


Road Weary:
*When Technology &
Engineering Fails Cyclists*



A photograph of two cyclists riding on a paved road. The cyclist on the left is wearing a bright yellow jacket and a red and white helmet. The cyclist on the right is wearing a blue jacket and a white helmet. Both are riding bicycles with panniers. The road is flanked by dry, yellowish-brown grass and shrubs. In the background, a large, vibrant rainbow arches across a dark, cloudy sky. The overall scene is one of adventure and outdoor recreation.

Adventure Cycling
inspires, empowers, and connects
people to travel by bicycle.

Adventure Cycling is..


- 52,000 members
- 47,283 miles of routes
- Route maps (print + digital)
- 100+ guided tours
- *Adventure Cyclist Magazine*
- Online resources
- Advocacy






In creating the ever-growing Adventure Cycling Route Network, we've researched and developed 48,608 miles of prime cycling routes in the U.S. and Canada to date. These routes follow some of the most quiet, scenic roads and bike trails in North America.

For more information on the routes and to find out how to purchase our maps, please visit www.adventurecycling.org

 Adventure Cycling Bicycle Route

 Bicycle Route using same road

 Adventure Cycling Mountain Bike Route

48,608 miles!



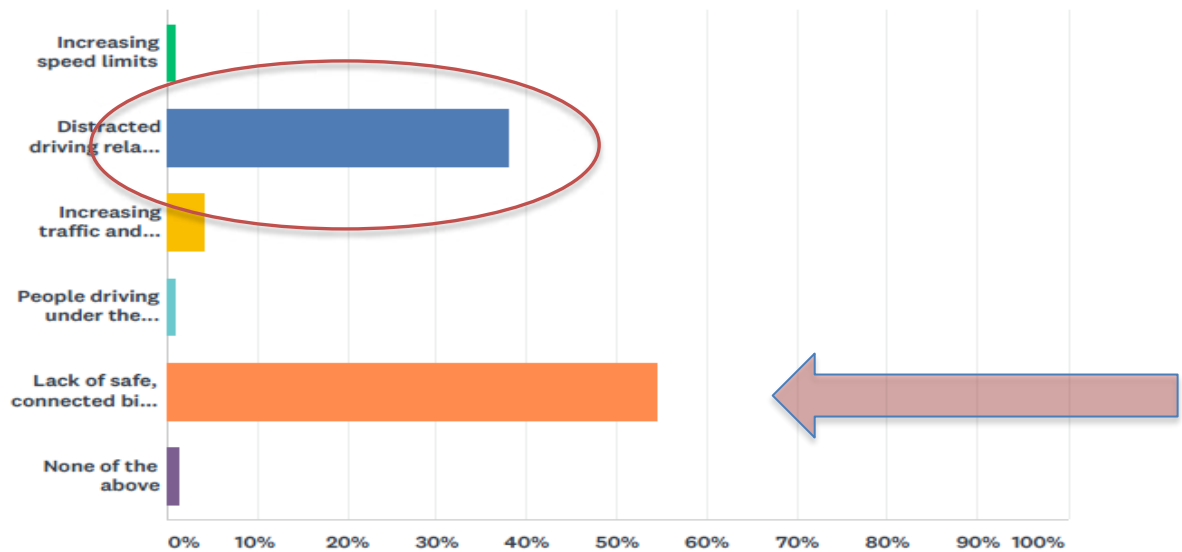
ADVOCATE

- ✓ More official, signed U.S. Bicycle Routes
- ✓ Bike access on trains & airplanes
- ✓ National and state parks and gateway communities
- ✓ Advance bicycle tourism to help small communities
- ✓ Safe rural and suburban cycling conditions



Q6 Which issue is of most concern to you while bike touring? (Choose one.)

