

Safe Systems Summit

Redefining Transportation Safety



Opening Session: Past Successes and Future Challenges in Traffic Safety

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Ann Dellinger, CDC

April 23, 2019

2007 I-35 W bridge collapse in Minnesota



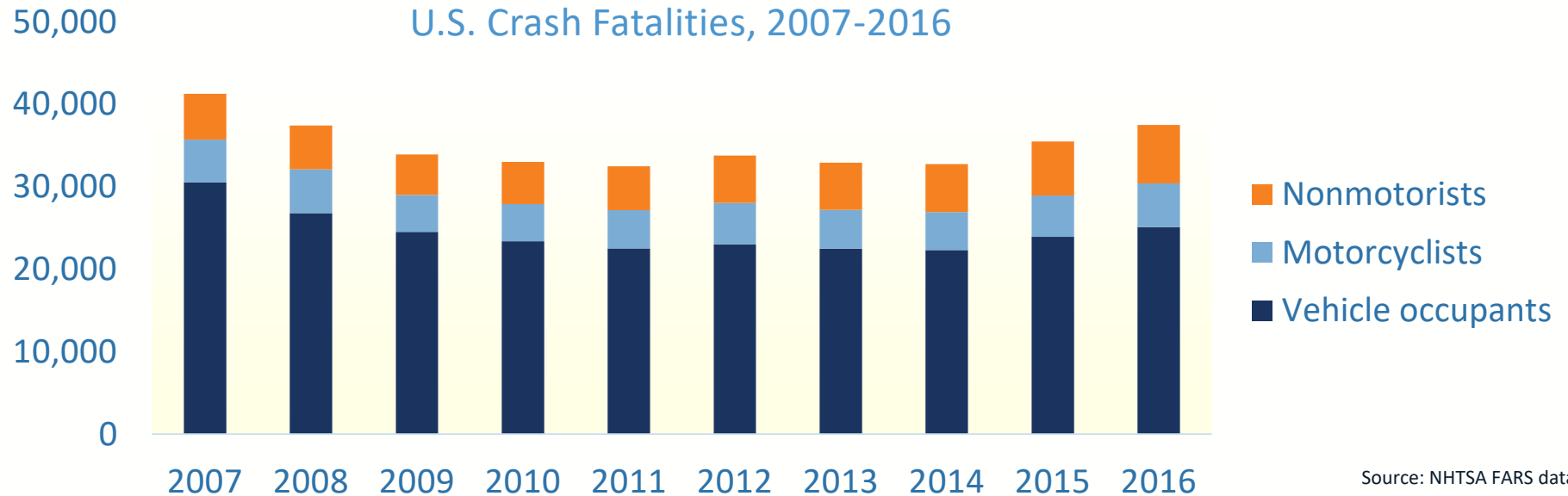
Photo
source:
Kevin
Rofidal

State and Federal response in the years since

- Changed requirements for bridge design
- Created assessment tools to check quality of bridge design
- New bridges imbedded with sensor technology
- New Federal bridge inspectors handbook
- New training academy for bridge inspectors
- New bridge safety metrics
- Improved bridge inspection data and data management system
- Improved inspection reporting consistency and multijurisdictional coordination
- Increased funding for bridge inspection and maintenance

Source: Kevin Western, State Bridge Engineer, MNDOT, "Ten Years of Learning," presentation at CUTC Summer Meeting, Tuesday, June 5, 2018

What about when the event is less rare? Or perceived to be less urgent or catastrophic?



What about when the fault is less clear? Or the responsibility more diffused?

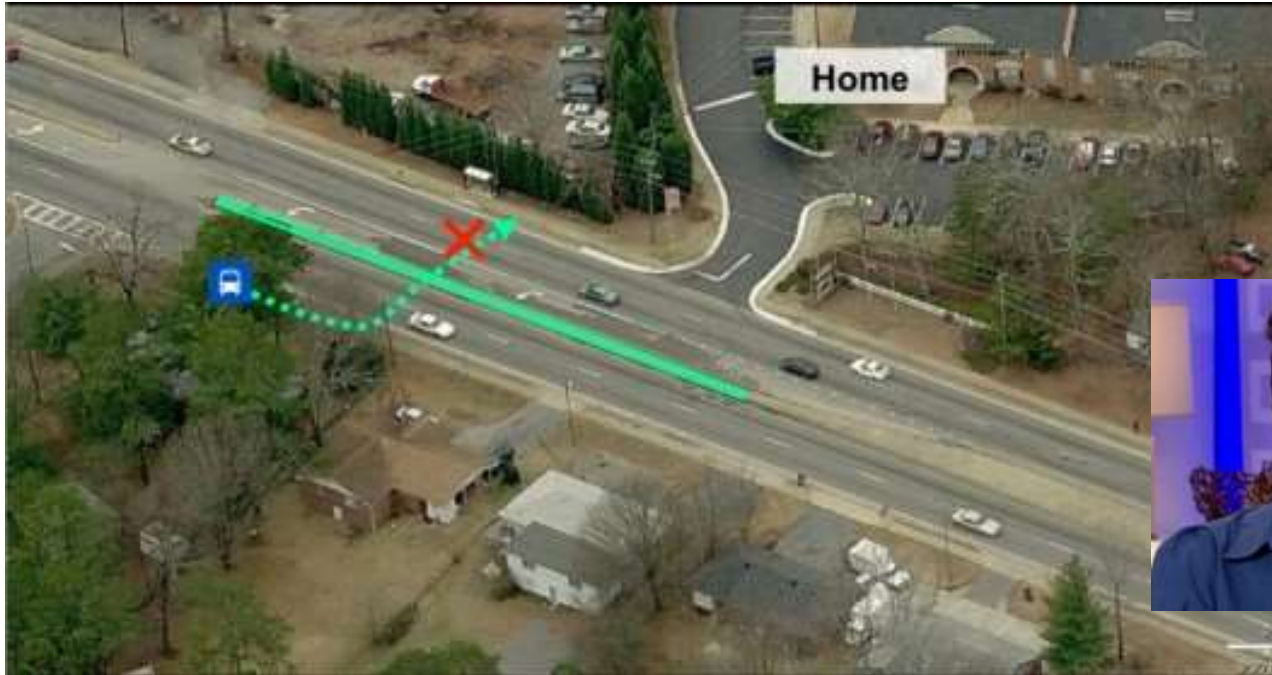


Photo source: [StreetsBlog](#)

