

2ND
NATIONAL SUMMIT
ROAD



ON RURAL
SAFETY
bridging THE gap

Innovative Ideas for Shifting Rural Safety Culture and Addressing the Human Behavior Problem to Get to Zero



National
Center
for
**Rural
Road
Safety**

ruralsafetycenter.org

Agenda

- Welcome & Introductions
- Exploring Traffic Safety Culture
- Introduce Chatham County
- [break]
- Chatham County Case Study
- Action Planning



Presenters



Nathan Benson

Occupational Safety and Risk
Management Director
Chatham County, GA



Jay Otto

Research Scientist
Center for Health and Safety
Culture
Western Transportation Institute
Montana State University



Goal for Session

Provide language, steps, and examples on shifting rural safety culture.





“Are we busy
or
are we effective?”

Stephen Covey

Agenda & Handouts

- Welcome & Introductions
- Exploring Traffic Safety Culture
- Introduce Chatham County
- [break]
- Chatham County Case Study
- Action Planning



Exploring Traffic Safety Culture Public Health Lens

Motor Vehicle Crashes

- Kill more than 32,000 people annually (about 90 a day)
- Injure more than 2 million people annually
- Are the leading cause of death of U.S. teens
- Are the leading cause of death of U.S. young adults (18 to 25)

U.S. crash rate is TWICE that of other high-income countries.

Source: CDC, <https://www.cdc.gov/vitalsigns/motor-vehicle-safety/index.html>



Exploring Traffic Safety Culture Public Health Lens

Motor vehicle incidents in the workplace

- Cause over 45,000 workplace injuries

Sources: <https://injuryfacts.nsc.org/work/work-overview/top-work-related-injury-causes/>; Occupational Safety and Health Administration, "Guidelines for Employers to Reduce Motor Vehicle Crashes."



Exploring Traffic Safety Culture Public Health Lens

Economic Costs of Motor Vehicle Crashes

- Cost \$44 billion in medical and work loss costs (2013)
- Cost workplaces \$60 billion (work loss, insurance, etc.)
- Resulted in \$18.5 billion in property damage (2016)

Sources: <https://www.cdc.gov/motorvehiclesafety/statecosts/index.html>; Occupational Safety and Health Administration, "Guidelines for Employers to Reduce Motor Vehicle Crashes."; <https://injuryfacts.nsc.org/motor-vehicle/overview/introduction/>



Exploring Traffic Safety Culture Public Health Lens

Injuries in the Public Sector

Table 1. Number, incidence rate, and median days away from work for nonfatal occupational injuries and illnesses involving days away from work by private industry, state government, and local government, 2015.

	Total private, state and local government	Private industry	State government	Local government
Number of injuries	1,153,490	902,160	59,590	191,750
% of total		78.2%	5.2%	16.6%
Injury incidence rate	104.0	93.9	149.2	177.5
Compared to private sector			+58.9%	+89.0%
Median days away from work	8	8	11	9

- Approximately 156,000,000 total jobs in the U.S. economy
- 14.2% of these are in the public sector
 - 1.8% in Federal Government
 - 12.4% in State and Local Government



Exploring Traffic Safety Culture Public Health Lens

- Raising Concern is a critical part of the process.

Tip: Repeatedly share these facts with key leaders, stakeholders, and the general public to raise concern about traffic safety as a public health and workplace issue.



Exploring Traffic Safety Culture

Causes of Crashes and Injuries

More than 32,000 people killed in traffic crashes:

- 9,500 were not using seat belts, car seats, booster seats
- 10,000 were result of drunk driving
- 9,500 were impacted by speeding

What is common about all these factors?

Source: <https://www.cdc.gov/vitalsigns/motor-vehicle-safety/index.html>



Exploring Traffic Safety Culture Causes of Crashes and Injuries

Over 90% of crashes are the result of human behavior.

Source: Singh, S. (2015, February). Critical reasons for crashes investigated in the National Motor Vehicle Crash Causation Survey. (Traffic Safety Facts Crash Stats. Report No. DOT HS 812 115). Washington, DC: National Highway Traffic Safety Administration.