Answered: 1,878 Skipped: 335



ANSWER CHOICES	RESPONSES	
Increasing speed limits	0.96%	18
Distracted driving related to mobile phone use	38.02%	714
Increasing traffic and congestion	4.15%	78
People driving under the influence of drugs/alcohol	0.96%	18
Lack of safe, connected bike infrastructure (shoulders, bike lanes, other separated facilities)	54.69%	1,027
None of the above	1.22%	23
TOTAL		1,878



Distracted Driving

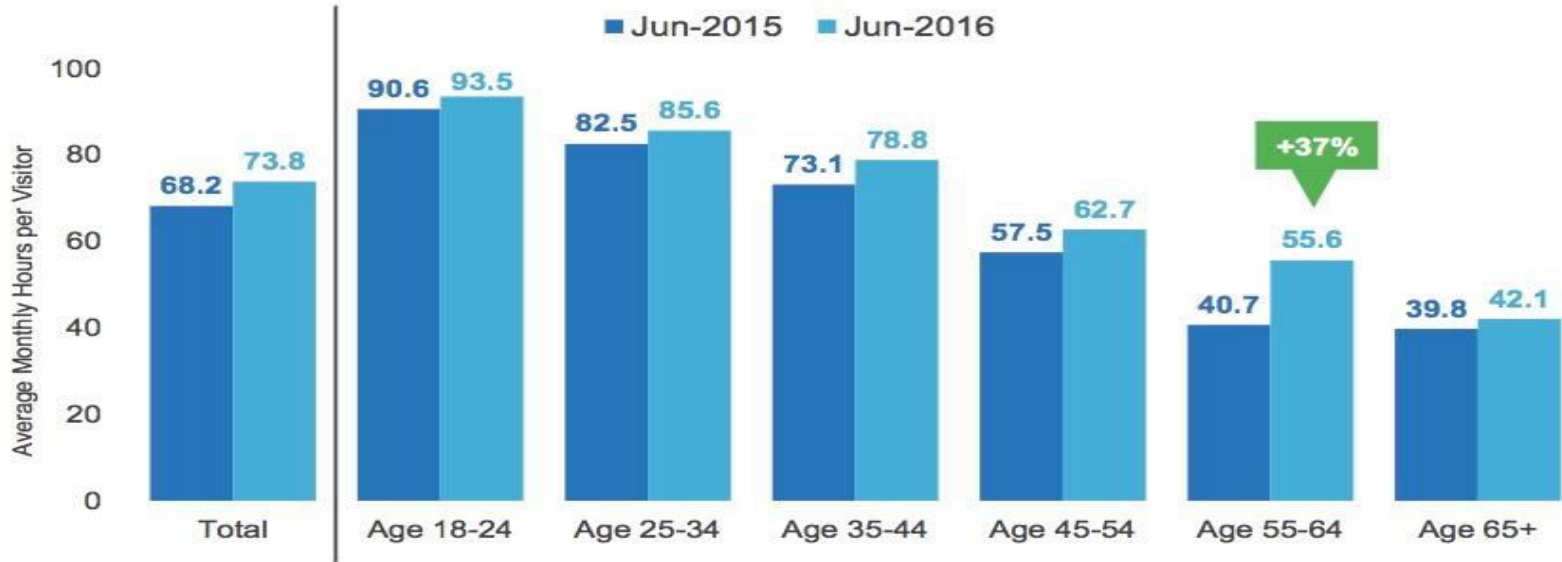


We are addicted to our phones.

The typical person checks their phone every 15 mins or less.

Average Monthly Hours per Smartphone App Visitor by Age

Source: comScore Mobile Metrix, U.S., Age 18+



Addiction doesn't stop when driving starts.

Nearly 9-in-10 people admit to using their smartphone while driving.



In **88% of trips** we analyzed, a driver was on their smartphone



Of these trips, the average phone use was **3.5-minutes per hour of driving**



Taking your eyes off the road for **2-seconds** increases your chances of collision by over 20x



At 55mph, **2-seconds** is enough time to travel the length of two basketball courts

True or False?

These commonly held false beliefs contribute to complacency.

"I can multitask, even if other people can't."

False

"Hands-free cell phone use is safe."

False

"It's safe to look at my phone at a red light."

