STATE OF ALABAMA HIGHWAY SAFETY PLAN

FISCAL YEAR 2024-2026

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Commonly Used Acronyms

3HSP	Triennial Highway Safety Plan
ADECA	Alabama Department of Economic and Community Affairs
ADPH	Alabama Department of Public Health
AIDPC	Alabama Impaired Driving Prevention Council
ALDOT	Alabama Department of Transportation
ALEA	Alabama Law Enforcement Agency
AOC	Alabama Administrative Office of Courts
AOHS	Alabama Office of Highway Safety
BAC	Blood Alcohol Content
BIL	Bipartisan Infrastructure Law, aka Infrastructure Investment and Jobs Act
CARE	Critical Analysis Reporting Environment system
CIOT	Click-It-or-Ticket
CMV	Commercial Motor Vehicle
CORE	CTSP Online Reporting Engine
CPS	Child Passenger Safety
CRD	Child Restraint-Deficient [Crashes]
CRS	Child Restraint Systems
CTSP/LEL	Community Traffic Safety Project/ Law Enforcement Liaison
CU	Causal Unit
DD	Distracted Driving
DRE	Drug Recognition Expert
DUI	Driving Under the Influence
E-BE	Evidence Based Enforcement
ED	Electronic Devices
ETL	Extract-Translate-Load
F/A	Fatigue/ Asleep [distractions/crashes]
FARS	Fatality Analysis Reporting System (federal)
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GHSA	Governors Highway Safety Association
HSIP	Highway Safety Improvement Plan
HVE	High Visibility Enforcement (programs)
ID	Impaired Driving
LETS	Law Enforcement and Traffic Safety
MIECE	Model Inventory of Emergency Care Elements
MMUCC	Model Minimum Uniform Crash Criteria
NEMSIS	National Emergency Medical Services Information Systems
NHTSA	National Highway Traffic Safety Administration
PDO	Property Damage Only
PICs	Pedestrian Involved Crashes
PI&E	Public Information and Education
RD	Restraint-Deficient [Crashes]
SHSP	Strategic Highway Safety Plan
SMI	Suspected Minor Injury (related to crashes)
SSI	Suspected Serious Injury (related to crashes)
STEP	Selective Traffic Enforcement Program
TRCC	Traffic Records Coordinating Committee
TSIS	Traffic Safety Information Systems
TSRP	Traffic Safety Resource Prosecutor
TZD	Toward Zero Deaths
UA-CAPS	University of Alabama Center for Advanced Public Safety
VMT	Vehicle Miles Traveled

Highway Safety Planning Process

Identification of Highway Safety Problems

The State of Alabama has a comprehensive, evidence-based enforcement plan that encompasses all traffic safety program areas. This section gives the steps of the planning and problem identification processes applied by the Alabama Office of Highway Safety (AOHS) in creating its Highway Safety Plan (HSP). The following outlines the procedures that are followed in developing the countermeasure programs that are included in the HSP:

- A general problem identification is initiated as soon as the close out of the previous year's state crash data is completed, usually in the April-May time frame.
- The most current year of data after the close out is combined with the previous two years of data to have three years of crash data to perform the problem identification. Research has shown that three years is an optimal time span for predicting future hotspots.
- Hotspot analyses are run for the major subjects of interest, in this plan Alabama has chosen to map speed, impaired driving, lack of seat belt use, CMV involved, pedestrian and bike, failure to yield, and hit fixed object crashes using the Critical Analysis Reporting System (CARE). These locations will be the basis for determining enforcement locations and eligible law enforcement agencies.
- Community Traffic Safety Project/Law Enforcement Liaison (CTSP/LEL) Coordinators are involved in the crash location and agency eligibility process, they are typically required to submit their plans in the April-May time frame, at about the same time as the statewide problem identification is being performed. The submitted plans include feedback on previous years' efforts in their respective areas.
- A new component of data analysis included reviewing community makeup inside target counties overrepresented by fatality numbers and by rate. This included reviewing community demographics, resilience scores, and other relevant characteristics.
- From these analyses, it becomes clear where the critical locations are, as well as the answer to the more general, "who, what, where, when, how old and why" questions to focus how these crashes can best be addressed.
- Public Engagement feedback from an input survey and in person events was incorporated into planning countermeasures to address focus communities' needs with education and media programming.
- These plans are then combined to produce the specific action items that are implemented.

The HSP is evidence-based, as demonstrated by the results of the problem identification steps documented. AOHS uses the CARE system to develop a complete listing and mapping of problem crash locations (or hotspots) throughout the state. In addition to a breakdown by CTSP/LEL regions and Alabama Law Enforcement Agency (ALEA) posts, the results are also subdivided by crash type and roadway classification. This is because different agencies may deal with different roadway classifications, and different tactics may be applied to the different types of crashes. In addition, all agencies have access to the preliminary statewide plan. By providing both statewide and specific information to each area, the regional coordinators can identify the problems and locations in their region, and they can also determine how these locations relate to the statewide plan.

Once this information is provided to the CTSP/LEL Coordinators, they are instructed to focus their grant applications for the coming year on the hotspot locations and agency eligibility given in the reports for their region. Other issues presented in their applications are reviewed by AOHS staff to ensure integrity and consistency among the regions. Once the grants are awarded, the enforcement programs are continuously evaluated, and any necessary adjustments are made throughout the fiscal year. The implementation of the Evidence-Based Enforcement Plan is demonstrated below in the following sections by major issue areas:

- Impaired driving, speed related, pedestrian, hit fixed object, CMV involved, and failure to yield crash hotspots – 402 funds
- Alcohol- and drug-related crashes hotspots – 405d funds
- Restraint-deficient hotspots – 402 funds

Media campaigns are also conducted alongside high visibility enforcement campaigns. The value of such integrated enforcement efforts is demonstrated by studies referenced throughout *NHTSA Countermeasures that Work*, the URL reference:
Countermeasures That Work: A Highway Safety Countermeasure Guide for Highway Safety Offices Tenth Edition, 2020

List of Data Sources

The following data sources are listed below:

- Crash data from the Alabama eCrash system.
- Citation data from the Alabama eCite system.
- FARS data for fatal crashes, from NHTSA.
- Traffic volume trends from FHWA Office of Highway Policy Information.
- Transportation Economic Trends 2017, Bureau of Transportation Statistics.
- AASHTO Traffic Volume Trends.
- Highway Traffic Safety Public Input Survey Results
- NHTSA FARS Data
- NHTSA FARS Data Visualization Tool
- NHTSA FIRST Query
- U.S. Census Data
- U.S. Census Community Resilience Estimates
- Iowa University's Public Science Collaborative Study on The Alcohol Outlet Landscape in Alabama

Process Participants

In developing the Highway Safety Plan, the AOHS collaborates and receives input from the following agencies, entities, and groups:

Community Traffic Safety Program Directors (CTSP/LEL)	Employed in the field as an arm of the AOHS, these individuals have offices within their respective regions and build ongoing relationships with local and state level law enforcement.
Alabama Law Enforcement Agency (ALEA)	Agency is responsible for all state - level law enforcement activities.
Alabama Department of Transportation (ALDOT)	ADECA works closely with ALDOT in the development of common traffic safety performance measures and goals, which is a requirement of the Strategic Highway Safety Plan (SHSP).
Public Feedback from Survey Participants and Event Attendees	Feedback and input from public engagement events and outreach informed programming decisions of the highway safety office.
Strategic Highway Safety Plan (SHSP) Steering Committee	Which also brings involvement and close concurrence with ALDOT and the following Federal agencies: Federal Highway Administration (FHWA) Federal Motor Carrier Safety Administrations (FMCSA)
Alabama Department of Public Health (ADPH)	Provides data and information technology expertise for NEMSIS and trauma data integration and use. ADPH also maintains the network of Child Passenger Safety fitting stations in the state and serves as the coordinator of technician training. ADPH is involved with public education programs related to Distracted Driving and is a key driver in gathering community feedback.
Local law enforcement	Including city police and county sheriffs, these partners are essential to all statewide and local enforcement programs.
Traffic Records Coordinating Committee	A broad-based committee that represents all developers and users of traffic safety information systems.
State and local District Attorneys	Involved to increase their level of readiness and proficiency for the effective prosecution of traffic related cases.
Alabama Impaired Driving Prevention Council (AIDPC)	Assembled by AOHS to develop and approve the Impaired Driving Strategic plan and to ensure that all aspects of the impaired driving problem are considered and as many alternative countermeasures as possible are evaluated.
The University of Alabama Center for Advanced Public Safety (UA-CAPS)	A quasi- research agency that provides the information foundation from crash, citation, EMS runs and other databases. See: http://www.caps.ua.edu.

Problem Identification

Procedure for Problem Identification

The overall problem identification for the Alabama Highway Safety Plan (HSP) begins with the most recently generated data for Table 1. This arranges crash types by the number of fatalities and sets a priority if in fact, "all other things were equal." But all other things are not equal, and further analysis is needed to account for countermeasure effectiveness and cost. Nevertheless, Table 1 effectively gives everyone in the traffic safety community a high-level view of the source of fatalities as well as how these fatalities are reflected in the lower severity crashes.

Two entries in Table 1 are important regarding the Occupant Protection Plan. The following defines these two entries:

- Restraint-Deficient Crashes (RD) – any crash in which one or more of the occupants of any involved vehicle (including drivers) were not properly restrained; and
- Child Restraint-Deficient Crashes (CRD) – any crash in which one or more children who are subject to child restraint laws were not properly restrained, independent of the restraint characteristics of the other occupants.

Clearly RD is at the top of this list, demonstrating that occupant restraint is one of the most critical issues in traffic safety and fatality reduction. Child Restraint Deficiencies (CRD) are near the bottom of Table 1 with only eleven fatalities. This reflects the extreme efforts that have gone into child protection by several agencies throughout the state. Special emphasis is given to children who are quite vulnerable if not properly restrained, and the importance of maintaining child restraint programs is clear. The enforcement efforts for CRD are effectively the same as that for RD.

Table 1 shows that one of the most effective ways of reducing fatalities is to increase restraint use, and this example will be used to further illustrate the problem identification process that is applied to all potential countermeasures. In reading through this example, please do not restrict consideration to only seat belts, but recognize how the same principles apply to all countermeasures under consideration.

The next step in the problem identification process is to analyze the data for these crashes and determine all the demographics related to them (e.g., who, what, where, when, how, how old, and the "why" of crashes involving non-restrained occupants). The goal is to (1) determine the most effective countermeasures that can be applied, and once these are defined, (2) identify the best tactics to be applied within each.

This starts by determining those types of crashes that were going to be targeted for occupant protection countermeasure implementation. For example, a recent study determined a very strong correlation between Restraint Deficiencies (RD) and other risky driving characteristics. DUI (alcohol and other drugs) and speed were correlated with non-use, and younger drivers 16-25 were particularly vulnerable. Young drivers are particularly susceptible to risk taking behaviors since the part of their brain that properly assesses risk is not fully developed until age 25. While the average seat belt use rate for all occupants has been measured above 90%, for those involved in fatal crashes the use rate was approximately 45%.

Evidence-based enforcement (E-BE) has been determined to be one of the most effective methods for increasing restraint use in general. This requires that specific locations be identified where there were concentrations of crashes involving unrestrained occupants. Once these hotspots are defined using the Critical Analysis Reporting Environment (CARE) software, the Community Traffic Safety Program/Law Enforcement Liaison (CTSP/LEL) Coordinators across the state are given information on the hotspot locations for the state. They are also provided detailed hotspot reports specific to their region to assist them in focusing their area efforts. Using the reports and maps developed for each region, the CTSP/LEL Coordinators develop plans, including the time schedule and work assignments, for their respective regions that focuses on the hotspot locations.

Narrative Description of Categories

The purpose of the narrative descriptions that follow is to give non-technical users of Table 1 a simple description for each of the items. This will enable better comparisons that are essential to optimal decisions regarding traffic safety resource allocations that must be made among the various crash categories.

Unless otherwise indicated, the counts presented in Table 1 are Crashes of various severities. Exceptions are 2022 crash categories 1 and 18, restraint items. These two exceptions are for restraints, and an asterisk (*) is placed on these items for the footnote that describes the reason for the exception (see the Table 1 above).

The descriptions below are given in terms of the Table 1 item numbers that were used in the 2024-2026 3HSP (CY2022 data). A brief rationale will be given for each category so that its use can be placed into a real-world context. The ordering within the current Table 1 is in terms of the number of fatalities that were found for each category during CY2022. This numbering will change when Table 1 is updated in future years, due to the changes in the category definitions as well and the changes in the number of fatal crashes counted within each category.

These categories are not mutually exclusive. It is easy to imagine crashes that might include five to ten of the categories simultaneously. Users of Table 1 will need to apply their knowledge of traffic crash causes and severities to estimate which of the multiple causes might be the primary cause for the fatalities indicated, and thus, which should have the higher priority to counter.

Descriptions of the categories within Table 1:

1. Seatbelt Restraint Fault* - This item records those restraint faults (generally non-use but could be improper use) of restraint that have been found to normally result in an increased severity in those who are not properly restrained. It covers drivers and all occupants of age 6 and older. Those aged less than 6 are covered in Category 22, Child Restraint Fault.

2. ID/DUI All Substances - This item includes all crashes in which either alcohol or any other drug was indicated to be involved in the crash.

3. Speed Involved - This item includes all crashes in which speed was indicated to be a factor, which is generally indicated as "Over Speed Limit." However, beginning in 2021 the PCC "Too Fast for Conditions" was added to this category.

4. Hit Obstacle on Roadside - This item includes crashes where the vehicle ran off the road and struck an object on the roadside, restricted to obstacles for which the responsible agency would have some capability to either remove or otherwise mitigate the hazard.

5. Large Truck Involved - Generally, this covers all trucks larger than the typical pickup truck. The attempt here is to concentrate on the size of the truck as opposed to its function or whether it is a CMV or not (some will be; others are not). See the comment under Motorcycle Involved, Category 10.

6. Mature – Age > 64 Caused - This item includes all crashes for which drivers of age 65 or older were listed as the causal drivers.

7. Fail to Yield or "Ran" (All) - This item includes all subcategories of Failure to Yield the Right-of-Way and "Ran xxx," such as "Ran a Stop Sign" or "Ran a Traffic Signal." The reporting of just one or a small subset of these did not seem to be warranted since the underlying cause of such behavior is the same regardless of where it manifests itself.

8. Pedestrian Involved - This item includes all crashes that involved pedestrians in any way, independent of whether the pedestrian was the cause of the crash. See the comment under Motorcycle Involved, Category 10.

9. Wrong Way Items - All crashes where the causal vehicle is in a lane for oncoming traffic; this includes median crossovers and lane departures into oncoming traffic on two-lane or four-lane roads. It also includes violations in no-passing zones since these offenses would put the causal driver into oncoming traffic lanes.

10. Motorcycle Involved - This item is for those crashes in which a motorcycle was involved either as the causal vehicle or the second unit in the crash. Discussions were conducted as to whether categories that involved vehicle types should be those "involved" or those "caused by." It was determined that countermeasures to these crashes could, and in some cases should, change the behaviors of vehicle drivers that are not of the category type who caused the crash. Thus, it was felt that all crashes in which they were involved should be included, and not just those caused by the driver of the specific vehicle type. This applies to all categories that are defined by a vehicle type, including pedestrians.

11. Causal Driver License Status Deficiency - This item includes all crashes in which the causal driver had one or more of the following driver license status deficiencies: Denied, Expired, Fraudulent, Revoked, and/or Suspended. It serves as an indicator as to whether the change of license status has a significant effect on the crash expectations of those drivers involved.

12. Youth Age 16-20 Caused - This item includes all crashes for which drivers of age 16-20 (inclusive) were listed as the causal drivers.

13. Aggressive Operation - This code is indicated by officers when there are two or more PCCs that are relevant and thus the indication is that the driver was under some psychological stress to disregard several safety considerations simultaneously. In CY2021, attribute C542 was added as an indicator in addition to C015 and C202 that had been used in the past.

14. Distracted Driving - Many different things tend to distract drivers, and this item is an attempt to count all of them. These would include distracted by: Passenger; Use of Electronic Communication Device; Use of Other Electronic Device; Fallen Object; Fatigued/Asleep; Insect/Reptile; Other Distraction Inside the Vehicle; and/or Other Distraction Outside the Vehicle. Of these, Fatigued/Asleep is redundant with Drowsy Driving (see 16). For purposes of analysis, it is being left as a contributor to this list to be consistent with the way it is reported on the crash report. It should be noted that Drowsy Driving may include items of fatigue and sleep that are not within the Distracted Driving category, see Category 16.

15. Utility Pole - There are many roadside obstacles that are struck by vehicles that run off the road. Utility poles are listed here since generally, utility poles are obstacles that are of special interest to utility companies.

16. Drowsy Driving - This item includes all indications that the driver or drivers were drowsy or falling asleep.

17. Vehicle Defects (All) - This includes all reportable vehicle defects, namely: Brakes, Steering, Tire Blowout/Separation, Improper Tread Depth, Wheels, Wipers, Windows/Windshield, Mirrors, Trailer Hitch/Coupling, Power Train, Fuel System, Exhaust, Headlights, Tail Lights, Turn Signal, Suspension, Cruise Control, Body/Doors, and Other. Paper Report Archive that are no longer reported as separate items in eCrash include: Tires, Lights, Restraint System, and Cargo.

18. Work Zone Related - There are about ten locations within a work zone in which a crash can be specified to have been located. This item includes any or all of them. The work zone does not need to be a cause of the crash in any way for it to be counted; the crash just needs to be in or adjacent to the work zone.

19. Vision Obscured - This covers the following situations in which vision might be obscured by something in the roadway or its environment: Trees/Crops, Buildings, Embankment, Sign/Billboard, Lights/Glare (Roadside), Hillcrest and Curve in Road.

20. Bicycle (Pedalcycle) Involved - This is all crashes in which a pedalcycle (mostly bicycles) were involved independent of who caused the crashes. See comment under Motorcycle Involved, Category 10.

21. Railroad Train Involved - This counts the number of crashes in which a railroad train was involved independent of who may have caused the crashes. See comment under Motorcycle Involved, Category 10.

22. Child Restraint Fault* - This includes the child passengers aged 5 or younger who were not properly restrained.

23. School Bus Involved - This is the number of crashes that involved a school bus independent of the causal unit. See comment under Motorcycle Involved, Category 10.

24. Contributing Roadway Defects - Any crash where a roadway defect was noted as a Contributing Circumstance. Contributing Circumstances are recorded as “Roadway/Sign/Signal Defect” in the eCrash system.

Summary of Crash Severity by Crash Type (Table 1)

Beginning in 2010 it was determined that a tool should be established to enable decision makers to view the state's traffic safety issues at the highest possible level. This tool was named "Table 1" and it appears below. It was reasoned that, all other things being equal, traffic safety resource allocations should go to address those issues that cause the greatest number of fatalities. While this is a good default position to start from, all other things are rarely equal, and optimal resource allocations must also consider the cost of the countermeasures being considered and the proportion of the crashes that can reasonably be reduced by any given countermeasure. Thus, an item with a lower number of fatalities could become optimal to address if a lower cost countermeasure would reduce a larger number of its crashes and fatalities.

The eCrash system that went into effect July 1, 2009, creates data that meets most of the Model Minimum Uniform Crash Criteria (MMUCC). It provides data that are much timelier, since in many cases these reports are available the same day as the crash. Careful work was done to ensure that no variables or codes that could indicate a particular crash category of Table 1 were missed, and that the search criteria captured all the crashes for each of the categories for this evidence-based analysis.

The category with the highest number of fatal crashes is listed at the top of Table 1, descending to the crash type category with the lowest number of fatal crashes listed last. The number and percent of crashes by severity are listed for each category. This enables an easy comparison between the various crash types. It is important to realize that the categories of Table 1 are not mutually exclusive. However, since this is true in all the categories, these numbers serve to give the relative criticality of the categories that most often are the targets for funding or other resource allocations.

Table 1. Top Fatality Causes Alabama CY2022 Data

	Crash Type (Causal Driver)	Fatal Number	Fatal %	Injuries	Injury %	PDO No.	PDO %	Total
1.	Seat Belt Restraint Fault*	390	3.99%	3,753	38.35%	5,643	57.66%	9,786
2.	ID/DUI All Substances	179	3.58%	1,702	34.01%	3,018	60.30%	5,005
3.	Speed Involved	172	2.24%	2,319	30.17%	5,058	65.81%	7,686
4.	Hit Obstacle on Roadside	134	2.46%	1659	30.50%	3573	65.58%	5,440
5.	Large Truck Involved	127	1.32%	1,580	16.43%	7,753	80.63%	9,616
6.	Mature (65 or Older) Causal	120	0.92%	2,662	20.36%	10,018	76.61%	13,077
7.	Fail to Yield or Ran (All)	116	0.38%	8,078	26.58%	21,546	70.91%	30,387
8.	Pedestrian Involved	112	14.76%	572	75.36%	34	4.48%	759
9.	Wrong Way Items	108	3.29%	675	20.57%	2,391	72.85%	3,282
10.	Motorcycle Involved	89	5.49%	1,025	63.19%	461	28.42%	1,622
11.	License Deficiency Causal	79	1.38%	1,600	27.98%	3,875	67.76%	5,719
12.	Youth (16-20) Causal Driver	74	0.37%	3,720	18.68%	15,730	79.00%	19,912
13.	Aggressive Operation	64	2.28%	712	25.32%	1,917	68.17%	2,812
14.	Distracted Driving	60	0.46%	2,494	19.06%	10,277	78.53%	13,086
15.	Utility Pole	37	1.61%	698	30.41%	1,457	63.49%	2,295
16.	Drowsy Driving	30	0.92%	1,186	36.38%	1,970	60.43%	3,260
17.	Vehicle Defects – All	29	0.78%	710	19.22%	2,863	77.48%	3,695
18.	Work Zone Related	16	0.84%	382	19.94%	1,498	78.18%	1,916
19	Vision Obscured	13	1.09%	293	24.66%	857	72.14%	1,188
20.	Bicycle	12	4.84%	180	72.58%	50	20.16%	248
21.	Railroad Trains	5	9.09%	13	23.64%	35	63.64%	55
22.	Child Restraint Fault*	4	0.17%	247	10.37%	2,132	89.47%	2,383
23.	School Bus Involved	1	0.18%	71	12.98%	452	82.63%	547
24.	Roadway Defects – All	0	0.00%	27	18.88%	111	77.62%	143

* This item is measured in the number of each severity of crash that resulted from the failure to use the proper restraint, as opposed to other items that are measured by the number of crashes caused by or related to the involvement of the item.

The comparison of gross fatality and injury counts is merely a first step in the analytical process to find optimal allocations of resources among programs. Obtaining this perspective is essential for intelligent decision making. Once the high-level decisions are made regarding which of the crash types will be addressed, further analyses must be performed to define countermeasures and improve their implementation. The severity classification in Table 1 also helps in this regard. For example, it might be noticed that the relative severity percentage of pedestrian, bicycle, motorcycle, and railroad crashes are significantly higher than the other categories, as is true for the top three categories as well. This is an important aspect to be considered when the goal is reducing deaths.

Problem Identification for Evidence-Based Enforcement Campaigns

The state has developed an Evidence-Based Enforcement (E-BE) plan to determine enforcement activity locations based on high-risk hotspots. These hotspots are identified according to criteria based on injury severity and the type of crash for which enforcement is being directed. These hotspots are then communicated to the Community Traffic Safety Program/Law Enforcement Liaison (CTSP/LEL) coordinators for each of the state's traffic safety regions. It is the responsibility of the CTSP/LELs to facilitate both regular and special enforcement programs within their respective regions. This response will continue with a discussion of the analyses performed, the deployment of resources, and the process for continuous follow-up and improvement.