These are the features of our silent epidemics and persistent problems

Number and rate of pedestrian deaths, 2000-2016



Source: NHTSA FARS data, US Census

These are the characteristics of wicked problems



The spectrum of our transportation safety problems



- Clear problem definition
 - Single organization
 - Regular leadership: implement existing solution
- Clear problem definition; urgent need for solution
 - Need for new solutions, more permission for action and innovation
 - Directive leadership: demand for action and someone taking control
- Unclear problem definition
 - Requires multiple agencies, innovation, and learning
 - Adaptive leadership: create multi-stakeholder environments

Adapted from: Grant, K. "Problems, problems, problems: The social construction of leadership."
Human relations 58, no 11 (2005): 1467-1494.

Wicked problems aren't easily solved

The world, transportation, and technology are:

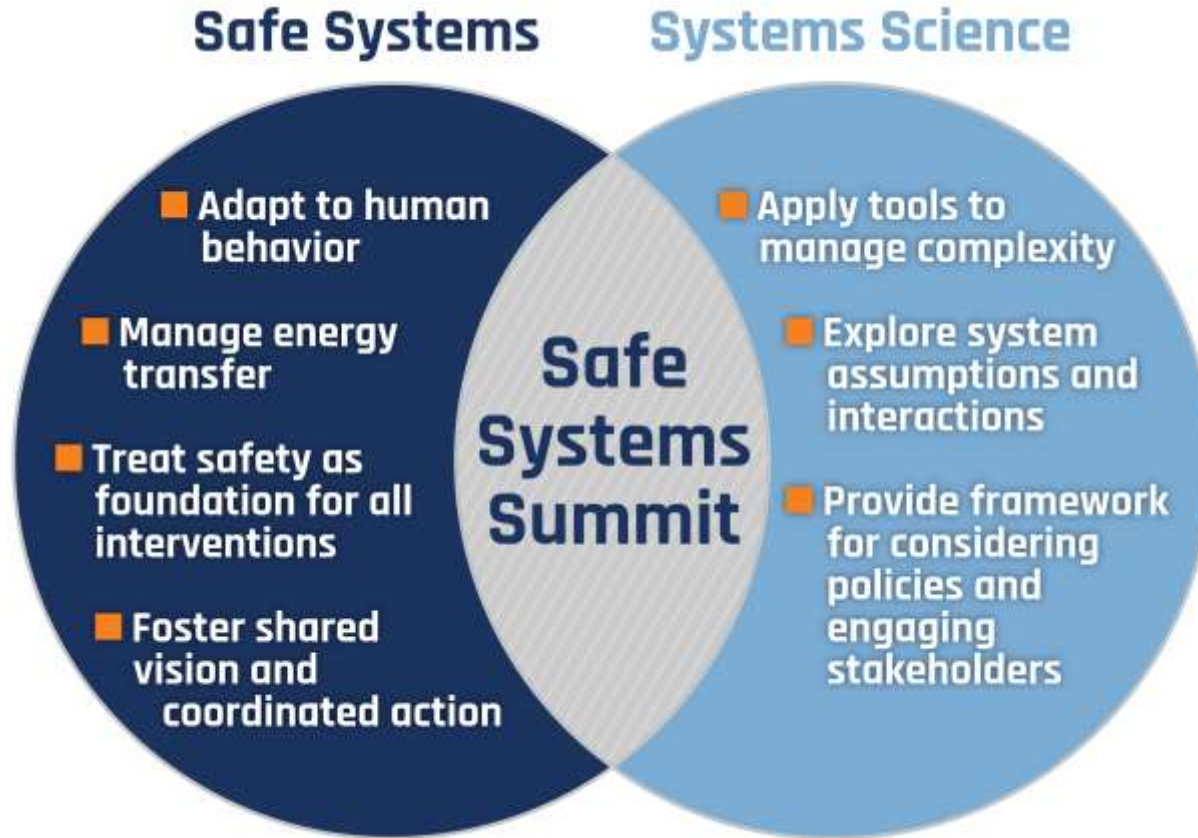
- Increasingly complex
- Increasingly inter-connected

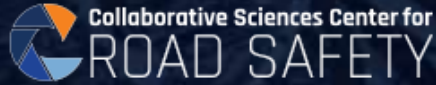
This demands new paradigms and skillsets:

- Proactive
- Integrated
- Adaptive
- “Systems” oriented



Principles of “systems” oriented approaches





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Case Example: Public Health Approach to Reduce Motor Vehicle Crashes on Indian Reservations

Alan Dellapenna, R.S. MPH

North Carolina Division of Public Health

April 23, 2019



Experience has shown a **combined approach** is the most effective strategy

- A clear understanding of the issue
 - **Who's** at risk, What's the **root cause**, What **needs** & **can be changed**
- What **specific change** needs to be made to address the problem
- Who needs to be involved
- **Data** (Evaluation) to show the work we did made a positive change.



