Walk, Roll, Connect: Active Transportation at WSDOT

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ACTIVE TRANSPORTATION DIVISION
Washington State Transportation Commission
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WSDOT Active Transportation Division: Core Takeaways

• Washington state is leading the nation
• Active transportation provides essential mobility for people of all ages, abilities, and income levels
• Safe systems approach critical for improved performance for all modes
• Complete connections the key to mobility, safety, equity
• State Active Transportation Plan will provide policy direction and tools for implementation
• Practical Solutions pilot in governor’s budget would enable us to leverage AT Plan for near-term multimodal mobility
Context
Washington Leading the Nation

- Washington leading state DOT innovation
- New AASHTO Council on Active Transportation: ATD Director on Steering Committee
- #1 Bicycle Friendly State 10th year in a row
- Safe Routes to School National Partnership ranks us in top 2
What Future Are We Building For?
space required to transport 60 people

car
uber
autonomous car

electric
Many Want to Ride - Given the Right Infrastructure

- Strong & Fearless: <1%
- Enthusiastic & Confident: 5%
- Interested but Concerned: 60%
- No Way, No How: 35%

And e-bikes are shifting this number.
Usage

• Washington travelers walked or biked an estimated **1.16 billion miles** in 2017
• 2017 Annual Volunteer Bicyclist & Pedestrian Count tallied 560,768 active transportation users
• At 53 permanent counters around the state: **1.3 million trips** counted in 2017
  – 20 more permanent counters planned for 2019
• More than 308,000 people crossed Lake Washington via SR 520 Trail in 2018
Usage + Opportunity

• 38% of WA residents use walking/bicycling for transportation at some point

• In Washington state walking/bicycling makes up:
  – 12% of all trips
  – 9% of commute trips
  – 1% of all vehicle miles traveled (trips more relevant than mileage for these modes)

• Just some of the opportunities for mode shift:
  – Short trips: 35% of all trips are <2 miles, or around 10 minutes by bike
  – School trips: Parent drop-off/pick-up adds est. 10-30% to congestion (varies by school/district)
Add a Link, Numbers Appear

SR 520 walk/bike traffic before 12/20/17:

0

SR 520, 2018:

308,000+
Vision

Walking and bicycling transportation connections are complete and comfortable. As a result, Washingtonians of all ages and abilities can walk or roll to get where they need to go, with safety and mobility improvements for everyone.
Mission

Strategically integrate walking, bicycling and accessibility into business practice and investments for WSDOT work and that of our partner agencies to promote sustainable, healthy, equitable transportation for all ages and abilities.
Everyone wins

UP: Health, clean air/water
DOWN: VMT, GHG, cost, crashes, congestion

Improve conditions for walking & bicycling

Reduce exposure, fewer collisions

Mode shift to redistribute travel demand; increase active trips

People feel confident & comfortable walking & biking
Who Walks and Rolls?

Income

• Percentage of family income spent on transportation highest for the least well off*
  – Upper third: 8.2%, Middle third: 11.2%, Lower third 15.7%**

• People living in poverty include an over-representation of people of color, the elderly, and people with disabilities.

• People at lowest income levels most reliant on walking, bicycling and transit

** Data does not include use of public transportation or tolls
***WSDOT Gray Notebook No. 69, March 31, 2018
Who Walks and Rolls?  
Age and Ability

• ~15% of the population has a disability
• Another 20% of the population has temporary mobility challenges at any given time
• Population of people 65+ will double by 2030 to more than 20% of Washingtonians
• Survey of e-bike owners found that 25% had physical limitation that made regular bicycle too difficult to use.*

*2017, John MacArthur & Christopher Cherry, National Electric Bike Owner Survey. National Institute for Transportation and Communities
Who Walks and Rolls? Multimodal Mobility

- **Active transportation** serves as fundamental, low-cost transportation
  - People who can’t afford a vehicle
  - Those who can’t, don’t or shouldn’t drive
  - Late-night shift workers who need to get home after transit service stops
  - More than 85% of people who use transit walk or bike at the beginning or end of their trip*

*2017 National Household Travel Survey; WA data; analysis in WSDOT GNB No. 71, Sept. 30, 2018
Who Walks and Rolls?
Bicycle Logistics