The highest level of problem identification analysis is given in the previous section by Table 1, which gives a detailed explanation in the response to "State's Overall Highway Safety Problems" below. Table 1 identifies the most critical issues to be the following items: (1) Restraint Deficient; (2) Impaired Driving and (3) Speeding, followed by 4) Hit Obstacle on Roadway, 5) Large Truck involved, 7) Failure to Yield and 8) Pedestrian Involved. The first of these is the primary cause of increased injury severity in crashes. The second and third are crash causes, although speed can be both a cause and a severity increase. Impaired Driving is often highly correlated with both restraint deficiency and higher impact speeds. Thus, there is ample justification for considering these three simultaneously. Alabama considered the 6) Mature factor to be a result of an increase in left turn crashes, which typically would be an infrastructure issue. Based on the resources available to this office, at this point we did not include this as a focus area at this time, but it will continue to be monitored.

The following was the procedure employed to generate the hotspots that provided the basis for implementing the data driven approach for E-BE:

- Crashes that were in either the Speed or Impaired Driving category were identified and locations with the highest numbers of these crashes (particularly the severe crashes) were included in a list;
- Locations were defined by specific criteria depending on roadway classification.
- CARE identified hotspots in four major categories: (1) Interstate, (2) Federal and State Routes, (3) non-mileposted intersections (for Impaired Driving Crashes only) and (4) non-mileposted segments;
- The list was prioritized by crash frequency severity;

Each of the four regional coordinators use the hotspot specifications as the basis for their plans for the upcoming year. Their data were formatted in the same way as the statewide reports but only included information on hotspots specific to the given region. The reports provided on a regional basis are as follows:

- Regional Fatalities Graph
- Top Speeding Related Mileposted State/Federal Route Crashes Map for Region
- Top Speeding Related Mileposted State/Federal Route Crashes Listing for Region
- Top Impaired Driving Related Mileposted State/Federal Route Crashes Map for Region
- Top Impaired Driving Related Mileposted State/Federal Route Crashes Listing for Region
- Top Impaired Driving Related Non-Mileposted Intersection Crashes Listing for Region
- Top Speeding Related Non-Mileposted Segment Crashes Listing for Region
- Top Impaired Driving Related Non-Mileposted Segment Crashes Listing for Region
- Top Emphasis Area (Failure to Yield, CMV involved, Pedestrian or Bike involved, Hit Fixed Object) Crash listing for Region

Generally, each ALEA region receives a package of information that is formatted just like the statewide results but tailored to their region or roadway subset. All law enforcement agencies also have access to the statewide plan, and they are instructed to focus their E-BE details for the upcoming year on the hotspot locations. If any issues are raised at this point in the planning process, they are resolved by AOHS staff to ensure integrity and consistency among the regions.

The effective allocation of resources ideally leads to a reduction in the number of hotspots within the next year on both a statewide level and within each individual region. That is, given that the total number of crashes remains relatively stable, the concentration of efforts at the hotspots will reduce crashes at those locations so they may no longer be a defined as hotspots in the following year. Ideally, the goal would be to eliminate hotspots defined by the previous

year's criteria altogether. Funding is determined for each region based on the percentage of hotspots in that region. There is also a consideration of the percentage of alcohol and speed crash issues that are present within each region. Federal funds distributed by the AOHS are used to focus on the high crash areas within each region.

Law enforcement agencies use saturation patrols, line patrols, checkpoints, and regular patrol for the E-BE projects to be effective. The enforcement activities and techniques that are used include:

- Conduct four local hotspot Evidence-Based Enforcement (E-BE) projects, one within each of the CTSP regions.
- Conduct a statewide E-BE project in conjunction with the Alabama Law Enforcement Agency (ALEA).
- Continue to require the CTSP Coordinators to conduct selective enforcement efforts that focus their plans on hotspot locations identified by the data analyses provided for their respective regions, while giving allowances for flexibility based on recent trends.
- Participate in the "Click It or Ticket" Campaign.
- Conduct a statewide "Drive Sober or Get Pulled Over" Campaign in conjunction with the national campaign.
- Conduct sustained E-BE for impaired driving, speeding, and seat belts throughout the year. The enforcement efforts are accompanied by PI&E campaigns that incorporate advertising, bonus spots, website links, and support of government agencies, and local coalitions to impact restraint usage. This part of the campaign consists of:
    - Development of marketing approach based on Nielsen and Arbitron ratings and targeted primarily towards the 18-34 male age group.
    - Placement of paid ads on broadcast television, cable television, digital ads, and radio in addition to public service spots. Paid advertising will be placed primarily in the largest media markets.
    - Management of public relations efforts including press releases and special media events to stimulate media coverage and alert the public to the campaign.
- In addition to the paid and free media, the AOHS website will have updated information including ads, articles and other information pertaining to the seat belt campaigns.
- Each CTSP/LEL Coordinator will be responsible for developing press releases and conducting press events and community outreach opportunities that are specifically targeted to their regions.

AOHS monitors law enforcement agencies' activity reports to determine if adjustments are needed for their plans. When activity reports are received, they are assessed against the latest crash data to identify successful crash reductions in targeted locations, as well as new areas of risk that may be developing. This results in E-BE programs being continuously evaluated and the necessary adjustments being made. Follow-up is conducted with agencies to address any lack of performance issues or activities. Adjustments are made to the HSP annually based on the problem identification that includes the enforcement plans.

Deep Data Dive Process and Problem Identification

In addition to the crash location mapping typically performed by AOHS, in March 2023, a multilayered "data deep dive" was undertaken by NHTSA Region 4 staff for Alabama as a part of a technical assistance package offered to states. The intent of the to process was to analyze multiple data sources and gain insights into traffic safety issues. The results were helpful in beginning to craft a targeted look at communities residing in target areas and identify areas where future programming could be applied through public outreach and education, as well as refined media campaigns. The full presentation of the Deep Data Dive results can be found in Appendix B of this document.

The process involved several steps:

- Fatality Data Analysis: The initial step involved examining fatality data from 2020 to identify counties with high fatality numbers. This information allowed for the selection of counties that were overrepresented in terms of raw numbers of fatalities. Unsurprisingly, this list of counties included the highly populated counties of Jefferson, Mobile, Madison, Montgomery, and Tuscaloosa.

- Fatality Rate Analysis: Alongside the raw fatality numbers, the analysis also considered population. By calculating the fatality rate per capita in each county, counties were selected based on their disproportionately high fatality rates. This produced a list of very rural counties, Macon, Bullock, Conecuh, Greene, and Butler.

Target County List

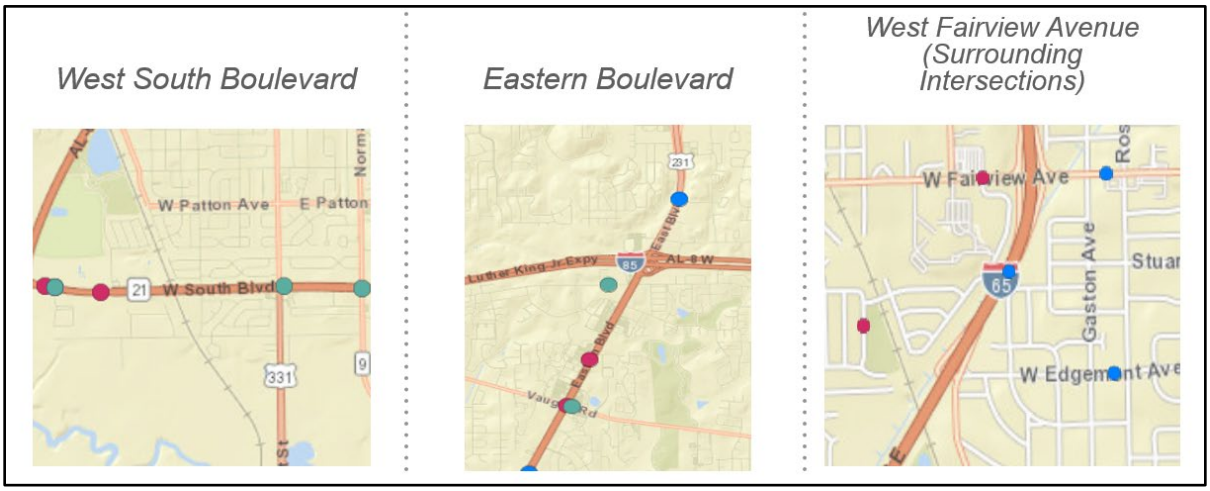
Localities by 2020 Ranking (Fatalities)		Localities by 2020 Ranking (Fatalities per 100,000 Population)	
1. Jefferson	110	6. Macon	83.82
2. Mobile	61	7. Bullock	70.17
3. Madison	43	8. Conecuh	50.63
4. Montgomery	37	9. Greene	50.06
5. Tuscaloosa	37	10. Butler	46.14

Source: FARS Data- NHTSA STSI Tool

- Census Data Examination: The selected counties were further investigated by studying relevant census data. Analyzing census data provided valuable insights into the population characteristics and helped understand the communities of focus. Items of interest were population, demographic breakdowns, languages spoken, household income, and poverty levels.

- Identification of Crash Clusters: Roadways with clustered crashes were identified and chosen for further evaluation. This step allowed for a focused analysis of areas where multiple crashes occurred, potentially indicating underlying issues or contributing factors, such as business locations or roadway features.

Crash Locations in Montgomery County



Source: Fatality and Injury Reporting System Tool

- In-Depth Evaluation: From the selected counties, AOHS utilized FARS data to determine the trends for traffic deaths for the top ten counties for 2018-2020. The following causes of death were analyzed: Occupant Protection, Impaired Driving, and Pedestrian. This evaluation aimed to identify any distinct groups or significant patterns that emerged from the data.

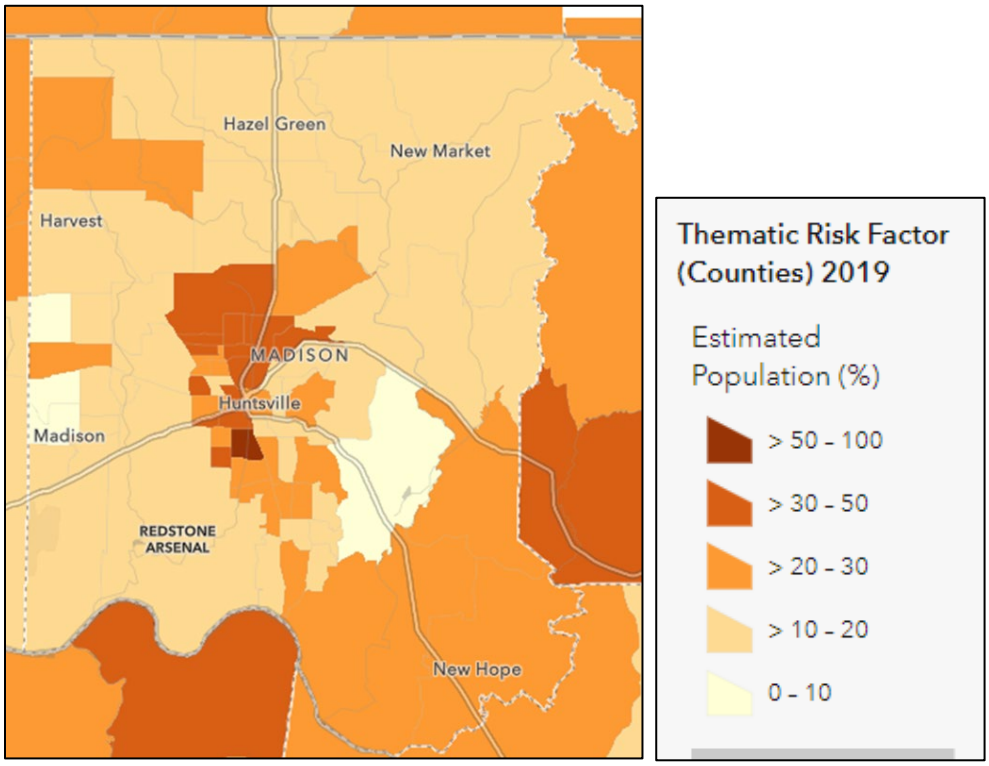
All Fatal Impaired Driving Crashes: Time of Day

Impaired Driver	0:00am-0:59am	1:00am-1:59am	2:00am-2:59am	3:00am-3:59am	4:00am-4:59am	5:00am-5:59am	6:00am-6:59am	7:00am-7:59am	8:00am-8:59am	10:00am-10:59am	1:00pm-1:59pm
Bullock	1										
Butler			2	2							
Conecuh											
Greene		3	2		1						
Jefferson	2	4	1	3	1						
Macon	2							1			
Madison	4	1		2	2	2	1	2		2	
Mobile	8	3	4	6	2	2	1	2	1	3	3
Montgomery	1	3	1	4	2	2					2
Tuscaloosa		2	6	1		1			1		
Grand Total	18	16	16	18	8	7	2	5	2	5	5

Source: Critical Analysis Reporting Environment (CARE)

- Community Resilience Scoring: To enhance the understanding of the challenges faced by the identified groups in target counties, community resilience scoring applications were applied. These applications assessed the resilience and capacity of communities to withstand and recover from adverse events. The scoring process helped shed light on the specific challenges and vulnerabilities faced by the identified communities within the target counties.

Madison County Community Resilience Map



By following this data deep dive process, comprehensive insights were obtained regarding the overlaying of fatality data, community demographics, crash clusters, and community resilience factors. These findings serve as a valuable resource in developing targeted interventions and strategies to address the challenges faced by these communities. The process of identifying the "who" in crash mapping lead to the AOHS's application of crafting a Public Engagement plan. The results of the received feedback were integrated into project selection and programming for FY 2024-2026.

Methods for Project Selection

The goal of Alabama project selection approach is to create the safest surface transportation system possible, using comparable metrics from other states in the Southeast to assess progress in maintaining continuous recognizable improvement. Its primary ideals are to save the most lives and reduce the most suffering possible. The approach to project selection is to apply an evidence-based approach that draws upon detailed problem identification efforts to quantify and compare alternatives that are given within the NHTSA documents *Countermeasures That Work* and *"Uniform Guideline for Highway Safety Programs"*. Over the years the primary focus has evolved from implementing an Evidence-Based Enforcement (E-BE), concentrating on enforcement with special emphasis on speed reduction, impaired driving elimination and increasing the use of restraints and using data that centered around the hotspot analyses performed for each of these countermeasure subject areas.

With the new triennial Highway Safety Planning Process, and incorporation of the Safe Systems Approach, Alabama's Highway Safety Office has expanded the scope of its E-BE to include pedestrians, CMVs, and crashes caused from Failure to Yield and Hit obstacle as well as creating a suite of community-based education programs that provide information on safety issues to overrepresented and underserved groups.

The approach toward implementing this goal involves a concentration on the necessity for a cooperative effort that involves teamwork and diversity, including all organizations and individuals within the state who have traffic safety interests, many of which were given above. The focus of crash reduction countermeasures is on the locations with the highest potential for severe crash frequency and severity reduction, as identified for speed and impaired driving, which were the largest two causes of fatal crashes, and for restraint non-use, which is the greatest factor causing increased crash severity.

There are several approaches used in Alabama's project selection, some of which are outlined as follows:

- Compare similar results year to year from the data that is used to drive the countermeasure selections. For example, similar hotspot analyses are performed from year to year to determine the changes in the crash statistics as well as the correlated demographics. This quantifies both improvements and setbacks.
- Overlay additional data sources, including geospatial and demographic sources to understand community impact of projects.
- Incorporate feedback from public surveys and engagement events to help drive selection of countermeasures and how to administer the project.
- If the indications are that a program implemented in the previous fiscal year fell short of its intended target, analyses are performed to determine the various causes in terms of continual improvement in the future.
- If it is determined that a specific program was particularly successful, then its characteristics are studied to determine if they can be applied or even reinforced in future efforts.
- For new countermeasures, at the highest level, evaluate alternative overall countermeasure strategies and select the ones that will best solve the problem.
- Once new countermeasures are resolved, use further analytical techniques to fine tune those that have been selected for implementation.

Project selection involves refining the performance measure targets each year. At the same time, evidence-based countermeasure strategies and specific projects to address problem areas and to achieve performance targets are developed and selected.

The AOHS planning process for the 3HSP followed the timeline below:

- December- Annual Report (AR) is prepared and submitted to NHTSA. The AR serves as a key evaluation tool in determining the effectiveness of planned activities and individual projects.
- March- AOHS collects up to date state data from CAPS to determine hot spots in the CTSP regions. This analysis helps determine funding levels and percentages for enforcement campaigns, as well as helps evaluate and identify emerging issues. This analysis was combined with additional data sources and community feedback from engagement activities. Incorporation of public feedback from engagement events will be plugged into evaluation metrics, and data analysis of locations and affected communities is examined.

- April- Results from data analysis and countermeasure selection are presented to project directors at the Quarterly Project meeting. Once this information is communicated, the involved agencies and potential subrecipients are given the application deadline.
- May- Grant applications are submitted.
- May-July- Applications are reviewed and recommended by AOHS for funding. AOHS also prepares the Highway Safety Plan for NHTSA.
- July 1- Submit Highway Safety Plan to NHTSA.
- October 1- Grant year begins.

AOHS does not have a formal grant selection committee to oversee the submission and approval of project proposals outside of office staff. Rather, AOHS fully utilizes the year-round interactions and meetings with traffic safety stakeholders and committees to identify how the state can work together to address issues in a coordinated way. For example, the AOHS meets quarterly with the AIDPC and TRCC to stay informed on actions different organizations are taking throughout the state to address Impaired Driving and Traffic Records issues, respectively. These meetings allow for communication and collaboration amongst the different organizations and agencies' jurisdictions on current and emerging issues.

Description of Outcomes regarding SHSP and HSIP Coordination

Strategic Highway Safety Roundtable and Implementation Teams

To move towards the Safe Systems Approach under BIL, Alabama created the Strategic Highway Safety Roundtable working group. The purpose of the Alabama Highway Safety Roundtable is to have representatives from engineering, enforcement, education, and emergency medical services work collaboratively to reduce the number of traffic-related fatalities and serious injuries on Alabama roads. With the new Bipartisan Infrastructure Law and the national shift to the Safe System Approach, the Roundtable provides the opportunity for stakeholders to come together to identify the best ways to coordinate existing work and develop new solutions to common areas of concern.

The working group consists of representatives from government agencies, law enforcement, transportation departments, educational institutions, community organizations, advocacy groups, and other key stakeholders with expertise in traffic safety. This group has served as a catalyst for enhanced collaboration and communication among various traffic safety partners, fostering a more coordinated approach to program development and administration.

Quarterly meetings are scheduled to facilitate dynamic discussions on content driven by group interest and focus areas in the Strategic Highway Safety Plan. Meetings typically contain a victim story or focus, a data driven presentation, and time for attendees to update the group on upcoming events or campaigns. The open format ensures that all voices are heard, and perspectives are considered. These meetings have become invaluable platforms for sharing best practices, exchanging data and research findings, and brainstorming innovative solutions to traffic issues in Alabama.

In summary, the creation of the Strategic Highway Safety Roundtable group has become a tool towards Alabama's Safe Systems Approach, uniting traffic safety partners and initiating a culture of collaboration and communication.

SHSP Implementation Groups and HSP Coordination

AOHS has worked collectively with ALDOT in performance measures development and target setting for the common goals of the HSP and SHSP. The common goals were mutually accepted by the Alabama Office of Highway Safety, and the Strategic Highway Safety Plan steering committee. The major goals of both the HSP and the SHSP are to bring about the most effective and coordinated statewide allocation of traffic safety resources possible, including funding, equipment, and personnel.

The latest Strategic Highway Safety Plan was published June 2022. The plan identified emphasis areas based on data analysis. The suggested programs implemented from the emphasis areas and corresponding action items receive extensive review and recommendations by the state's Strategic Highway Safety Plan working group. The overall performance measures and targets set in the SHSP for the State of Alabama are complementary to, and consistent with, those developed by AOHS. Over the past several years, the AOHS Highway Safety Plans (HSP), have been incorporated into the SHSP, specifically with emphasis areas identified as "Behavioral Based."

Public Participation and Engagement

The following Public Participation and Engagement Plan describes community engagement activities conducted for the development of the triennial Highway Safety Plan (3HSP). The purpose of the engagement effort is to provide early and continuous opportunities for community input into the state's highway safety program, particularly in those communities most significantly impacted by traffic crashes resulting in serious injuries and fatalities. These input opportunities bring the public into discussions of traffic safety needs, planning, and decision-making processes by the highway safety office.

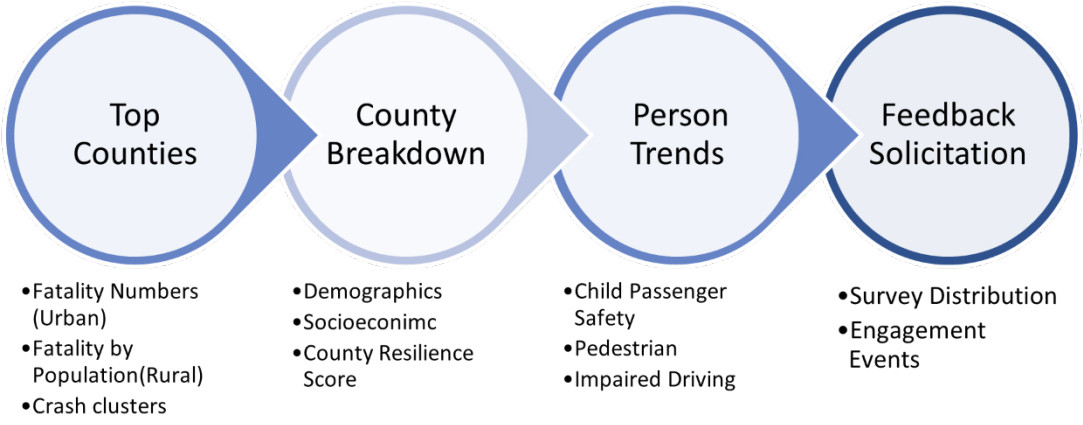
Triennial HSP Engagement Planning Goals

The Alabama Highway Safety Office will proactively seek input regarding Child Passenger Safety, Pedestrian Safety, and Impaired Driving from the target communities identified through the top ten counties based on crash data. The SHSO will craft a Highway Safety Program that incorporates the comments received from engagement with the target communities into effective countermeasure strategies through education and media projects that address the needs of the state's overrepresented and underserved communities. The State will leverage already established partnerships in these top urban and rural counties to engage with the affected communities and adjust the countermeasures according to the feedback.

Identification of Affected and Potentially Affected Communities

Data Analysis for the Alabama Highway Safety Office's Public Participation and Engagement Plan was focused on identifying the "who" in traffic safety fatal and serious injury crashes. Staff followed along through the deep data dive process described earlier to identify overrepresented groups by top crash causal factors, and then underserved communities located close to crash locations. These two groups were not mutually exclusive.