1986 Level I Injury Course
Public Health's Combined
Approach





San Carlos Apache Tribe

San Carlos, Arizona



Location of MVCs by Milepost

Hwy 70 Widening Project

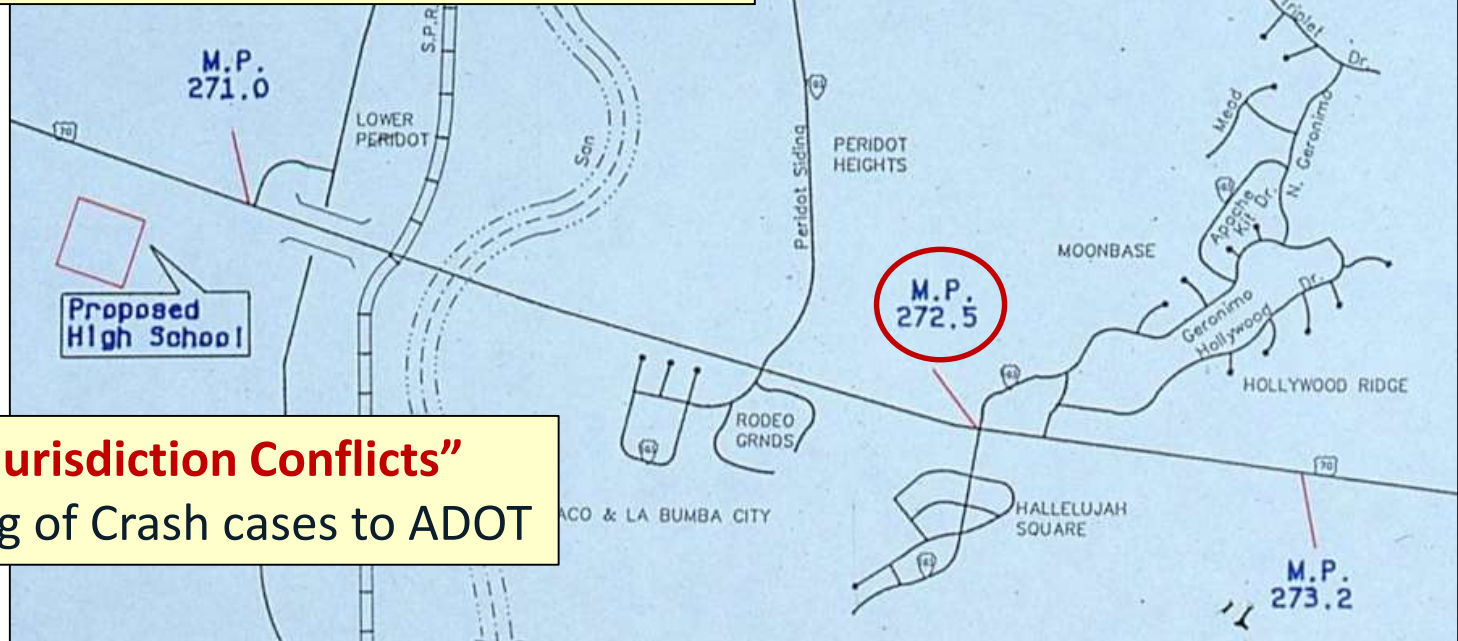


1985-1990

Problem 1

Urban development along a rural road without roadway design modification

“Urban environment developed in an unmodified rural environment”