False

"Other people cause distracted driving crashes."

False

"I'm a better driver than most people so I can get away with it."

False

You are part of a “Brain Hacking” experiment.

Tech companies are programming products to be as addictive as possible

WHAT IS “BRAIN HACKING”? TECH INSIDERS ON WHY YOU SHOULD CARE



“A computer programmer who understands how the brain works knows how to write code that will get the brain to do certain things.”

“They are programming people.”

No Post is worth a life.

Eyes on the road,
not on your phone



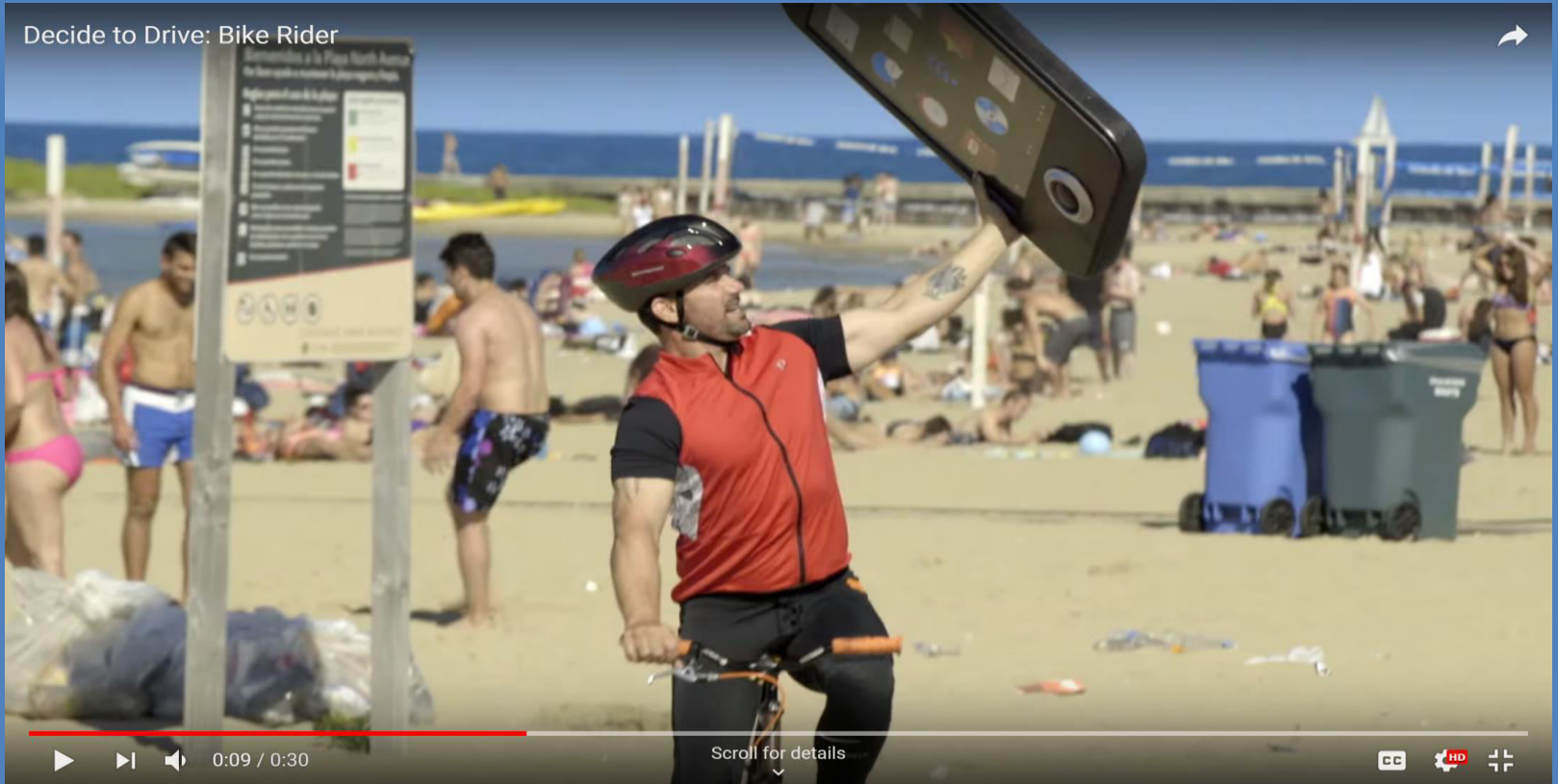
Where are the bicyclists and pedestrians?