AOHS Community Identification Process



Target Populations Identified

1. Child Passenger Safety -Rural Populations

All Fatal Crashes by Race and Belt Use 2018-2020

All Fatal Crashes	Race	Black	White	No Belt
Bullock	Black	92.3%	7.7%	38.46%
Butler	Black	53.8%	46.2%	73.1%
Conecuh	Black	53.3%	46.7%	40.0%
Greene	Black	69.0%	31.0%	55.2%
Jefferson	White	49.5%	49.8%	36.2%
Macon	Black	69.0%	31.0%	55.2%
Madison	White	23.9%	74.6%	38.8%
Mobile	White	32.4%	65.3%	49.3%
Montgomery	Black	61.3%	35.1%	37.8%
Tuscaloosa	White	36.8%	62.1%	40.0%

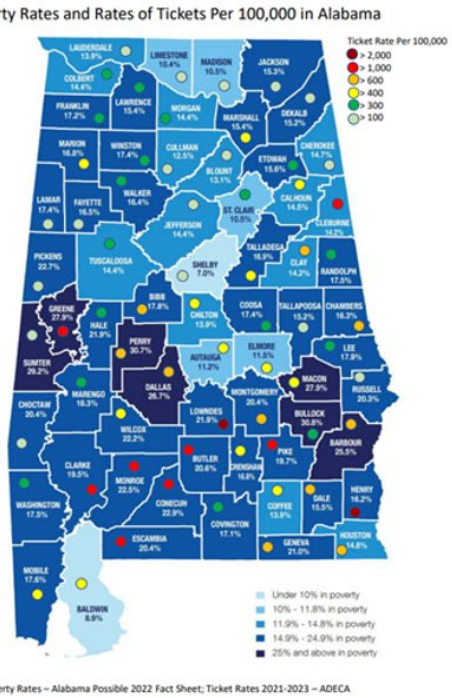
When fatal crashes by target county were pulled, it was noticed there were higher rates of "no belt" usage in fatalities in the more rural counties. In the Deep Data Dive, the top ten counties were selected considering crash clusters, raw fatality numbers, fatality rate per capita in each county, and relevant census data to further understand the communities of focus. In each of the rural counties from this list (Bullock, Butler, Conecuh, Greene, and Macon), their counties' poverty rates in 2021 exceed the state's overall poverty rate 16.1%.

The data shows that the rural counties from this list are not only overrepresented in crash fatalities, but also underserved due to their poverty rates and Community Resilience Estimates. For an in-depth view of the Community Data, please see the Deep Data Dive Presentation in Appendix B. While Child Passenger Safety (CPS) wasn't an immediate focus in the Deep Data Dive, AOHS understands the compounding effects of educating families on proper restraint usage, beginning in infancy. Child safety is also a universal concern, no matter the community, and starting with this education can lead to wider awareness of traffic safety. The Center for Disease Control (CDC), in their Child Passenger Safety research, explains how parents and caregivers can make a lifesaving difference by ensuring that their children are properly buckled on every trip. The article states, "Researchers who observed adults and children riding in cars in 2021 found that 95% of children ages 7 and younger who were driven by a buckled driver were restrained, compared with 77% of children driven by an unbuckled driver."

To gather more information on target populations who could be overrepresented and underserved, Alabama overlaid restraint deficient warning and citation numbers with a poverty rate map to identify the locations where education and information campaigns could potentially make a difference in the state. After this analysis, one goal of the AOHS was to engage rural populations to identify knowledge levels on child restraint information, and interest in training opportunities throughout the state.

Child Restraint Citations by Number and Population

Source: Poverty Rates – Alabama Possible 2022 Fact Sheet; Number of Tickets 2021-2023 – ADECA



Source: Poverty Rates – Alabama Possible 2022 Fact Sheet; Ticket Rates 2021-2023 – ADECA

2. Pedestrians- Males Ages 25-54, Urban Area Focus

Pedestrian safety is a new program area of the Alabama Highway Safety Office. Previously, it was assumed that pedestrian issues were either too randomly located or too infrastructure related to administer a behavioral countermeasure. However, the growing number of fatalities and additional examination of data justifies action. In Alabama, pedestrian fatalities are significantly overrepresented by males between the ages of 20-65. After pulling the target counties information for the years 2018-2020, AOHS tried to identify additional target populations or communities.

The table below shows the breakdown of pedestrian fatalities in the select target counties by age. Of note is Jefferson County, where the fatalities comprised 34% of the total out of the ten counties, and 17% of the entire state for that same time. Through the Deep Data Dive, the SHSO began the process of determining which groups are considerably represented in pedestrian crash data. Based on this process, urban counties are a prime target for any beginning pedestrian initiative efforts. The HSO recognizes that community identification is a process and is requesting a formal NHTSA assessment of pedestrian fatalities to further identify specific target populations.

Pedestrians by County, Age and Sex 2018-2020

Pedestrians Killed in Fatal Crashes [1]							
State/County		Age Group 1					
by Sex		0-15	16-24	25-54	55+	Unknown	Total
Alabama - Bullock	Male	0	0	2	0	0	2
Alabama - Conecuh	Male	0	0	1	0	0	1
	Female	0	0	1	0	0	1
	Total	0	0	2	0	0	2
Alabama - Jefferson	Male	0	6	20	14	2	42
	Female	0	5	5	5	0	15
	Total	0	11	25	19	2	57
Alabama - Macon	Male	0	0	2	1	0	3
Alabama - Madison	Male	0	1	12	10	0	23
	Female	0	0	3	1	0	4
	Total	0	1	15	11	0	27
Alabama - Mobile	Male	0	3	21	6	0	30
	Female	0	2	6	2	0	10
	Total	0	5	27	8	0	40
Alabama - Montgomery	Male	0	0	7	8	0	15
	Female	3	1	2	4	0	10
	Total	3	1	9	12	0	25
Alabama - Tuscaloosa	Male	0	0	6	2	0	8
	Female	1	1	0	1	0	3
	Total	1	1	6	3	0	11
Total	Male	0	10	71	41	2	124
	Female	4	9	17	13	0	43
	Total	4	19	88	54	2	167

3. Impaired Driving - Rural Male Pickup Drivers, Ages 21-40

Analysis of Alabama's impaired driving fatalities shows significant overrepresentation in the following areas:

- Rural Counties
- Males Ages 21-40
- Pick Up Trucks
- Causal Drivers without legitimate licenses

The rate of injuries and fatalities are consistently higher in ID crashes than that of non-ID crashes. Fatality crash proportions for ID crashes are 6.769 times their expected proportion, while the next two highest (non-fatal) injury classifications have over twice their expected values when compared with non-ID crashes. The odds ratio is over three (3.978) for the highest non-fatal classification, Suspected Serious Injury.

Males are a far greater issue in ID crashes, and if there are countermeasures that can be directed toward them, doing so would be much more cost- effective than those that are not gender-based, all other things being equal. Pick-ups had a significant overrepresentation.

Drivers involved in fatal crashes in the years 2017-2021 by Vehicle Body Type where Impairment by Alcohol or Drugs was Selected by Officer.

Drivers Involved in Fatal Crashes [1]			
Vehicle Body Type	Sex		
	Male	Female	Total
Passenger Car	159	51	210
Light Truck - Pickup	120	6	126
Light Truck - Utility	77	31	108
Light Truck - Van	9	2	11
Light Truck - Other	1	0	1
Large Truck	9	0	9
Motorcycle	22	3	25
Other/Unknown	7	0	7
Total	404	93	497

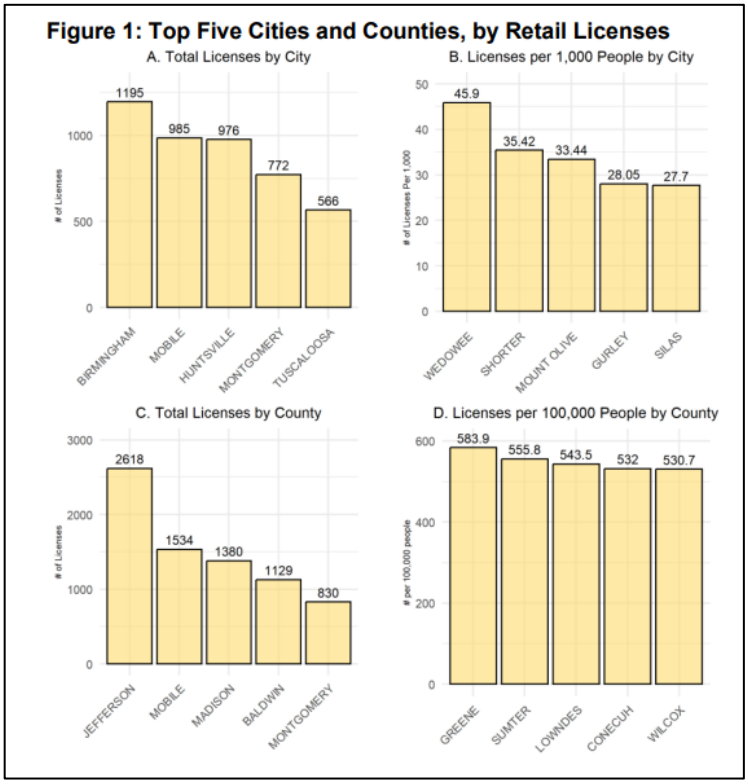
ID crashes are overrepresented in causal drivers without legitimate licenses. Revoked is overrepresented for the ID causal drivers by over six times its expected proportion (compared to non-ID crashes). The following table uses 2018-2022 crash data with a focus on the causal driver license status. Valid licensed drivers accounted for .54% of fatal crashes. By contrast, DL Deficient accounted for 1.48% of fatal crashes. This shows DL Deficient drivers are nearly 3 (2.742) times as likely to cause a fatal crash than a driver with a valid DL. The same is true with serious injury crashes. Valid licensed drivers accounted for 2.55% of serious injury crashes. This jumps to 6.03% for crashes caused by DL deficient drivers.

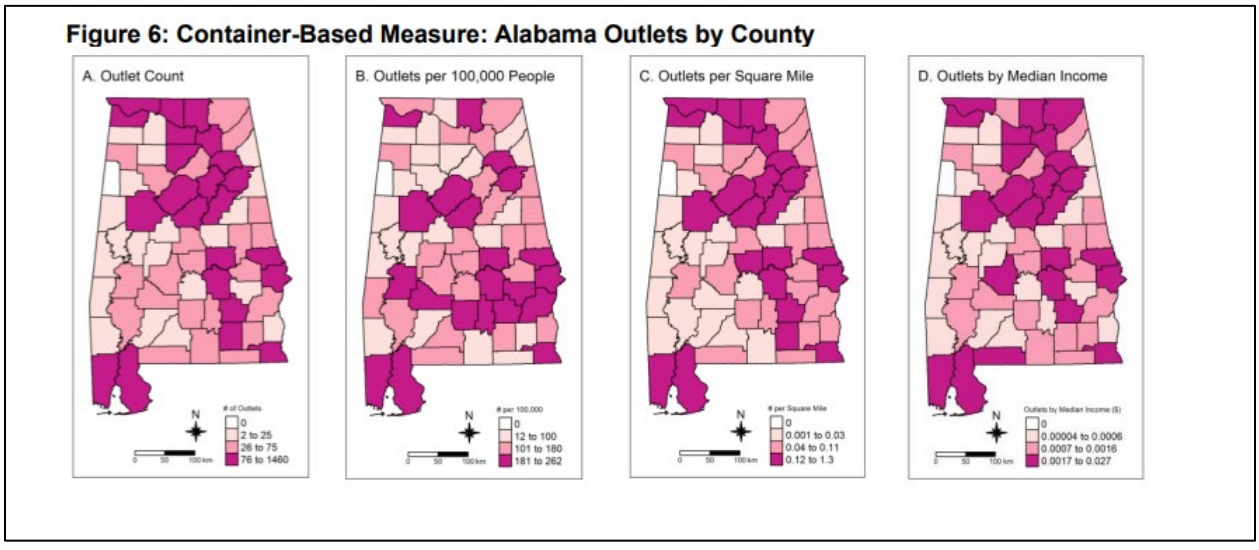
Crash Severity	DL Deficient	DL Deficient %	Valid DL	Valid DL %	Odds
Fatal Injury	499	**1.48**	3873	**0.54**	**2.742**
Suspected Serious Injury	2030	**6.03**	18253	**2.55**	**2.367**
Suspected Minor Injury	4190	**12.44**	56110	**7.83**	**1.589**
Possible Injury	3630	**10.78**	60542	**8.45**	**1.276**
Property Damage Only	22406	66.55	559339	78.05	0.853
Unknown	915	2.72	18508	2.58	1.052

Another layer of the highway safety office's analysis included considering community factors such as proximity and saturation of liquor stores in target counties and communities. High density of outlets (outlets per person) is a known health and safety risk factor and it is recommended by the CDC that states and local communities monitor accordingly. (Centers for Disease Control and Prevention. Guide for Measuring Alcohol Outlet Density. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017).

The following informational images are screenshots taken from a study by Iowa University's Public Science Collaborative titled, *The Alcohol Landscape in Alabama.* Figure 1 reports the top five cities with the highest number of retail licenses as of July 2022.When the number of licenses of each city by total population (per capita measures) was calculated, there are notable shifts. Zooming out to the county-level shows that Jefferson (n=2618), Mobile (n=1534), Madison (n=1380), Baldwin (n=1129), & Montgomery (n=830) were the top five counties by total number of licenses. A deeper dive into population-adjusted license data shows that Greene, Sumter, Lowndes, Conecuh, and Wilcox counties had the highest number of retail licenses per 100,000 county residents in 2022.

The higher per capita numbers of licenses correlate with the higher rates of Alcohol Impaired Fatalities we see in FARS when performing data analysis of these rural counties and locations. The screenshot of Figure 6. shows density of outlets by number, by population, square mile, and income. This data could be interpreted in many ways; AOHS is using the information as another tool to identify risk factors in our target counties and considers it of note.





Triennial HSP Engagement Outcomes

Outreach Steps- Survey Creation

The Alabama Highway Safety Office crafted an online survey aimed at capturing public opinion on the identified safety topics of Speeding, Distracted Driving, Occupant Protection, Impaired Driving, and Pedestrians. The survey was comprised of 40 questions that included demographic data to ensure that the HSO was not only reaching the target audience but determining where these attitudes occurred in order to pinpoint and refine programming options based on received feedback. It is important to note the survey was intended to be a valuable tool for ADECA to use during events and community engagement, not a standalone means of feedback.

The HSO launched the online survey to help identify a baseline of knowledge on highway safety issues. The staff sent it to traditional traffic safety partners to share to their various media platforms and to participate because they are a part of the affected communities themselves. The survey was also distributed through the Governor's Office of Volunteer Services to their partner organizations, as well as to the list of Non-Profits in Alabama that was generated by NHTSA. It is important to note that the AOHS sought to connect with non-profit organizations because the employees nor the clients are traffic safety professionals, meaning the office gains a crucial point of view for public engagement. Furthermore, these non-profits service people in underserved communities which advances the goals of the AOHS. The survey in its entirety, along with general results is included in the Appendix A of this document.

Outreach Steps- Events

In order to reach the identified overrepresented and underserved communities, the AOHS sought a nontraditional partnership and connected with the Family Guidance Center of Alabama, a non-profit organization dedicated to strengthening families through the provision of an accessible comprehensive system of coordinated programs and services designed to enable people of all ages in Alabama to envision and achieve their goals. Their full range of services includes counseling, parenting education, marriage enrichment, mentoring, services for business and industry, childcare support services, senior services, adult day care, career development, job training, and other therapeutic services for families.

With this connection, HSO utilized partner-hosted meetings as our technique for gathering input. An already established meeting helps with turnout since participants previously planned to attend, as opposed to having to accommodate another meeting. Furthermore, these participants represent groups that might not otherwise engage in transportation planning and can bring fresh perspectives and insight to the transportation planning process. The Family Guidance Center (FGC) regularly meets with communities throughout Alabama to hold a myriad of classes, trainings, presentations, counseling sessions, etc.

After researching the organization, viewing its online schedule of events, and speaking with the leaders at the county offices, the staff felt it best to partner with the teachers with the Life Skills Program parenthood classes and the Kids and Kin Program classes. The HSO sought out this partnership with FGC because they service underserved communities throughout the state and because their clients are more likely to transport children that require a car seat or booster seat. The staff met with several community classes in Montgomery County, Bullock County, and Tuscaloosa County (chosen from the list of top counties). At the class, the ADECA staff member gave a short presentation about the organization as a whole and the LETS division's goals regarding the HSP. Afterwards the staff member provided the class participants with an opportunity to take the survey and offer verbal feedback as well.

To reach males in the targeted age ranges, AOHS also held an event at a Montgomery Biscuits baseball game. The online survey was adapted for this event to narrowly focus on impaired driving, and the staff provided the patrons an opportunity to take the survey and offer verbal feedback. ADECA LETS set up at tent near the main entrance of the concourse at the Montgomery Riverwalk Stadium. During the game the weather was warm and sunny, which helped bring in fans of all ages and demographics. Events such as this seem to be a great way to engage the public.

Accessibility Measures

The AOHS presented their online survey through a multi-media outreach strategy to maximize participation and reach a broader audience. When the survey was created, the SHSO was careful to make sure the design worked for desktop computers and laptops as well as mobile technology like phones and tablets. The survey could have been completed at any time irrespective of work hours.

First, SHSO posted the survey on its website, blog, Facebook, Twitter, and Instagram. The staff also printed mini flyers as participation requests that had a QR code to scan for the survey. These flyers were placed in local churches, community centers, and other organizations. Next, the staff also created an email participation request and sent it to the State partners and asked them to share it on their social media and email it to their organization.

Lastly, the staff presented the survey in-person at various locations with Family Guidance Center, and at the Riverwalk Stadium. The ADECA staff member presented the survey and offered an opportunity for oral feedback in consideration of participants with lower literacy skills. All events were held in buildings that were ADA-compliant. One class meeting did have a participant that was deaf or hard of hearing and an interpreter was present during the event. The HSO staff member present was fluent in English and Spanish to ensure language access; however, her interpretation was not needed. An adapted survey was presented at the Montgomery Biscuits game; the Montgomery Riverwalk Stadium is ADA-compliant. As far as the setup, the table faced the flow of traffic which allowed patrons to walk into the game and straight to the table.

Attendees

The survey was sent intentionally to traditional partners and non-traditional partners, such as non-profit organizations, to gather insight from underprivileged populations. The respondents were required to enter their zip code to track residency. Many of the respondents represented reside in the top 10 counties detailed in the Deep Data Dive. The survey was forwarded to many transportation and law enforcement professionals, the open-ended responses made it clear that many participated in the survey as well. The transportation professionals are a part of the affected community and their input in this process was invaluable.

In the events with the Family Guidance Center, 100% of the attendees were female, including the instructors. The HSO sought out this partnership with FGC because they service the underserved communities throughout the state and because their clients are more likely to transport children that require a car seat or booster seat. Their clientele and the selected classes, in particular, tend to be predominantly female; males were not excluded from participation. The class attendees were all residents of the county where the classes were held. The HSO staff member facilitated with the survey and did not ask any additional questions to the group. Several attendees offered feedback at the end of the presentation. This would have meant the target group of rural communities was covered by these events. Also, the economic makeup of the attendees for community courses skewed heavily towards individuals facing poverty or other risk factors that increase a population's vulnerability.

At the Montgomery Biscuits game over 4,000 people were in attendance. The AOHS staff interacted with many patrons and received dozens of responses from the survey. 76% of the survey respondents were males. Over half (24 out of 46 survey participants) were 34 years old or younger. This would signify that both the target groups for pedestrians and impaired driving were reached by this event.

Issues Covered

Participants in the survey were asked to answer questions related to several topics, and they were given the opportunity to provide open-ended feedback for each topic. At the community meetings, several participants communicated a lack of knowledge and interest in highway and traffic safety. Many commented on the excessive speeds of drivers in their community and lack of law enforcement presence as well. They supported media and education for both drivers and pedestrians. Several respondents noted the need for education especially for school-age children. They called for a greater emphasis on the curriculum of driver's education classes for high-schoolers and to possibly require drivers to complete a driver's course prior to receiving their license. Additionally, many respondents expressed the need for better infrastructure. They cited several areas of concern: potholes, better lighting, more crosswalks, better signage (ex. Speed limit), etc. A few of the survey participants voiced the necessity for developing public transit.

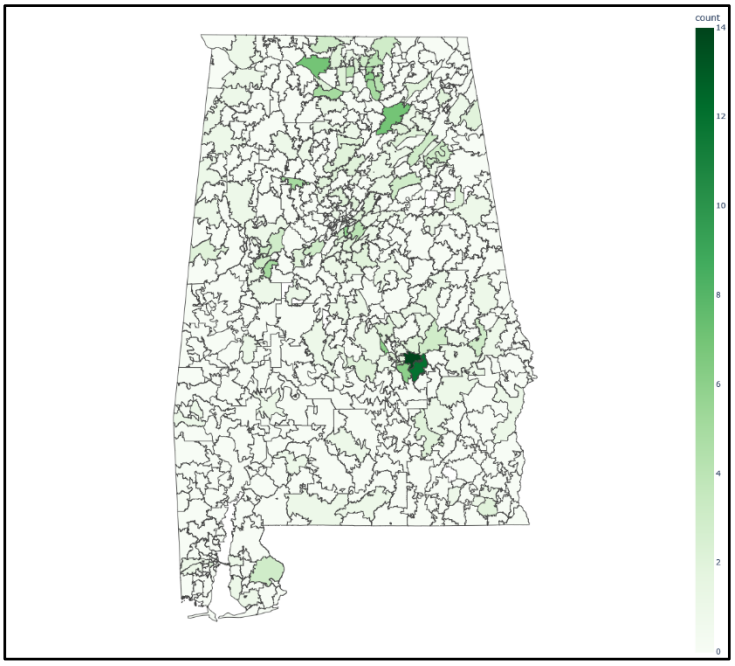
At the Biscuits game, most of the content covered was related to impaired driving dangers and risks. The input survey was pared down to solely address this topic, so the Alabama Highway Safety Office was able to see the different opinions in an isolated fashion for this group.

SURVEY RESPONSE HEAT MAPS

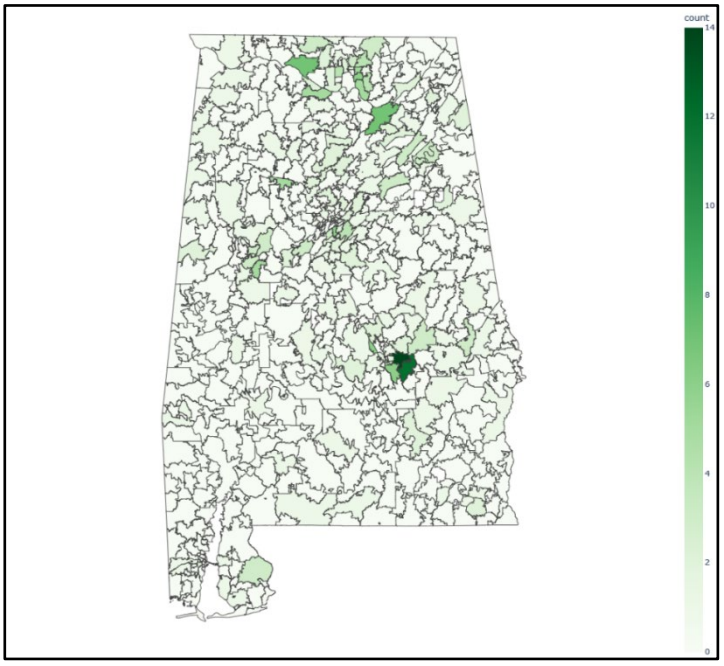
In this section there are heat maps used to show the concentration of certain responses to the administered survey. Tools such as these are useful to see “at a glance” where attitudes related to traffic safety are coming from.

