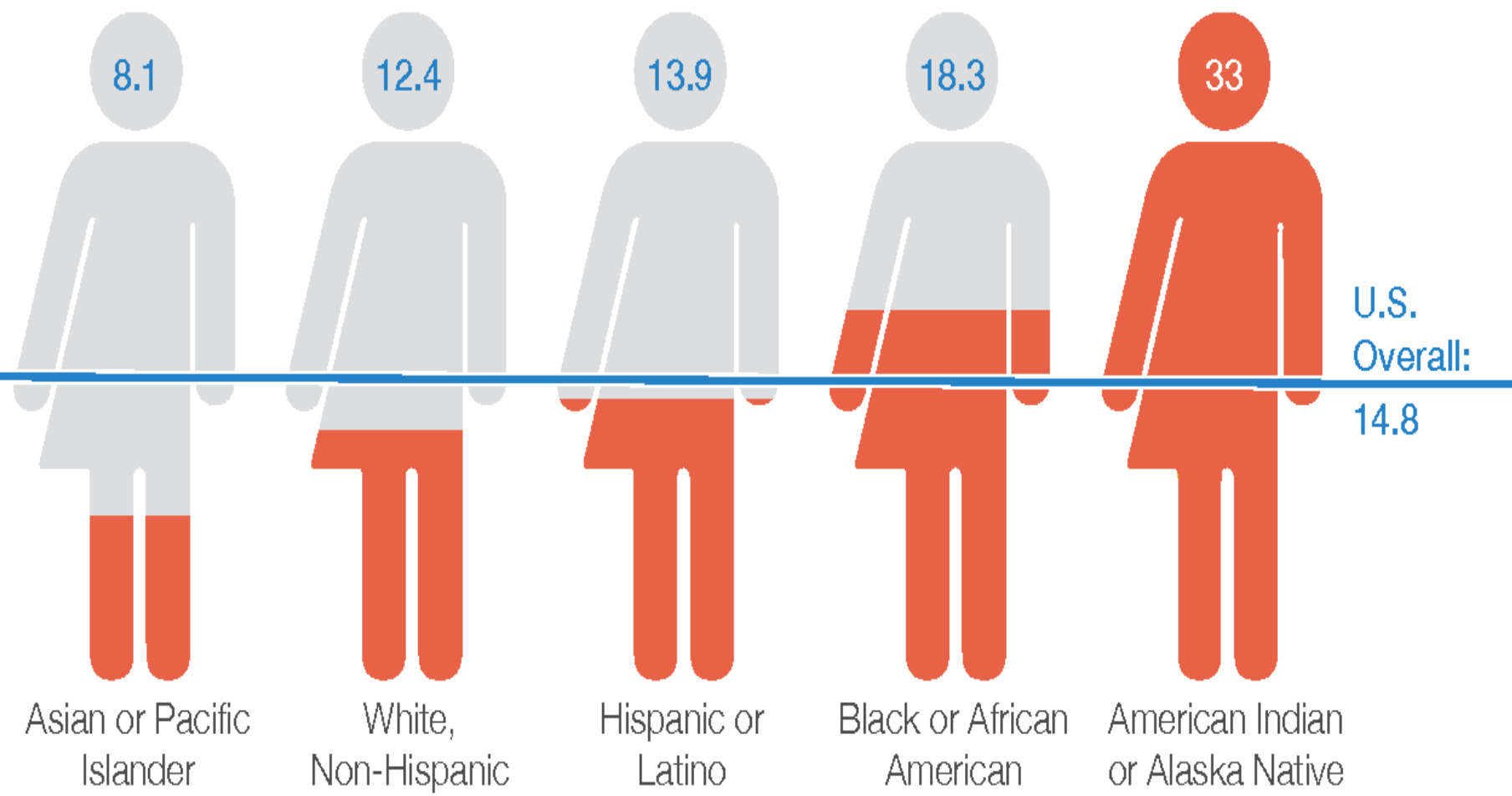


Pedestrian Fatality Statistics

Graph of Pedestrian Fatality Locations 2010-2014 from the Tribal Transportation Strategic Safety Plan

<https://www.tribalsafety.org/pedestrian>

Relative Pedestrian Danger by Race and Ethnicity (2008-2017)

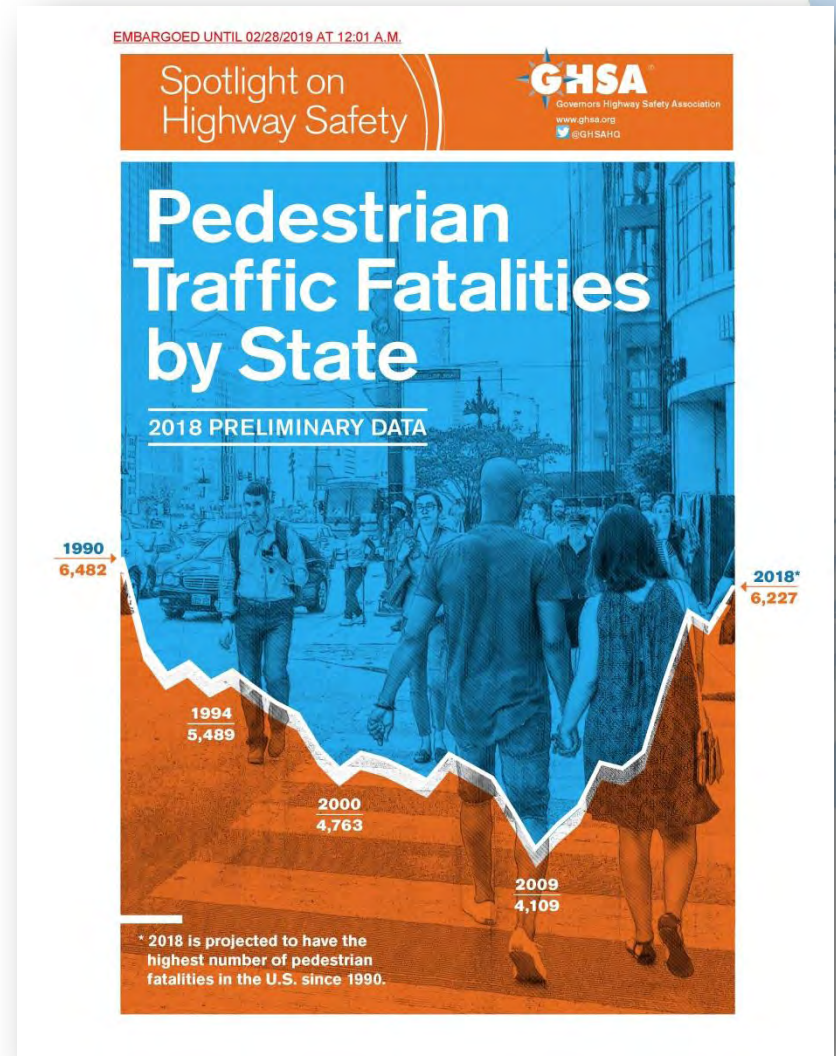


Between January - June 2017, Montana had **five pedestrian fatalities**; then **for the first six months of 2018**, Montana had six pedestrian fatalities.

