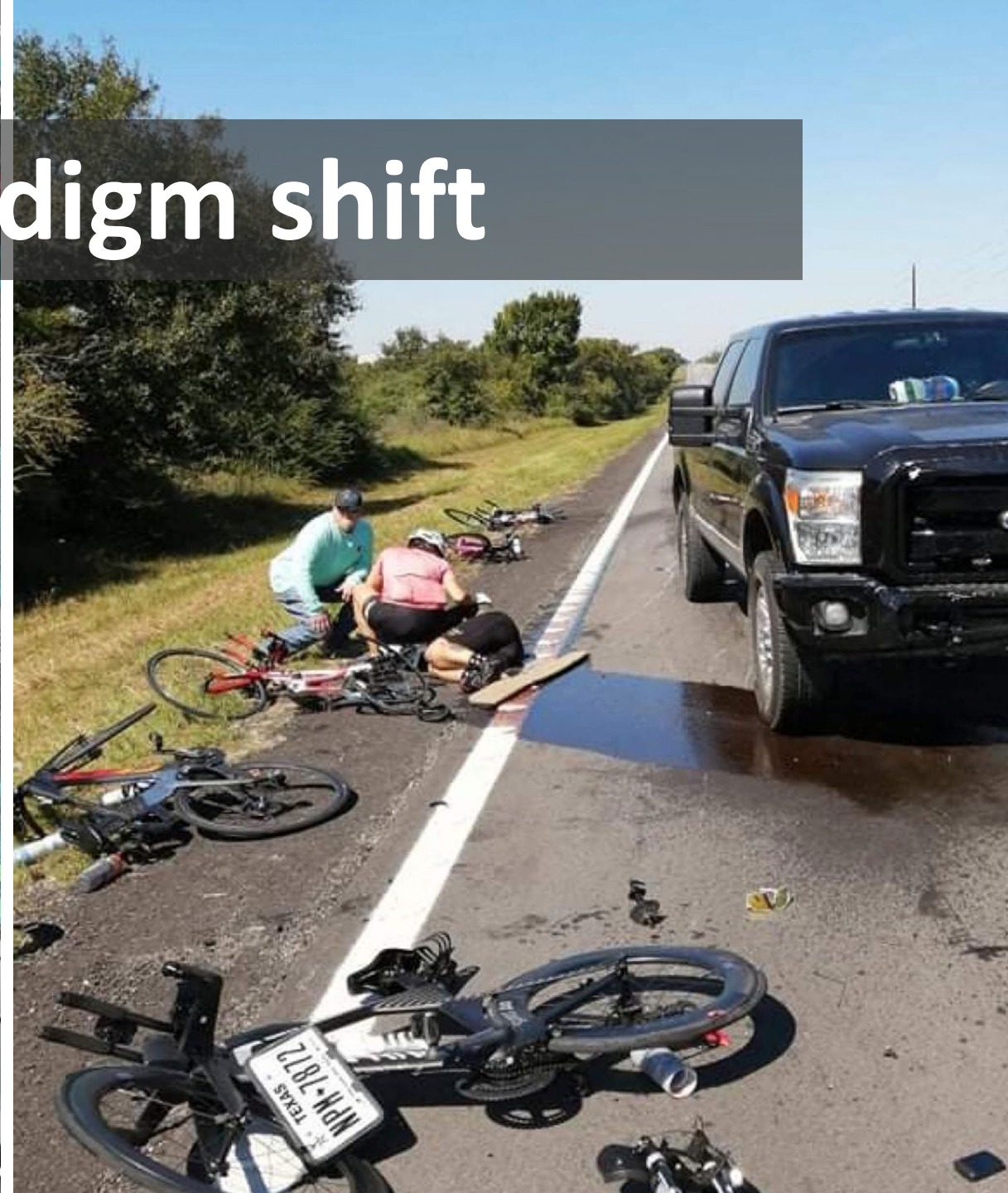


Why C-V2X, why now | A safety story that can no longer wait

A V2X paradigm shift



41,000 > 288 million

(U.S. road fatalities)

(Total vehicles in U.S.)



August, 2022 A mom's
bike ride cut short



SARAH
LANGENKAMP

A BICYCLIST
WAS KILLED
HERE

named
Sarah -
sister, daughter,
wife, mom, and
friend.