Child Passenger Safety

Question 13 “Are you familiar with the Alabama Child Restraint Law?” “No” and “Yes but not familiar with details” Responses

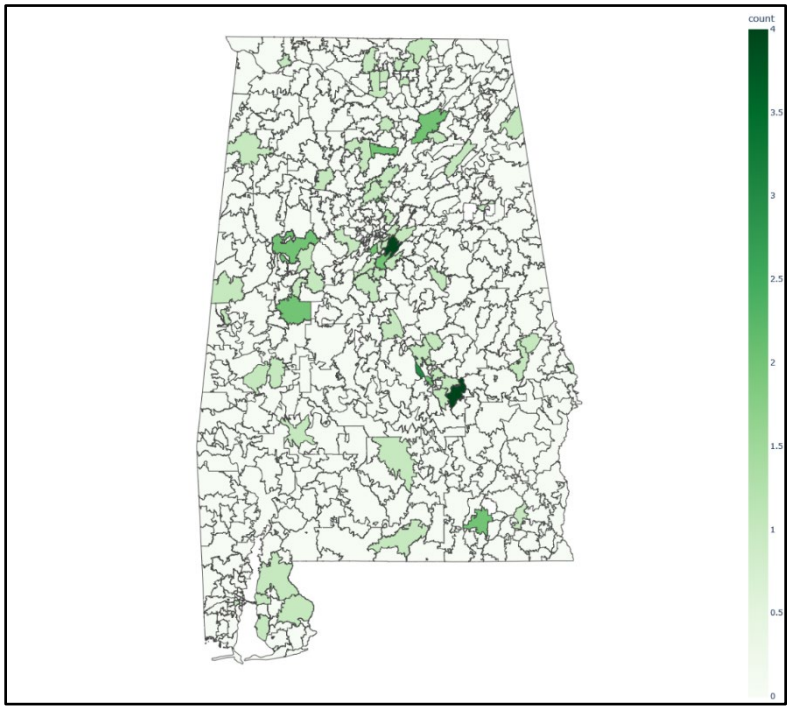


Question 15- "Would you be interested in informational opportunities regarding child passsenger safety informational event like seat checks or educational classes?" “YES” Responses



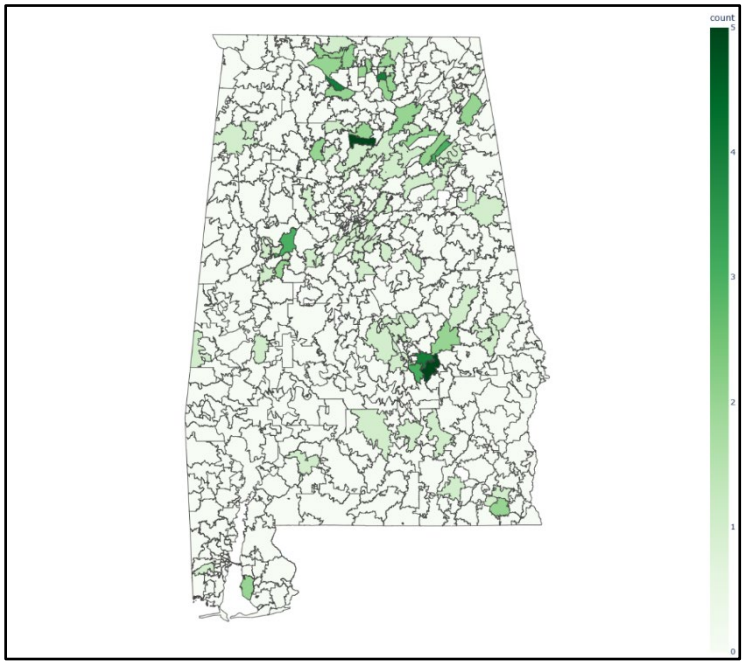
Pedestrian Safety

Question 21- “As a pedestrian, do you make eye contact with the driver to ensure they see you and will stop before crossing?”, “NO” Responses



Impaired Driving

Question 22- “In your opinion, is it okay to drive after taking cannabis products?”, “YES” Responses



Incorporation of Feedback into HSP Development

In response to the meaningful feedback the AOHS received through the online survey and through the community events, the following opportunities for programming in year one of the 3HSP have been identified:

- Identifying platform preferences and message recognition using information from survey results, Deep Data Dive, and other engagement opportunities for Occupant Protection Media Campaigns, as well as high priority geolocation targets for deployment.
- Identifying platform preferences and message recognition using information from survey results, Deep Data Dive, and other engagement opportunities for Impaired Driving Media Campaigns as well as high priority geolocation targets for deployment.
- Mapping of high priority locations to offer Child Passenger Safety training classes and seat check events from information gathered during the Deep Data Dive and community engagement feedback.
- Location and population identification for public education concerning pedestrians.
- Establishment of distracted driving knowledge baseline and behaviors, for crafting messaging.
- Planning and Administration roles for collaborating with state partners where feedback indicated they would be useful (Strategic Highway Safety Roundtable, Pedestrian Assessment, etc.)
- Traffic Records Projects that provide easily assessable traffic safety dashboards for the public, to educate and disseminate safety information.

Ongoing engagement planning

Goals

The Alabama Office of Highway Safety recognizes that public participation and engagement is a continuous and ongoing process; therefore, AOHS maintains its goal to proactively seek input regarding Child Passenger Safety, Pedestrian Safety, and Impaired Driving from the target communities identified through the top ten counties based on crash data. The SHSO will craft a Highway Safety Program that incorporates the comments received from engagement with the target communities into effective countermeasure strategies through education and media projects that address the needs of the state's overrepresented and underserved communities. The State will leverage already established partnerships in these top urban and rural counties to engage with the affected communities and adjust the countermeasures according to the feedback.

Data Analysis

In years two and three of the Highway Safety Plan, AOHS plans to continue with the process that was taken this year to establish crash locations and most occurring contributing circumstances, then layer sociodemographic and geospatial data to identify if the target demographics have changed or evolved. The State will resume the Deep Data Dive and adjust the plan where data and trends dictate. The HSO will focus on underserved and overrepresented communities in the data to ensure AOHS is tracking traffic trends.

Engagement Steps

After the engagement events already conducted in 2023, the AOHS has identified the following goals and next steps:

1. Continue to engage rural populations on child restraint information throughout the state. In years two and three of the 3HSP our office plans to expand engagement events to rural health fairs to engage a larger audience.
2. Continue partnering with non-profits to reach targeted communities.
3. Use paper surveys at events as well as Spanish language materials when appropriate to increase accessibility.
4. Craft a targeted survey to administer to attendees at seat check events, especially those held in rural locations, that helps to identify resource or access issues that are faced by the participants, (how far did they have to travel, was cost a prohibitive factor in car seat safety, are there issues related to childcare, etc.)
5. Continue engagement events at sporting events. This is a great way to interact with target demographic males. These events can be in rural and urban locations to cover both impaired driving and pedestrian issues.
6. Another upcoming issue is the effect of the recent legalization of medical marijuana. Questions were built into the initial input survey, and those responses will be mapped to best track knowledge levels and media platform preferences. This will allow the SHSO to determine a baseline to create educational campaigns on the dangers of driving while under the influence of marijuana.
7. The HSO will also work to engage with the underserved military population by collaborating with our partners and hosting Seat Checks at various military bases throughout the state.

Incorporation of Feedback into HSP Development

Ultimately, the SHSO will continue to host engagement events, such as those listed above, where feedback is received from the identified groups to gauge public knowledge and opinion on various topics and craft educational and media campaigns for the corresponding topic areas. More specifically, the State will receive valuable feedback on Child Passenger Safety, Pedestrian Safety, and Impaired Driving this year through the online survey and at the community events from the affected communities identified through the data deep dive process.

As the AOHS continues to gather feedback we will include additional affected communities as the feedback grows and their views integrated into program. The feedback responses for these program areas will be used to create visual representations of where opinions appear and fundamentally affect programming efforts because the SHSO can concentrate its efforts accordingly. The SHSO will continue to craft public education and media campaigns using the suggestions received during the survey from the affected communities, since their zip codes will be targeted through the deep data dive process. This feedback will be culturally relevant messaging and educational training. The State will also use the location of respondents to inform where potentially affected communities are and accordingly focus our outreach and engagement efforts.

Performance Plan

Process for Developing Highway Safety Performance Measures and Targets

The development of performance measures and targets was initiated by AOHS more than a decade ago, and it is updated annually to keep up with the evolving traffic safety conditions. An annual AOHS staff review provides data to develop and select evidence-based countermeasure strategies, which then determine the specific projects to address the most critical problem areas and to achieve established performance targets.

Each of the regions is charged with the responsibility to assess their specific traffic safety problems. Grant funds are allocated to the regions based on a review of these needs in terms of reducing the most critical problems identified in each of their respective regions. Specific projects involving the state CTSPs are largely focused on the problem locations discussed and defined in state hotspot listings.

AOHS will also continue to participate in high visibility enforcement (HVE) programs, such as the "Click It or Ticket" and "Drive Sober or Get Pulled Over" campaigns. Generally, funding is allocated to each region based on the percentage of hotspots in the region. For the shorter duration HVE programs, funding is made available based on the fatalities in that region, which enables further participation for the national campaigns. AOHS continues to pledge its support to these programs and will fund the participating regions and agencies accordingly.

Several considerations are essential to understanding the rationale for the AOHS development of performance measures and targets. The following paragraphs present considerations for the rationale for establishing the performance measures and targets, many of which impact several items:

Baselines for Analysis and Agreement. Generally, the baselines for the estimates were calculated from the most recent five years of FARS data. This can be seen from the data that demonstrate metrics over the past five available calendar years (2017-2021). Items C-1, C-2 and C-3a used the identical methodology as was approved in the coordination meetings with ALDOT to keep these goals consistent with the safety goals required by FHWA.

Distinction between Data and Estimates. The shaded areas in all graphs represent the projected number *assuming the established trend as given by a linear regression line over the previous known values continues.* Rolling 5-year averages are used to create a linear model to project two future years. The linear projection and slope are represented in the charts. The first projected year is not shaded as heavily as the "out" years to convey an idea of the reliability of the projection. Clearly, the further out that an estimate is projected, the less reliable it will be.

Accounting for Extrapolation Errors. Extrapolating from a limited number of past values can lead to extreme errors, especially since the latest FARS value that we have in most cases is 2021, requiring (for example) that the estimates of 2022 through 2026 all be based on an extrapolation of 2017 through 2021. (Unless otherwise noted, all references to years of data are calendar years.) Rarely, if ever, does such a linear trend establish a perfectly accurate prediction, especially in crash data where it is commonly accepted that *regression to the mean* follows most dramatic departures (positive or negative) from the established trend. However, the data that were used for estimation are felt to be the *best data* upon which to make and refine the assessments.

As a further refinement, the slope from last year is compared with the current slope to determine if it: (1) changed from positive to negative, or (2) changed significantly from a steep to a relatively level slope. This projection and slope comparison is used to estimate the next two years individually. By comparing the liner projection, raw baseline, and the individual year values, the estimate for the value for the goal was obtained.

All fatality count metrics. Because of several economic factors (price of fuel and alcoholic beverages, reduction in driving by high-risk groups, reduction in speeds for fuel conservation, and several other well-established factors), the typical regression to the mean did not occur in the 2011-2013-time frame. However, regression to the mean was experienced in 2014, 2015, and especially in 2016 as the economy rebounded. The data chosen for the five-year trend and the baseline will go back no further than 2010 for the current estimates. Even this generally produces a very optimistic projection, but since the state has been urged to be aggressive (but not unrealistic) in setting goals, they will generally be somewhere between the projected trend line point for 2024 and the baseline. In the past, notable exceptions to these general patterns were observed in motorcycle and pedestrian fatalities; motorcycle and pedestrian fatalities are discussed as separate items in the paragraphs below.

Motorcycle fatalities. The rationale regarding fatality trends in general (given above) does not apply to motorcycle fatalities. There are two reasons for this: (1) the same economic forces that reduce fatalities in general often work in just the opposite way when it comes to the use of motorcycles, i.e., they become a much more attractive mode of transportation because of the combined negative economic factors; and (2) because of this and the aging of the motorcycle-driving population in general, more and more motorcyclists are of a higher age and thus less able to either avoid or survive a severe injury.

Seat belt use. The projection for 2026 is based upon the five-year rolling average that includes the new method for estimating seat belt used as prescribed by NHTSA.

Five-year rolling average goals. Most of the crash related goals are set differently from years prior to 2014. Analysis concluded that since we were basing estimates on five-year rolling averages, it would not be correct to predict given a one-year estimate.

Pedestrian fatalities. Pedestrian fatalities have two contributing aspects: (1) the situation that brings the pedestrian into an inevitable crash by a motor vehicle, and (2) the ability of the pedestrian to take preventive action even when that collision cannot be avoided. To evaluate the effect of this second subtle (and usually ignored) factor, a comparison was made using 2017–2021-year data between those cases in which the pedestrian was killed and those in which the pedestrian was only injured. It was definitively shown that those who were killed were far more likely to be the subjects of impaired walking: on average they had several times the drug use indicators and twice the alcohol use indicators. Time of day also validated alcohol and drug use. There is no indicator in eCrash to tell the pedestrian was on a cell phone, texting or otherwise distracted. However, it seems clear when such is the case, the pedestrian will be more apt to be caught by surprise and thus will not take the normal last-minute remedial action to protect themselves. There is no reason to doubt that these study results are not still in effect in that they have been validated by several other studies.

Distracted Driving (DD) and walking. While distracted driving has not been broken out as a separate subject for setting a target, it has become clear that it is playing a major part in causing crashes in conjunction with several other causal factors. NHTSA estimates on the percentage of fatality crashes caused by DD currently stand at 10%, but these estimates have been growing over the past five years. Alabama *reported* 72 DD fatal crashes in 2021. While these are below the NHTSA estimate, it seems clear that this could be a reporting issue for this new attribute within eCrash, and it is expected to grow as officers become more accustomed to recognizing and reporting it. It should be recognized that DD is embedded within many of the other crash types, and in particular: youth risk taking, speed, impaired driving, and pedestrian fatalities (see above).

DUI Drugs and Alcohol. A recent study by GHSA has confirmed that drug use, including both prescription and illegal drugs, have overcome alcohol as the major cause for impaired driving (nationally). This trend should be alarming to all traffic safety professionals in that the cultural acceptance of the use of marijuana is a reality. It also signals with it the reversal in any previous stigma regarding other drugs. Further, this trend is in its infancy with the recent legalization of the "recreational use" of marijuana in several other states. Specifically in Alabama, the Darren Wesley "Ato" Hall Compassion Act passed in 2021, legalizing medical marijuana use in the state.

The problem is greatly exacerbated by the fact that there is no simple test equivalent to the alcohol portable BAC test units, nor are there any standards that are analogous to the 0.08 % BAC, and thus no practical way for law enforcement officers to prove that a driver is inebriated by marijuana. The combination of alcohol and additional combinations of drugs are highly problematic. With the difficulty in identifying drugs, there can be little doubt the reported use/abuse of alcohol and drugs is significantly under-reported.

			Base Years (Historical Data)					
	PERFORMANCE PLAN CHART FY24 -26 Highway Safety Plan		**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
C-1	Traffic Fatalities	State	948	953	930	934	983	986
	Maintain total fatalities at the current safety level of 958 by December 31, 2026.	Rolling Avg.	910	931	953	970	950	958
C-2	Serious Injuries in Traffic Crashes	State	7484	7002	5103	4782	5184	4836
	Maintain serious traffic injuries at the current safety level of 5381 by December 31, 2026.	Rolling Avg.	8185	7873	7300	6505	5911	5381
C-3	Fatalities/100M VMT	State	1.34	1.34	1.30	1.38	1.24	1.40
	Maintain fatality rate to at the current safety level of 1.34 by December 31, 2026.	Rolling Avg.	1.34	1.35	1.36	1.39	1.33	1.34
C-4	Unrestrained Passenger Vehicle Occupant Fatalities, All Seat Positions	State	398	354	352	384	354	370
	Maintain unrestrained passenger vehicle occupant fatalities, all seat positions at the current safety level of 363 by December 31, 2026.	Rolling Avg.	379	376	376	382	368	363
C-5	Alcohol-Impaired Driving Fatalities	State	265	249	272	236	281	262
	Maintain alcohol-impaired driving fatalities at the current safety level of 260 by December 31, 2026.	Rolling Avg.	266	264	266	264	261	260

			Base Years (Historical Data)					
	PERFORMANCE PLAN CHART FY24 -26 Highway Safety Plan		**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
C-6	Speeding-Related Fatalities	State	257	262	216	265	274	246
	Maintain speeding-related fatalities at the current safety level of 253 by December 31, 2026.	Rolling Avg.	262	264	260	266	255	253
C-7	Motorcyclist Fatalities	State	79	82	93	78	78	99
	Maintain motorcyclist fatalities at the current safety level of 86 by December 31, 2026.	Rolling Avg.	81	81	87	89	82	86
C-8	Unhelmeted Motorcyclist Fatalities	State	6	10	15	10	12	15
	Maintain unhelmeted motorcyclist fatalities at the current safety level of 13 by December 31, 2026.	Rolling Avg.	7	9	10	10	11	13
C-9	Drivers Age 20 or Younger involved in Fatal Crashes	State	117	127	118	120	134	103
	Reduce drivers age 20 and younger involved in fatal crashes to 111 by December 31, 2026.	Rolling Avg.	119	124	129	129	123	120
C-10	Pedestrian Fatalities	State	119	107	119	100	128	115
	Maintain pedestrian fatalities at the current safety level of 114 by December 31, 2026.	Rolling Avg.	98	108	113	113	115	114

			Base Years (Historical Data)					
	PERFORMANCE PLAN CHART FY24 -26 Highway Safety Plan		**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
C-11	Bicyclist Fatalities	State	7	9	6	10	7	13
	Maintain bicyclist fatalities at the current safety level of 9 by December 31, 2026.	Rolling Avg.	7	7	7	7	8	9
B-1	Observed Seat Belt Use for Passenger Vehicles, Front Seat Outboard Occupants (State Survey)	State Annual	92.9	91.8	92.3	92.3	91.3	92.7
	Increase observed seat belt use for passenger vehicles, front seat outboard occupants to 92.7 by December 31, 2026.	Rolling Avg.	94.2	93.1	92.5	92.3	92.1	92.1

Performance Measure: C-1) Number of traffic fatalities (State Data)

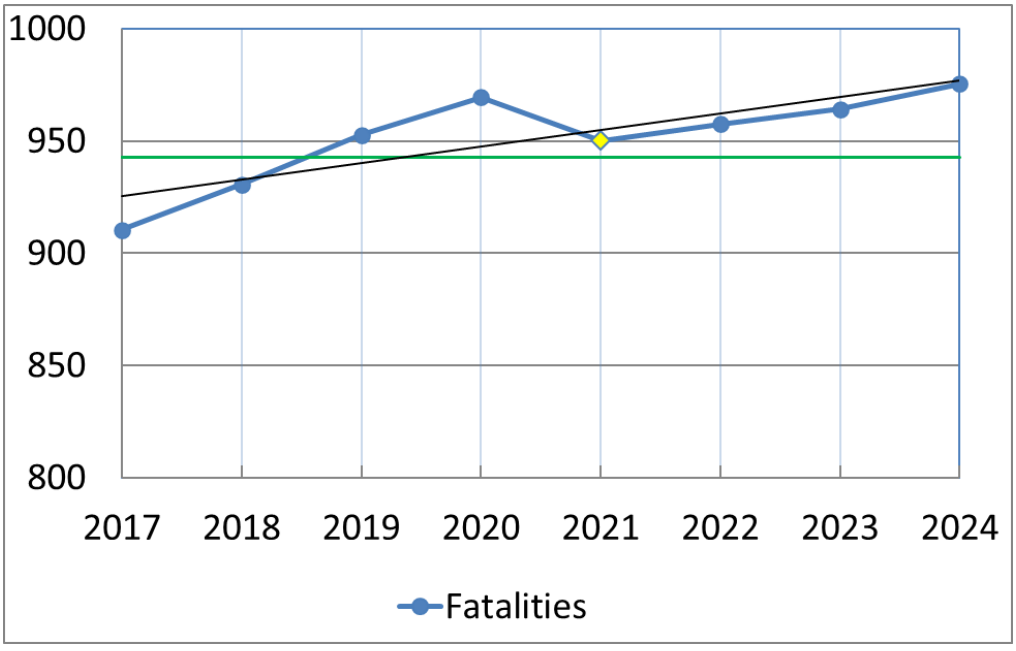
Performance Target Details

2018	2019	2020	2021	2022	Baseline	Goal
953	930	934	985	986	958	**958**

Performance Target Justification

Based on analysis of previous 5-year averages and trends in more recent state crash data, AOHS has projected a realistic goal to maintain the five-year average of 958 by 2026.
Our projection model estimates exceed our FY2024 fatality baseline. Both our 5-year rolling average estimate (975) and linear 5-year rolling average projection (1001) are above our FY2024 fatality baseline (958). According to the latest census data, Alabama's population increased .5% between 2020 and 2021, and 1% between 2021 and 2022. Our state's population increases over the past two years indicate a continued population increase through our goal timeframe. Our most recent crash data for 2022 also indicates a rise in the single and dual fatality crashes. Maintaining our FY2024 fatality goal of 958, with these expected increases, will be a highly notable safety achievement.

5 Year Rolling Averages of Traffic Fatalities



Performance Measure: C-2) Number of serious injuries in traffic crashes (State crash data files)

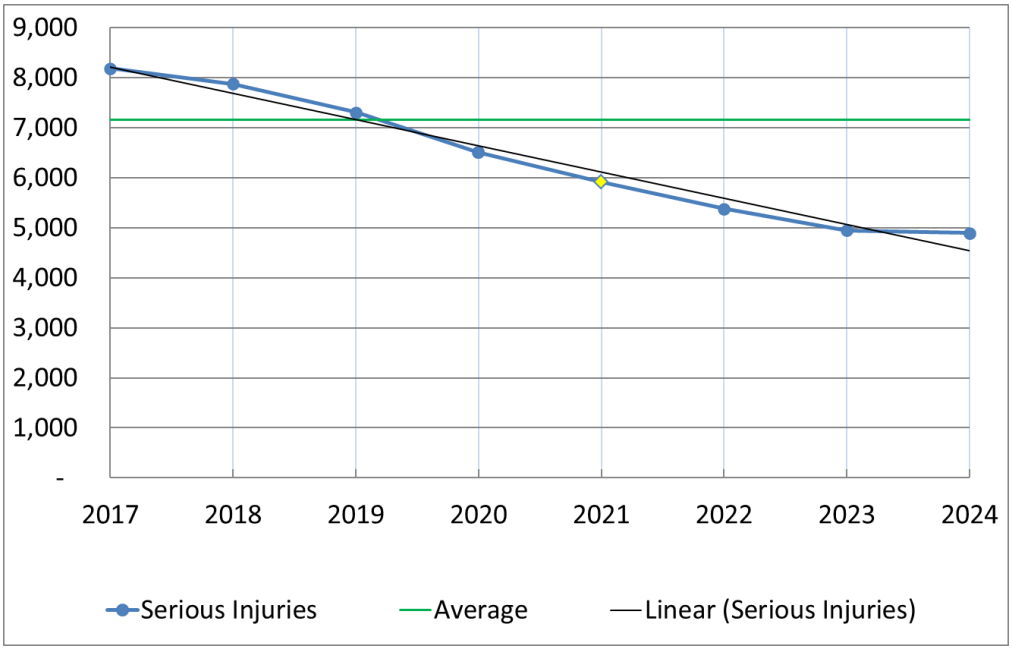
Performance Target Details

2018	2019	2020	2021	2022	Baseline	Goal
7002	5103	4782	5184	4836	5381	**5381**

Performance Target Justification

Based on analysis of previous 5-year averages and trends in more recent state crash data, AOHS has projected a realistic goal to maintain the Number of Severe injuries in Traffic Crashes at 5381 by 2026. Our projection model estimates are below our FY2024 severe injury baseline. However, according to the latest census data, Alabama's population increased .5% between 2020 and 2021, and 1% between 2021 and 2022. The state's population increases over the past two years indicate a continued population increase through our goal timeframe. Our severe injury data shows a significant decrease in severe injuries in 2019. This creates an unrealistic scenario for the upcoming years based on linear projects alone. Our 2020 severe injury count is notable given it is the lowest on record. Furthermore, the increase in 2021 and 2022 being higher than our 2020 count suggests severe injuries are no longer in constant decline. Maintaining our FY2024 severe injury goal of 5,381 is below our historical averages and will allow us to monitor severe injury trends as future estimates become more consistent.