What's being done?

- MDT **pedestrian issue review during all construction projects** to determine best practices.
- **Comprehensive Highway Safety Plan requires annual review of fatalities on high-risk roads + fatalities & serious injuries per capita among older drivers & pedestrians.**
 - **Roadway Departure & Intersection Crashes emphasis area** seeks to build infrastructure improvements that mitigate intersection-related crashes; e.g., mid-block crossing fixes.

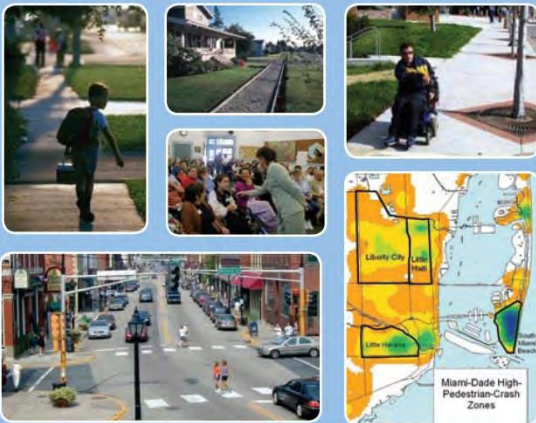
Pedestrian Fatality Statistics





Steps For Drafting Pedestrian Safety Action Plans (PSAPs) or TPSAPs

How to Develop a **Pedestrian Safety Action Plan**



FHWA-SA-05-12
Revised March 2009



Pedestrian and Bicycle
Information Center

Step 1 - Establish Goals and Objectives

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

Step 2 - Analyze Safety Data

- Perform analysis of high crash and high risk locations
- Identify spot locations, corridors, areas, and system-wide problems

Step 3 - Gather Stakeholder Input

- Identify community stakeholders to involve
- Establish venues and channels for gathering stakeholder input

Step 4 - Identify Safety Improvements

- Diagnose sites to understand safety problems
- Develop recommendations for policy changes, design and countermeasure improvements, and behavioral programs

Step 5 - Implement and Evaluate Programs

- Identify funding sources and strategies to support projects
- Determine criteria for prioritizing projects
- Collect data to evaluate programs and inform future actions

Education & Encouragement



Engineering

Adding a sidewalk cuts in half the risk that a pedestrian will be struck by a car.



Formalizing an existing desire line (“goat trail”) ensures its usage and community connectivity.



Creating Safe Pedestrian Crossings

- Reduce walking distance (shorten crossing)
 - Offer peds choices on low-speed roadways & disperse traffic
 - Less traffic = more pedestrian friendly
- Use appropriate traffic controls; e.g.,
 - ✓ Marked crosswalks
 - ✓ Warning signs or flashers
 - ✓ Stop signs & traffic signals
 - ✓ Crossing guards @ schools
- Slow vehicle speeds



Introductions & Listening Session: Your Community's Pedestrian Safety Concerns



Pop-up Demonstration Projects & Planning/Design

Short term action, for long term change



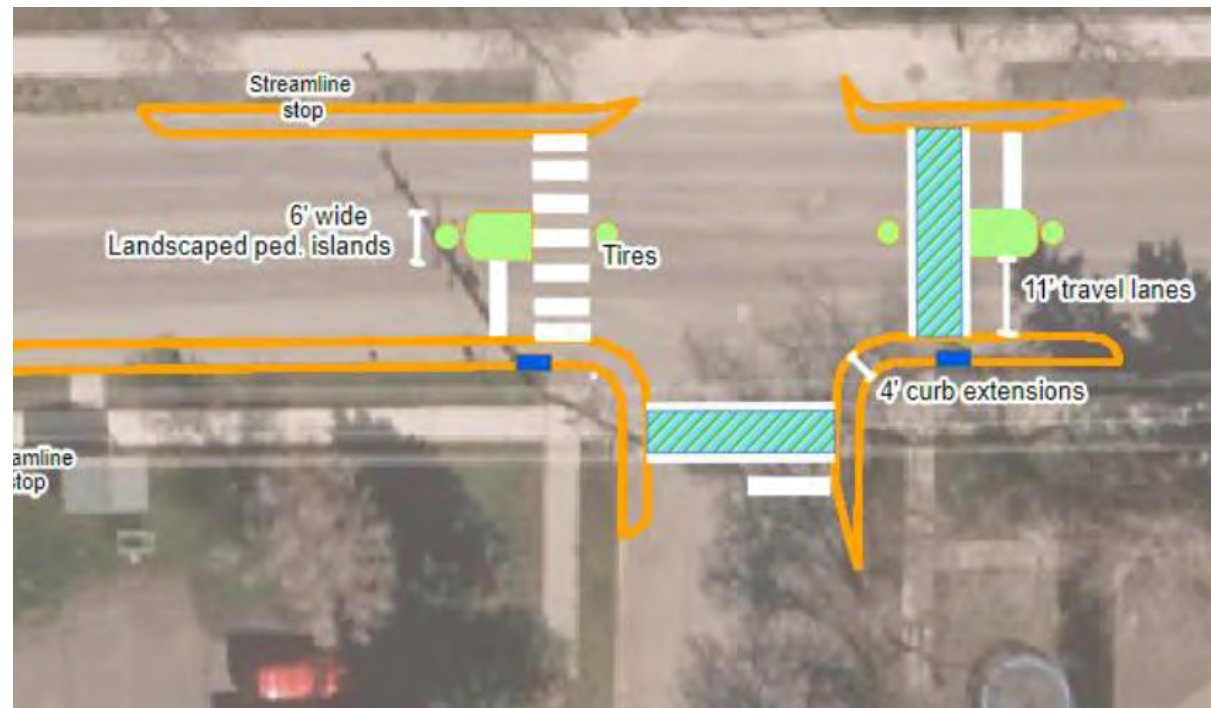
Process: walk audits



Traffic Calming “Pop-Ups”

Process:

- Goal setting, choosing interventions, drafting designs
- Data collection plan
- Permitting
- Installation day
- Sharing results



Traffic Calming “Pop-Ups”

“Our goal with this project is to calm traffic and **reduce the number of speeding vehicles** that use Yellowstone and Meagher as through streets as well as **demonstrate the willingness of West Side residents to find creative solutions to issues in our neighborhood.**”