WHETHER YOU TEXT OR TALK,

**YOU DON'T WANT
THEM RESPONDING
TO YOUR TEXT.**



Decide to Drive: Bike Rider



0:09 / 0:30

Scroll for details





Adventure Cycling Association

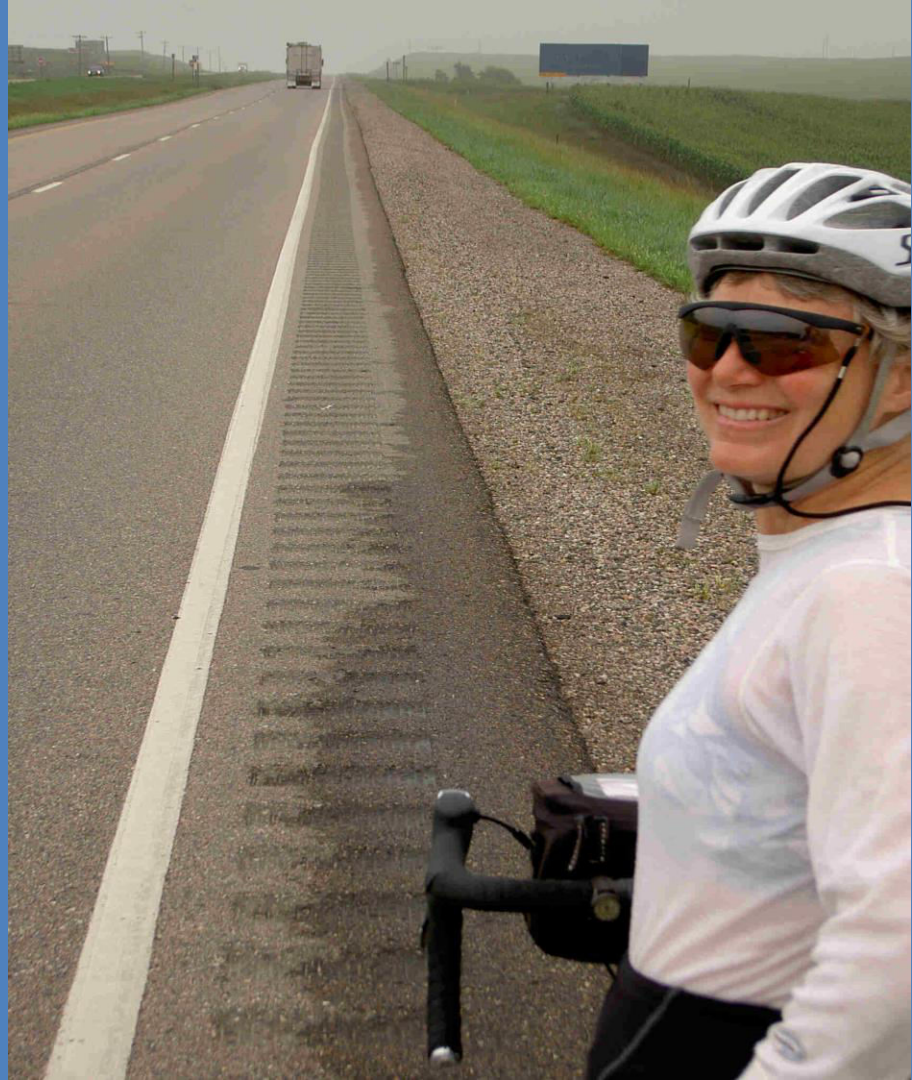


Rumble Strips: an engineered treatment to the roadway that provides an auditory vibration when a motor vehicles comes in contact, alerting the driver they are drifting out of the lane. In past, treatment was mainly used on long, straight stretches of highway.