5 Year Rolling Averages of Serious Injuries



Performance Measure: C-3) Fatalities/VMT

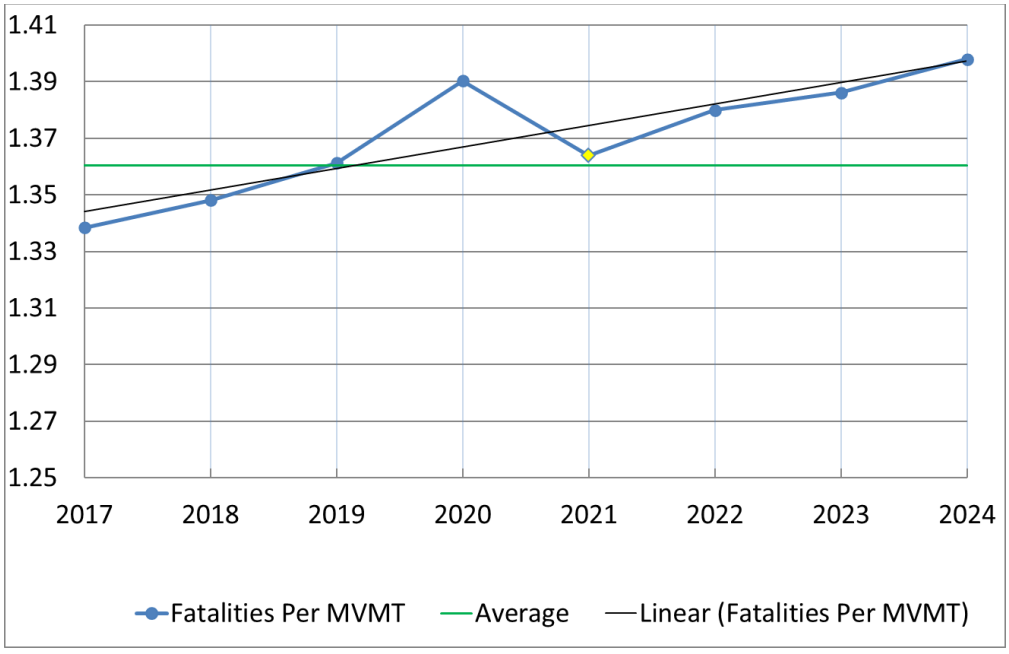
Performance Target Details

2018	2019	2020	2021	2022	Baseline	Goal
1.34	1.30	1.38	1.24	1.40	1.34	**1.34**

Performance Target Justification

Based on analysis of previous 5-year averages and trends in more recent state crash data, AOHS has projected a realistic goal to maintain the Total Fatality Rate/VMT at 1.34 by 2026. Our projection models estimates are above our FY2024 Fatalities per MVMT baseline. Both our 5-year rolling average estimate (1.40) and our linear 5-year rolling average projection (1.41) are above our baseline (1.38) for fatalities per MVMT in 2026. According to the latest census data, Alabama's population increased .5% between 2020 and 2021, and 1% between 2021 and 2022. Our state's population increases over the past two years indicate a continued population increase through our goal timeframe. Likewise, our yearly fatalities have increased year-to-year since 2019. With the projected higher number of fatalities and the population increases, maintaining our FY2024 fatalities per MVMT goal of 1.34 is a modest safety achievement.

5 Year Rolling Averages of Traffic Fatalities/100 MVMT



Performance Measure: C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions

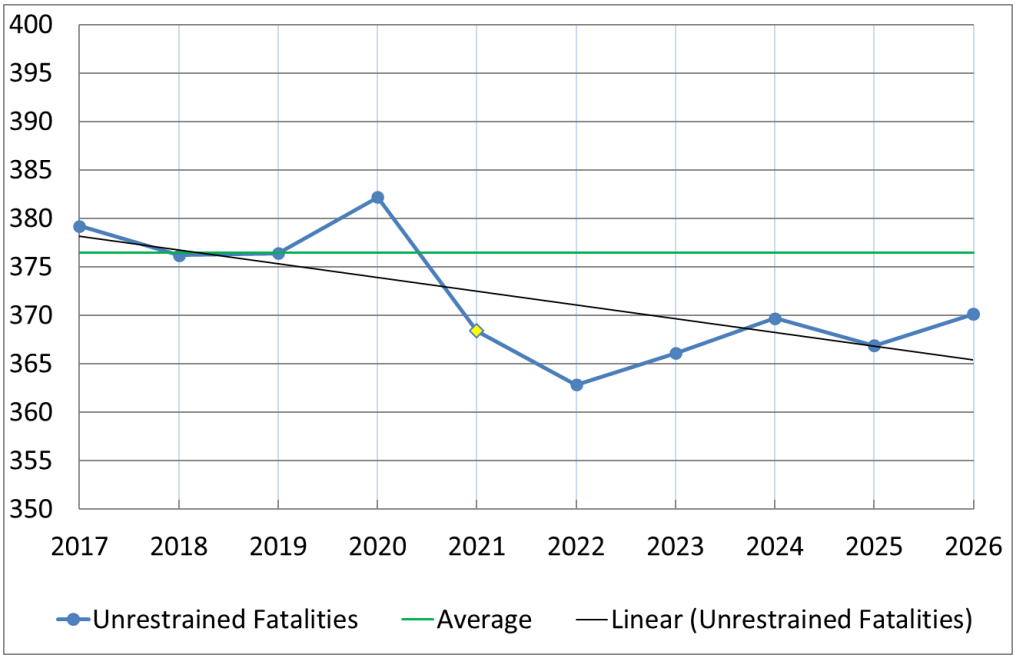
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
354	352	384	354	370	363	**363**	**363**	**363**

Performance Target Justification

AOHS has projected a realistic goal to maintain the unrestrained passenger vehicle occupant fatalities, all seat positions at 363 by 2026. Our projection model estimates are above our FY2024 unrestrained fatalities baseline for 2026. Our 5-year rolling average estimate (370) is above the baseline (363) for unrestrained fatalities in 2026. Furthermore, unrestrained fatalities have consistently accounted for 37% to 39% of all fatalities between 2017 and 2022. By maintaining our baseline for all fatalities, we will also maintain our unrestrained fatalities baseline. Also, comparing unrestrained fatalities per county with all other crashes, 22 counties were over twice as likely to have an unrestrained fatality compared to other counties and types of crashes. Counties that are more susceptible to unrestrained fatalities happen to be part of our underserved communities according to Community Resilience Estimates.

5 Year Rolling Averages of Unrestrained Vehicle Occupant Fatalities



Performance Measure: C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above

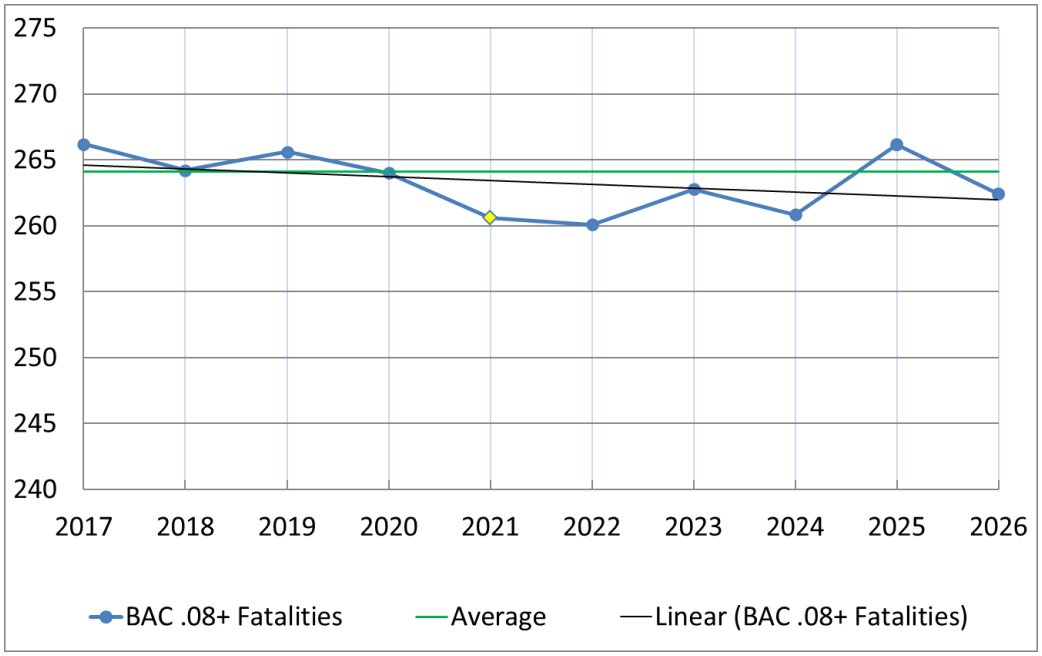
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
249	272	236	284	262	260	**260**	**260**	**260**

Performance Target Justification

AOHS has projected a realistic goal to maintain alcohol impaired driving fatalities at 260 by 2026. Our projection model estimates are above our FY2024 Driver BAC .08+ Fatalities baseline for 2026. Our 5-year rolling average estimate (262) is just above the baseline (260) for driver BAC .08+ fatalities in 2026. Driver BAC .08+ fatalities have consistently averaged between 260 and 262 yearly fatalities between 2017 and 2022. By maintaining our baseline for all fatalities, we will also maintain our Driver BAC .08+ fatalities baseline. Also, comparing Driver BAC .08+ fatalities per county with all other crashes, 22 counties were over twice as likely to have a Driver BAC .08+ fatality compared to all other counties and types of crashes.

5 Year Rolling Averages of Fatalities Involving a Driver with a BAC .08 and Above



Performance Measure: C-6) Number of speeding-related fatalities

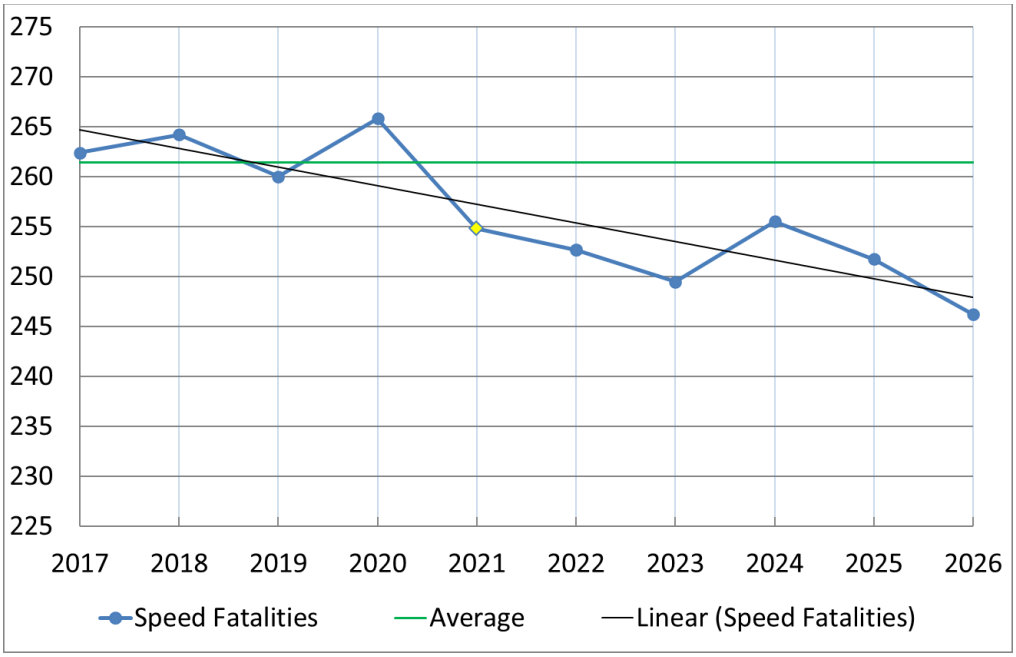
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
262	216	265	274	246	253	**253**	**253**	**253**

Performance Target Justification

AOHS has projected a realistic goal to maintain speeding-related fatalities at 253 by 2026. Our projection model estimates are below our FY2024 speeding fatalities baseline for 2026. However, speeding fatalities averaged 245 between 2017 and 2019 and 261 between 2018 and 2020 and 2022. Additionally, the typical age range for drivers involved in speeding fatality crashes are between 21 and 35 years old. According to S&P Global Mobility, Americans are driving more older vehicles than ever. Older vehicles do not have as many safety features as newer vehicles. Given this trend of potential increase in older model vehicles, and our other projection model estimates, maintaining our baseline for Speeding fatalities is progress in our traffic safety efforts to minimize speeding crashes and their resulting injury severity.

5 Year Rolling Averages of Speeding-related Fatalities



Performance Measure: C-7) Number of motorcyclist fatalities

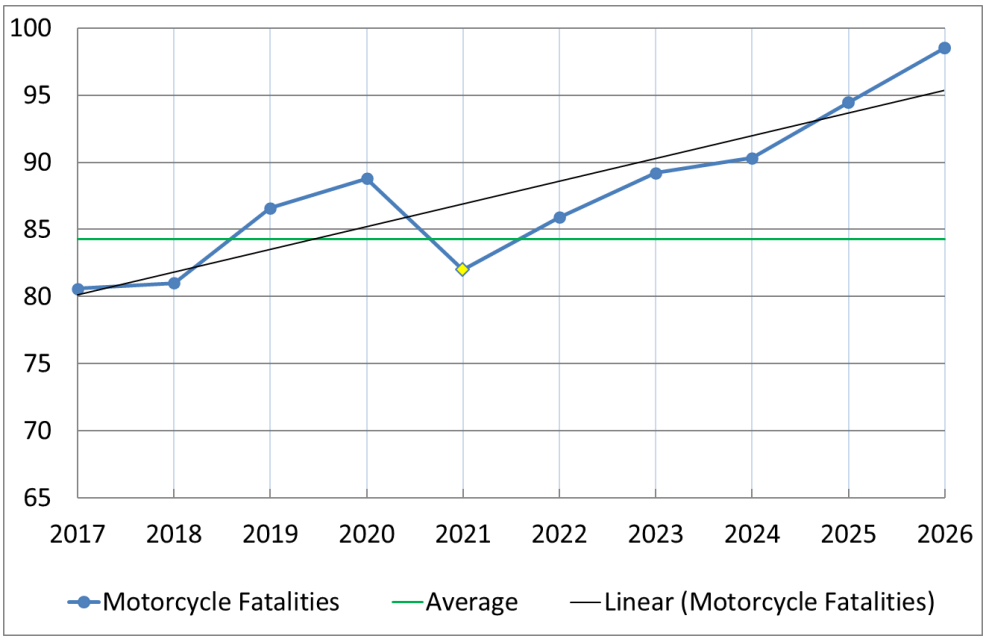
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
82	93	78	77	99	86	**86**	**86**	**86**

Performance Target Justification

AOHS has projected a realistic goal to maintain motorcyclist fatalities at 86 by 2026. Our projection model estimates are above our FY2024 motorcycle fatalities baseline for 2026. Both the 5-year rolling average estimate (98.5) and the linear 5-year rolling average projection (91.2) exceed the baseline (82) for motorcycle fatalities in 2026. Motorcycle drivers ages 54-60 are over twice as likely to be involved in a motorcycle fatality compared to all other ages and types of crashes. Although the population age groups and counts of motorcycle fatalities are slightly different, the 55-59 age group accounted for 6.8% of the state's population in 2017, 2018, and 2020. By age, this is the second largest percent for any age range. Additionally, according to motorcycle sales data, 2020 and 2021 motorcycle sales increased were the highest in 15 years. Motorcycle sale forecasts also show an anticipated 15.7% sales increase between 2022 and 2027. Maintaining our baseline for motorcycle fatalities, with these expected projections, shows our aggressive stance on reducing motorcycle crashes and minimizing crash severity when motorcycle crashes do occur.

5 Year Rolling Averages of Motorcyclist Fatalities



Performance Measure: C-8) Number of Unhelmeted motorcyclist fatalities (FARS)

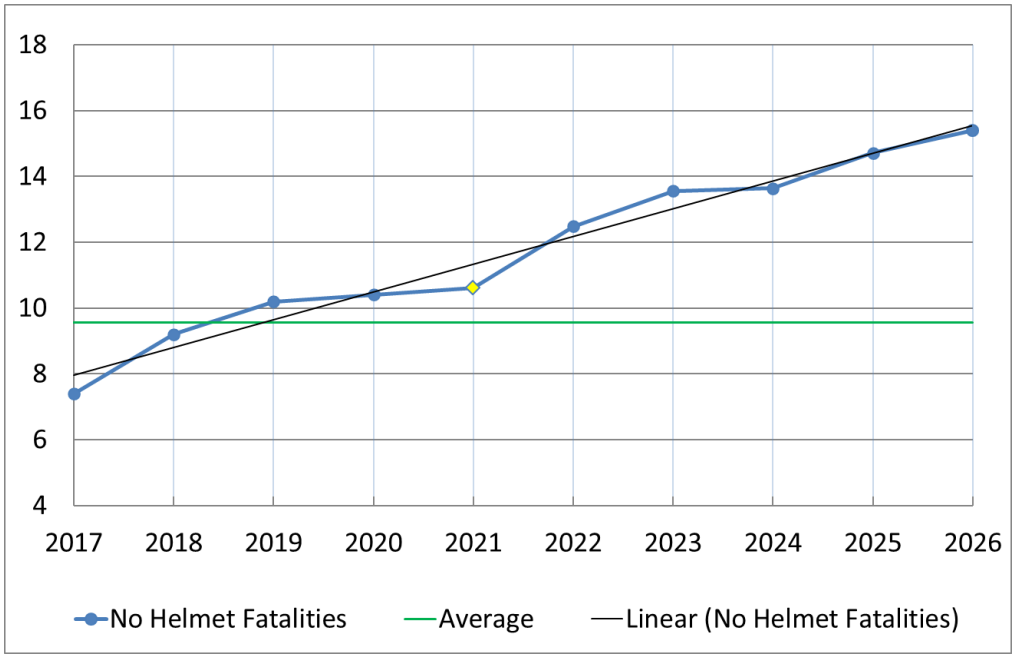
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
10	15	10	12	15	13	**13**	**13**	**13**

Performance Target Justification

AOHS has projected a realistic goal to maintain unhelmeted, motorcyclist fatalities at 13 by 2026. Our projection model estimates are above our FY2024 no helmet fatalities baseline for 2026. Both the 5-year rolling average estimate (15.4) and the linear 5-year rolling average projection (14.9) exceed the baseline (13) for No helmet fatalities in 2026. No helmet fatalities have risen 156.5% since 2017. Additionally, according to motorcycle sales data, 2020 and 2021 motorcycle sales increased were the highest in 15 years. Motorcycle sale forecasts also show an anticipated 15.7% sales increase between 2022 and 2027. With the increase in no helmet fatalities, increase percent of all motorcycle fatalities, and the projected increase in motorcycle sales, maintaining our baseline for no helmet fatalities shows our aggressive stance to limit no helmet fatalities.

5 Year Rolling Averages of Un-Helmeted Motorcyclist Fatalities



Performance Measure: C-9) Number of drivers Age 20 or younger involved in fatal crashes (FARS)

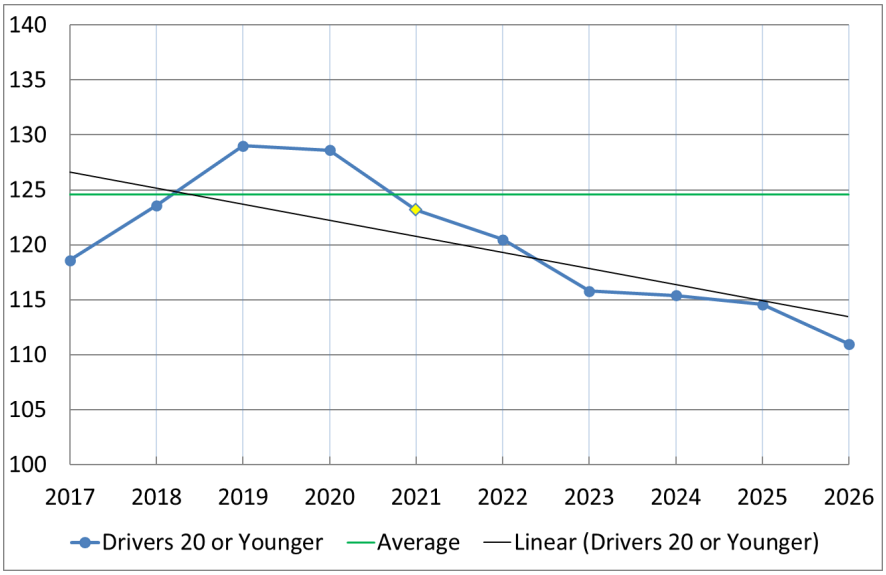
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
127	118	120	134	103	120	**118**	**115**	**111**

Performance Target Justification

AOHS has projected a realistic goal to reduce drivers age 20 and younger involved in fatal crashes by 7.5 percent in 2026. Our projection model estimates are above our FY2024 drivers 20 or younger baseline for 2026. Our linear projection using 5-year rolling average projection (134.5) is above the baseline (123) for fatal crash drivers 20 or younger. According to census data, persons in Alabama ages 15-19 accounted for 6.73% of total population between 2017 and 2021. By age, this is the largest percent for any age range. Additionally, this population age range increased 5.3% from 2020 to 2021. Furthermore, this age range is roughly 4 times, or more, more likely to be involved in fatal crashes involving impairment, speed, and aggressive driving. These crash types typically produce higher severity of crashes. However, AOHS considers the effects of delayed licensing in young drivers will assist the current downward trend. Enforcement and education programming is also expected to maintain lower crash numbers. It is with this in mind the AOHS is setting the goal to reduce fatalities over the time period.

5 Year Rolling Averages of Drivers Age 20 or Younger involved in a Fatal Crash



Performance Measure: C-10) Number of pedestrian fatalities

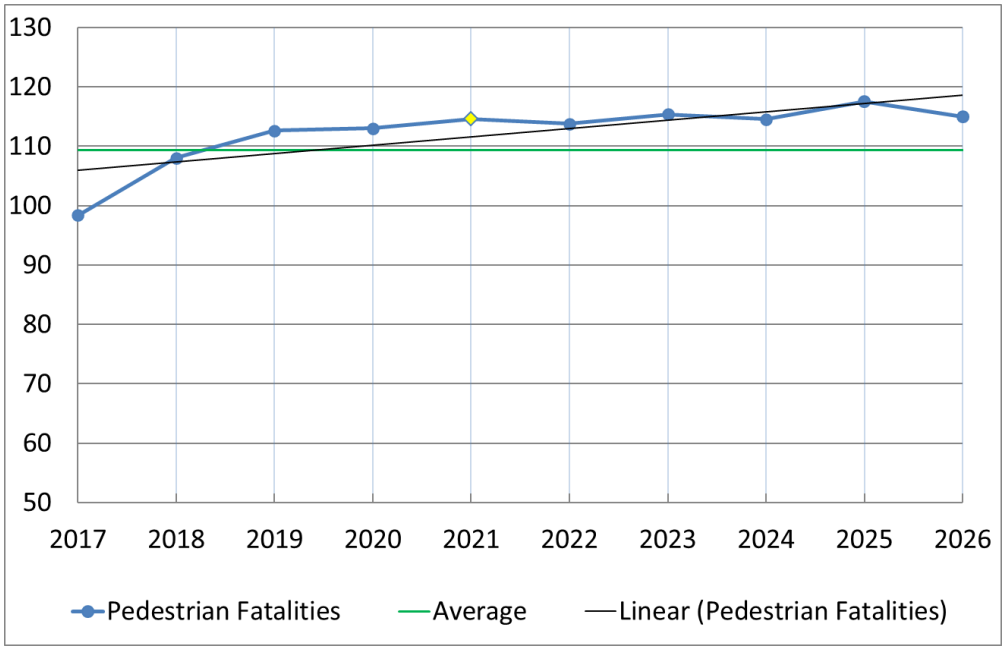
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
107	119	101	128	115	114	**114**	**114**	**114**

Performance Target Justification

AOHS has projected a realistic goal to maintain pedestrian fatalities at 114 by 2026. Our projection model estimates are above our FY2024 pedestrian fatalities baseline for 2026. Our 5-year rolling estimate (114) matches the baseline (115) for pedestrian fatalities in 2026. Our linear projection using 5-year rolling average projection (135.5) is above the baseline (115) for pedestrian fatalities in 2026. Pedestrian crashes typically produce a higher severity of crash. 2017-2019 averaged 115 pedestrian fatalities yearly and 2020-2022 averaged 114 pedestrian fatalities yearly. Furthermore, 10 of the 11 counties that are twice as likely, or more, to have a fatal pedestrian crash, compared with all other counties and types of crashes. With these projections, historical averages, and needs of underserved communities, maintaining our baseline for pedestrian fatalities shows we are dedicated to reducing pedestrian fatalities.

