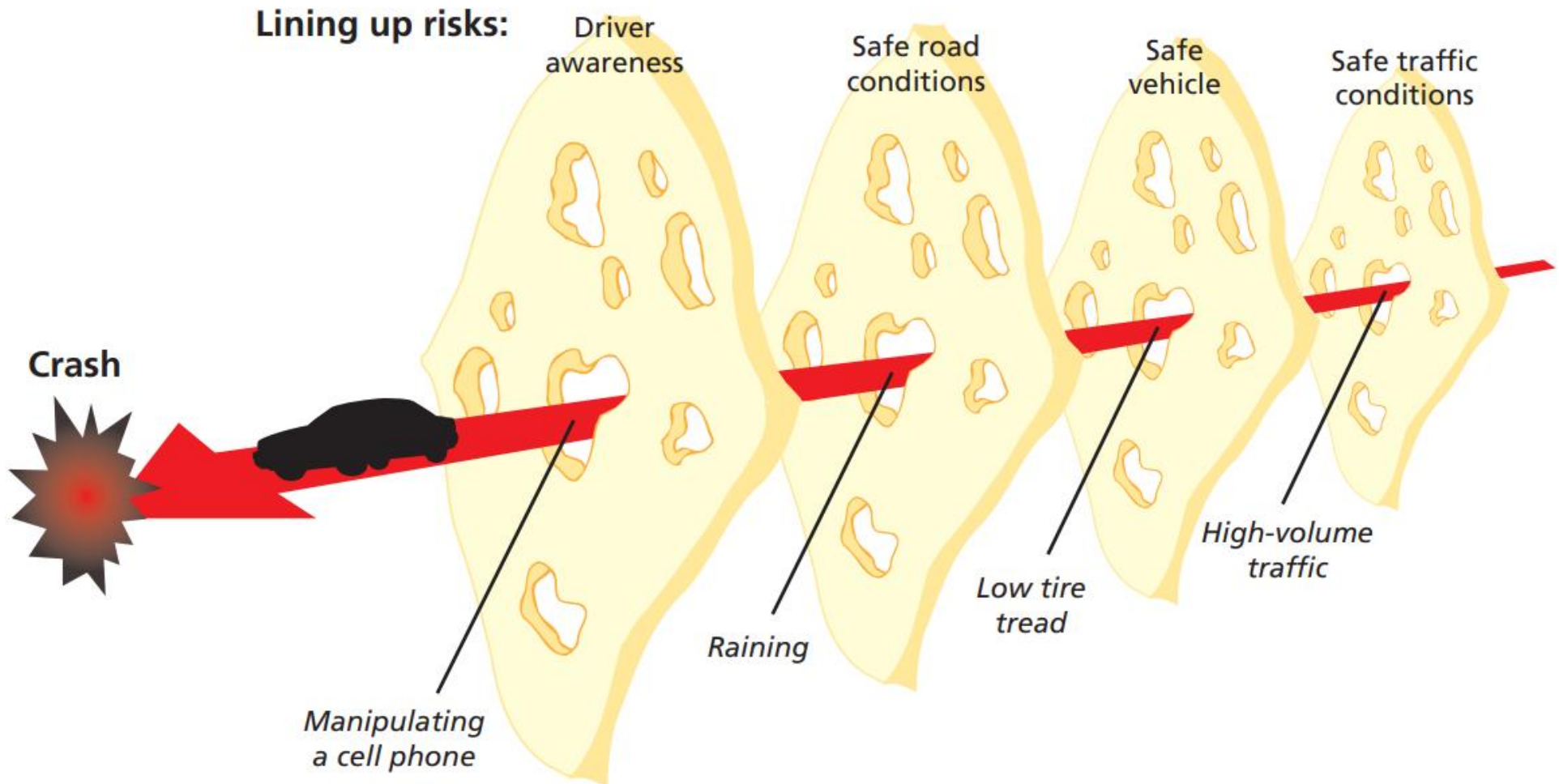
VISION ZERO LOUISVILLE

Public Works Committee

June 14, 2022

Figure 1.3
Swiss Cheese Model of Crash Causation

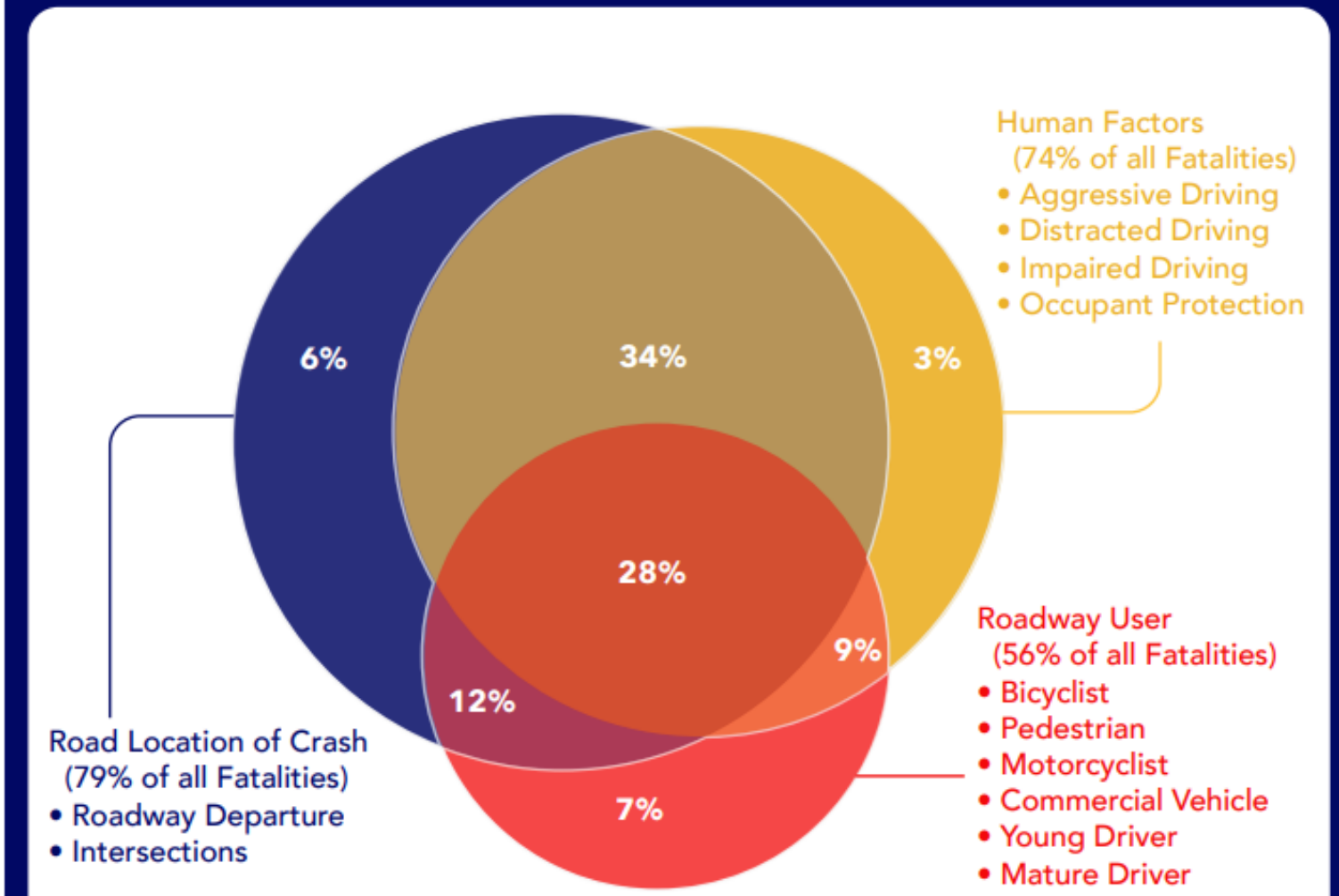


SOURCES: Adapted from Seppa (2013) and Reason (2000).

RAND *RR2333-1.3*

Source: Rand Corporation *"The Road to Zero: A Vision for Achieving Zero Roadway Deaths by 2050."*

Crashes are rarely caused by a single contributing factor. Commonly, it is a combination of factors which collectively lead to a crash outcome. The graphic below shows the interconnectivity of three different types of contributing factors over five years of fatal crashes (not to scale).