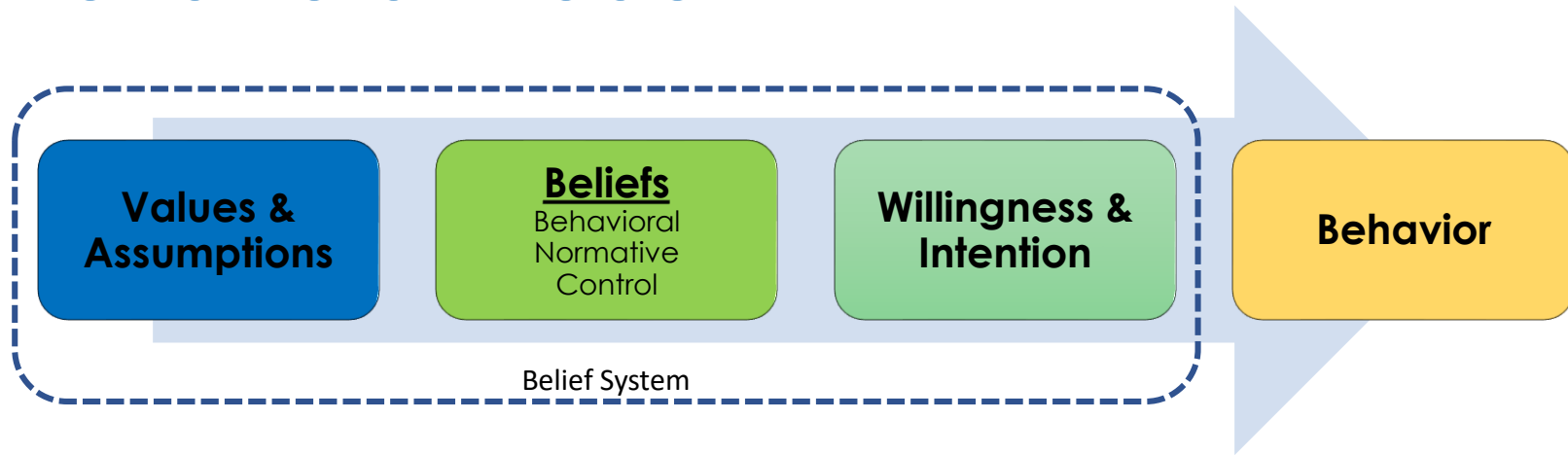
Exploring Traffic Safety Culture

Traditional Approach: 4 “E”s

- Engineering
- Education
- Enforcement
- Emergency Services



Exploring Traffic Safety Culture Behavioral Model

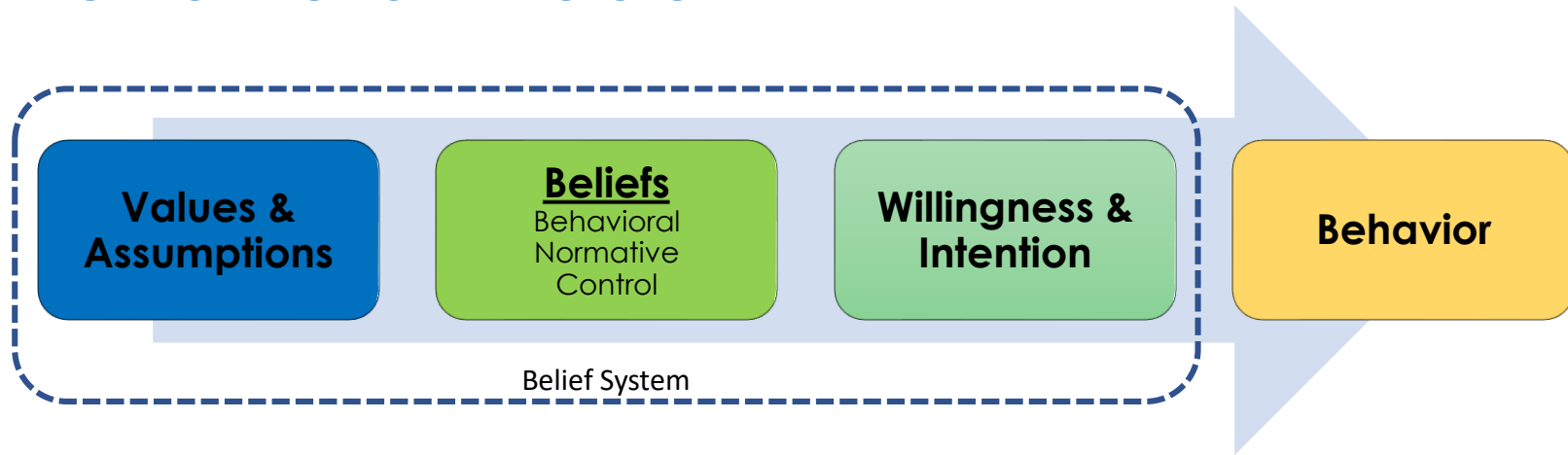


Remember: Beliefs are thoughts. They are NOT observable.

Big Idea: To change behaviors, we must change beliefs.