Problem 2 **“Jurisdiction Conflicts”**

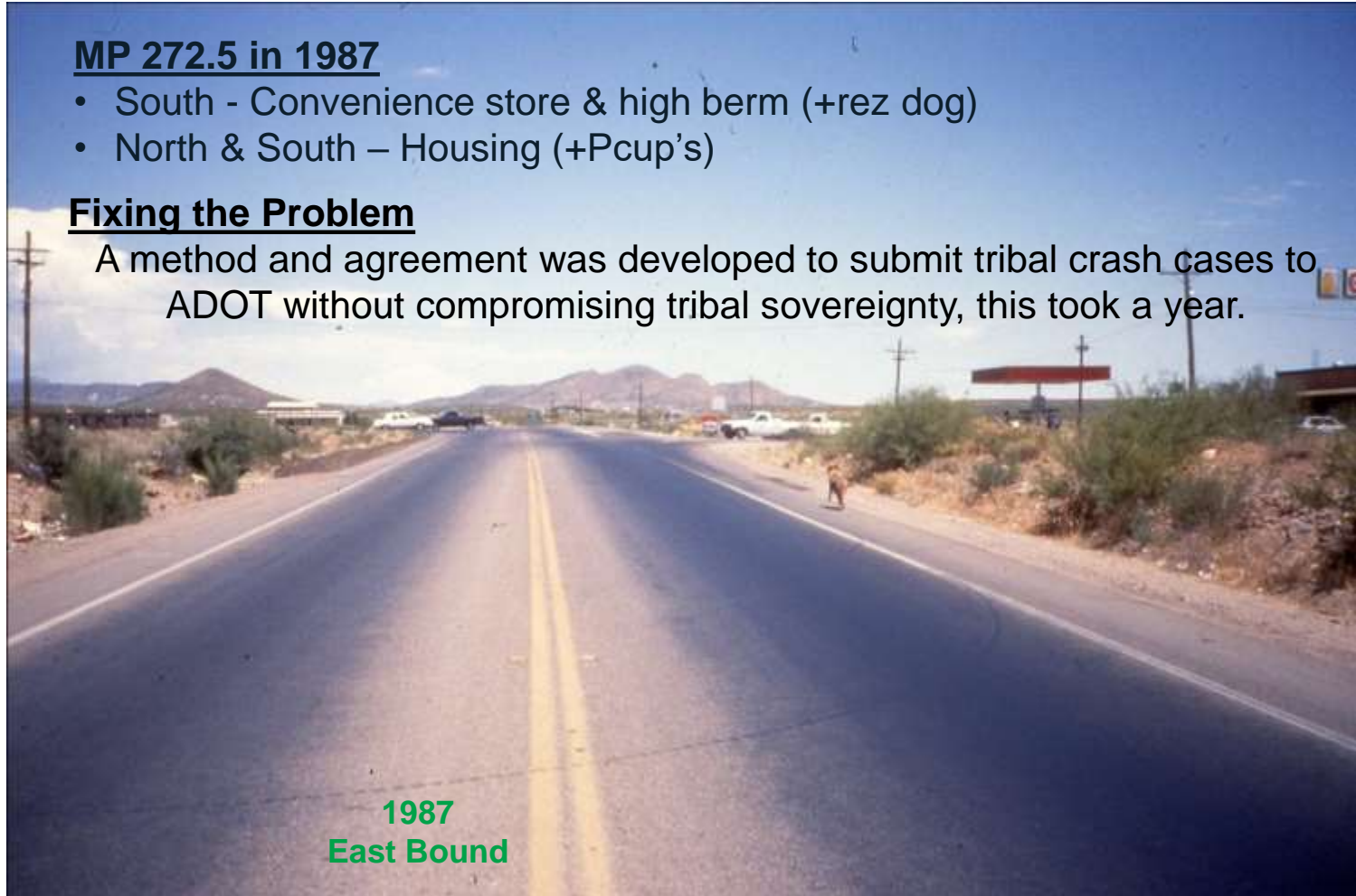
Under Reporting of Crash cases to ADOT

MP 272.5 in 1987

- South - Convenience store & high berm (+rez dog)
- North & South – Housing (+Pcup's)

Fixing the Problem

A method and agreement was developed to submit tribal crash cases to ADOT without compromising tribal sovereignty, this took a year.



1987
East Bound

1990 – Active interest by a Tribal Council Member, Petition drive to ADOT, On-going dialog with ADOT, 2nd IHS study adds 2 more years of tribal crash data

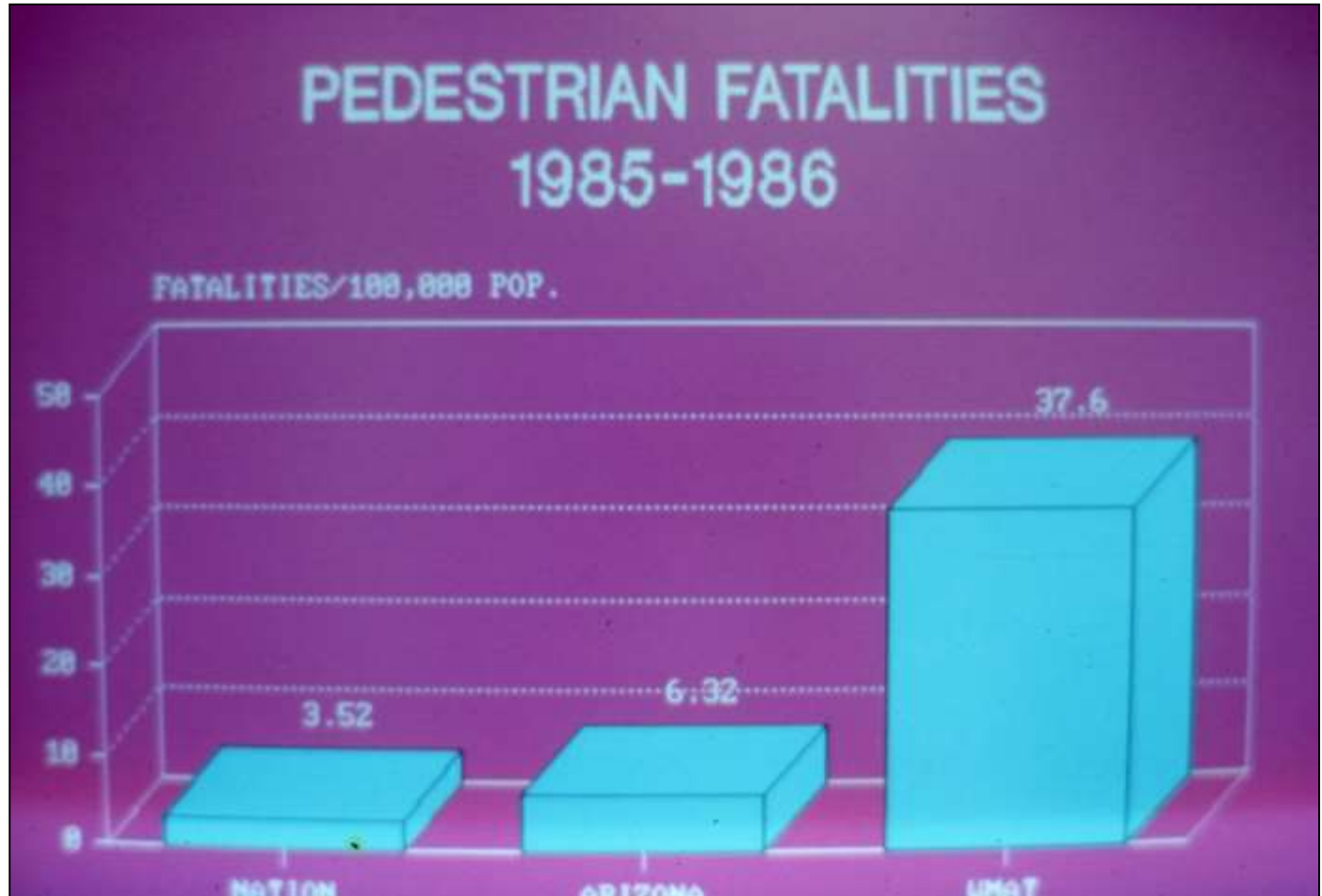
1991 – ADOT Engineering Study, ADOT develops a widening project and moves project up their Priority List = **\$315,000 ADOT Project**