5 Year Rolling Averages of Pedestrian Fatalities



Performance Measure: C-11) Number of bicyclist fatalities (FARS)

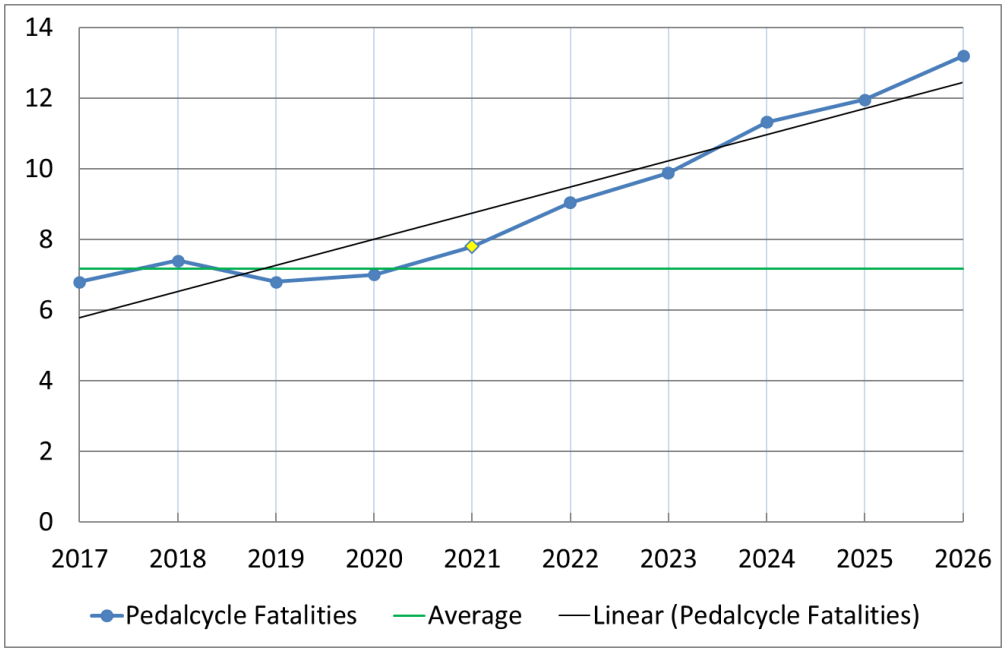
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
9	6	10	7	13	9	**9**	**9**	**9**

Performance Target Justification

AOHS has projected a realistic goal to maintain bicyclist fatalities at 9 by 2026. Both the 5-year rolling estimate (13) and linear projection using 5-year rolling average projection (8.3) exceed the baseline (9) for pedalcycle fatalities in 2026. Like pedestrian crashes, pedalcycle crashes typically produce a higher severity of crash. 2017-2019 averaged 7.3 pedalcycle fatalities yearly and 2020-2022 averaged 10 pedalcycle fatalities yearly. With these projections, historical averages, and historical trends, maintaining our baseline for pedalcycle fatalities shows our dedication to reducing pedalcycle fatalities.

5 Year Rolling Averages of Bicyclist Fatalities



Performance Measure: B-1) Observed Seat Belt Use for Passenger Vehicles

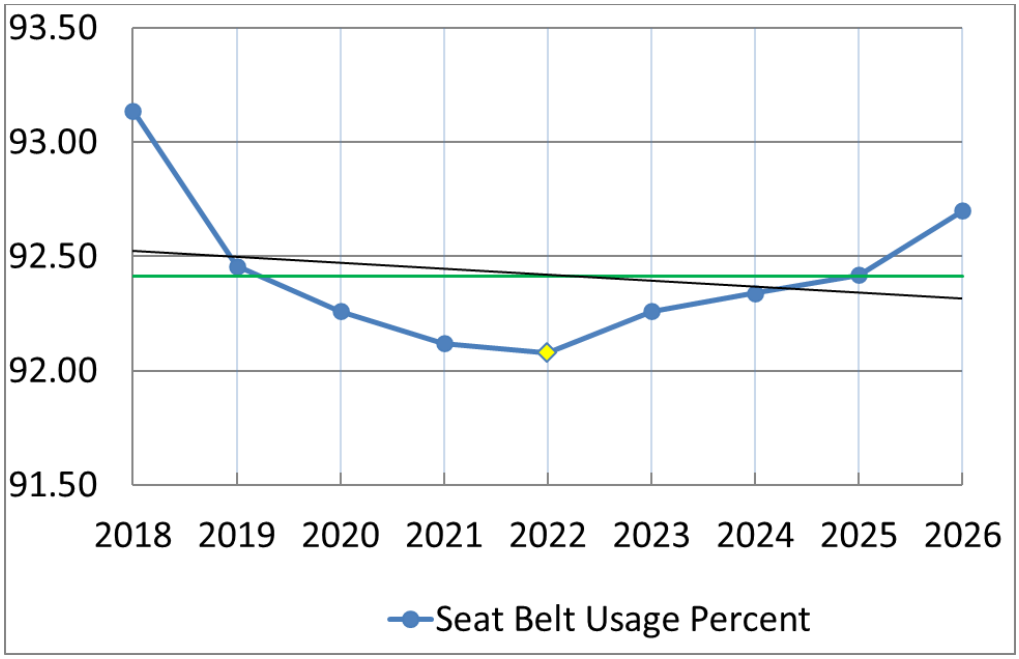
Performance Target Details

2018	2019	2020	2021	2022	Baseline	2024 Benchmark	2025 Benchmark	2026 Goal
92.9	91.8	92.3	91.3	92.7	92.1	**92.4**	**92.5**	**92.7**

Performance Target Justification

AOHS has projected a realistic goal increase observed seat belt use for passenger vehicles, front seat outboard occupants by .65 percentage points from 92.1 percent (rolling 2018-2022 average) to 92.7 percent by 2026. Our projection model estimates are under our FY2024 seat belt usage baseline for 2026. The 5-year rolling estimate (92.7%) is above the baseline (92.1%) for seat belt usage. AOHS is optimistic in the effect the strategic increase in education efforts throughout the state and focused HVE and media campaigns will have on the motoring public on the importance of wearing seat belts.

5 Year Rolling Averages of The Observed Seat Belt Use for Passenger Vehicles, Front Seat Outboard Occupants (survey).



Performance Report

Progress towards meeting State performance targets from the previous fiscal year's HSP

	FY 2023 HSP				
Performance Measure:	**Target Period**	**Target Year(s)**	**Target Value FY23 HSP**	**Data Source*/ FY23 Progress Results**	**On Track to Meet FY23 Target YES/NO/In Progress**
C-1) Total Traffic Fatalities	5 Year	2019-2023	1000	2017-2021 FARS 950	In Progress
C-2) Serious Injuries in Traffic Crashes	5 Year	2019-2023	6500	2018-2022 State Crash Data 5874	In Progress
C-3) Fatalities/VMT	5 Year	2019-2023	1.42	2017-2021 FARS 1.31	In Progress
C-4) Unrestrained Passenger Vehicle Occupant Fatalities, All Seat Positions	5 Year	2019-2023	369	2017-2021 FARS 368	In Progress
C-5) Alcohol-Impaired Driving Fatalities	5 Year	2019-2023	264	2017-2021 FARS 260	In Progress
C-6) Speeding-Related Fatalities	5 Year	2019-2023	266	2017-2021 FARS 255	In Progress
C-7) Motorcyclist Fatalities	5 Year	2019-2023	78	2017-2021 FARS 82	In Progress
C-8) Unhelmeted Motorcyclist Fatalities	5 Year	2019-2023	11	2017-2021 FARS 11	In Progress
C-9) Drivers Age 20 or Younger Involved in Fatal Crashes	5 Year	2019-2023	134	2017-2021 FARS 123	In Progress
C-10) Pedestrian Fatalities	5 Year	2019-2023	117	2017-2021 FARS 115	In Progress
C-11) Bicyclist Fatalities	5 Year	2019-2023	6	2017-2021 FARS 8	In Progress
B-1) Observed Seat Belt Use for Passenger Vehicles, Front Seat Outboard Occupants (State Survey)	5 Year	2023	91.7%	State Survey 92.7%	In Progress

Performance Measure: C-1) Number of traffic fatalities (FARS)

Performance Target Details

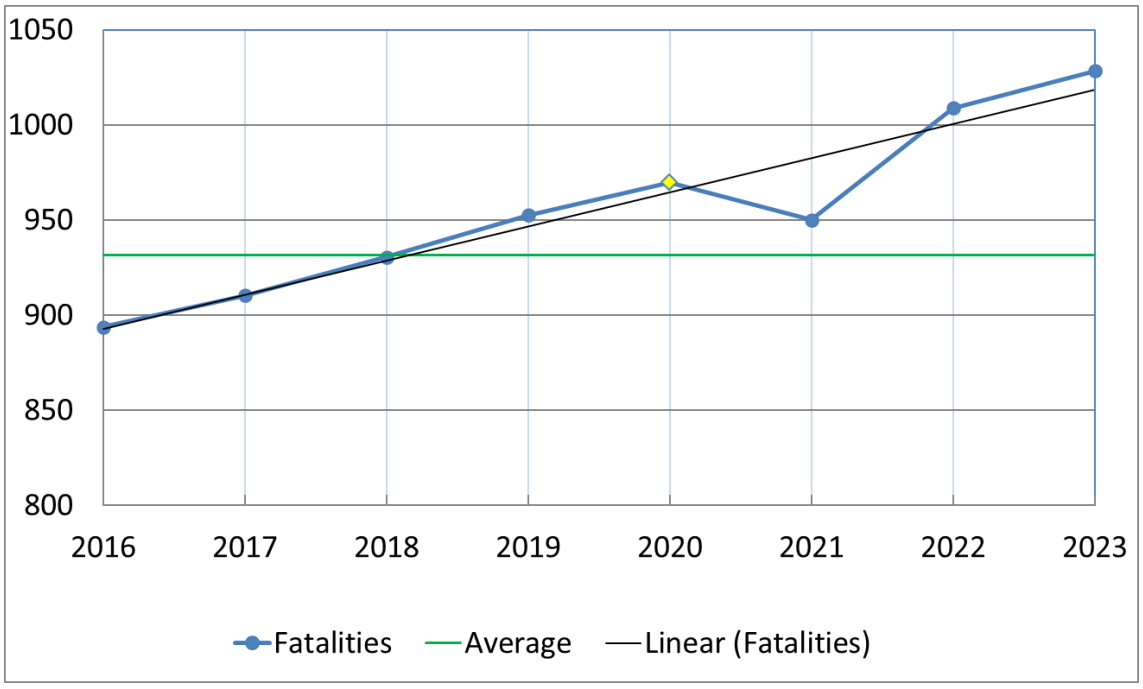
2016	2017	2018	2019	2020	Baseline	Goal
1083	948	953	930	934	970	**1000**

Performance Target Justification

Based on analysis of previous 5-year averages and trends in more recent state crash data, AOHS has projected a realistic goal to not allow Number of Traffic Fatalities to increase more than 3.09 percent from the five-year average of 970 to 1,000 (2019 - 2023 rolling average) by 2023. **This goal was mutually agreed upon by the Alabama Office of Highway Safety and the Strategic Highway Safety Plan steering committee.**

The five-year average (2017-2021) of traffic fatalities is 950. The goal is in progress to being achieved.

5 Year Rolling Averages of Traffic Fatalities



Performance Measure: C-2) Number of serious injuries in traffic crashes (State crash data files)

Performance Target Details

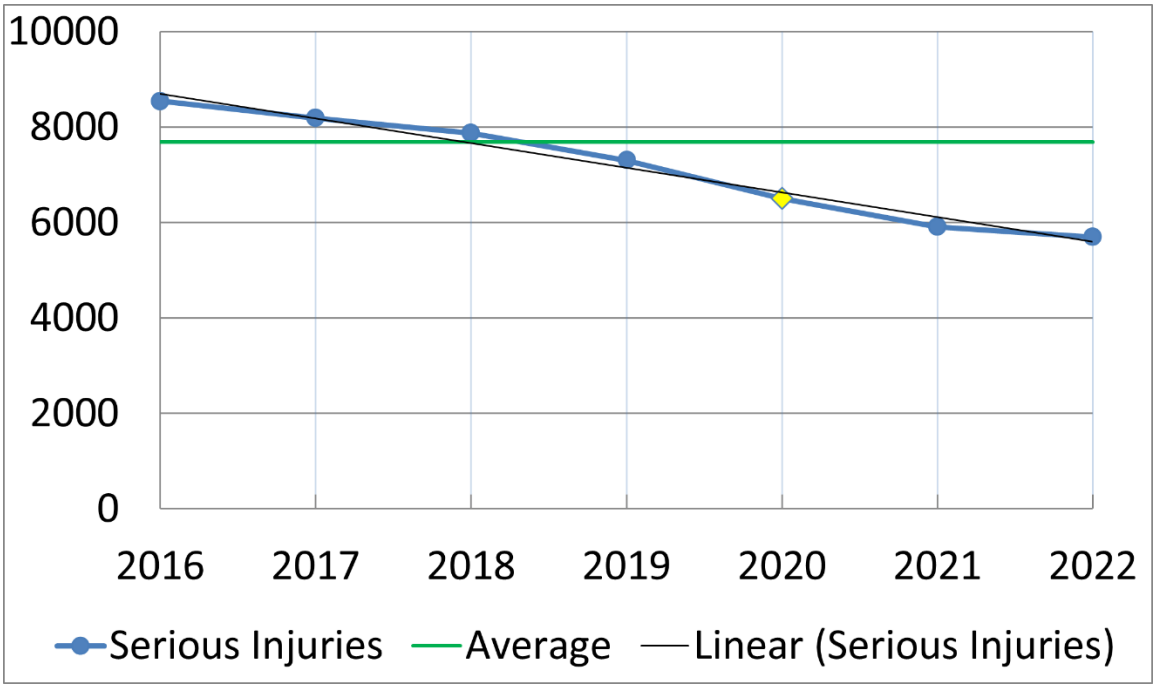
2016	2017	2018	2019	2020	Baseline	Goal
8152	7484	7002	5103	4782	6505	**6500**

Performance Target Justification

Based on analysis of previous 5-year averages and trends in more recent state crash data, AOHS has projected a realistic goal to reduce Number of Severe injuries in Traffic Crashes by .1 percent from the five-year baseline average (2016-2020) of 6505 to 6500 in 2023. **This goal was mutually agreed upon by the Alabama Office of Highway Safety and the Strategic Highway Safety Plan steering committee.**

The five-year average (2017-2021) using state data is 5,911. The goal is in progress to being achieved.

5 Year Rolling Averages of Serious Injuries



Performance Measure: C-3) Fatalities/VMT (FARS, FHWA)

Performance Target Details

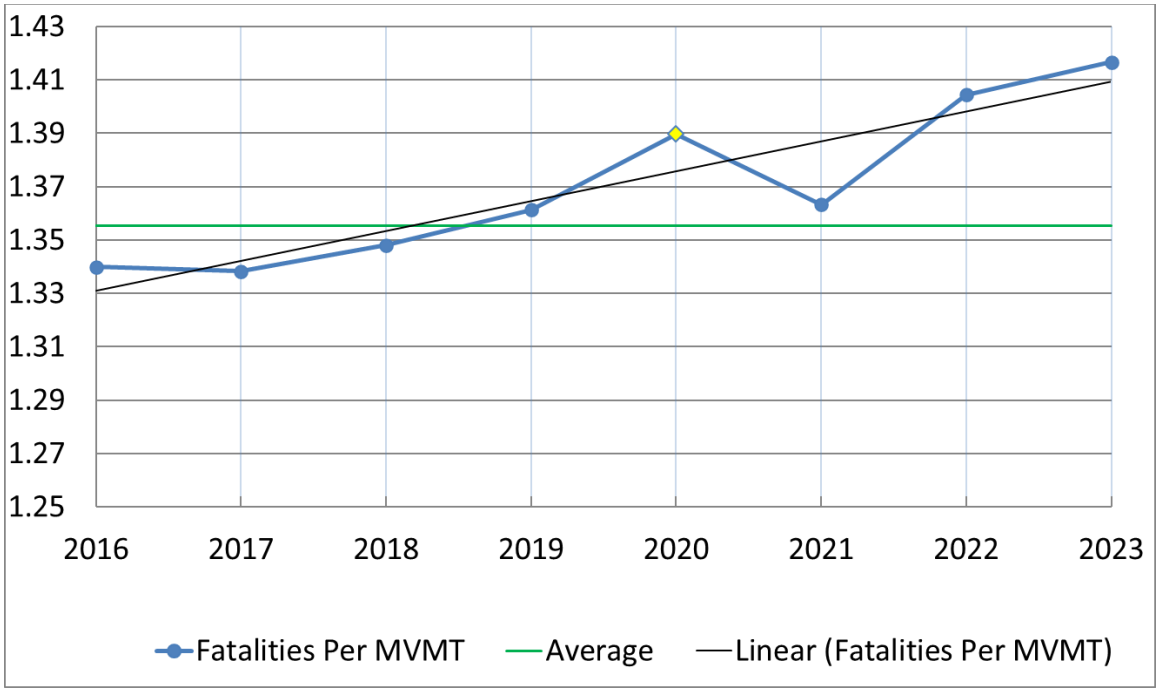
2016	2017	2018	2019	2020	Baseline	Goal
1.5	1.3	1.4	1.3	1.4	1.39	**1.42**

Performance Target Justification

Based on analysis of previous 5-year averages and trends in more recent state crash data, AOHS has projected a realistic goal to not allow the Total Fatality Rate/VMT to increase by more than 2.16 percent from the five-year baseline average of 1.39 (2016-2020) to 1.42 by 2023. **This goal was mutually agreed upon by the Alabama Office of Highway Safety and the Strategic Highway Safety Plan steering committee.**

The five-year average (2017-2021) of total fatalities/100M VMT is 1.33. The goal is in progress to be achieved.

5 Year Rolling Averages of Traffic Fatalities/100 MVMT



Performance Measure: C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)

Performance Target Details

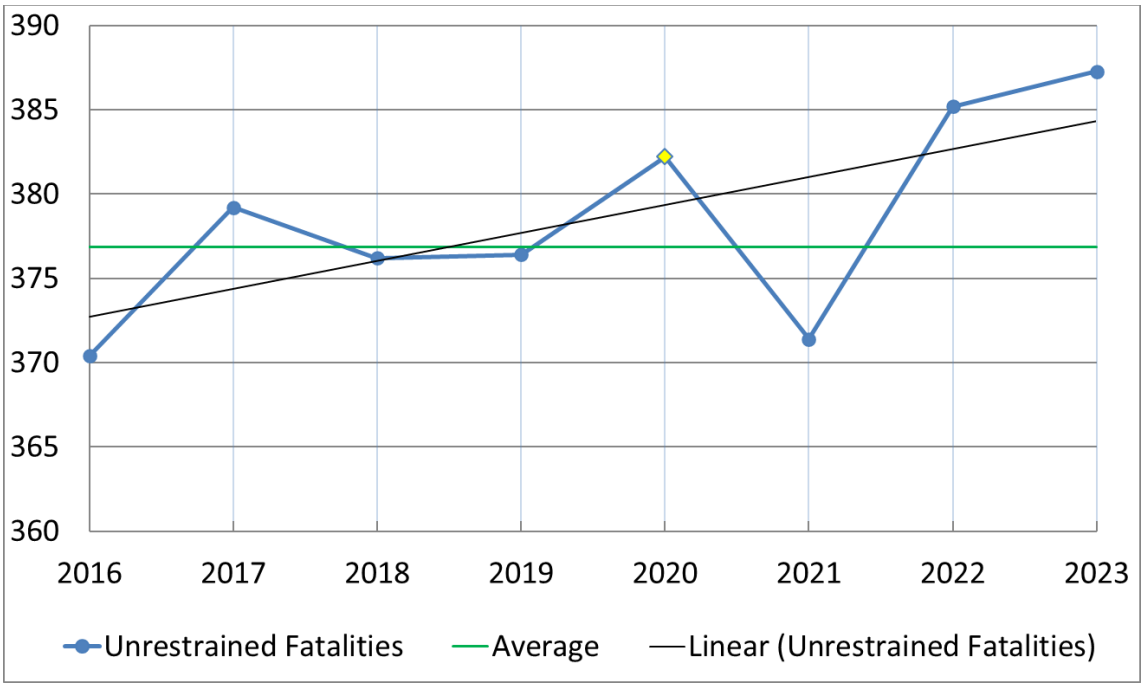
2016	2017	2018	2019	2020	Baseline	Goal
423	398	354	352	384	382	**369**

Performance Target Justification

AOHS has projected a realistic goal to reduce unrestrained passenger vehicle occupant fatalities, all seat positions 3.45 percent from 382 (2016-2020 rolling average) to 369 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of Unrestrained Fatalities is 368. The goal is in progress to being achieved.