Exploring Traffic Safety Culture Behavioral Model

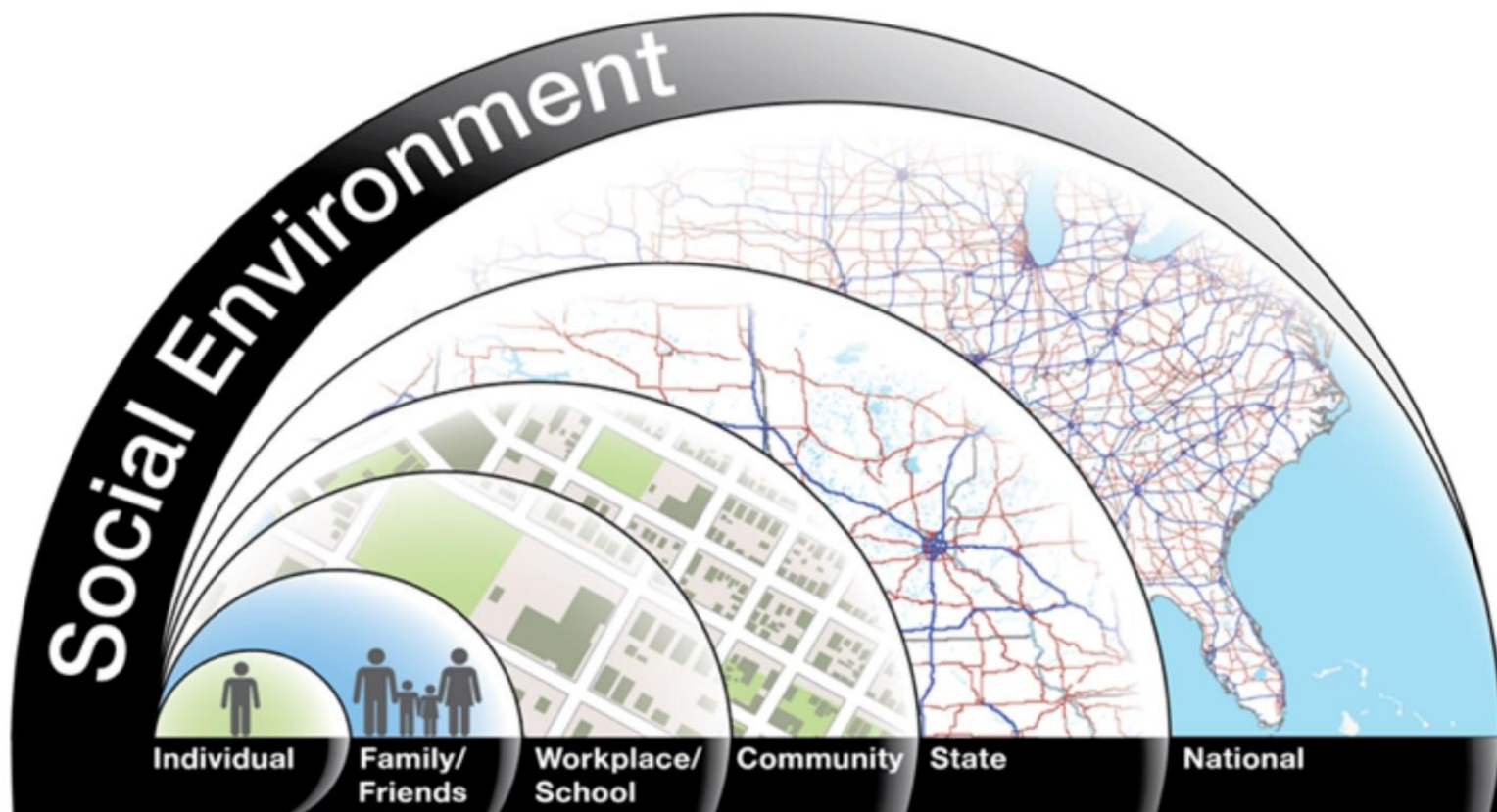


Question: Where do these beliefs come from?



Exploring Traffic Safety Culture

Layers of relationships that influence your beliefs



Exploring Traffic Safety Culture

TRAFFIC SAFETY CULTURE is the shared beliefs (including values, assumptions, etc.) of a group which affect behaviors related to traffic safety.

Key Ideas

- Shared
- Group of people
- Affect behaviors related to safety



Exploring Traffic Safety Culture

Steps for Growing Safety Culture

1. Plan and Advocate
2. Assess
3. Prioritize
4. Identify Strategies
5. Pilot and Refine
6. Implement
7. Evaluate



Step 1. Plan and Advocate

TASKS

- a) Raise concern about safety with key organizational stakeholders using national and organizational data.
- b) Identify and recruit stakeholders across the social environment
- c) Form a working group.

WHY

- Changing culture requires support from leadership and involves the organization's entire social environment.
- Changing culture takes time and is never complete. We should always be working on our safety culture.



Step 2. Assess

TASKS

- a) Gather organizational data about consequences and beliefs.
- b) Gather information about existing safety strategies, programs.

WHY

- Data-based decision making will focus efforts on the most important safety issues.
- Working on existing strategies may be faster and less expensive than developing new strategies.



Step 3. Prioritize

TASKS

- a) Prioritize efforts based on consequences, changeability, and current strategies.

WHY

- Focused efforts are more effective (change is difficult).



Step 4. Identify Strategies

TASKS

- a) Identify strategies to address priority issues.
- b) Adapt strategy and plan for pilot implementation within the organization.

WHY

- Virtually all strategies will have to be adapted for each organization. Planning leads to better implementation.



Step 5. Pilot and Refine

TASKS

- a) Implement and evaluate a pilot of the strategy.
- b) Review how it went and what might be adapted before going organization-wide.

WHY

- Catching problem early saves time, builds trust, and avoids costly mistakes.