1991
East Bound

1988

Fort Apache Indian
Reservation
Whiteriver, Arizona



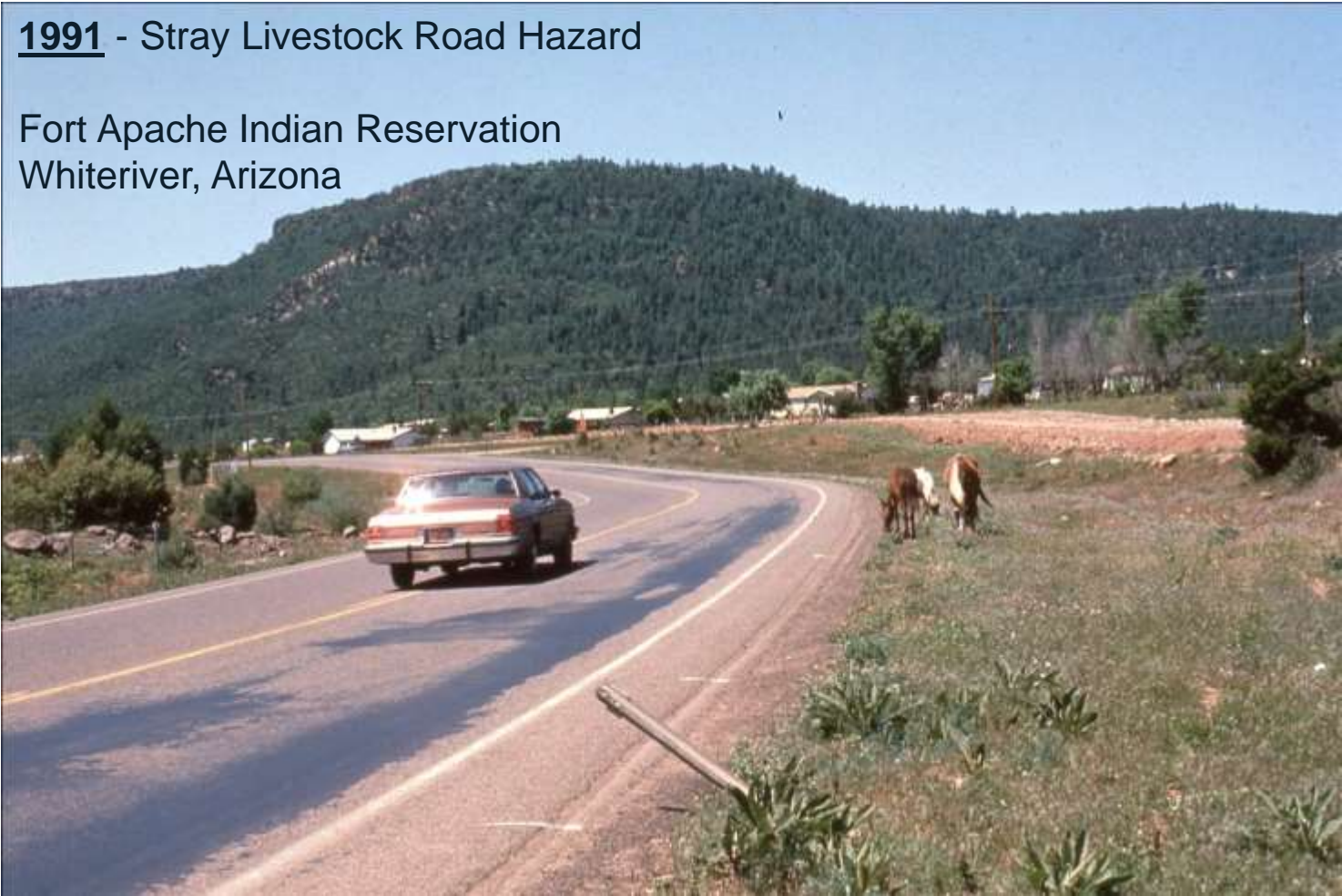
The Roadway Lighting Project in Whiteriver, AZ demonstrated the effectiveness of environmental modification in reducing injuries.

Similar projects were completed in dozens of communities across Indian Country.



1991 - Stray Livestock Road Hazard

Fort Apache Indian Reservation
Whiteriver, Arizona



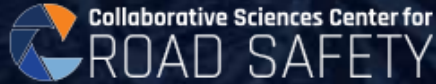
Livestock Control Project

Fort Apache Indian Reservation, Arizona



1987 Hayden Anderson, Tribal Health Educator, Fellowship Class of 1994

Thank You



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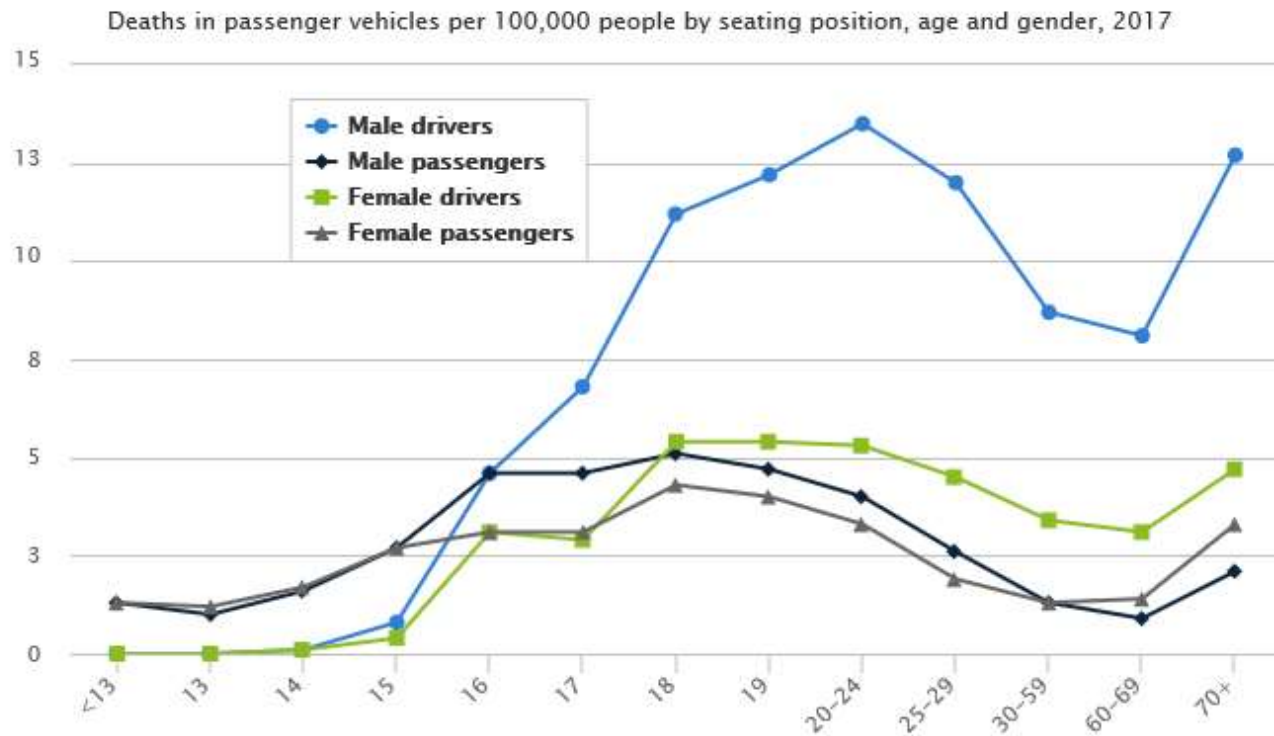