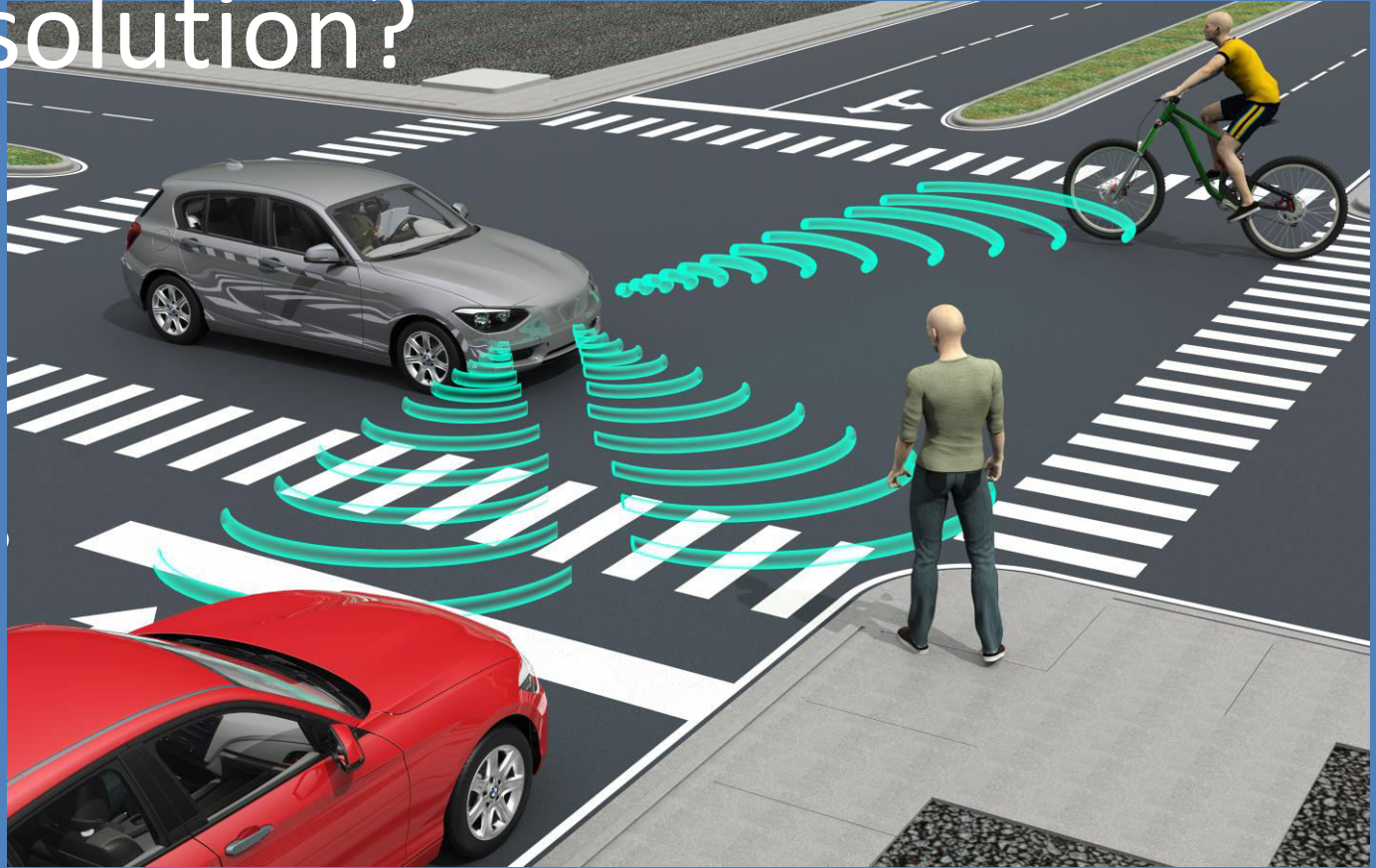


Technology is quickly eradicated the necessity for the treatment.