Step 6. Implement

TASKS

- a) Implement the strategy across the organization.
- b) Align policy, training, and evaluations to support the strategy.

WHY

- Culture extends across the entire organization; inconsistent support across the social environment will lead to individuals not using the new strategy.



Step 7. Evaluate

TASKS

- a) Monitor adoption of the strategy.
- b) Monitor consequence and incident data.

WHY

- The goal is to improve safety. If strategies do not improve safety, they should be re-visited and perhaps adapted or new approaches taken.



Dialogue

How are these steps similar to and different from your existing planning processes?



Welcome to Chatham County

- In 2015 Chatham County joined only a handful of local governments in Georgia and created a budget for the Occupational Safety and Risk Management Department.
- Since budget adoption in FY2016 the department has grown from 4 employees to 6 focused on providing safety, risk management and ADA services to a team of 1,900 public service workers.



Our Journey

Before

- Finance
 - Risk Manager
- Human Resources
 - Driver Training Officer
 - ADA Coordinator
- Public Works
 - Safety Coordinator

After

- Occupational Safety and Risk Management
 - Director
 - Risk Manager
 - Safety Compliance Manager
 - ADA Coordinator
 - Safety Training Manager
 - Administrative Assistant



Creating our Brand

Vision Statement

Chatham County Occupational Safety and Risk Management is committed to being your partner in safety management by providing Team Chatham with an exemplary workplace that is safe and injury free



Occupational
Safety & Risk
Management

Safety First, Excellence Always

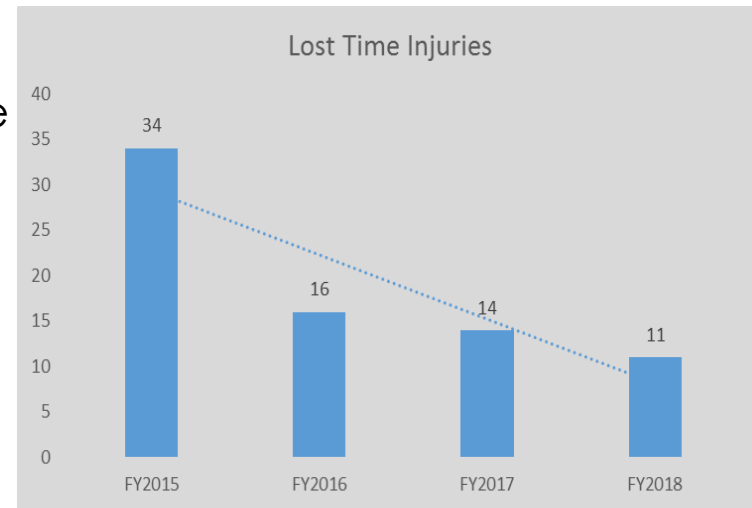
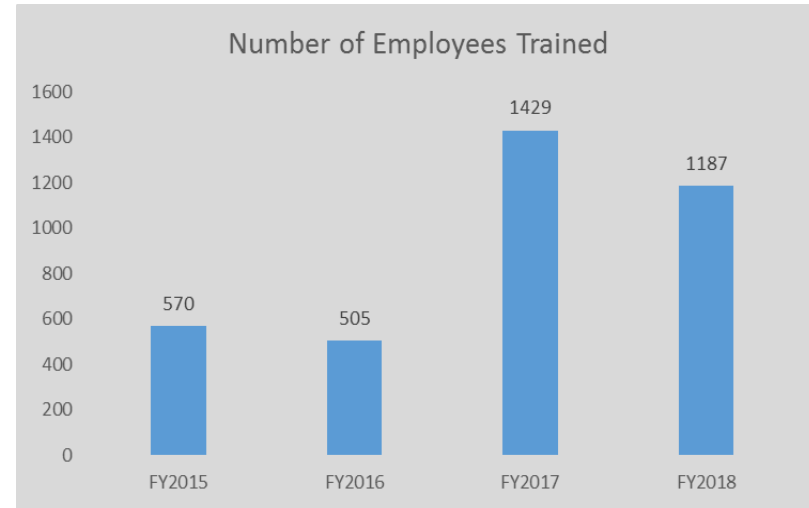
Mission Statements

- Ensure safety concerns are heard, understood and addressed
- Provide and support safety training that is used as a catalyst for continuous improvement
- Return employees to work efficiently and effectively
- Continually measure, evaluate and improve our safety and risk management culture



Chatham County Triumphs

- Training
 - Invest in your people
 - Don't limit the audience provide training for succession planning
 - In-person and Online
- Partners
 - Worker's Compensation Carrier
 - Property Insurance Services
 - Other companies and share the resources
- Make the processes easy.
 - Removed complicated forms and utilized a Nurse call center to process injury reports and access appropriate treatment options.
 - Allow safety concerns to be expressed freely
 - If an employee trust you, keep that trust
 - The object is to get the hazards corrected not punish the employee



Break



Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Business Case
 - Between 2012 and 2015, Chatham County had incurred over \$598,000 in worker's compensation costs as the result of vehicle collisions.
 - These costs do not include property damage or other indirect costs. According to the National Safety Council, indirect costs could be as much as \$2.12 for each dollar in direct costs.