Is GDL an Example of a Safe Systems Approach in Public Health? (what about distracted driving?)

Ann Dellinger, Centers for Disease Control and
Prevention

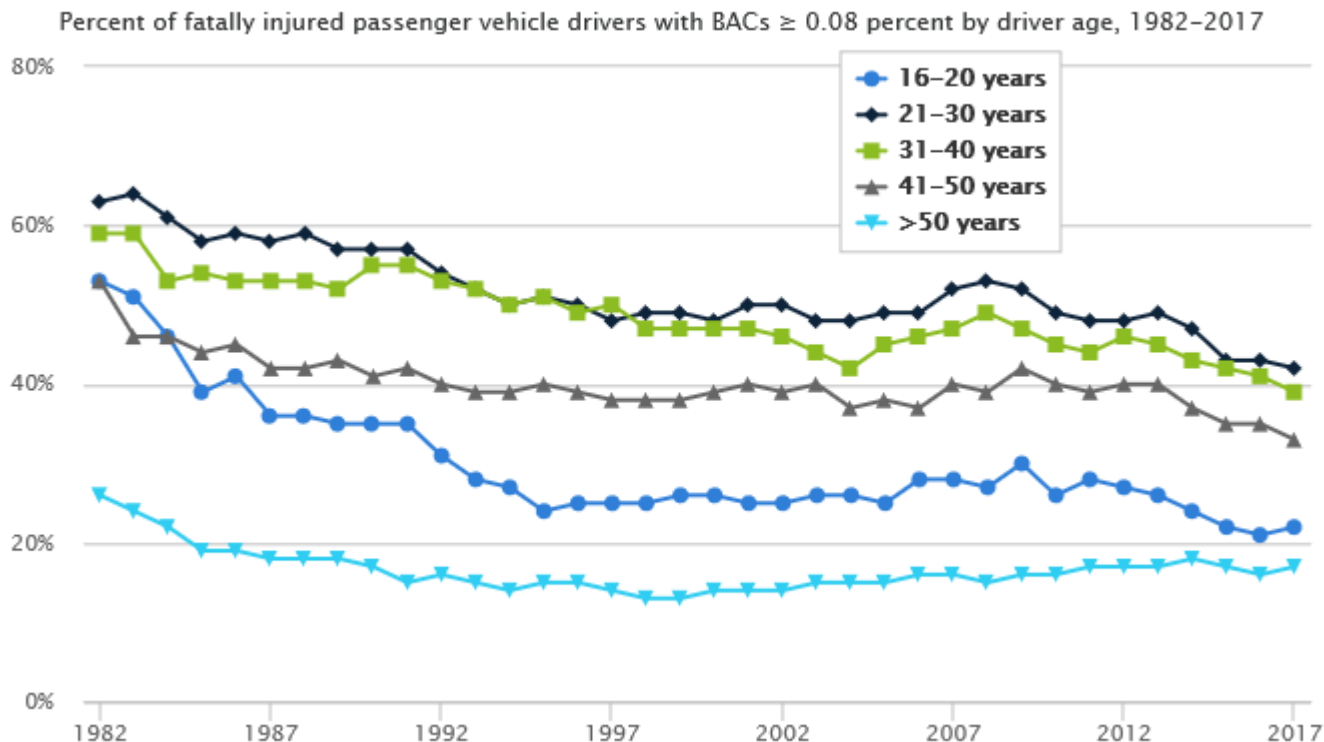
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What's Our First Clue that We Have a Young Driver Issue?



Source: IIHS

Could it be alcohol?