5 Year Rolling Averages of Unrestrained Vehicle Occupant Fatalities



Performance Measure: C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)

Performance Target Details

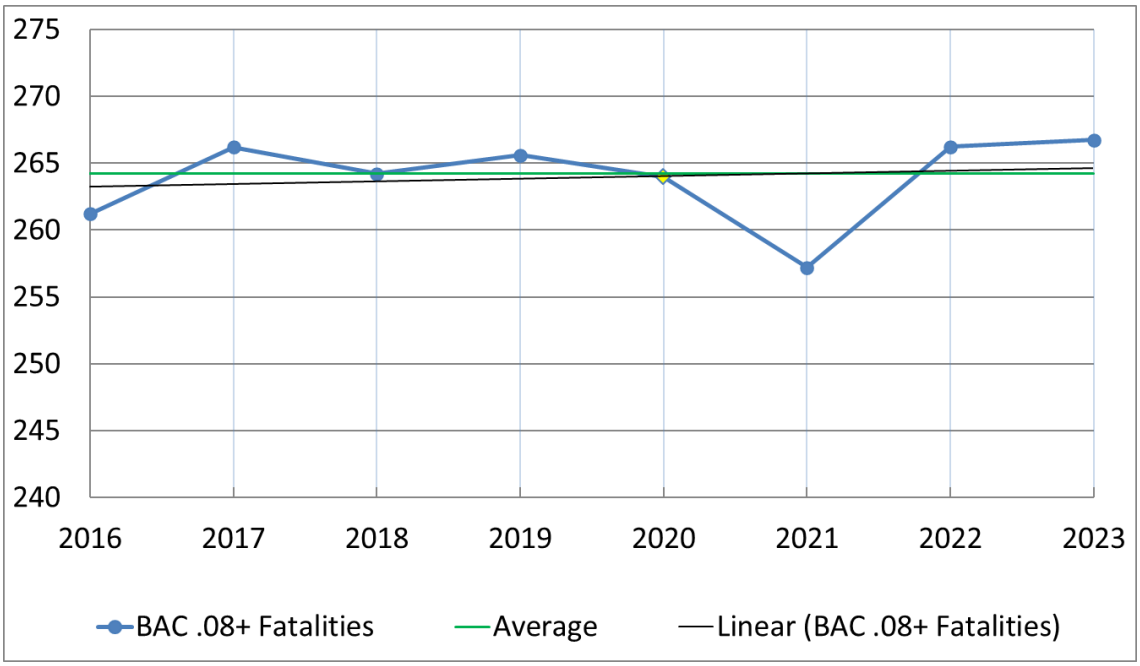
2016	2017	2018	2019	2020	Baseline	Goal
298	265	249	272	236	264	**264**

Performance Target Justification

AOHS has projected a realistic goal to maintain alcohol impaired driving fatalities at 264 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of Alcohol- Impaired Driving Fatalities is 260. The goal is in progress to being achieved

5 Year Rolling Averages of Fatalities Involving a Driver with a BAC .08 and Above



Performance Measure: C-6) Number of speeding-related fatalities (FARS)

Performance Target Details

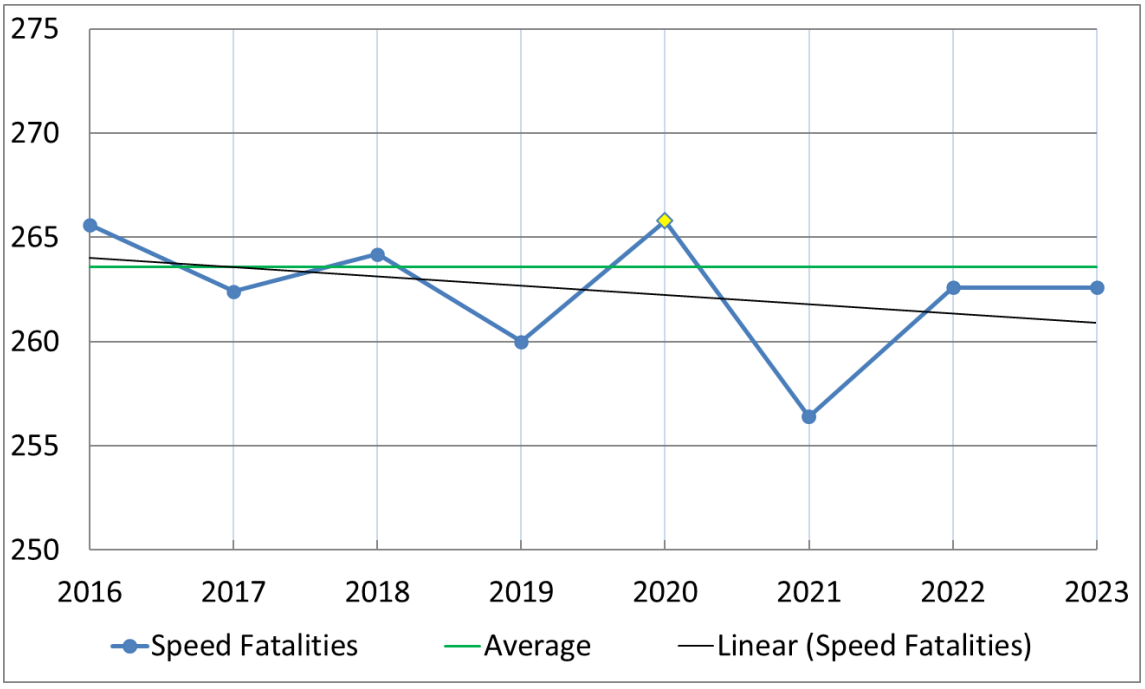
2016	2017	2018	2019	2020	Baseline	Goal
329	257	262	216	265	266	**266**

Performance Target Justification

AOHS has projected a realistic goal to maintain speeding-related fatalities at 266 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of speeding-related fatalities is 255. The goal is in progress to being achieved.

5 Year Rolling Averages of Speeding-related Fatalities



Performance Measure: C-7) Number of motorcyclist fatalities (FARS)

Performance Target Details

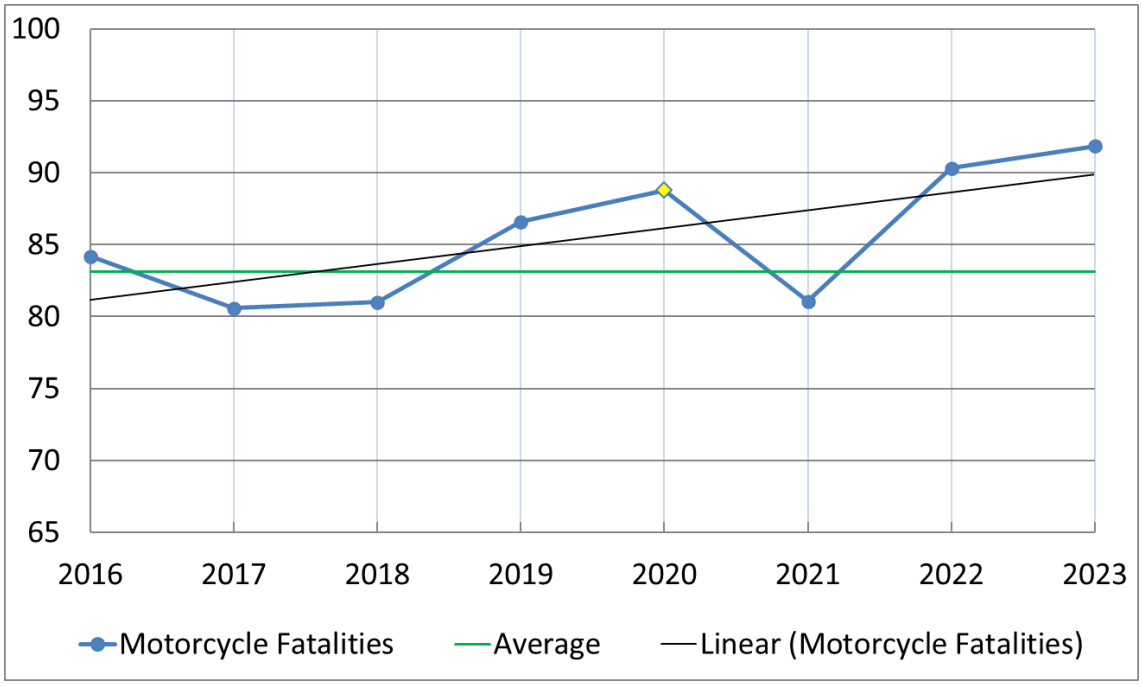
2016	2017	2018	2019	2020	Baseline	Goal
112	79	82	93	78	89	**78**

Performance Target Justification

AOHS has projected a realistic goal to reduce motorcyclist fatalities by 12.16 percent from 89 (2016-2020 rolling average) to 78 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of motorcyclist fatalities is 82. The goal is not in progress to being achieved. Both the 5-year rolling average estimate (98.5) and the linear 5-year rolling average projection (91.2) exceed the baseline (82) for motorcycle fatalities. Motorcycle drivers ages 54-60 are over twice as likely to be involved in a motorcycle fatality compared to all other ages and types of crashes. Although the population age groups and counts of motorcycle fatalities are slightly different, the 55-59 age group accounted for 6.8% of the state's population in 2017, 2018, and 2020. By age, this is the second largest percent for any age range. Additionally, according to motorcycle sales data, 2020 and 2021 motorcycle sales increased were the highest in 15 years. Motorcycle sale forecasts also show an anticipated 15.7% sales increase between 2022 and 2027.

5 Year Rolling Averages of Motorcyclist Fatalities



Performance Measure: C-8) Number of Unhelmeted motorcyclist fatalities (FARS)

Performance Target Details

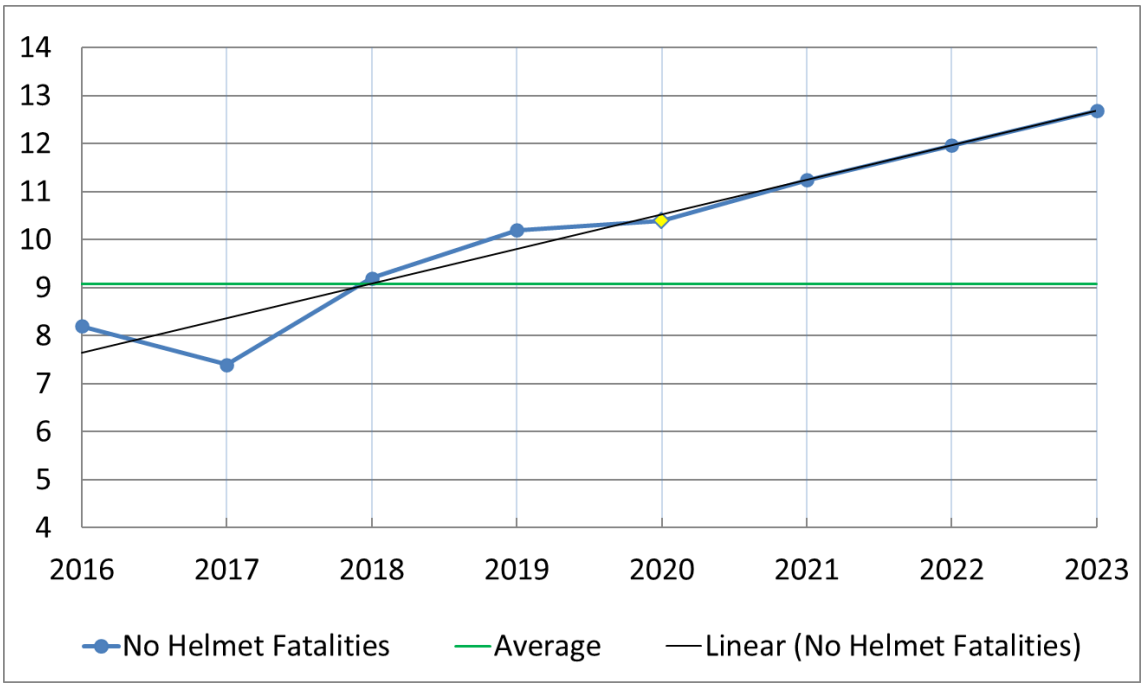
2016	2017	2018	2019	2020	Baseline	Goal
11	6	10	15	10	10	**11**

Performance Target Justification

AOHS has projected a realistic goal to Cap the increase of unhelmeted, motorcyclist fatalities to 10 percent from 10 (2016-2020 rolling average) to 11 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of unhelmeted motorcyclist fatalities is 11. The goal is in progress to being achieved.

5 Year Rolling Averages of Un-Helmeted Motorcyclist Fatalities



Performance Measure: C-9) Number of drivers Age 20 or younger involved in fatal crashes (FARS)

Performance Target Details

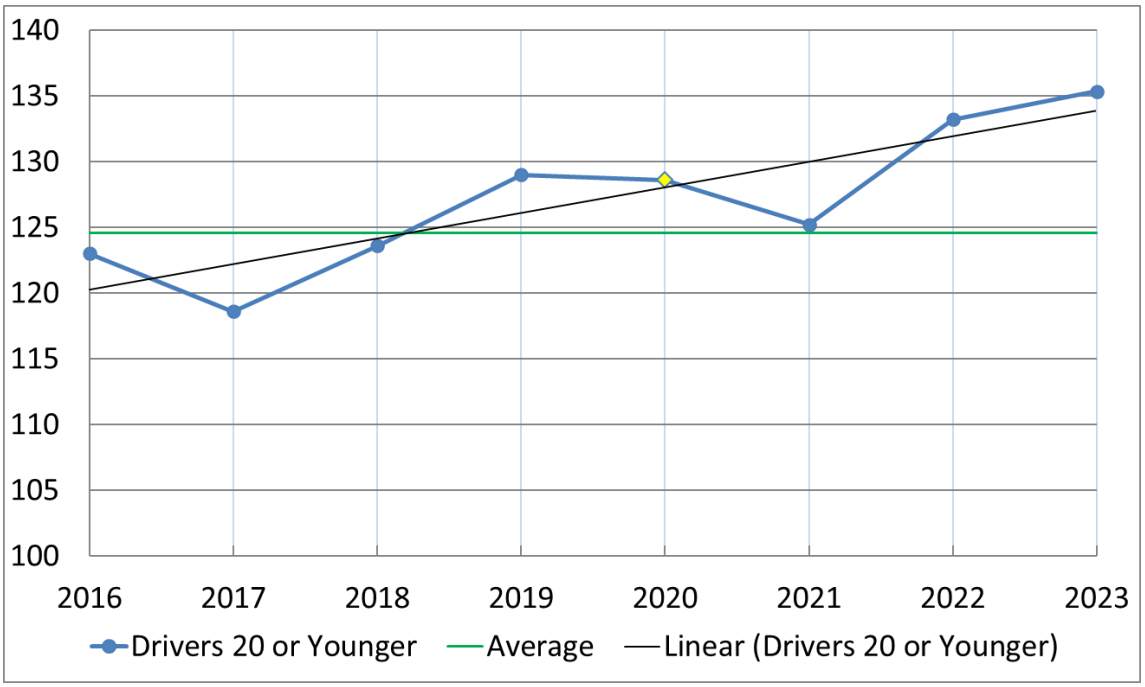
2016	2017	2018	2019	2020	Baseline	Goal
161	117	127	118	120	129	**134**

Performance Target Justification

AOHS has projected a realistic goal to cap the increase of drivers age 20 and younger involved in fatal crashes to 3.88 percent from 129 (2016-2020 rolling average) to 134 (2019 - 2023 rolling average) by 2023.

The five-year average (2017-2021) of fatalities of drivers age 20 and under is 123. The goal is in progress to being achieved.

5 Year Rolling Averages of Drivers Age 20 or Younger involved in a Fatal Crash



Performance Measure: C-10) Number of pedestrian fatalities (FARS)

Performance Target Details

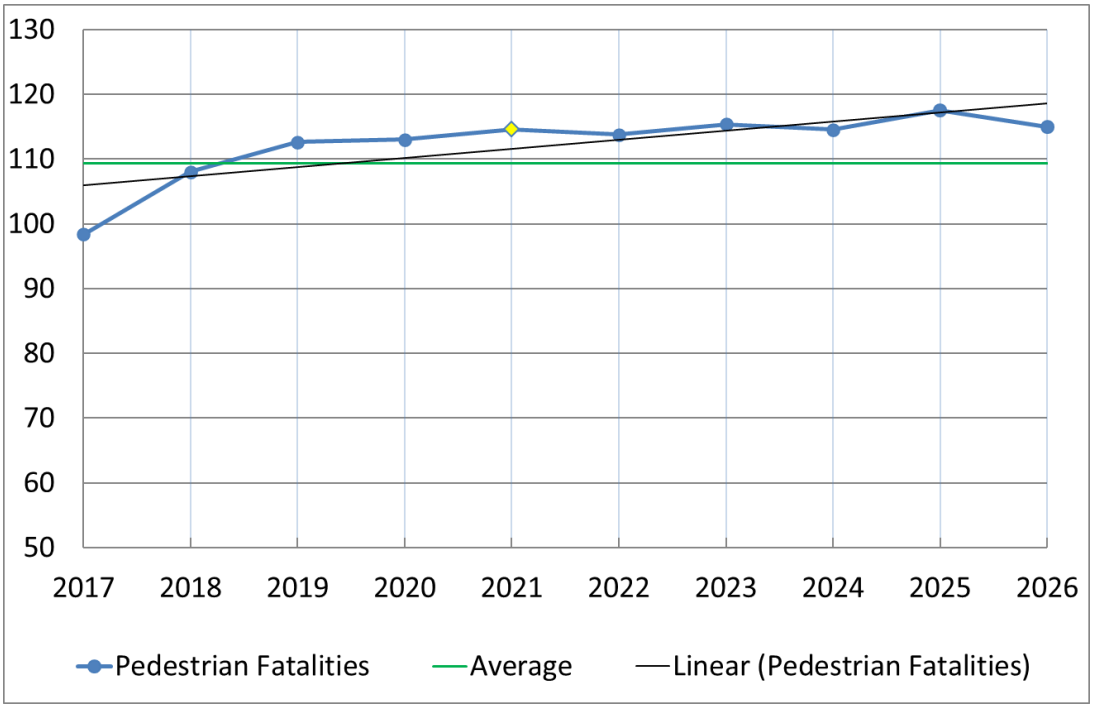
2016	2017	2018	2019	2020	Baseline	Goal
120	119	107	119	100	113	**117**

Performance Target Justification

AOHS has projected a realistic goal to cap the increase pedestrian fatalities to 3.54 percent from 113 (2016-2020 rolling average) to 117 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of pedestrian fatalities is 115. The goal is in progress to being achieved.

5 Year Rolling Averages of Pedestrian Fatalities



Performance Measure: C-11) Number of bicyclist fatalities (FARS)

Performance Target Details

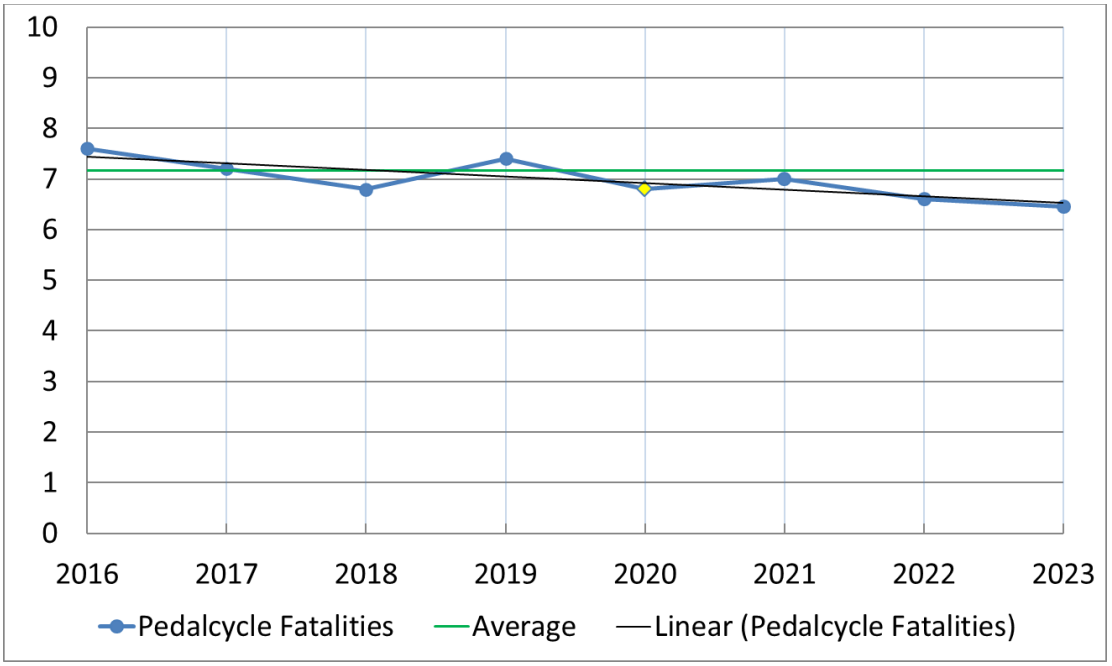
2016	2017	2018	2019	2020	Baseline	Goal
3	7	9	6	10	7	**6**

Performance Target Justification

AOHS has projected a realistic goal to reduce bicyclist fatalities 14.29 percent from 7 (2016-2020 rolling average) to 6 (2019 – 2023 rolling average) by 2023.

The five-year average (2017-2021) of bicyclist fatalities is 7. The goal is not in progress to being achieved. pedalcycle crashes typically produce a higher severity of crash. 2017-2019 averaged 7.3 pedalcycle fatalities yearly and 2020-2022 averaged 10 pedalcycle fatalities yearly.

5 Year Rolling Averages of Bicyclist Fatalities



Performance Measure: B-1) Observed Seat Belt Use for Passenger Vehicles

Performance Target Details

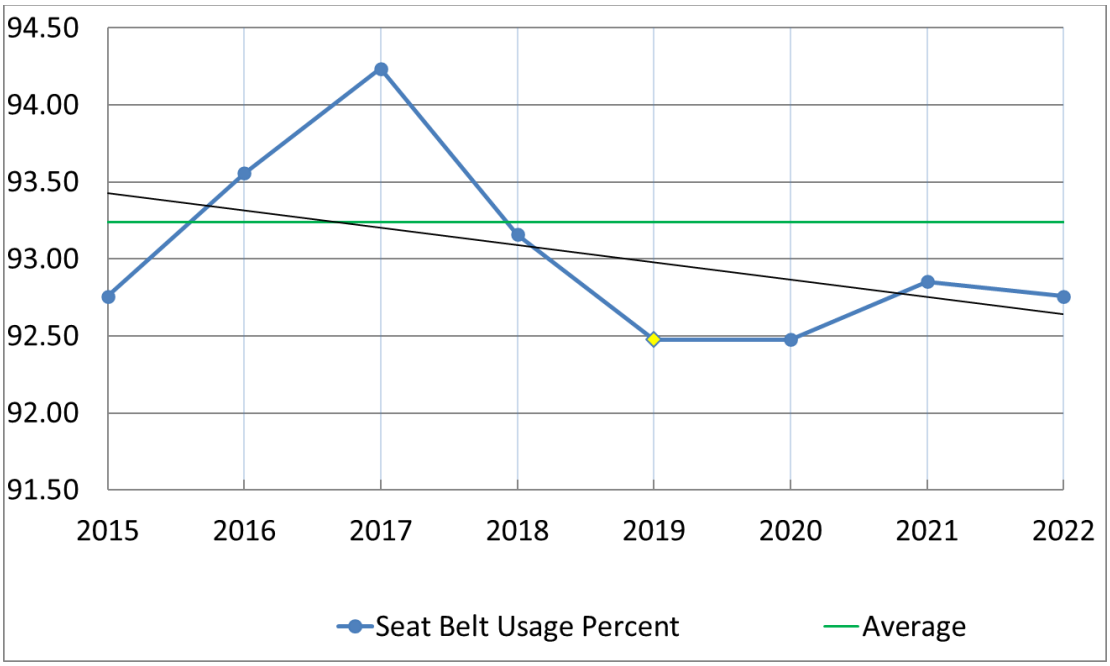
2015	2016	2017	2018	2019	Baseline	Goal
93.3	92	92.9	91.9	92.3	92.5	**91.7**

Performance Target Justification

AOHS has projected a realistic goal to cap the decrease of the observed seat belt use for passenger vehicles, front seat outboard occupants by .84 percentage points from 92.5 percent in 2020 to 91.7 percent by 2023.

The five-year average (2018-2022) using state observational survey data is 92.1 percent. The goal is in progress to being achieved.

5 Year Rolling Averages of The Observed Seat Belt Use for Passenger Vehicles, Front Seat Outboard Occupants (survey).



Alabama Traffic Safety Activity Measures

Year	2016	2017	2018	2019	2020	2021	2022
Speeding Citations	30,807	36,027	43,345	37,292	39,077	36,802	29,076
DUI Arrests	906	830	687	987	770	958	656
Seat Belt Citations	10,575	12,002	12,574	9,875	10,337	9,794	8,189

Program areas

Program Area: Occupant Protection (Adult and Child Passenger Safety)

Description of Highway Safety Problems

The central basis for the development of occupant restraint countermeasures by the Alabama Office of Highway Safety (AOHS) is the strategic Occupant Protection Plan, which was developed for the State in FY2012, and it has been updated each year in the May-June time frame. This plan is evidence-based to reflect on the occupant protection issues within the State. The major goal of the plan is to ensure that resources dedicated to occupant protection are allocated to bring about the maximum traffic safety benefits to the roadway users of the State.

Having a front seat occupant seat belt usage rate measured in FY2022 at 92.7% qualifies Alabama as a high seat belt use state. This means that the State qualifies for special restraint funding by (1) submitting an occupant protection plan, (2) participating in the Click It or Ticket campaign, (3) maintaining child restraint inspection stations, and (4) having an adequate number of child passenger safety technicians. Alabama meets all requirements.