Case Study- Marking Vehicles to Reduce Rear-end Collisions

Problem Statement

- The number of rear-end collisions is too high. Rear-end collisions account for 51% or \$309,651 of our Worker's Compensation costs associated with vehicle collisions. Estimating indirect costs of \$966,111.00 and excluding property damage, collision costs are closer to 1 million dollars since 2012.

Goal

- Reduce the number of rear-end collisions by 50% by December 1st, 2016.



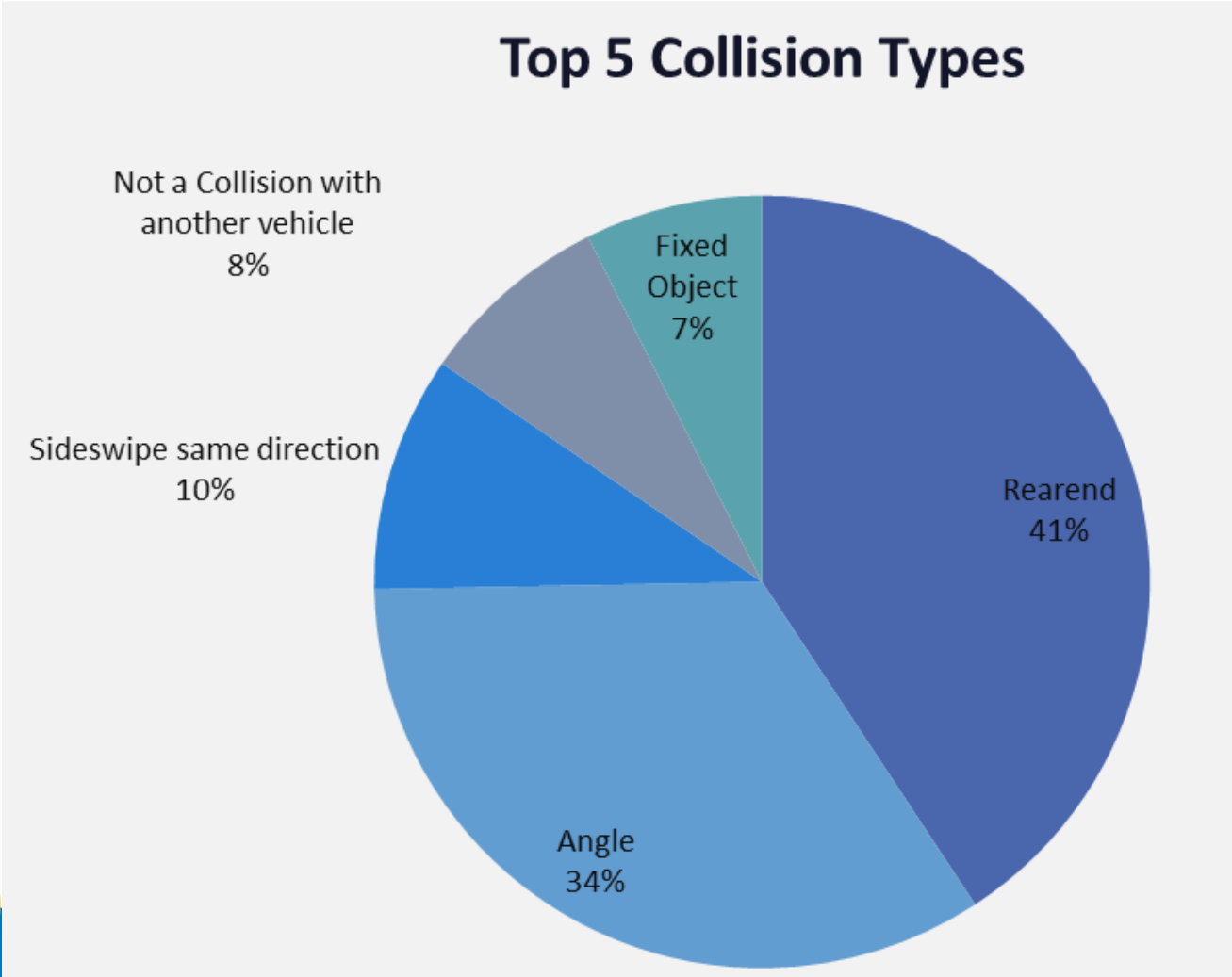
Case Study- Marking Vehicles to Reduce Rear-end Collisions

Operational Definitions

- Rear-End Collision – A collision in which the “manner of collision” box on the Department of Public Safety Uniform Accident Reporting Form indicates a rear-end crash. This will not include rear-end collisions in which a crime is being committed or the other driver is under the influence of alcohol or other controlled substance.
- Worker’s Compensation Costs – Medical and rehabilitation costs plus lost wages for employees who are injured at work.
- Vehicle – A sedan or truck used in county operations. Trucks include light, medium and heavy-duty work trucks, crew trucks and compactors. This will not include heavy equipment or tractors that must travel the highways.
- Vehicle collision – Unintended event that occurs when a vehicle collides with another vehicle, stationary object, person or animal that results in damage to property, injury or death.