• E-cargo bikes (logistics industry calls them Light Electric Freight Vehicles) providing new freight mobility in urban centers
  • Globally ~60% urban trips are goods transport*
• Advantages: Clean, space-efficient, lower maintenance cost, greater mobility, healthier employees
• UPS test—returning to their roots in Seattle

*2012, Cycle logistics—Moving goods by cycle. European Platform on Mobility Management
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Safety
## Fatalities Continue to Rise

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017¹</th>
<th>Five-year trend</th>
<th>Reduction goal²</th>
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<td>Pedestrian fatalities</td>
<td>50</td>
<td>77</td>
<td>86</td>
<td>88</td>
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<td>Bicyclist fatalities</td>
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<td>7</td>
<td>14</td>
<td>17</td>
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<tr>
<td>Total pedestrian and</td>
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<td>84</td>
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<tr>
<td><strong>Total statewide traffic fatalities</strong>³ = 100%</td>
<td>436</td>
<td>462</td>
<td>551</td>
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<td>565</td>
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<tr>
<td><strong>Statewide percentage of pedestrian and bicyclist traffic fatalities</strong></td>
<td>14%</td>
<td>18%</td>
<td>18%</td>
<td>20%</td>
<td>22%</td>
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Data source: WSDOT Transportation Data, GIS & Modeling Office.
Numbers for Safety Context: Washington State 2017

Every 15 hours

- Roughly every 15 hours a motorist struck and seriously injured or killed someone walking or riding a bike.

Every 3 days

- A driver killed someone walking or bicycling every 3 days on average.

- Preliminary figures 2018: Total crashes + suspected serious injuries up, fatalities match 2017
The Geography of Safety

Problem

- 2013-2017: About 59% of fatal and serious injury crashes involving a motorist and someone walking or bicycling in Washington occurred in geographic areas with a rate of poverty higher than the state average, despite these areas only accounting for 43% of the population.*

What ATD Is Doing

- Analyzing crash data for patterns like this
- Prioritizing technical assistance to communities of concern
- State Active Transportation Plan
  - Creative outreach tools
  - Equity analysis embedded

*WSDOT Gray Notebook No. 69, March 31, 2018
Some People More at Risk

• 2015 study*: People in wheelchairs **36% more likely to be killed** when hit by a driver than general public

• In more than **75%** of crashes that involve a wheelchair user, no “crash avoidance maneuver” by the driver—like braking or steering—was recorded.

• 21% of drivers failed to yield right-of-way; ~50% occurred in intersections; about 40% of those intersection collisions in places with no traffic controls

2015, Kraemer and Benton, Disparities in road crash mortality among pedestrians using wheelchairs in the USA:
Racial Disparities

- Across all racial categories recorded in the census, **total collisions, serious injuries and fatalities** for white people occur **below** their proportion in the population.
- **Total collisions, serious injuries and fatalities** for all other categories - African-American, Asian-American, Hispanic/Latino, Native American, Native Hawaiian/Pacific Islander—occur **above** their proportion in the population.
- From 2013 to 2017, American Indian or Alaska Native people represented 2% of the total population yet accounted for 6% of active transportation traffic fatalities in Washington. In contrast, whites represent 81% of the population but 74% of pedestrian- or bicyclist-related traffic fatalities.
Safe Systems: A Data-Driven Approach that Works

- Vision Zero and similar approaches
- Humans are fragile and they make mistakes
- Apply proven approaches to roadway design and management that benefit all users
- Well-done designs that reduce serious injuries and fatalities for pedestrians reduce them for people using every mode

- Cooper Jones Bicyclist Safety Advisory Council and Pedestrian Safety Advisory Council 2018 reports organized around the principles
  - Speed Control and Separation
  - Functional Harmony
  - Predictability and Simplicity
  - Forgiveness and Restrictiveness
  - State Awareness
Safe Systems: Speed Control and Separation

• **Speed control and separation:** The intent is to create a system of self-explaining or self-enforcing roadways: environments within which drivers select appropriate speeds given the kinds of users likely to be moving in the environment given the context (land use etc.)
Safe Systems: Speed Control and Separation

- **20 MPH**: 9 out of 10 pedestrians survive.
- **30 MPH**: 5 out of 10 pedestrians survive.
- **40 MPH**: Only 1 out of 10 pedestrians survive.
Safe Systems: Speed Control and Separation