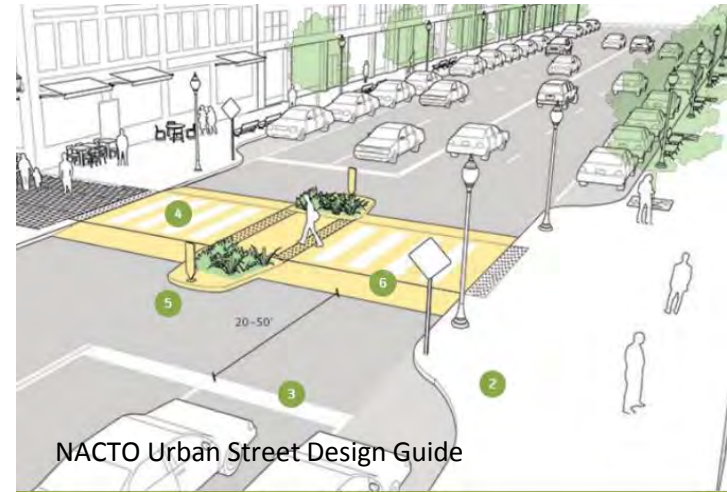
- Valley Unit Neighbors, August 2018



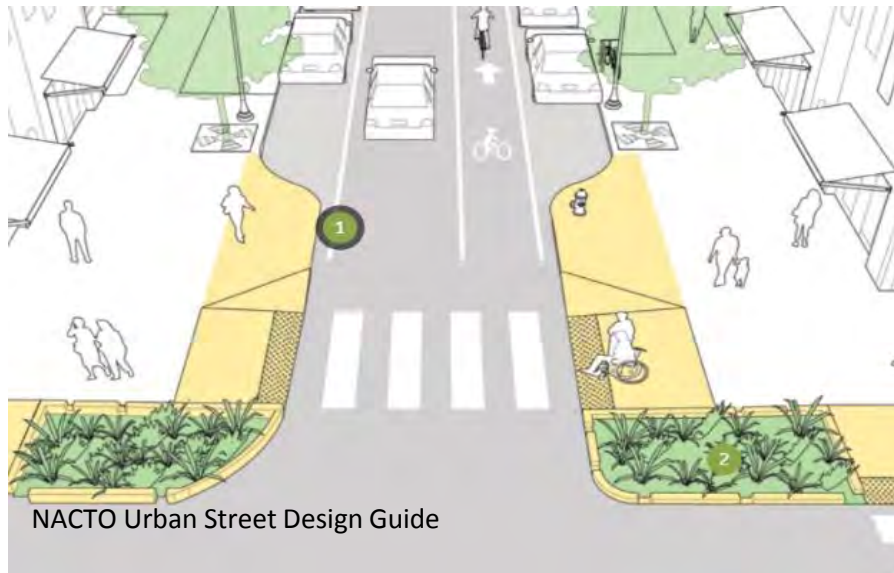
Crosswalks



Pedestrian Islands

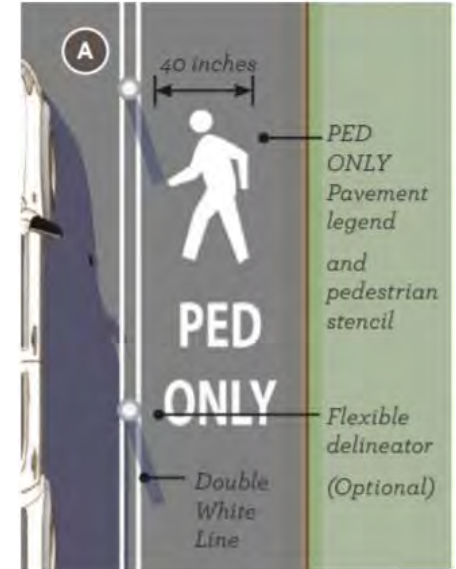
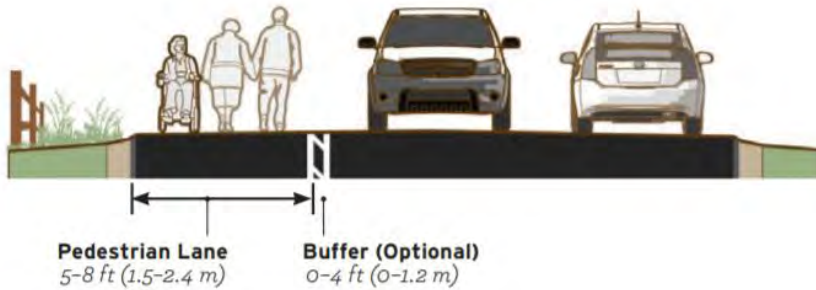