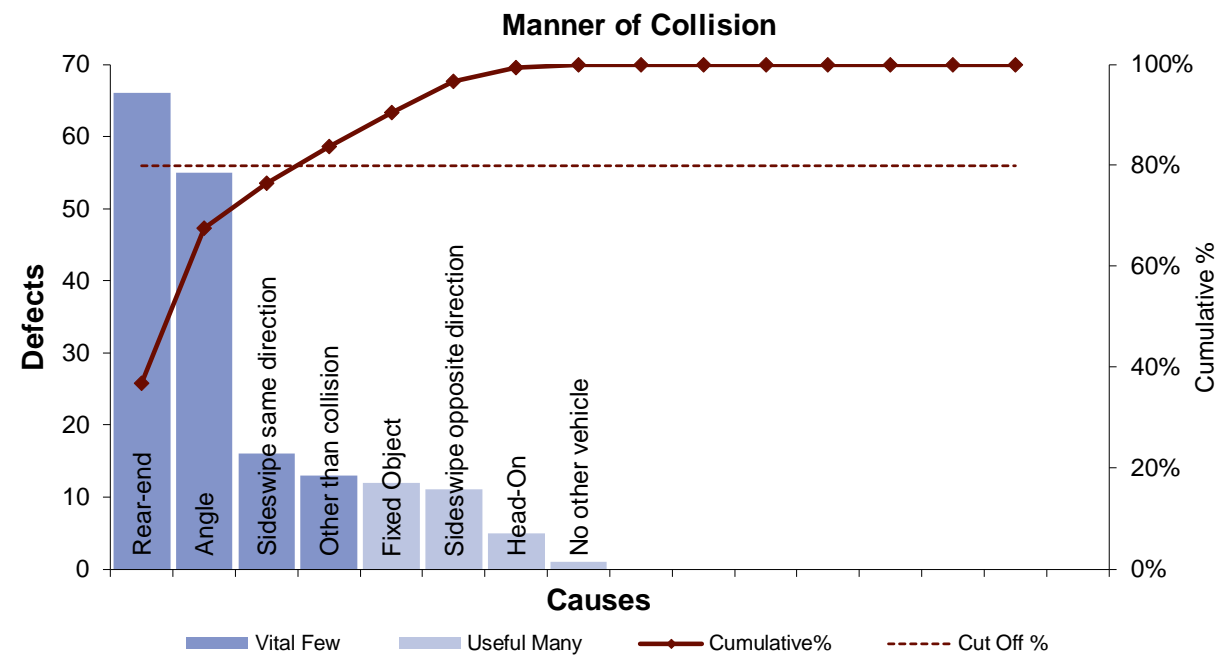
Case Study- Marking Vehicles to Reduce Rear-end Collisions