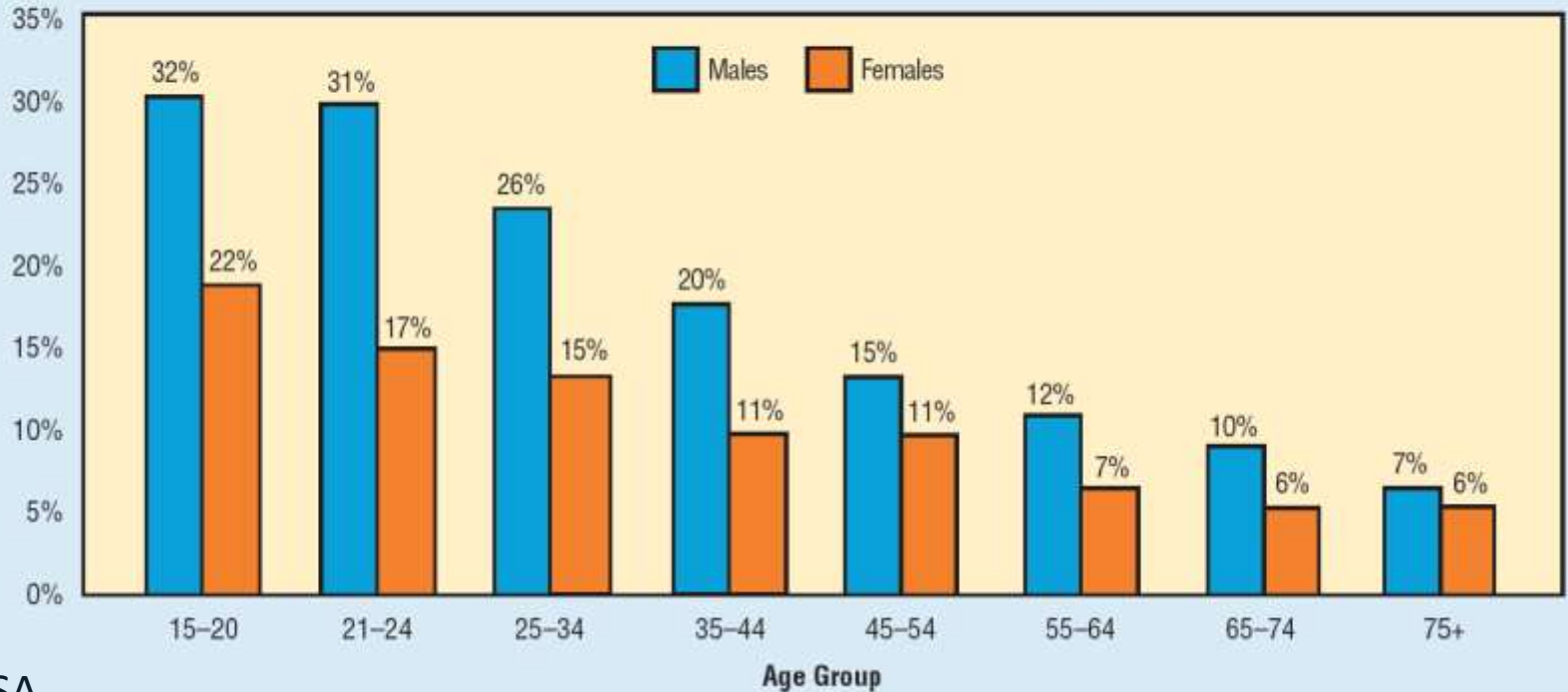


Source: IIHS

Could it be speed?

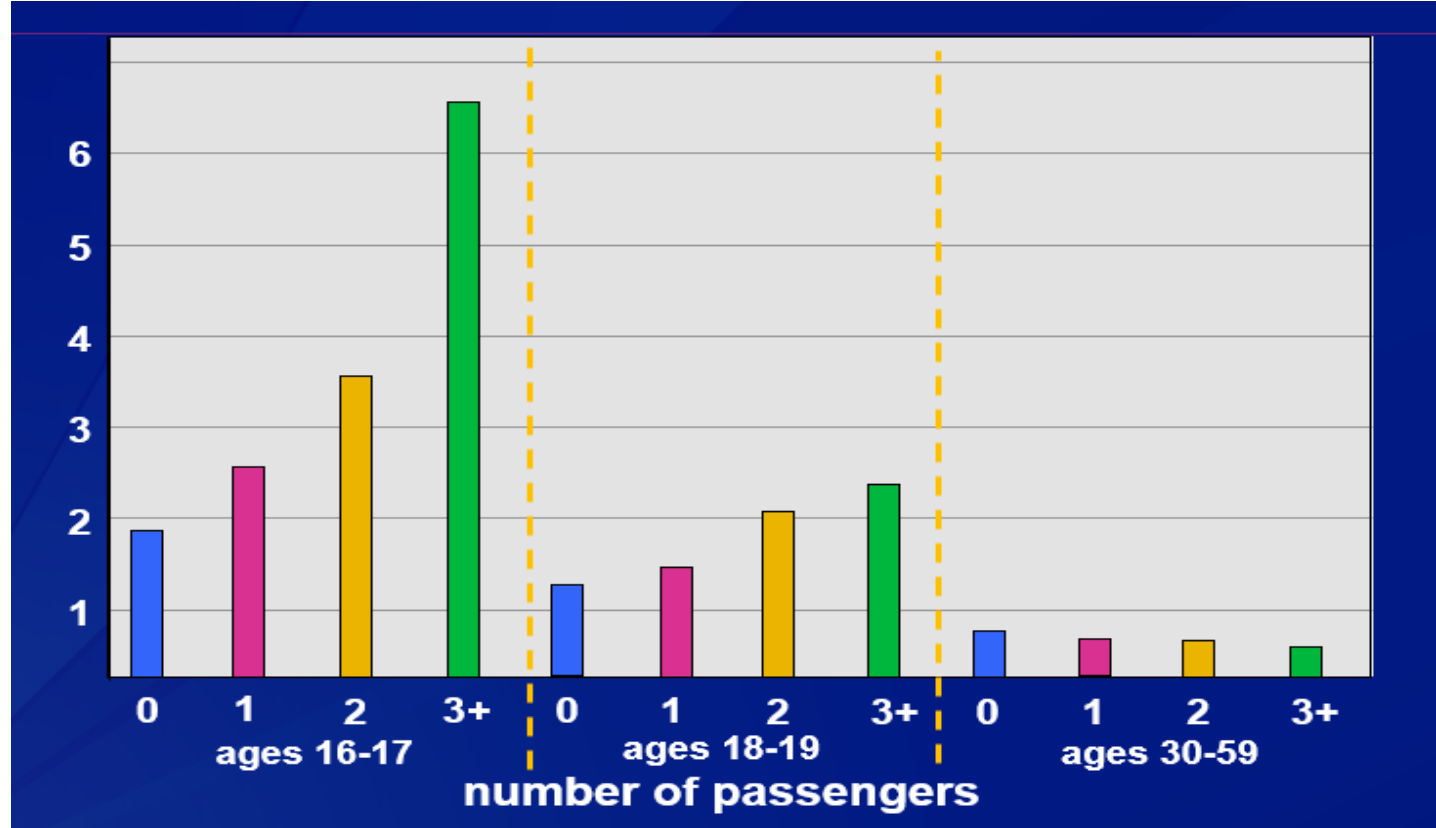
Figure 1

Percentage of Speeding Drivers in Fatal Crashes, by Age and Gender, 2016



Source: NHTSA

Could it be the number of passengers in the vehicle?