PETER GRAY
2011 MAY 1333 (101)
PETER GRAY, USA



We miss you and
love you, Sarah.
Dan

We love
you, Sarah,
mom & friend.

Amazing woman
mother & friend
who was so kind
and so loving to
all who knew her.

Follow the
pink ribbon by the
bike to the grave.

macabremonks.com

March, 2023 I-695
work zone tragedy



A photograph of a man and a young boy. The man, Harun Saifullah Syafa, is smiling and holding the boy. He has sunglasses on his head and is wearing a dark green jacket over a patterned shirt. The boy is wearing a colorful plaid shirt and looking towards the camera. The background is a blurred crowd of people.

**Harun Saifullah Syafa and
his 10-year-old son**



Adopt
A Road

Emoryvor Market

MONTGOMERY COUNTY SCHOOLS

21025

DO NOT CROSS

POLICE LINE DO NOT CROSS
MONTGOMERY COUNTY POLICE 248 270-6471

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25 million/day U.S. children on school buses
school buses

41.8 million/yr.
Stop-arm violations

25,000
Children injured a year near school buses or school zones

100
Children killed around school buses a year

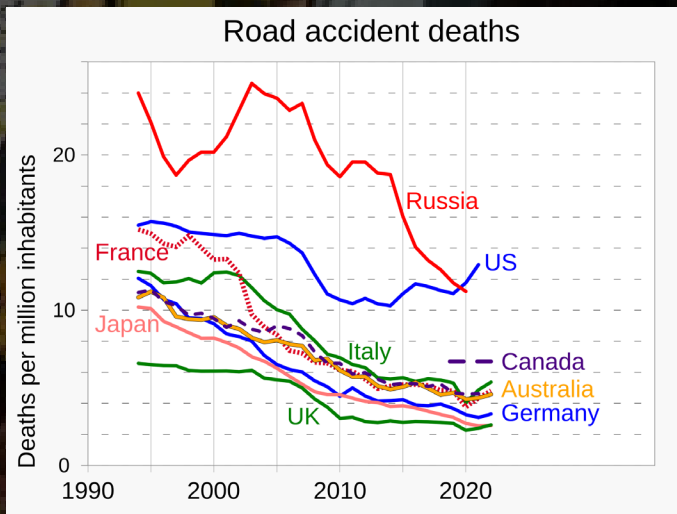


Grim statistics

U.S. road deaths

(2023 vs. 2013)

+25%



Source: OECD data



School Buses

+30.5%

Fatalities

(2023 vs. 2013)



Pedestrians

+54.5%

Fatalities

(2023 vs. 2013; Highest since 1981)



Bicyclists

+56%

Fatalities

(2023 vs. 2013; Highest on record)



Rail crossings

+15.5%

Collisions with vehicles

(2023 vs. 2013)

C-V2X initial deployments | School bus + School Zone alerts

Contextualizing the problem

- ~ 42 million stop arm violations daily
- 25,000 kids killed or injured annually at school zones or getting on and off buses
- Partner Applied Information solved best school bus + signage configurations

Clear results

- Clear C-V2X safety critical audible and visual alerts given to Audi drivers
- Later project with International's IC Bus added bus driver alerts

Financial benefits

- Fulton County Schools and Applied Information estimated 12-15% gain in school bus fuel efficiency

Unexpected benefits

- Children who qualify for hot breakfast at school arrived on time
- Accurate school attendance counts
- Bus schedules + routes far more reliable



C-V2X initial deployments | Cyclist safety alerts

Contextualizing the problem

- U.S. cyclist fatalities highest ever recorded by NHTSA
- U.S. second only to Italy in deaths per miles cycled

Defining the V2X solution

- Identifying alerts for most common scenarios in cyclist traffic deaths
- “I didn’t see them’ - 72% motorists’ say after a VRU fatal collision

Safety enhancing vs. safety critical

- Safety enhancing = “see you; see me” capability via networked V2X
- Safety critical = Stop now!!! Alerts sent via low-latency direct communications

Allies in action

- Local, state and federal ‘Vision Zero’ campaigns
- Newly formed Coalition for Cyclist Safety activates bike OEM community