Curb Extensions

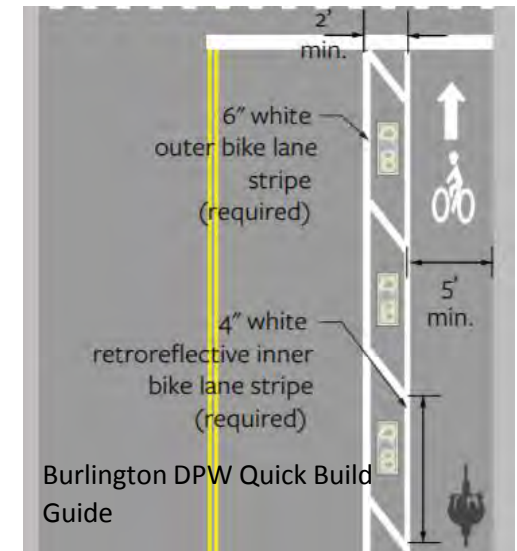


Protected Pedestrian Lanes

Small Town & Rural Multimodal Design Guide



Protected Bike Lanes



Burlington DPW Quick Build Guide

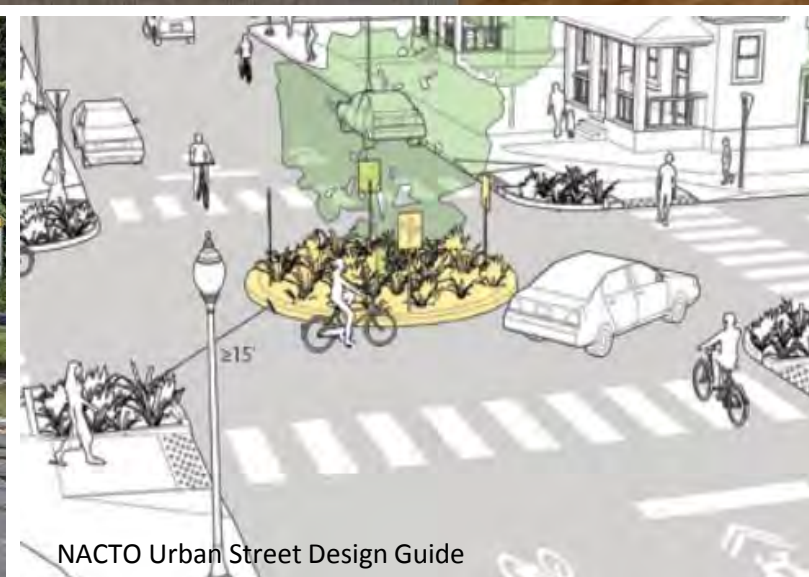
Traffic circles



Albuquerque, 1993



WTI - Bozeman, 2018

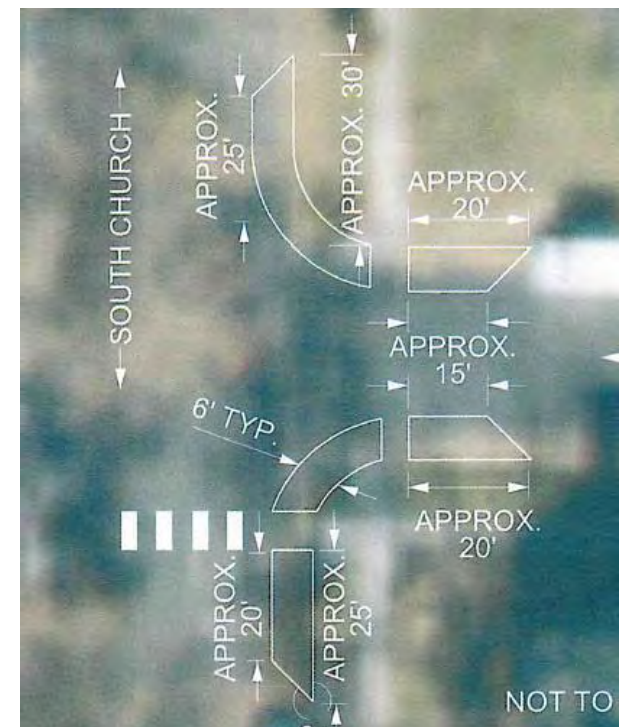
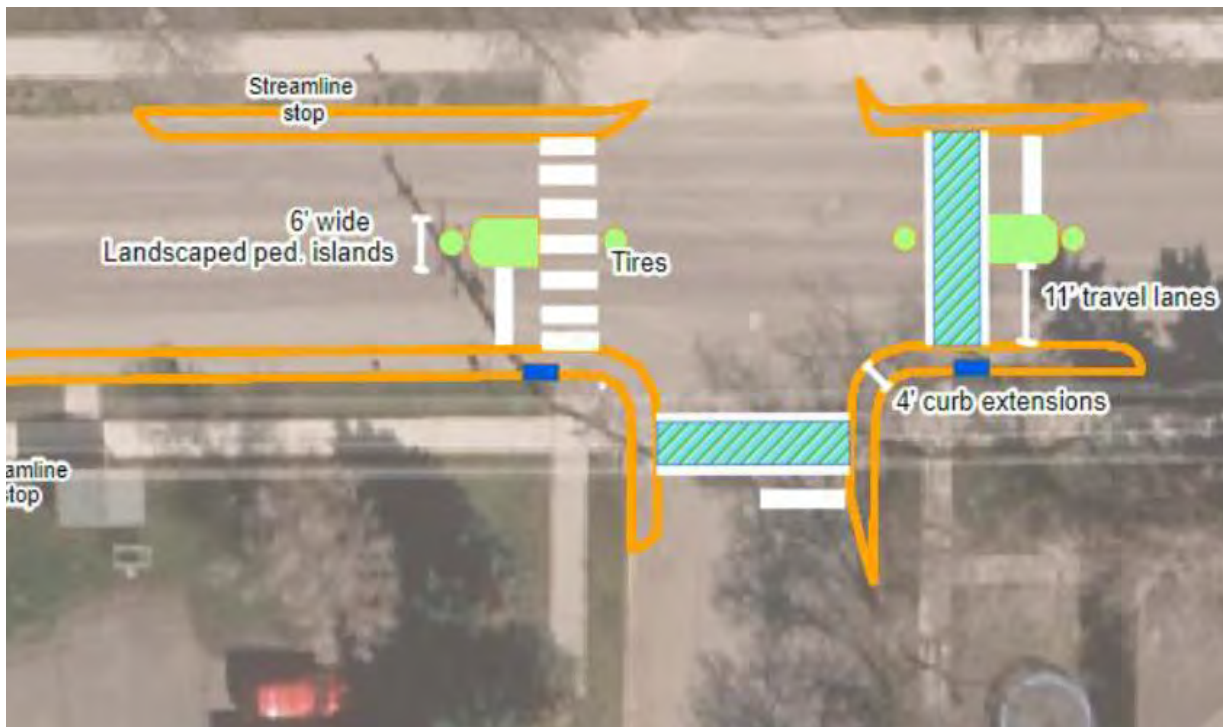
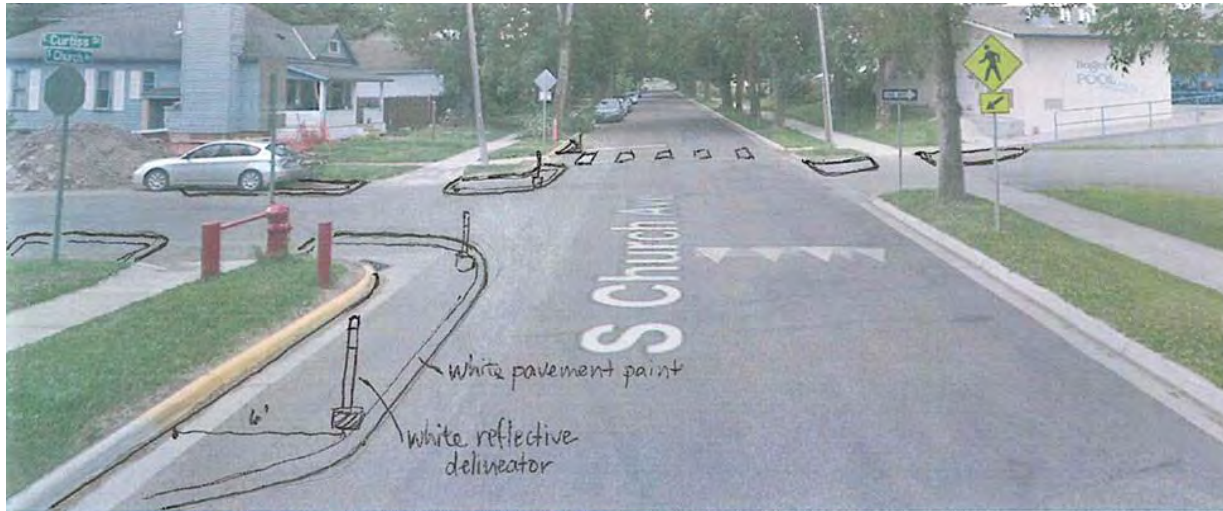


NACTO Urban Street Design Guide



WTI - Bozeman, 2019

Drafting Designs



Data Collection

- Public input
- Public behavior
- Vehicle speed, volume, crash history

Proposing a project

- Project description, design sketches
- Permission from local agency



Installation Day

- Traffic control plan
- Staging area for materials, volunteer coordination
- Line out task teams
- Communication
- Signage
- Media coverage

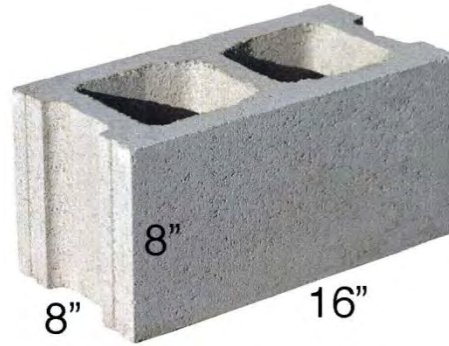


Project summary

- Send thank yous!
- Do designs need adjusted based on data or feedback?
- What did you learn?
- Resources to implement a longer-term project?
- How to share project results with ALL stakeholders?



