Vision, Black Boxes
& Sophie's Choice
Vision Systems

• Vision System specifically enabled to detect
  – a) humans, small to large,
  – b) from any direction, and/or
  – c) traveling into the traffic lane and to give lifesaving maneuvers to avoid death and injury.

• Require Certification, Compliance renewal, Fines if non compliance (e.g. elevators, trucks, doctors, etc.)

• Question: should it supersede Federal (FWHA)... What if Fed level is poor, non transparent requirement? What is Oregon’s liability?

• The League wants a ‘vision test’ requiring manufacturers to prove the ability of autonomous vehicles to accurately detect, recognize, anticipate, and respond to the movements of all road users, including bicyclists. Congress should put safety first by starting the process of developing new safety standards now, rather than putting that development off into the future after potentially hundreds of thousands of highly automated vehicles are on our roads.
Crashes are changing

Crash avoidance for straight ahead travel

- Lane departure
- Blind spot
- Unobstructed view crashes
- Crossing paths
- Parallel paths

Pedestrian Traffic Fatalities by State
2018 PRELIMINARY DATA

On a national basis, about 26 percent of pedestrian fatalities in 2017 occurred at intersections or were intersection-related (Figure 9). The majority of pedestrian fatalities occurred at non-intersection locations.

Figure 9 2017 Pedestrian Fatality Locations

- Not at Intersection: 72%
- At Intersection: 18%
- Intersection Related: 8%
- Other/Unknown: 2%

Source: FARS
Insure data from AV Vehicles are included in all databases as Unique subset (AV)

1) Reporting by the company about the vehicle's abilities based on their engineering & experience,
2) Data sharing so that the public can judge the vehicle's abilities in practice.
Visioning System Liabilities

In Harms way activity
Non detection of
Brown & AA skins
Disparity of Deaths among ADA protected road users

Policy issues
Concerning Curb Design

23% Higher for Hispanic than for White Bicyclists
30% Higher for African American than for White Bicyclists
Policy Issues

• Single occupancy AV will increase #s on road and may sacrifice the needs of Bike Pedestrian lanes for separate AV lanes.

• Fleet use of AV may allow narrower lanes and benefit road sharing for micromobility devices, bicycles, pedestrians, and ADA access.

• Insure that ODOT future research funding is set aside for complex road structure serving all users.
“How to” Questions

• How can AVs be directed to park at different address, school accommodation of buses during drop off/ pick up?
• If occupant is unresponsive? Proper procedure for EMS/Fire
• Procedures after an accident to identify party responsible for vehicle; auto signal to dispatch?
• After a crash: How to handle insurance? Two AVs?
• Human interaction for blind/hearing loss. ADA compliance and support.
OReGo & ZenDrive can provide a Black Box data examples

• Consider Requiring a Black box as transparent enforcement & judicial tool for all AV movements.

• OReGO and ZenDrive are examples of present day telemetrics. Additional information from potential connected vehicle technologies could yield much more behavioral information about vehicles on public roads.

Message:
Retain All Information Of AV behavior
Put Azuga GPS fleet tracking software to work for you and your drivers.
Sophie’s Choice:

What is your programmed algorithm?

Which child do I *not* injure?
Near fatal accident with child on bike

Saturday morning I got into my car which was parked at the corner, intending to turn right as I do almost every day. First I waited for the little girl on a bike coming from my right as she made a slow arc across the intersection without looking left or right, to join her parents who were across the street from me, standing by their bikes chatting casually. Then I began to turn only to find a woman on a cargo bike stopped just around the corner, angled into the street. It looked like she was adjusting something on her bike or something. So I turned quite wide to get around her and nearly hit a very small boy on a very small bike heading directly toward me. I slammed on the brakes, he looked somewhat spaced out as he went around me, then I drove off. The mother never made a move to signal me or call to her child. If I was not so shaken and angry, I would have stopped to talk to the mother. Parents: please don't let your children ride around unsupervised as if they are on a safe playground. They are really hard to see--especially when they're on the wrong side of the street or riding in a random fashion. I've seen this many times—a parent riding ahead, the child following behind half a block or a block or two, the parent pulls up and simply waits. No coaching, no supervision, no watchfulness for cars that could pose a danger. I don't know what they are thinking. I am pro child, pro bike, pro safety, pro responsibility and above all, pro sharing the road. That means the bikers take as much care as the drivers to insure that we--kids and adults on bikes, people in cars, pedestrians--can all use the streets safely.
State of Oregon response to Autonomous Vehicles? 2 Asks:

Could there be Performance Measures?

- $X$/deaths
- $Y$/ crash free miles
- $Z$/Pedestrian injuries

Condition of State registration with expected standards, e.g. clinical trials

Consider using the Oregon Bicycle & Pedestrian and Advisory committee to ODOT and Safer Routes to School partners as a Primary Resources