Case Study- Marking Vehicles to Reduce Rear-end Collisions

Pareto Analysis

Chatham County OSD
Rear-End Collisions
11/13/2015



The first 4 Causes cover 83.8 % of the Total Defects

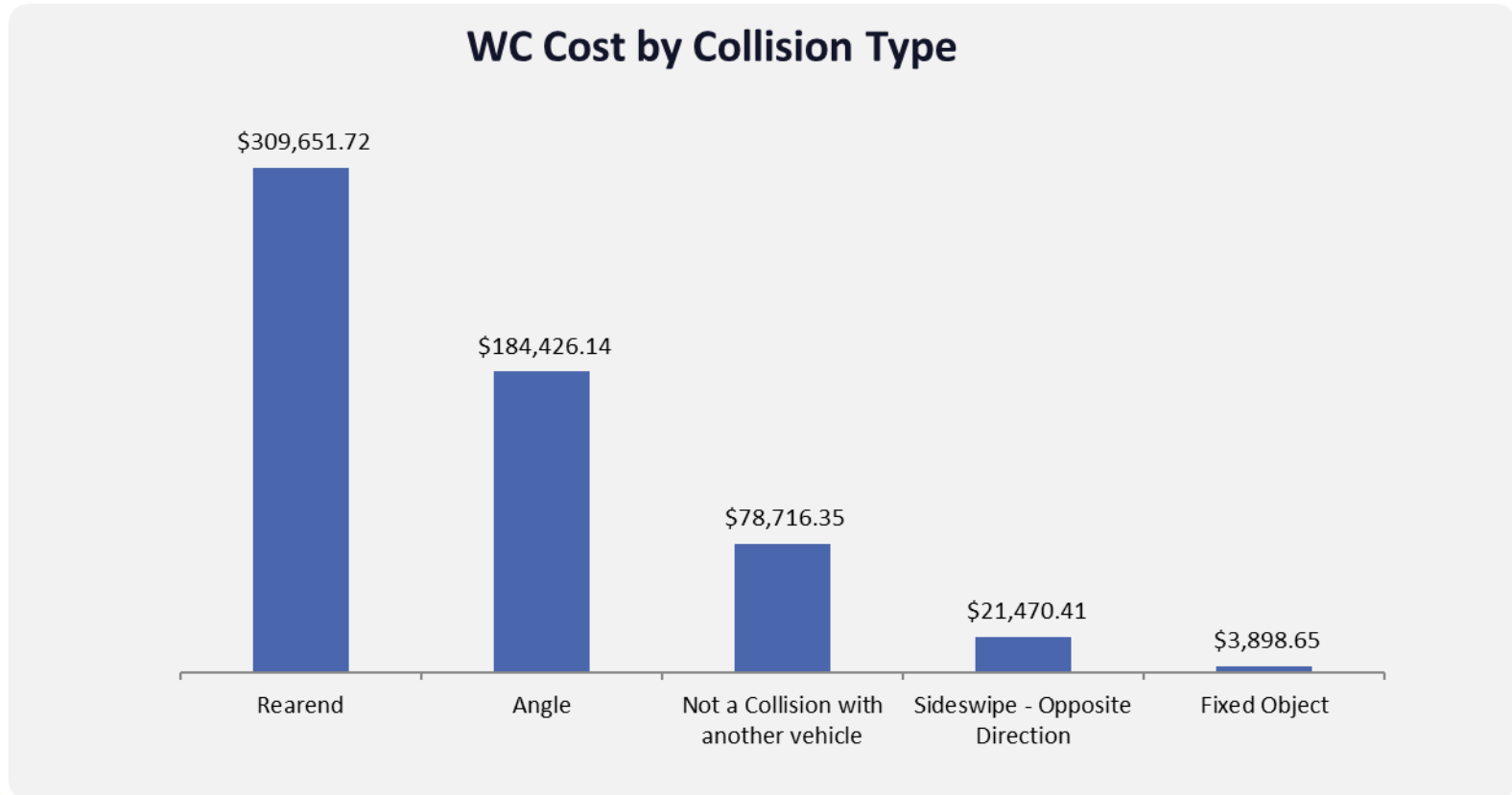


Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Rear-end collisions are the most common type of collision involving Chatham County fleet vehicles. Angle collisions are the second most common type of collision. It is important to note that while the uniform accident reporting form may classify a crash type as angle, many of the narratives on the police report indicate our vehicle was struck at an angle, from the rear. However, angle collisions from the rear will not be included as a defect.



Case Study- Marking Vehicles to Reduce Rear-end Collisions



Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Sigma Capability

Number of defect opportunities per unit	O =	1
Number of collisions	N =	179
Total number of defects (rear-end collisions)	D =	66
Defects per opportunity	DPO =	0.36872
Yield	Y =	63.128%
Process Sigma	Z =	1.84

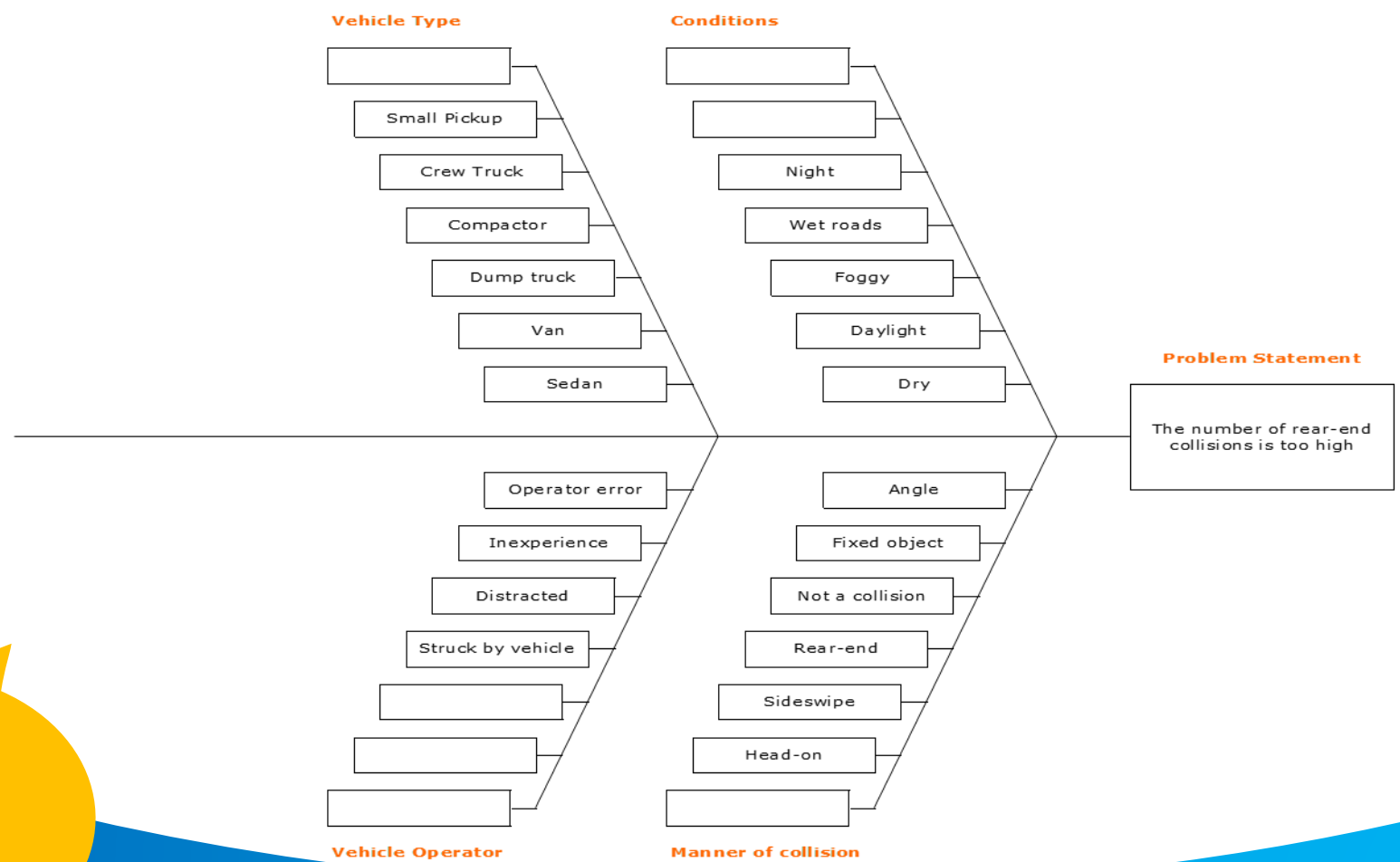
***Defect is defined by a rear-end collision**