Materials with Which You Can Build Today's Pop-Up



Inventory of Archived Materials with Which You Can Build Today's Pop-Up

Assumed space between tires (ft) =

10

Assumed length of haybale (ft)=

4

Paint Depth

40 mil

Pavement marking width

6 inch

Note: 1 mil is 1/1000"

Hay bale and candlestick quantities

Segment Number	Segment Location	Length (ft)	# of Hay bales	# of Candlesticks
1	WFT 1 to WFT 2	112	8	7
2	WFT 2 to WFT 3	122	9	8
3	WFT 3 to TP3	58	4	3
4	WFT 4 to PP	54	4	3
5	TP 2 to Exist. SW	60	4	3
6	PP to TP8	67	5	4
7	Intersection Reduction Zone	121	9	8
Total		594	43	42

Notes:

WFT = Wayfinding Tire

TP = Tire Planter

PP = Pavement Paint

Pavement Paint Quantities

Name	Location	Length (ft)	FT ³ of paint	Gallons of Paint
PP - 1	Across Access Drive	171	0.29	2.1
PP - 2	Across Access Drive	170	0.28	2.1
CW2	Sitting Bull Crosswalk	25	0.04	0.3
CW1	Sitting Bull Crosswalk	25	0.04	0.3
CW3	Big Sky Resort Rd Cro	30	0.05	0.4
CW4	Big Sky Resort Rd Cro	30	0.05	0.4
Total		451	0.75	5.6

MDT Epoxy paint application rate is 22mils times the specified width times length

Tire Quantities

# of Wayfinding tires =	5
# of Tire Planters =	16
Total Tires	21

(Note: 2 tires per planter)

Link: https://www.mdt.mt.gov/other/webdata/external/const/specifications/2014/2014_stand_specs.pdf (pg 419 or 447 of PDF)

Big Sky Pop-Up Planning & Design Aerial Map



- **Green diamond:** half-tire used for way finding
- **Blue diamond:** 2 tires stacked as planters at crosswalks
- **Maroon line:** alternating hay bale & delineator for path designation
- **White line:** pavement paint
- **Black line:** intended route limits (without delineation)
- **Orange line:** delineators only
- **Yellow area:** intersection reduction zone

Big Sky Pop-Up Pre-Workshop Design

Preliminary Site Plan - Proposed Pop-Up Project at Sitting Bull & Big Sky Resort Rd (Revised 8/6/2019)



Description of Features

Green diamond: half tire used for way finding

Maroon line: alternating hay bale and delineator for path designation

Black line: intended route limits (without delineation)

Blue diamond: 2 tires stacked as planters at crosswalks

White line: pavement paint

Yellow area: intersection reduction zone

Orange line: delineators only

HANDOUT: Proposed Pop-Up Materials List for Tribal Communities with Dirt Roads



**POTENTIAL
CONSTRUCTION MATERIALS
FOR TRAFFIC CALMING "POP-UPS"
IN TRIBAL COMMUNITIES**

Lunch





Field Exercise

Big Sky Resort Pop-Up



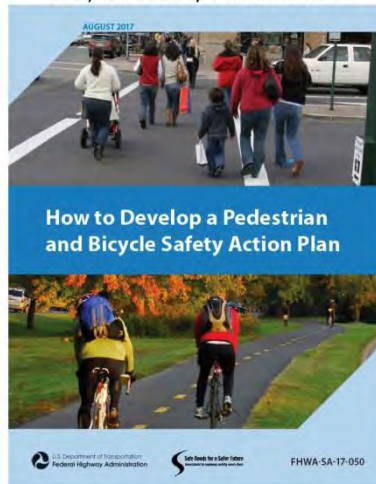
Incorporating Pop-Ups into a Pedestrian Safety Action Plans + Individual PSAP Work

HANDOUT:

FHWA

Pedestrian Safety Action Plan Template

Template for Creating a Pedestrian and
Bicycle Safety Action Plan



Prepared by the UNC Highway Safety Research Center and VHB
August 2017

Step 1 - Establish Goals and Objectives

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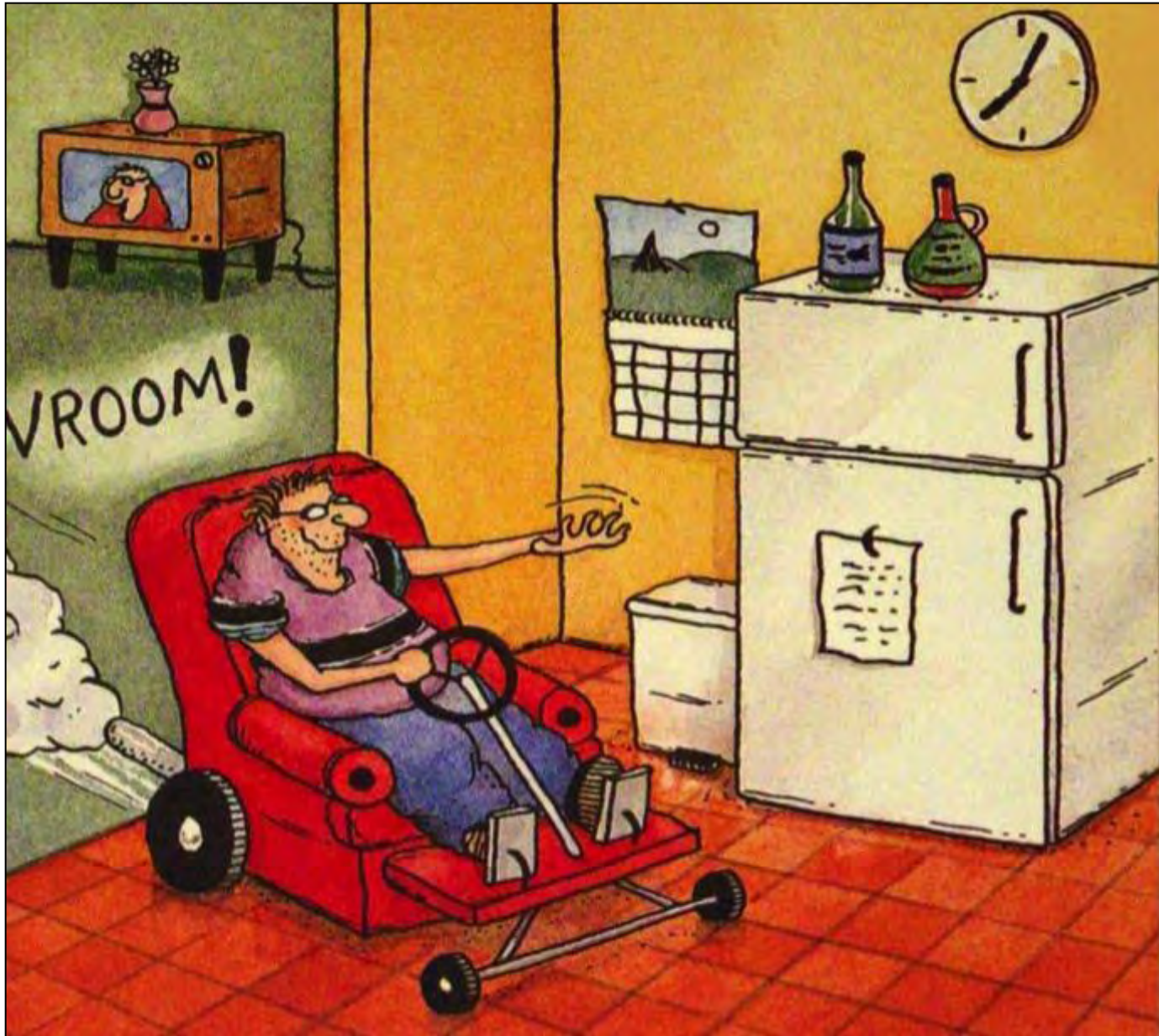
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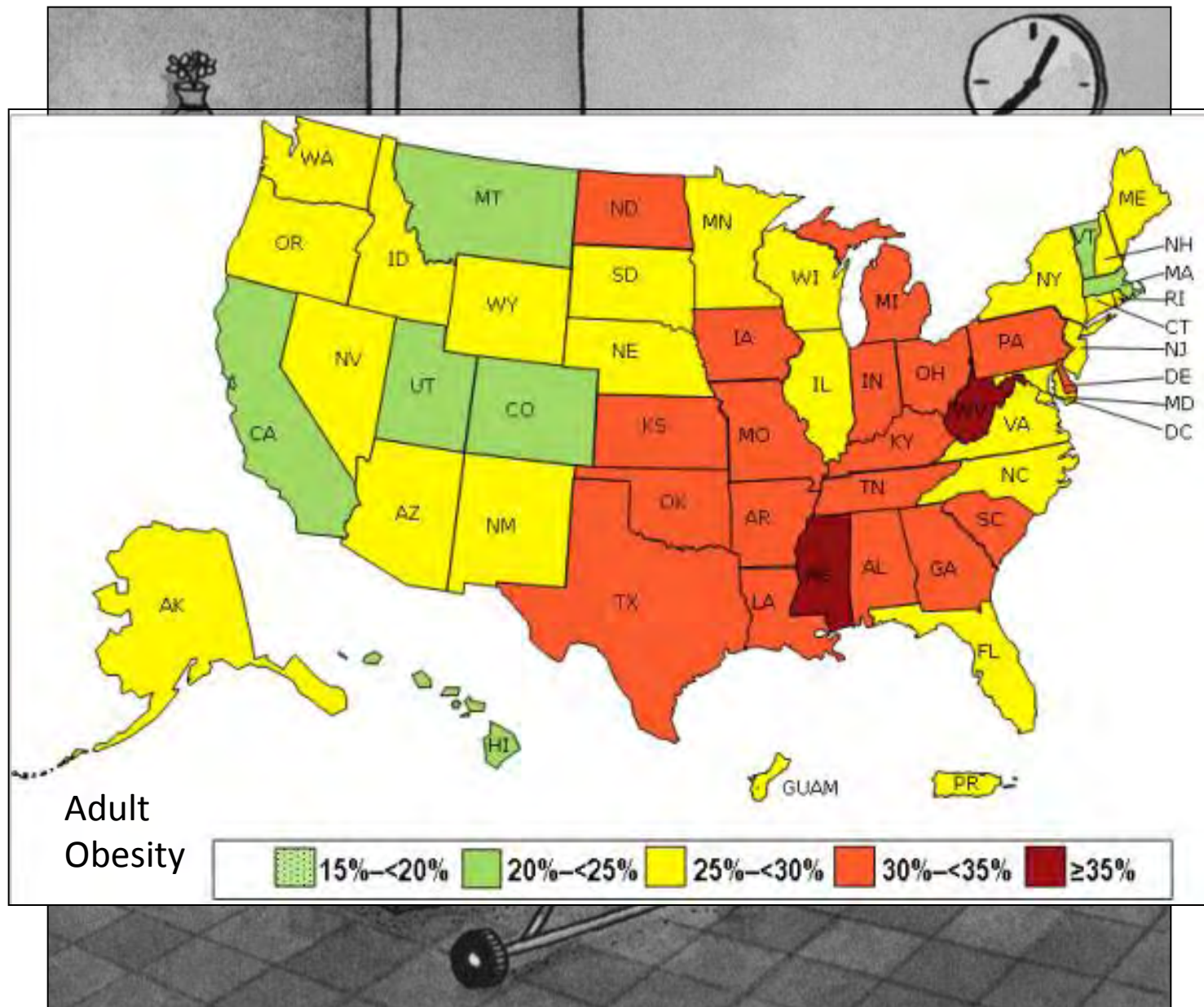
Step 5 - Implement and Evaluate Programs

- Identify funding sources and strategies to support projects
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Problem #1: Sedentary Lifestyles