Problem
• 85% active transportation crashes on the state system occurred on roads with a posted speed of 30 mph or greater
• Fatal and serious injury crashes: 74% pedestrians, 69% bicyclists, on roads with posted speed of 30mph or greater
• National studies emphasize role of speed in crashes, injuries, fatalities

What We’re Doing
• Speed Management for Injury Minimization: Working group to develop policy and guidelines 2019; dissemination and training to follow
Safe Systems: Functional Harmony

- **Functional harmony:** Roadways are designed and operated in a way that is consistent with the needs of the expected road user groups and the adjacent land use context.
Safe Systems: Functional Harmony

Problem
• 2013-2017: 62% of fatal and serious injuries on city streets, 26% on state routes, 11% on county roads.
• Of the 26% on state routes, 83% in urban or urbanizing areas; 76% on routes classified as principal or minor arterials
• Main street highways: ~10% total lane miles on state system; 44% of pedestrian and bicyclist fatalities on the state system

What We’re Doing
• Multimodal Work Group
• Safe Routes to School and Pedestrian/Bicycle Program
  – Data analysis and technical assistance to local agencies
  – Record number of requests received in 2018:
    • 255 applications totaling $187.4 million
    • Anticipate $41 million available 2019-21 from all funding sources, including federal and state
Safe Systems: Predictability and Simplicity

- Predictability and simplicity: The roadway environment is designed and operated in a way that makes it clear to all users what to expect and makes where decisions are simple.
Safe Systems: Predictability and Simplicity

Problem
• 2013-2017 fatal and serious injury crashes of pedestrians: 62% occurred crossing the road.
• 2013-2017 bicyclist and pedestrian fatalities and serious injuries: 66% occurred where no traffic control was present.

What We’re Doing
• Pedestrian Safety Action Plan:
  – Safe Transportation for Every Pedestrian trainings: design approaches at uncontrolled crossings
  – Policy and practice changes to come
• Highway Permeability Study: FHWA grant to focus on crossings - where are they needed for comfortable, complete connections?
Safe Systems: Forgiveness and Restrictiveness

- **Forgiveness and restrictiveness**: The roadway environment is designed and operated in such a way that a simple mistake does not result in serious injury (forgiveness), and the system prevents the user from making decisions that increase the likelihood for serious injury (restrictiveness).

(No, this isn’t in Washington.)
Safe Systems: Forgiveness and Restrictiveness

Problem
• 2013-2017 fatal and serious injury crashes involving bicyclists: 51% were using a roadway, 12% using a shoulder, 15% using a designated bike route.

What We’re Doing
• Updating manuals
• Training on best practices
• Bicycle and Pedestrian Level of Traffic Stress analysis
• Asset management: Developing definitions
Safe Systems: State Awareness

- **State awareness:** Controlling or changing the behaviors that contribute to crashes through policy change, enforcement and education.

>Cyclists eat, drink, text, smoke and fiddle with their radios while speeding around impatiently with their 25-pound vehicles. I'm still wary of them but the separated car lanes help.

I love separated car lanes! Cyclists don't run me off the road any more and I worry less about them not seeing me & killing me.

**Separated Car Lanes Increase Comfort**
Safe Systems: State Awareness

Problem
• Fatalities increasing faster than state population growth and vehicle miles traveled

What We’re Doing
• Driver’s Manual
  – Extensive update in partnership with DOL
  – Notable addition: “Dutch Reach” to prevent “dooring” incidents
• Bikes on Ferries Guide: With Washington State Ferries
• Policy development
Networks Before Numbers: Completeness, Quality, Value

- Emphasis on **policy** rather than **volume approaches** because *real volume from latent demand only becomes possible when you have a complete network*
  - Drivers already have this in place

- Network completeness and quality across jurisdictions
- Multimodal connectivity
- Bicycle/Pedestrian Level of Traffic Stress
- Highway permeability (crossings)
- Overlay safety, equity, health, economic data to highlight & prioritize
Seville: Complete network + Bikeshare = Portland levels of mode share – in just 4 years.