Source: KYTC *"2020 State Highway Safety Plan"*

Cost of Vision Zero Projects

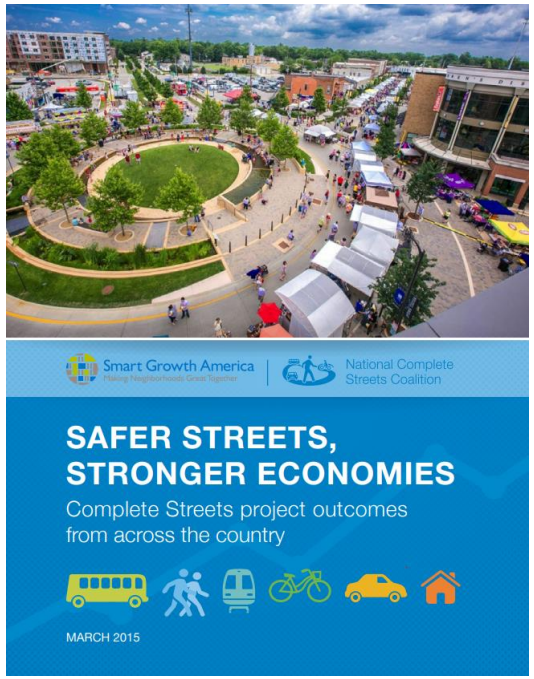
Proven Safety Countermeasure	Cost Range (per FHWA)	Safety Benefit
Signal Backplates	$180 each	15% reduction in crashes[1]
Advance Yield Line	$320 each	23-48% reduction in crashes[2]
High visibility crosswalk	$600 - $5,700	23-48% reduction in crashes[2]
Curb extension	$2,000 - $20,000	23-48% reduction in crashes[2]
Pedestrian Refuge Island	$2,140 - $41,170	56% reduction in pedestrian crashes[3]
RRFB: Rectangular Rapid-Flashing Beacon	$4,500 - $52,000	47% reduction in pedestrian crashes[4]
Roundabout	Varies based on context. Average annual savings of $5,000 per year in electricity and maintenance costs.	78-82% reduction in fatal and injury crashes[5]
Lighting	Varies based on fixture type and utility service agreement.	28-42% reduction in crashes[6]

Sources:

1) FHWA PSC Backplates
2) FHWA PSC Crosswalk Visibility Enhancements
3) FHWA PSC Pedestrian Refuge Island
4) FHWA PSC RRFB
5) FHWA PSC Roundabouts
6) FHWA PSC Lighting

Impacts to Businesses

- Higher employment levels
- Net new businesses
- Higher property values and private investment



Source: Smart Growth America "Safer Streets, Stronger Economies"

Economic Impact to Society

Table 34. Recommended national KABCO comprehensive crash unit costs for the FHWA BCA Guide and Tool (2016 dollars).

	Severity	Comprehensive Crash Unit Costs
Killed	K	$11,295,400
Incapacitating Injury	A	$655,000
Non-Incapacitating Injury	B	$198,500
Possible Injury	C	$125,600
Property Damage Only	O	$11,900

Source: FHWA "Crash Costs for Highway Safety Analysis"

Economic Impact to Society

Severity	Comprehensive Crash Unit Costs
K	$11,295,400

[1]

Year	Total Fatalities[2] (Non-Interstate)	Societal Costs (Tangible + Intangible)
2014	85	$960,109,000
2015	95	$1,073,063,000
2016	115	$1,298,971,000
2017	128	$1,445,811,200
2018	97	$1,095,653,800
2019	109	$1,231,198,600
2020	140	$1,581,356,000
2021	129	$1,457,106,600
2022 (through 3/31/2022)	33	$372,748,200
TOTAL	**931**	**$10,516,017,400**

Sources:
1) FHWA "Crash Costs for Highway Safety Analysis"
2) Vision Zero Louisville "Crash Dashboard"

Success of our Safety Improvements

Crash Type	Transforming Dixie Highway (TIGER Grant)		Brownsboro Road Rightsizing		Grinstead Drive Rightsizing	
	Crashes Per Year		Crashes Per Year		Crashes Per Year	
	Before	After	Before	After	Before	After
PDO Crashes	549.0	120.0	34.0	20.9	7.0	3.8
Injury Crashes	112.0	32.5	6.5	4.0	0.7	1.0
Fatal Crashes	1.7	1.5	0	0.1	0	0
Total Crashes	**1,067.7**	**154.0**	**40.5**	**25.0**	**7.7**	**4.8**

Source: Kentucky State Police

Who is the national Vision Zero Network?

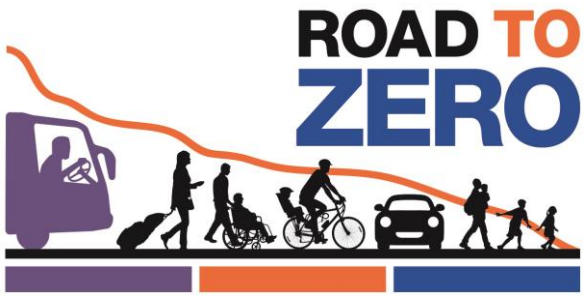
- **Non-Profit Organization**
- Act as an independent body for management, strategy, and development
- Staffed by experts in:
  - Non-Profits, Public Policy, Research, Urban/Transportation Planning, Public Health, and Law

- **Financially supported by:**
  - Individual donations (typically families of victims)
  - Corporate Sponsorships

- *Community Initiatives*, whose sole purpose is to provide professional services (accounting, audit, legal, etc.) to non-profits**.**

Source: Vision Zero Network

Who supports the Safe Systems Approach?