Problem #1: Sedentary Lifestyles



Problem #2: Generational Car Culture

In 1969,
50% of American children
walked to school



In 2006,
just 15% walked to school



Problem #2: Generational Car Culture

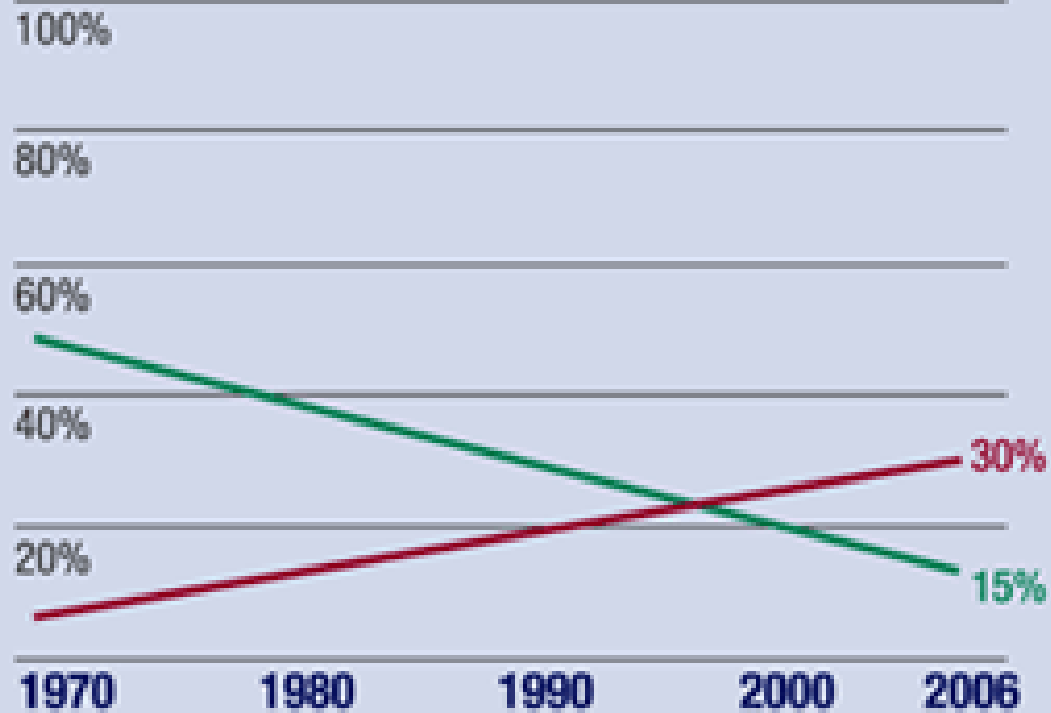
In 1969,

50%

walked to school

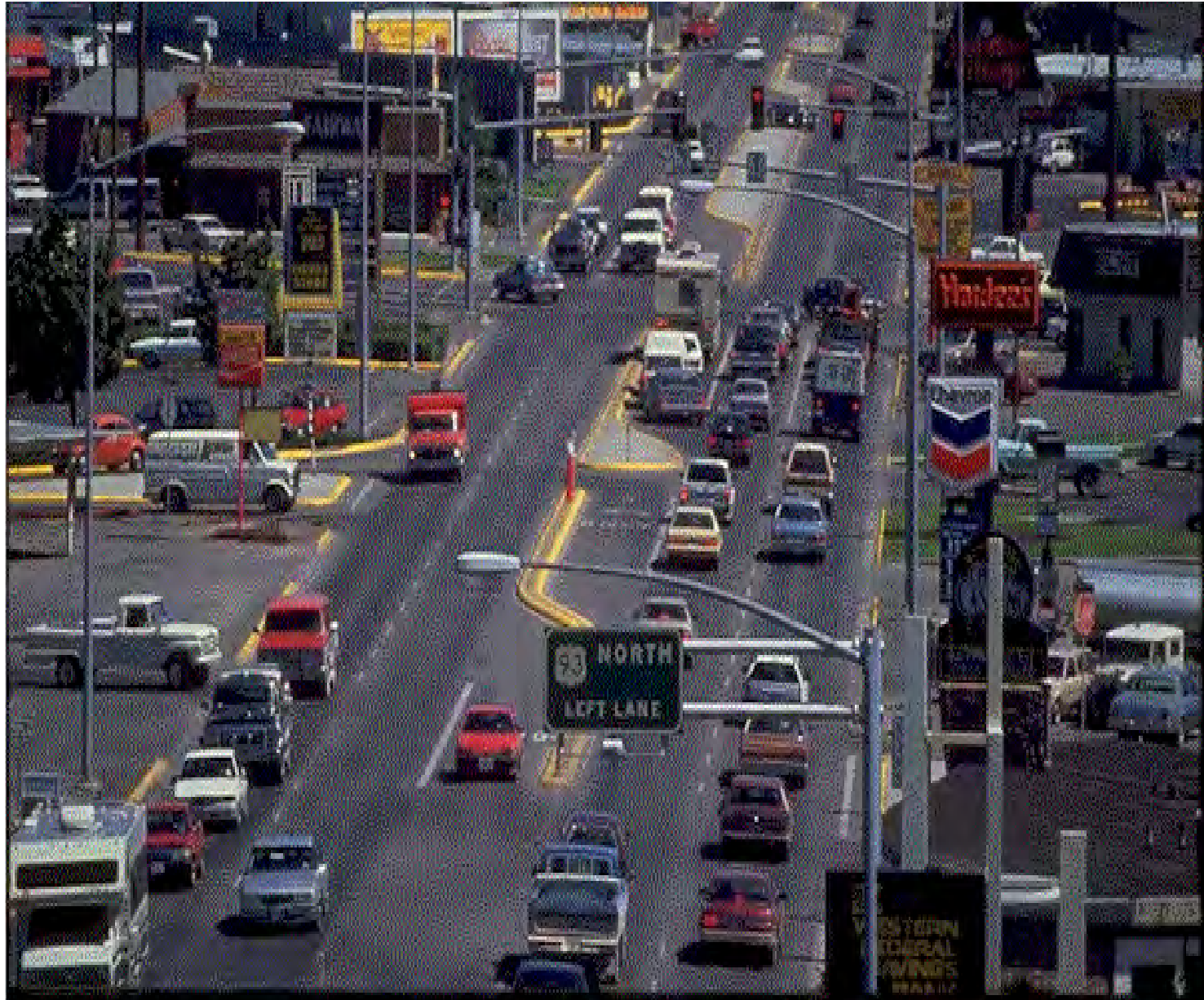
U.S. children
who bike or
walk to school
50%

U.S. children
(6-11) who
are overweight
or obese
8%



In 2006,
just 15% walked to school

Problem #3: Unsafe Streets



Problem #3: Unsafe Streets



Surgeon General's Call to Action on Walking & Walkable Communities (2015)



Goal 1. *Make Walking a National Priority*

Goal 2. *Design Communities that Make It Safe and Easy to Walk for People of All Ages and Abilities*

Goal 3. *Promote Programs and Policies to Support Walking Where People Live, Learn, Work, and Play*

Goal 4. *Provide Information to Encourage Walking and Improve Walkability*

Goal 5. *Fill Surveillance, Research, and Evaluation Gaps Related to Walking and Walkability*

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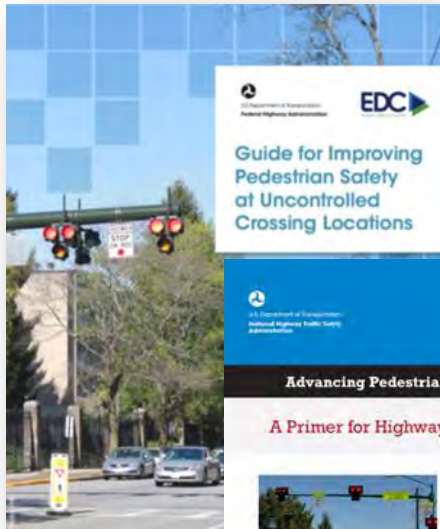
Goal 4. *Provide Information to Encourage Walking and Improve Walkability*