Inexpensive to install, it costs over 9X as much to remove, leaving the highway impossible to navigate safely for cyclists.



Is AV the solution?





National Transportation Safety Board

NTSB Investigations into Automated Vehicles

Kristin Poland, Ph.D.

Crash Overview: Tempe, AZ

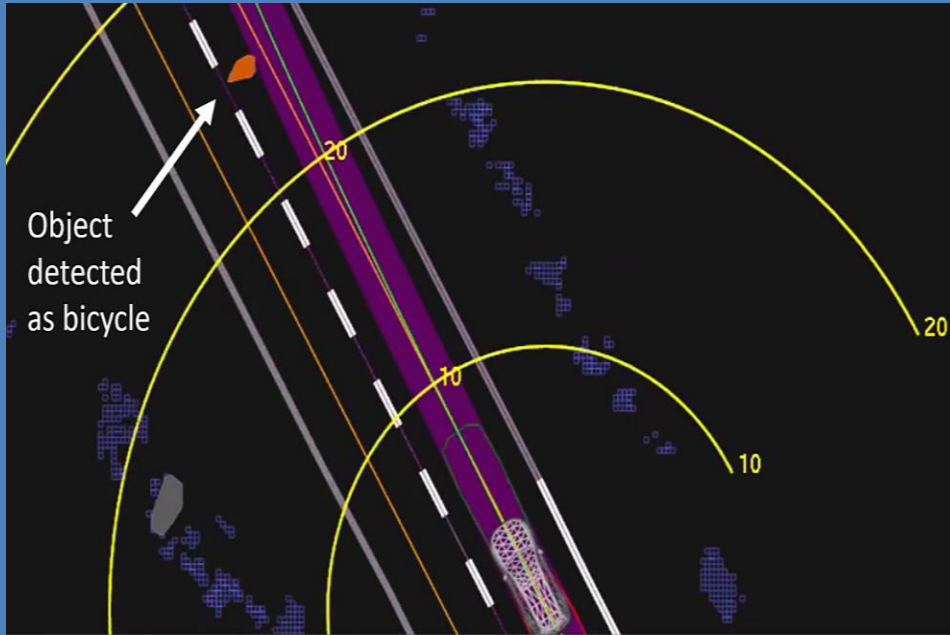
- March 18, 2018
- 9:58 pm local time
- Pedestrian pushing bicycle struck
- Uber test vehicle with 2017 Volvo XC90 platform
- Self-driving system in computer control mode



Crash Location



Crash Detection Sequence



- A hazard detected 6 sec before impact
 - Speed of 43 mph
- The hazard changed to an unknown object, a vehicle, and then a bicycle
- Emergency braking needed 1.3 s before impact
- Driver steered < 1 s
 - Impact speed 39 mph



A Principled Approach to Safety



UberATG

Nov 2, 2018 · 3 min read

By: Dara Khosrowshahi, CEO



Adventure Cycling Association

<https://www.uber.com/info/atg/safety/>

Ped Safety Special Investigation Report

- Completed fall 2018, included 15 case studies
- Safety Issue Areas:
 - Vehicle lighting systems
 - Advanced vehicle technologies
 - Infrastructure and data



Vehicle-Based Safety Countermeasures

- Vehicle headlight performance
- Vehicle physical design
 - Designs less injurious if impact between pedestrian and vehicle does occur
- Collision avoidance technologies



Summary

- Automated vehicles have limitations
 - Operational design domain
 - Need for driver engagement
- Automated vehicles have a great potential
 - Crash in Tempe raised awareness and slowed the rush to full automation
- Need to improve pedestrian and bicyclist safety



AV START Act



US Congress has failed to pass regulatory legislation that will ensure the safety of the most vulnerable road users;

Leaving safety in the hands of the auto industry