Toward Zero Deaths

National Safety Council

Kentucky Office of Highway Safety

AAMVA

AASHTO

COMTO

de Beaumont

FIA FOUNDATION

IIHS

Insurance Institute for Highway Safety

Intelligent Car Coalition

ite

MEMA

NACTO

NASEMSO

National Center for Rural Road Safety

National District Attorneys Association

NLC NATIONAL LEAGUE OF CITIES

CITIES STRONG TOGETHER

The Trucking Alliance

THE UNIVERSITY OF NORTH CAROLINA HIGHWAY SAFETY RESEARCH CENTER

VN

Federal Partners

CDC

CENTERS FOR DISEASE CONTROL AND PREVENTION

FHWA

FMCSA

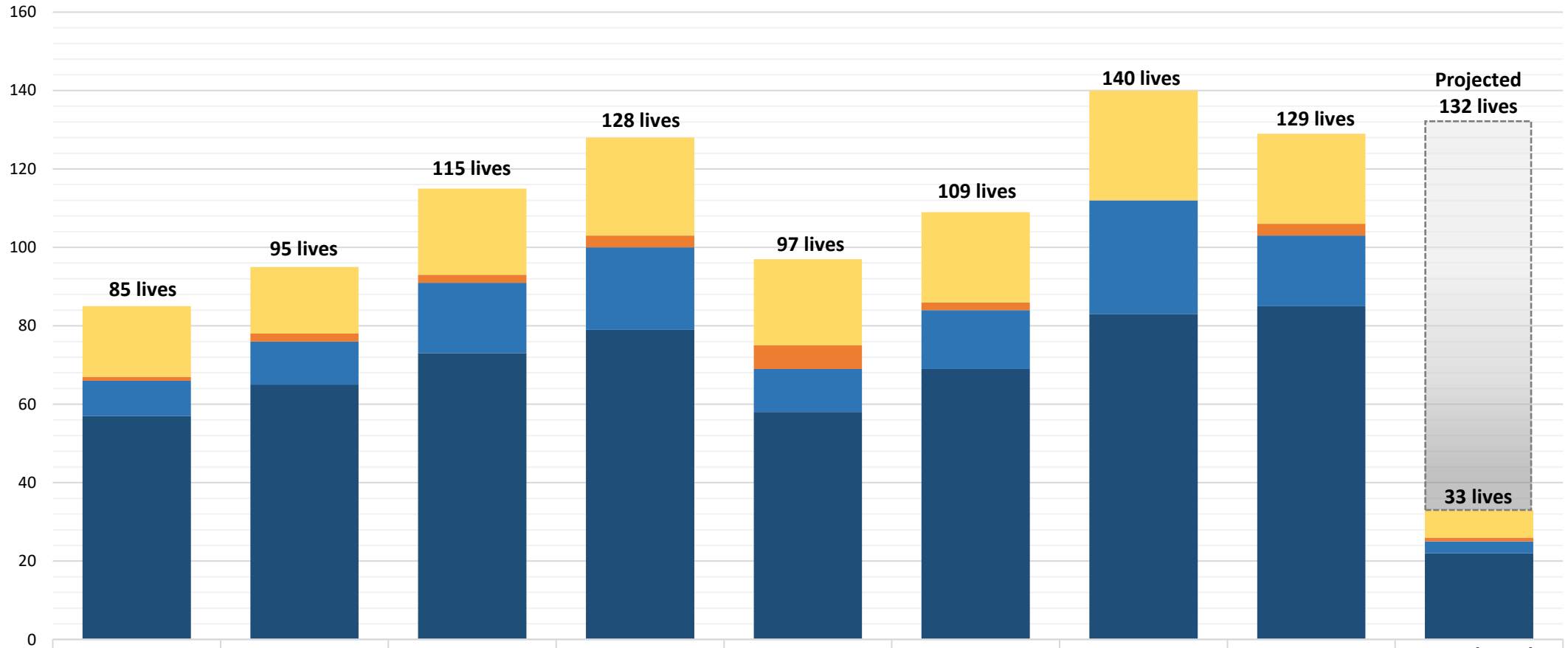
INDIAN HEALTH SERVICE · PHS · 1955 ·

NHTSA

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Source: Road to Zero Coalition

Roadway Fatalities* in Louisville
January 2014 - March 2022



	2014	2015	2016	2017	2018	2019	2020	2021	2022 through 3/31/2022
Pedestrian	18	17	22	25	22	23	28	23	7
Bicycle	1	2	2	3	6	2	0	3	1
Motorcycle	9	11	18	21	11	15	29	18	3
Motor Vehicle	57	65	73	79	58	69	83	85	22

*Non-Interstate

Source: Vision Zero Louisville "Crash Dashboard"