So much demand the local bike shops ran out of bikes to sell.
Mobility = Safety = Mobility = Safety = Mobility = Safety =

- **Amount** of bicycling tracks most closely with **number** of bikeways
- **Safety** of bicycling tracks most closely with **connectedness** of bikeways
- **If you want lots of people biking safely, you eventually need both.**

Safe Routes to School

- **19.94%** increase in walking and biking to school on average for Safe Routes to School projects that provided pre and post project counts.
- Not all jurisdictions submit pre/post counts.
Active Transportation State Plan: Policies and Tools

- **Network analysis methodology**: What enables people of all ages/abilities to get from here to there safely?
- **Prioritization framework**: Gap-filling strategies
- **Multimodal connectivity**: Network access to other modes (transit, ferries, rail, air)
Active Transportation State Plan: Policies and Tools

• **Asset management:** What do we own, how well does it serve a safe, accessible and connected network?

• **Policy review + funding scenario:** What do we need to adopt or refine to make progress?

• **Performance measures:** How do we track & report meaningful progress?
AT Plan Community Connections

- Robust statewide engagement, local/regional discussions to build common priorities, ongoing communications and regional meetings
- Develop common set of priorities to apply across multiple programs, projects, activities, funding sources

- **Stakeholder Group:** Diverse interests, perspectives
- **ATP DIY Toolkit:** Engage people where you are, invite you to talk with your personal networks and groups
- **Video project:** Increasing “network literacy”
- **Online tools:** Survey, StoryMap
- **Working with partners:** MPOs/RTPOs, other state agencies, community groups
The Governor’s Budget Supports a Practical Solutions Multimodal Pilot

2019-21 Governor Proposed
$13 million Demonstration

- Funds partnerships, development, implementation, staffing
- 4 pilot travelsheds: Seattle, Olympia, Vancouver, Spokane
- Funding across budget programs (and across operating, capital)
- Requires Gray Notebook reporting
- Special appropriation in “back of the budget” (sec. 412)

Goal: Working with our partners to get the most out of our current transportation system in the near term, with lower cost multimodal investments.
What’s Different about this Practical Solutions Pilot?

Give people choices and improve mobility in a variety of ways by delivering the right investment, in the right places, at the right time:

- Starting with place (vs. project or program)
- Near-term option; improve multimodal system performance before undertaking an expensive roadway expansion
- Engaging with partners early to identify problem and craft the best solution by understanding community goals and addressing performance outcomes and gaps
- Allows state and locals to invest in their systems in coordination to achieve performance goals
- Bring the full range of strategies to the table to meet desired performance without the constraint of program silos
- Inform decisions and priorities from both a state and local perspective
Why Can’t WSDOT Do this Now?
New funding and a special appropriation are requested because...

• Current funding is in silos; funding for demand management and active transportation are already dedicated to existing grant programs
  – Gov’s Proposal: new funding allows integration of active transportation and demand management with traffic operations, and encourages integrated and collaborative (vs. competitive) approaches in the selected geographic areas

• Traditional funding focuses on specific projects and program activities
  – Gov’s Proposal: Special appropriation allows a limited, nimble and place-based approach with partners that is collaborative and leverages local resources

• Limited capacity to proactively engage local partners, leverage local resources and implement lower-cost solutions in a timely manner
  – Gov’s Proposal: new funds preserve the existing base necessary to sustain current activities (i.e. traffic operations low cost enhancements)
Emerging Issues & Opportunities

- E-bikes, bikeshare, new mobility, micromobility
- Sidewalks: Competition for scarce space
- Curb management: One car parking spot can hold a dozen bikes or scooters
- Cooperative Automated Transportation: Focus on safety, opportunity for technology that supports safe systems approach
Activate Your Network

- Ask your hometown what they’re doing to plan, build and maintain a complete, comfortable network
Thank you!
Questions?

For additional information regarding Active Transportation in Washington State contact:

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WSDOT Active Transportation Division
(206) 716-1130 or ChambBa@wsdot.wa.gov.
Slides for Reference
Two Examples of Network Analysis
Rating Your Personal Network

Your personal network starts at your front door. This is part of a bike trip from a spot just south of Seattle city limits heading toward Pioneer Square.

X indicates a spot that feels uncomfortable to one strong, experienced rider. Follow the red arrow through next slides.
“Bicycle-friendly road”??