Source: IIHS

There are plenty of identified risks for young drivers



- Inexperience
- Age/maturity
- Speeding
- Alcohol
- Teen passengers
- Not using belts
- Nighttime driving

Let's not forget...

- Distraction
- Fatigue

A Long List—What do we do?

- Inexperience-----practice
- Age/maturity-----delay licensure
- Speeding-----enforce speed limits
- Alcohol-----MLDA, Zero tolerance
- Teen passengers-----limit number
- Not using belts-----enforcement laws
- Nighttime driving-----curfew

Let's not forget...

- Distraction-----policy
- Fatigue-----?

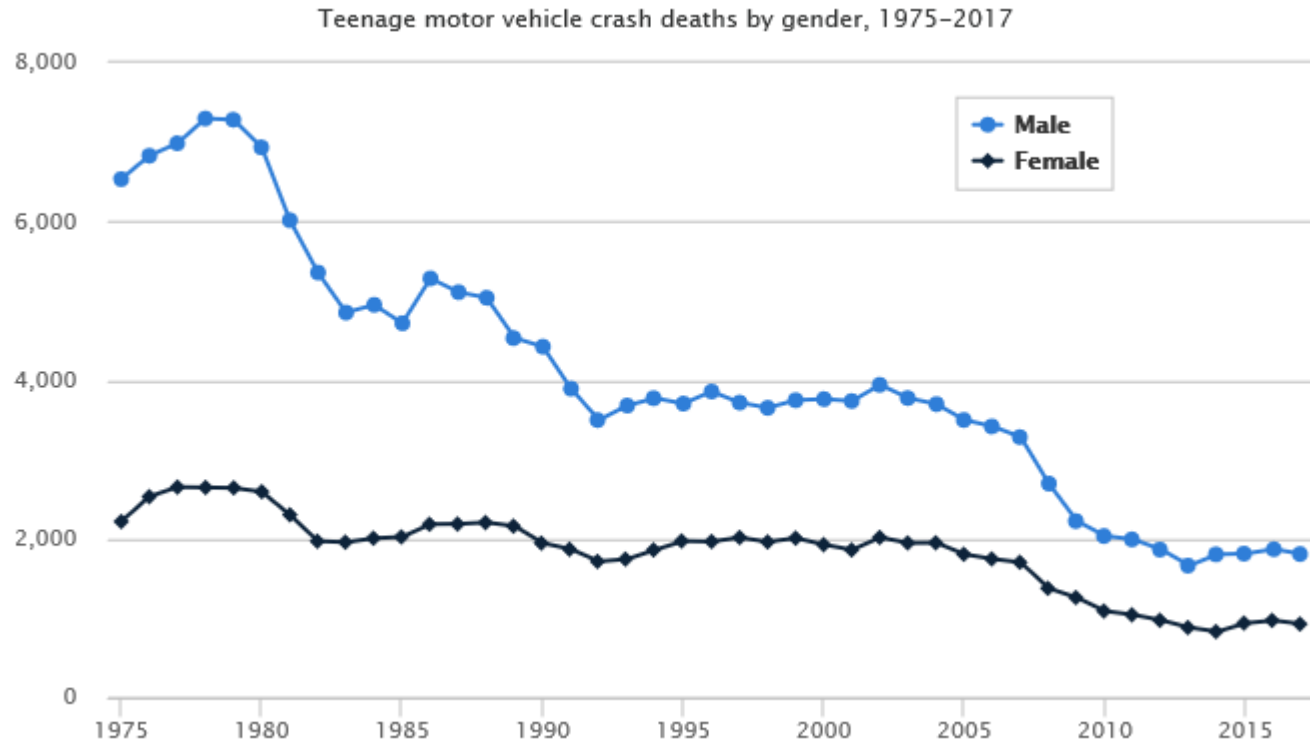
GDL = Graduated Driver License

- Driving privileges are phased in to give beginners experience in lower risk settings
- With supervised practice they gain critical skills

What makes GDL a successful safe systems approach? How does it differ from a traditional approach?



What do the results look like over time?



Source: IIHS

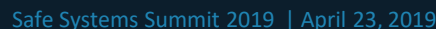
Instead of addressing each risk alone, address together and get the added benefit of risk interactions--here are 5 key provisions

- Inexperience-----practice (with supervision)
- Age/maturity-----delay permit age
delay full licensing
- Teen passengers-----limit number young passengers
- Nighttime driving-----curfew

- Adapt
 - Parents
 - Providers
 - Peers

Car crashes took more than 2,300 young lives in 2015 — that's six teen deaths a day. All new drivers — even straight 'A' students and "good kids" — are more likely than experienced drivers to be involved in a fatal crash.

and teens about the dangers of teen driving and steps they can take to reduce the risks. Parents and teens should discuss:



What about distracted driving? Do we have a safe systems approach? Can we?

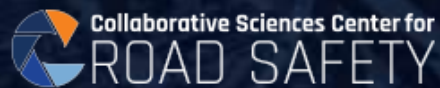


Can we measure it?
Can we identify risk factors?
Can we work in a coordinated, holistic way?
Can we adapt?

Is distraction keeping us from seeing expected safety gains from vehicle improvements?



Thank You



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Panel Discussion

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