***Number of collisions includes all collision types**



Case Study- Marking Vehicles to Reduce Rear-end Collisions

Cause & Effect - Fishbone



Case Study- Marking Vehicles to Reduce Rear-end Collisions

Research on Rear-End Collisions

- Out of all the factors related to rear-end collisions, the only things we can control are Chatham County employee drivers and our vehicles.
- Collision avoidance systems are not standard at this time and therefore not available on all vehicles.
- All drivers are required to take a 6 hour defensive driving course.
- 60% of the time, the collision is the fault of the other party.
- Studies from traffic institutes in Utah and Ohio found that degraded perception of traffic conditions is the largest contributor to rear-end collisions. Drivers are unable to detect slow-downs and stoppages as they are looking ahead but not “seeing” due to distractions and/or inattentiveness.
- A study by Daimler-Benz concluded in 1992 that an extra 0.5 second of additional warning can prevent up to 60% of rear-end crashes



Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Brainstorming Controls
 - Education – We currently educate our drivers but we cannot educate the other driver.
 - Technology – In the future, crash avoidance technology will be available but our vehicle replacement schedule requires us to retain older vehicles for much longer periods.
 - Vehicle – Studies by the National Transportation Safety Board, National Highway Traffic Safety Administration, Ford Motor Company, Federal Emergency Management Agency, and various universities have recommended that a contrast or reflective tape placed horizontally across the rear of the vehicle offers a boundary contrast to correct perceptual difficulties drivers may experience. Use of reflective tape is now a Department of Transportation rule for some vehicles as it has proven effective in the reduction of rear-end collisions.



Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Recommended Controls to Increase Visibility of our Vehicles
- Research by the Federal Emergency Management Agency and the National Highway Traffic Safety Administration concludes that applying distinctive logos or emblems made with retroreflective materials can improve vehicle visibility and draw attention so drivers can recognize the vehicle when they are not actively looking for it.
- The National Fire Protection Agency Standard 1901 recommends a color scheme of yellow/green and red to offer higher daytime visibility. Contrasting colors help the vehicle stand out among visual clutter many drivers face.



Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Stakeholder Analysis

Stakeholder	Strongly Against (-2)	Moderately Against (-1)	Neutral (0)	Moderately Supportive (+1)	Strongly Supportive (+2)
Vehicle Operators		√		X	
Shop Superintendent					√
Assist. County Manager			√		X
Fleet Manager		√			X
Safety Director					√
Risk Manager					√

—	Critical to move
- - -	Important but not urgent
○	Okay where they are



Case Study- Marking Vehicles to Reduce Rear-end Collisions

- Results of Change
 - As of July 1, 2016, Fleet Operations has marked 52% of the vehicles set for marking.
 - There have been 8 rear-end collisions since marking began in December, 2015.
 - 1 involved hit and runs, 1 involved a DUI, 2 stopped at red-light, 3 with one employee and a officer initiating traffic stop
 - Rear-end collisions are now occurring at a rate of 0.22 every month as opposed to 1 per month.
 - Results of change indicate we will exceed our goal of reducing rear-end collisions.



Case Study- Marking Vehicles to Reduce Rear-end Collisions

What did you learn from this case study that was helpful in understanding safety culture?



Take Action

1. Identify potential next steps that you can take to grow Traffic Safety Culture.
 - Think about your circle of influence
2. Share with others at your table and refine your ideas.
3. Large group report out.