Road has 4 lanes, no shoulder, fast traffic, two sharp curves with no line of sight – and a bus stop.
Notice how few connections exist between the green lines indicating designated bike infrastructure of any kind.
That segment connects to PSRC Regional Bike Map. Critical bridge crossing at the bottom of that hill.
Bus stop for Metro #131
Darkest pink indicates highest percentage households with no access to a personal vehicle, from WA DOH.
Shoreline South/145th Street Station
Initial Connections & Trail Along the Rail

Legend
- Trail Along the Rail
- Initial Connections
- 145th St Connection
- Regional Trails
- Existing Bicycle Facilities
- 145th Station 2.5 mile Buffer
  - Shoreline South /145th Station
  - Other Light Rail Stations
  - Light Rail Alignment
- Parks
- 15 min. Bike Ride - incl Trail Along the Rail Streets

Scale: 0.5 1 0 1 Miles

Date: 4/19/2018
Shoreline South/145th Street Station
Planned Bicycle Facilities Full Buildout

Legend
- Trail Along the Rail
- Initial Connections
- 145th St Connection
- Planned Bike Facilities
- Regional Trails
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- 145th Station 2.5mile Buffer
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- Other Light Rail Stations
- Light Rail Alignment
- Parks
- 15 min. Bike Ride - Full Buildout
- Streets

PUGET SOUND

SHORELINE

SEATTLE

LAKE WASHINGTON

4/19/2018

1 0.5 0 1 Miles
SRTS/PBP Grants: Additional Information
WSDOT Active Transportation Grant Programs

Funding Requested & Awarded

- Total Funding Request
- Total Amount Awarded

Years:
- 05-07
- 07-09
- 09-11
- 11-13*
- 13-15
- 15-17
- 17-19
Prioritization Criteria

- Project need:
  - safety
  - connectivity
  - health equity
- Potential to address need and program purpose
- Value
- Deliverability
- Other considerations (2%)

Pedestrian & Bicycle Program
Purpose: Reduce pedestrian and bicyclist collisions and increase walking and biking.

Safe Routes to School Program
Purpose: To increase walking and biking to school safely.
Pedestrian/Bicyclist Program

Percentage of Projects Targeting Locations with Crash History 2006-2013

- No Crash History: 31%
- Crash History: 69%

Crash History at Project Location – 3 Years Post Project

- No Crash: 72%
- Crash: 28%
Practical Solutions Pilot: Additional Information
Practical Solutions Investment Approach

The right investments in the right places at the right time

**Approach:**

- Operate what we have more effectively
- Provide people transportation options
- Manage demand by providing and enhancing modal choices
- Utilize the network, including the local system and services
- Develop and implement quickly
- Recognize resources are constrained, now and in the future
- Leverage local investments

*System performance benefits are amplified when strategies are combined, enabling near-term, cost-effective investments*
Traffic Operations Strategies

Getting the most out of our existing transportation system by:

• **Maximizing performance** by expanding and effectively operating traffic control and information systems
• **Reducing crashes and their effects** on people and mobility
• **Improving connectivity** for all modes

Combine people and technology, operating and capital strategies in key areas:

• System operations
• Incident response
• Operational assessments
• Proactive low cost and “lower cost” enhancements
• Emerging technology
Transportation Demand Management (TDM) Strategies

Getting the most out of our existing transportation system by effectively managing demand, removing barriers and providing transportation choices:

- Bicycling + bikeshare
- Carpool/vanpool
- Commute trip reduction
- Local land use decisions
- Human services transportation
- Park and rides
- Shared mobility
- Telework and flextime
- Transit
- Traveler information
Active Transportation Strategies

Getting the most out of our existing transportation system by improving **connectivity and safety** for walking, bicycling, and connecting to other modes (transit, ferries, rail):

- Sidewalk and crossing improvements
- Shared-use paths for walking and bicycling
- Targeted maintenance of existing paths and facilities
- Traffic calming to enable all modes to move safely in busy spaces
- Signage and wayfinding
- On-street bicycling facilities, secure bicycle parking
Resource Links

- Pedestrian Safety Advisory Council 2018 Report
- Cooper Jones Bicyclist Safety Advisory Councils 2018 Report
- Dangerous by Design 2019 (Smart Growth America)
- Engineering Group Takes on High Speed Limits
- NTSB Study on Pedestrian Safety 2018 (bicyclist safety study under development)
- Speeding Away from Zero: Rethinking a Forgotten Traffic Safety Challenge (Governors Highway Safety Association)
- FHWA Pedestrian Safety Guide and Countermeasure Selection System
- FHWA Bicycle Safety Guide and Countermeasure Selection System