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Resources

Resources



NHTSA: nhtsa.dot.gov

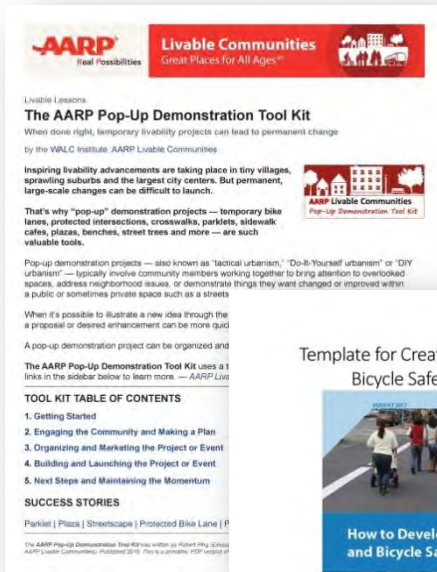
ITE: www.ite.org

**AASHTO/NCHRP:
safety.transportation.org**

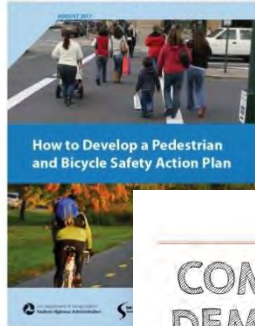
PBIC: www.walkinginfo.org

FHWA: safety.fhwa.dot.gov

Pop-Up Project Resources



Template for Creating a Pedestrian and Bicycle Safety Action Plan



COMMUNITY-LED DEMONSTRATION PROJECT POLICY + GUIDE

City of Burlington, VT | January 2018



- <https://www.aarp.org › aarp › a-Pop-Up-Demonstrations-Printable-272017>
- https://safety.fhwa.dot.gov › ped_bike › ped_focus › docs › fhwas0512
- <https://www.burlingtonvt.gov/.../CommunityLedDemonstrationProjectPolicyGuide2018.pdf>

Final Wrap Up



"As I walk, as I walk, the universe is walking with me."
-- from the Navajo rain dance ceremony



WORKSHOP EVALUATION/NEXT STEPS

Thank you for participating in the *Tribal Pedestrian Safety via Pop-Ups and Pedestrian Plans Workshop*. Please take a few minutes to evaluate the workshop and share your ideas about next steps.

Name of Tribe(s) with Which You're Affiliated: _____

Modules covered today:

- Why Tribal Pedestrian Safety is a Critical Transportation Issue & Brief introduction to Pedestrian Safety Action Plans
- Listening Session: "Key Pedestrian Safety Issues in My Home Community"
- Pop-up Demonstration Projects & Planning/Design
- Big Sky Resort Pop-Up Field Exercise
- Incorporating Pop-Ups into a Pedestrian Safety Action Plans + Individual PSAP Work

General questions about the workshop:

1. "I liked the general format of the workshop."

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

Comments:

2. "I have increased my understanding of ways to promote walking and walkability in tribal communities."

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

Comments:

3. "I feel inspired to work with partners to increase walking and expand walkability in my community via completion of a Tribal Pedestrian Safety Action Plan."

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

Comments:

4. "The facilitators and presenters were knowledgeable and responsive."

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

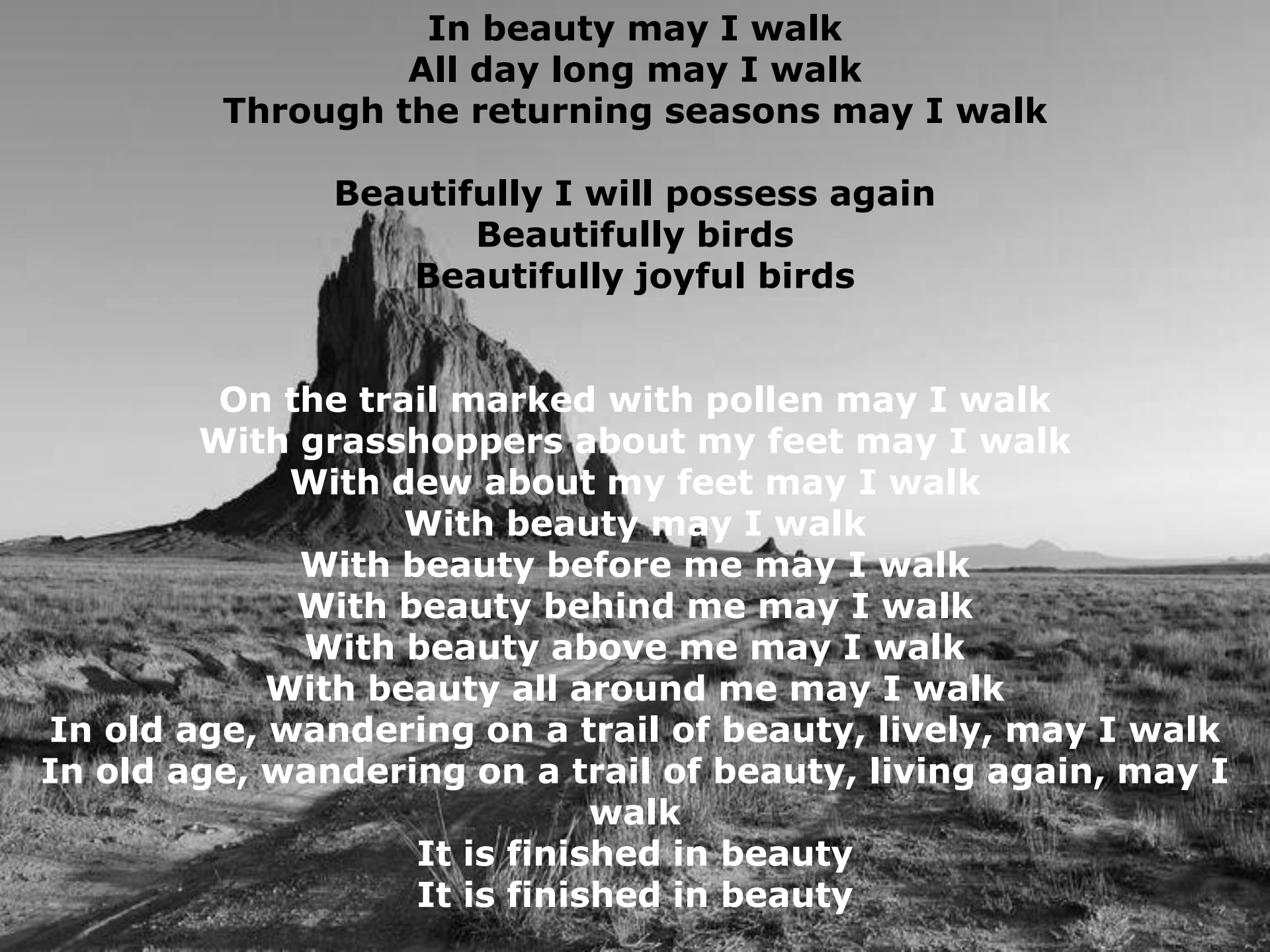
Comments:

5. "The *Why Tribal Pedestrian Safety is a Critical Transportation Issue & Brief introduction to Pedestrian Safety Action Plans* module helped me understand the importance of addressing pedestrian safety in tribal communities."

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

Comments:

**Please
Complete
the
Evaluation
& Leave It
with Us**



**In beauty may I walk
All day long may I walk
Through the returning seasons may I walk**

**Beautifully I will possess again
Beautifully birds
Beautifully joyful birds**

**On the trail marked with pollen may I walk
With grasshoppers about my feet may I walk
With dew about my feet may I walk
With beauty may I walk**

**With beauty before me may I walk
With beauty behind me may I walk
With beauty above me may I walk
With beauty all around me may I walk**

**In old age, wandering on a trail of beauty, lively, may I walk
In old age, wandering on a trail of beauty, living again, may I
walk**

**It is finished in beauty
It is finished in beauty**

Feel free to contact:



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