Also of note is that Alabama's child restraint usage rate was observed to be 93.5% for 2022 based on data from 150 observational sites. From our phone survey conducted with 500 participants, 93% of respondents are aware of the Alabama seat belt law and 96% of respondents stated that they wanted to be wearing their seat belts if they were ever involved in a crash. However, we still have an unfortunate statistic in Alabama that for fatal crashes where a restraint was available for use, 56% of those who died from a vehicle crash were not wearing a seat belt in 2022. So, increasing restraint use is of utmost concern and importance to AOHS.

The overall problem identification for the Alabama Highway Safety Plan (HSP) begins with the most recently generated data for Table 1. It is important to note the categories of Crash Types are not mutually exclusive, so there are interactions between them that need to be given further analysis. For example, any of the crash causes might occur with or without occupants being properly restrained. As an example, certain age groups have been found more inclined to use restraints than others. Nevertheless, Table 1 serves effectively in giving the traffic safety community a high-level view of the source of fatalities as well as how these fatalities are also reflected in the lower severity crashes.

Table 1: Top Fatality Causes Alabama CY2022 Data

	Crash Type (Causal Driver)	Fatal Number	Fatal %	Injuries	Injury %	PDO No.	PDO %	Total
1.	Seat Belt Restraint Fault*	390	3.99%	3,753	38.35%	5,643	57.66%	9,786
2.	ID/DUI All Substances	179	3.58%	1,702	34.01%	3,018	60.30%	5,005
3.	Speed Involved	172	2.24%	2,319	30.17%	5,058	65.81%	7,686
4.	Hit Obstacle on Roadside	134	2.46%	1659	30.50%	3573	65.58%	5,440
5.	Large Truck Involved	127	1.32%	1,580	16.43%	7,753	80.63%	9,616
6.	Mature (65 or Older) Causal	120	0.92%	2,662	20.36%	10,018	76.61%	13,077
7.	Fail to Yield or Ran (All)	116	0.38%	8,078	26.58%	21,546	70.91%	30,387
8.	Pedestrian Involved	112	14.76%	572	75.36%	34	4.48%	759
9.	Wrong Way Items	108	3.29%	675	20.57%	2,391	72.85%	3,282
10.	Motorcycle Involved	89	5.49%	1,025	63.19%	461	28.42%	1,622
11.	License Deficiency Causal	79	1.38%	1,600	27.98%	3,875	67.76%	5,719
12.	Youth (16-20) Causal Driver	74	0.37%	3,720	18.68%	15,730	79.00%	19,912
13.	Aggressive Operation	64	2.28%	712	25.32%	1,917	68.17%	2,812
14.	Distracted Driving	60	0.46%	2,494	19.06%	10,277	78.53%	13,086
15.	Utility Pole	37	1.61%	698	30.41%	1,457	63.49%	2,295
16.	Drowsy Driving	30	0.92%	1,186	36.38%	1,970	60.43%	3,260
17.	Vehicle Defects – All	29	0.78%	710	19.22%	2,863	77.48%	3,695
18.	Work Zone Related	16	0.84%	382	19.94%	1,498	78.18%	1,916
19	Vision Obscured	13	1.09%	293	24.66%	857	72.14%	1,188
20.	Bicycle	12	4.84%	180	72.58%	50	20.16%	248
21.	Railroad Trains	5	9.09%	13	23.64%	35	63.64%	55
22.	Child Restraint Fault*	4	0.17%	247	10.37%	2,132	89.47%	2,383
23.	School Bus Involved	1	0.18%	71	12.98%	452	82.63%	547
24.	Roadway Defects – All	0	0.00%	27	18.88%	111	77.62%	143

* This item is measured in the number of each severity of crash that *resulted* from the failure to use the proper restraint, as opposed to other items that are measured by the number of crashes *caused by* or *related to* the involvement of the particular item.

Two entries in Table 1 are important regarding the Occupant Protection Plan. The following defines these two entries:

- Belt Restraint Fault (BRF) – any crash in which one or more of the occupants of any involved vehicle (including drivers) were not properly restrained; and
- Child Restraint Fault (CRF)– any crash in which one or more children, aged five years or under, were not properly restrained, independent of the restraint characteristics of the other occupants.

Clearly BRF is at the top of this list, demonstrating that occupant restraint is one of the most critical issues in traffic safety and fatality reduction. The categories given in Table 1 are not mutually exclusive (e.g., you could have unrestrained passengers in an alcohol/drug crash that involved speeding, and many other combinations). However, they still tend to demonstrate the relative criticality of each of the categories. Because BRF is of the highest level of concern, the State puts considerable emphasis on occupant protection, and extensive analyses have been performed to determine the best approach to increasing restraint use.

Child Restraint Fault (CRF) fatalities are near the bottom of Table 1 with 4 fatalities. This reflects the efforts that have gone into child protection by several agencies throughout the state. Special emphasis is given to children, reflecting the importance of maintaining all the child restraint programs. We would like to see this category at the very bottom of the list with zero fatalities. The enforcement efforts for CRF effectively follows the same pattern as that for BRF.

Table 1 shows clearly that one of the most effective ways of reducing fatalities is to increase restraint use. The next step in the problem identification process is to analyze the data for these crashes and determine all the driver and other demographics related to them (e.g., who, what, where, when, how old, and why of crashes involving non-restrained occupants). The goal is to (1) determine the most effective countermeasures that can be applied, and once these are defined, (2) identify the best tactics to be applied for each.

Evidence-based enforcement (E-BE) has been determined to be one of the most effective methods for increasing restraint use in general. This requires specific locations be identified where there are concentrations of crashes involving unrestrained occupants. Once these hotspots are defined using the Critical Analysis Reporting Environment (CARE) software, the Community Traffic Safety Program/Law Enforcement Liaison (CTSP/LEL) Coordinators across the state are provided detailed hotspot reports specific to their region to assist them in focusing their area ‘s efforts. Using the reports and maps developed for each region, the CTSP/LEL Coordinators develop plans, including the time schedule and work assignments, for their respective regions that focuses on the hotspot locations. The goals set on a regional basis are in line with the goals and strategies laid out in this plan.

Restraint Issues Problem Identification

This section contains the result of a problem identification study that was conducted based on data for a five-year period over calendar years 2017-2021. This data is representative of the restraint picture going forward into FY2024. The goal of this problem identification is to ensure that the restraint enforcement program considered by the state throughout FY2024 is evidence-based, the evidence being derived from past data obtained from crash reports.

For the results below, two subsets of data were established and compared: (1) where there was at least one occupant of the vehicle not properly restrained, and (2) where all occupants were properly restrained. Most of the attributes considered involve the causal drivers since they would have the most influence on whether the occupants of their vehicles were restrained at the time of the crash.

When a given attribute is stated to be overrepresented, this attribute had a statistically significantly higher than expected proportion in the unrestrained as opposed to the restrained subset. When the term "expected proportion" is used, this is obtained from the proportion of the attribute that exists in the subset containing all restrained occupants; and so, the same would be expected of the unrestrained occupants if no differences existed.

Please review the definitions of "Belt Restraint Fault" (BRF) given above. The following summarizes the findings of the analysis that compared BRF crashes with those in which all occupants were properly restrained:

Geographical Factors

- Counties with the greatest overrepresentation factors (combined Odds Ratios and Max Gains) for unrestrained occupants (in worst-first order) include Walker, Talladega, Cullman, Jackson, Escambia, Marshall, DeKalb, Monroe, Blount, and Conecuh.
- The number of crashes involving unrestrained occupants is greatly overrepresented in rural areas in comparison to the urban areas. The odds ratio for rural areas is 2.19 times that of what would be expected if rural and urban restraint use were the same.
- The most overrepresented (worst-first) areas for seatbelt non-use are the rural county areas in Mobile, Walker, Tuscaloosa, Talladega, Cullman, Baldwin, Escambia, and Madison Counties.
- The most underrepresented (best-first) areas for occupant seatbelt use are in the urban areas, specifically, the cities of Birmingham, Huntsville, Montgomery, and Mobile.
- Crash incidents deficient in occupant restraints use are greatly overrepresented on county highways, with 2.207 times the expected number of crashes. County and State were the only roadway classifications that were overrepresented (having more crashes

than what would be expected). Federal, Interstate and Municipal roads were significantly underrepresented (having fewer crashes than what would be expected). This is a very definitive result that indicates that seatbelt selective enforcement will be much more productive when performed on County and State roadway classifications.

- In the analysis of locale, crashes involving no restraints are most commonly overrepresented in Open Country areas (close to twice the expected), while Shopping or Business locale is the most significantly underrepresented.

Time Factors

- Saturday and Sunday are the most overrepresented days of the week for crashes in which some of the occupants did not use restraints. The proportionate difference on Saturday was 30% (1.299 Odds Ratio), and on Sunday it was over 40% (1.420) higher than expected. This correlates highly with impaired driving crashes. All workdays are underrepresented in seatbelt non-use.
- In the evaluation of time of day, hourly overrepresentations peak during the 7 PM to 7 AM time periods (averaging approximately two times the expected proportions of crashes observed from the restraint user motorists). After the 6 AM hour, they taper off, falling back below crashes of the restrained occupants. This also correlates with the times of alcohol and drug use. Additional cross-tabulations performed for crashes involving injury showed fatal crashes to be dramatically overrepresented in the early morning hours (12 midnight to 7 AM).
- The late night and early morning overrepresentations were most often on the weekends, starting on Friday night and ending on Sunday morning. As opposed to this, concentrations during the week were in the 6AM to 6PM mid-day times.
- The cross-tabulation of time of day by day of the week that was restricted to each of the injury classifications showed a very high resemblance to the same analysis for impaired driving (alcohol and other drugs involvement), especially for fatal crashes. See further information on the effects of alcohol and other drug under Crash Causal Factors below.

Crash Causal Factors

- Primary Contributing Circumstance overrepresented factors indicate several risk-taking behaviors that are associated with crashes in which restraints are not used. These including DUI (5.097 times its expected proportion), over the speed limit (5.758 times), aggressive operation (3.650 times), fatigue/sleep (2.504 times) and running off the road (2.014 times).
- Crashes attributed to drivers of vehicles with unrestrained occupants are greatly overrepresented in vehicles with model years 1986-2008, which could be attributed to the lack of standard safety restraints in some of these older model vehicles, or perhaps the removal (or wearing out) of these restraints over time. All vehicles newer than 2009 were significantly underrepresented in having occupants who were not restrained.

Severity Factors

- Fatal, incapacitating, and non-incapacitating injuries are all overrepresented in crashes where one or more occupants were not restrained. The odds ratio multipliers were extremely high: fatal (18.414), incapacitating injury (7.501), and non-incapacitating injuries (3.067). For example, the probability of a crash resulting in at least one fatal injury is close to 20 times (18.414) higher what it would be if all occupants were properly restrained. The probability that a crash would result in no injuries at all was only about half of what was true for the fully restrained occupants.
- The speed at impact for crashes for restraint-deficient crashes is significantly overrepresented (more than twice the expected value) in all the categories above 45 MPH, indicating that these crashes consistently occur at higher speeds than crashes in which restraints were being used. Extreme risk taking is seen at the highest speed levels, as given in the following table. The Odds Ratio gives the multiplier for the probability that the occupants were not properly restrained.

Speed	Odds Ratio
75	3.4
80	5.2
85	7.1
90	9.0
95	16.2
100	9.5
Over 100	14.0

- Analysis of number injured per crash shows that the proportion of two or more injuries (including fatalities) in restraint-deficient crashes is overrepresented by an Odds Ratio greater than 3 (3.694), and it increases up to 12.845 for 7-injury crashes. Crashes without restraints are not only causing many more severe injuries, but a greater number of injuries and fatalities per crash.

Causal Driver Demographics

- Male drivers account for a majority (about 61.97%) of crashes in which restraints are deficient, and they are significantly overrepresented by an Odds Factor of 1.246 times the proportion than expected as compared to the restrained subset.
- Analysis of individual driver ages indicates that crashes involving restraint deficiencies showed no significant differences for 16-year-old drivers. They become significantly overrepresented in non-use for drivers in the age range of 17-40. Above this age range non-use is about as expected until age 56 and above, where restraint non-use becomes significantly underrepresented. Generally, older drivers are more risk averse, and are thus more apt to buckle up and require such from their passengers. They also generally have newer cars equipped with proper restraints.

Ejection and Back Seat Analysis

- As expected, total ejection of unrestrained occupants is highly overrepresented (36.78 times the expected proportion). Ejection is one major cause for many fatalities in which safety equipment is not properly utilized. There were 2,534 total ejections for the unrestrained occupants over the five years of the data, of which 595 resulted in fatalities. This is a proportion of one fatality in every 4.26 persons ejected. The non-ejected occupant probability of fatality for restrained occupants is one in every 2,650 crashes. Thus, if ejected there is about 538 times the chances of being killed as opposed to being properly restrained and not ejected. Ejections that are not fatal invariably result in extremely severe injury.
- The non-restrained person is over 160 times more likely to be totally ejected than those who are properly restrained. One in 2398 crashes as compared to one in 15 for non-restrained.
- A detailed analysis using 2015-2019 crash reports determined that if all back-seat occupants were properly restrained it would result in an estimated saving of 33 lives per year.
- The results given below for child restraints were obtained by a comparison of occupants aged 5 and under who were (1) properly restrained in approved child safety restraints against (2) those either not restrained or restrained improperly. Ambiguous entries were ignored.

Child Restraint Deficiency

- Children not restrained have a proportion of fatal injury (1.13%) that is 28.25 times higher in proportion than those properly restrained (0.04%). The other three injury classifications, while not increased as much, are greater (by factors of): Incapacitating (Serious) Injury (11.325), Non- Incapacitating (Minor) Injury (4.570) and Non Visible but Complains of Pain (2.284).Overrepresented crash types (Manner of Crash) in which these CRF children were involved with statistically significant odds ratios (children involved over the five years of the study, odds ratio): Single Vehicle Crashes (466, 2.155), Side Impact of 90 degrees (386, 1.238); Head-on Front to Front (88, 1.709); Angle Oncoming Frontal (88, 1.186), and Angle Front to Side, opposite direction (99, 1.139).
- Primary Contributing Circumstances with odds ratios greater than 2.7: DUI, Aggressive Operation, Over Speed Limit, and Ran Off Road. These were for the crashes, and it does not necessarily indicate the vehicles in which the CRF children were occupants when the crash involved multiple vehicle crashes.
- Morning and afternoon rush hours were high if not overrepresented. The afternoon rush hours were each all over 200 crashes as opposed to morning (161 crashes). These are the typical hours when parents would have children in their vehicles – before and after taking the older kids to school.
- County roads were overrepresented with an odds ratio of 1.085 (not statistically significant). Municipal roads were the only other road types that were overrepresented, but their odds ratio was only 1.041, also not large enough to be statistically significant. All other roadway classifications were underrepresented.
- Of those not properly restrained, 55 were totally ejected from the vehicle, of which 11 were killed. This one-in-five probability can be compared to the death probability when properly restrained, which is one-in every 2460 children involved.
- With Child Restraint Fault crashes, the age range of the overrepresented drivers were predominantly very young and older drivers. Those in the 17 to 25 had high Odds Ratios, of which some were close to 2.0. On the other end of the age scale, many drivers 53 and older were also overrepresented. This would seem to be the age group who are transporting grandchildren, and whose vehicles may not be equipped with child restraints.

Countermeasure Strategies in Occupant Protection Program Area

Countermeasure Strategy	Increase Child Restraint Usage Rate through a multifaceted Child Passenger Safety Program
Problem being addressed and description of the Link between problem and strategy	The average restraint use in years 2017-2021 in fatalities Age 4 and under was 65%. Improper application of devices can lead to increased injury or even death. This training project is a key component of the overall child restraint effort.
List of Countermeasure(s) and Justification	7.2 Inspection Stations (CTW 3 Stars) Communication and Outreach Program (UG #20)
Performance Target and Link between Strategy and Target	C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-4) Unrestrained Passenger Vehicle Occupant Fatalities, All Seat Positions B-1) Observed Seat Belt Use for Passenger Vehicles, Front Seat Outboard Occupants The AOHS will fund the state's Child's Passenger Safety program, which will facilitate and maintain a network of fitting stations and events to cover most of the state, with an intentional focus on underserved communities. The program will also organize training and recertification classes for technicians. An additional component will be a voucher program designed to allow eligible citizens to qualify for a free car seat based on need, as well as hold awareness events on the dangers of unattended passengers. If children and parents are correctly educated and outfitted with proper safety equipment, it can affect significant reductions in crash severity related to restraint deficiency.
Estimated Funding Source	Section 402, Section 405(b)
Estimated 3-Year Funding	$1,950,000.00
Considerations to determine projects	Data analysis of Traffic Safety Data, Citation Information, Public Feedback, and Impacted Locations will assist with determining appropriate locations and target populations.
Uniform Guideline/ NHTSA Assessment Recommendations and Description	Uniform Guidelines for Highway Safety Programs No. 20 Occupant Protection for Children Program: AOHS is implementing a countermeasure strategy aimed at adequate and accurate training of CPS technicians who will cover the state and maintain a network of fitting stations and seat check events, as well as educate and assist underserved communities as identified through data analysis.

Countermeasure Strategy	Decrease unrestrained fatalities and serious injuries
Problem being addressed and description of the Link between problem and strategy	The five-year average (2018-2022) of unrestrained fatalities in the state is 363, which is 37% of the five-year average of total fatalities. Enforcement and education efforts are proven to be effective influences on motorists to wear seat belts.
List of Countermeasure(s) and Justification	2.1 Short Term, High Visibility Seat Belt Law Enforcement (CTW 4 Stars)
	3.1 Supporting Enforcement (CTW 4 Stars)
	Observational Survey (UC #20.)
Performance Target and Link between Strategy and Target	C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-4) Unrestrained Passenger Vehicle Occupant Fatalities, All Seat Positions B-1) Observed Seat Belt Use for Passenger Vehicles, Front Seat Outboard Occupants It is projected Short-Term, High Visibility Seat Belt Enforcement projects in each of the Alabama CTSP/LEL and State Trooper Regions conducted during the national "Click It or Ticket" campaign, along with a multi-platform paid media campaign, will achieve the following: •Reduce of the number and severity of the hotspots found over time. •Increase of the number of citations by citation type issued over time. •Increase the seat belt usage rate among the various regions.
Estimated Funding Source	Section 402, Section 405(b)
Estimated 3-Year Funding	$2,260,000.00
Considerations to determine projects	Analysis of Traffic Safety Data, Citation Information, and Impacted Locations will assist with determining appropriate project locations and potential local partners.
Uniform Guideline/ NHTSA Assessment Recommendations and Description	Based on Uniform Guidelines for State Highway Safety Programs No 20., AOHS is implementing a combination of countermeasures that work together to provide a strong impact to the state through enforcement activities tied with a communications campaign. An observational survey is a strong component for analysis and program management and should be done annually.

Program Area: Traffic Records

Description of Highway Safety Problems

Formerly, the AOHS underwent a Traffic Records Assessment (TRA) every five years to evaluate and improve the performance of the information systems within the state. This is no longer a requirement; however, it has not been five years since the last assessment. The following gives a description of the eight traffic records components, taken from the AOHS Traffic Safety Information Systems (TSIS) Strategic Plan (FY2023-FY2027). These are consistent with the seven NHTSA operational components plus an administrative component:

- *General TSIS Administrative Component* was established for the management and administration of the Traffic Records Coordinating Committee (TRCC), and to provide coordination of functions that are common to all other components (such as the administration of Quality Control). It is not intended to usurp the management authority of any of the agencies that are involved in the support or operation of the TSIS in serving its coordinating function.
- *Crash Component* includes the continued implementation, maintenance, and upgrades to eCrash. This encompasses: (1) the further integration of GIS capabilities into eCrash and CARE, (2) the generation of an updated Crash Facts Book, and (3) the development of the Automated Dashboards for Visualization Analysis and Coordinated Enforcement (ADVANCE) to produce a more effective interface to deliver CARE-generated information. A second version of eCrash is currently being developed based on the most recent MMUCC specifications. It will also include the availability of automated location systems, feedback as to improvements needed to make the eCrash data entry system more effective, and data quality improvements.
- *Vehicle Component* plans include the development and rollout of an electronically readable vehicle registration card and a statewide distribution network that will make vehicle information immediately available to all consumers of these data in the state, including the LETS system. Other projects call for the development of the data infrastructure to support crash avoidance and ultimately driverless vehicles. Projects are anticipated in the future to address data needs regarding safety issues of autonomous vehicles (AVs). Other projects are projected which have the goal of transforming the current systems to a higher level of technology, such as an Electronic Credentialing (eCredential) program. When this project is completed, it will eliminate annual validation decal for vehicle registration. The plan also calls for a general systems analysis to be performed over the entire Vehicle data system. The results will be used to improve the description and contents of the Vehicle data system.
- *Driver Component* calls for more effective driver licensing information (including pictures) to be distributed to the field through the extremely successful Law Enforcement Tactical System (LETS) that was implemented almost two decades ago. This will require a more effective Driver History database, which will be updated automatically by eCrash and eCite, to be available to officers in the field via an upgraded new version of the Mobile Officer's

Virtual Environment (MOVE) system, which is the umbrella port system that encompasses all of the mobile applications available to law enforcement. It will also entail PI&E projects that will address drivers transitioning to vehicles with advanced crash prevention systems. Additional proposed projects include: (1) Additional LETS upgrades for traffic safety. The Law Enforcement Tactical System (LETS) project has without question been the most successful law enforcement IT project conducted within Alabama in the past two decades. In addition to its general law enforcement functions, LETS has also been quite successfully used at DUI and safety belt enforcement check stops. (2) Additional MOVE upgrades. There are several additional components that will be added to MOVE to enable officers to be more efficient in their investigation and reporting activities.

- *Roadway Component* involves a wide diversity of projects in support of the State's Interactive Highway Safety Design Manual (IHSDM), Highway Safety Manual (HSM), and Safety Analyst (SA) initiatives (IHSDM/HSM/SA). The primary focus of plans in this component is to continue to develop and populate a repository of the Model Inventory of Roadway Elements (MIRE) for both state and local routes. The plan is to continue to develop and populate a repository for both state and local routes. Over the course of this plan, the goal is to complete and validate 100% of the elements for all state routes. At the same time, a detailed plan for the population of MIRE data elements will be developed for all public routes. The plan also includes relating the MIRE data to crash data in the CARE system for analysis and consideration of roadway engineering data in the state traffic safety program. Ultimately this database will be used in the integration of roadway features into CARE, and the integration of Crash Modification Factors (CMFs) into the Cost-benefit Optimization for the Reduction of Roadway Environment Caused Tragedies (CORRECT) system using the facilities of the CMF Clearinghouse. To effectively locate crashes on the roadway, the plan is for ALDOT to complete their various GIS projects so that the results can be integrated into eCrash and used by CARE to fully employ its GIS displays capabilities.
- *Citation and Adjudication Component* includes the extension and roll out of the electronic citation to all jurisdictions, a proposed improved virtual DUI defendant intake system, a method for moving digital information directly to the field officers using available cell phones. Consideration and study are also being given to a comprehensive Citation and DUI Tracking System. This system will display information on the status of every citation that has been issued to date. It will be able to respond to queries to determine if any given citation is (a) still in the electronic possession of the officer; (b) submitted but not adjudicated; (c) fully adjudicated or (d) reported to the driver history record. A portal will be created, and training conducted to enable officers in the field and judicial officials to see relevant information on a given defendant so that (among other reasons) a repeat offense in another part of the state is not treated as a first offense. It will also enable law enforcement to know whether a given individual is: (1) still on probation, (2) within the court referral program, or (3) in some other alternative treatment program.
- *EMS-Medical Component* includes continued support and enhancements for the Recording of Emergency Services Calls and Urgent-Care Environment (RESCUE) system, which implements the National Emergency Medical Services Information System (NEMSIS) standards. A project to develop the First Responder Solution Technique (FIRST) seeks to provide Law Enforcement agencies with quick, accurate, and location-aware inventory of

available emergency medical assistance facilities. Also, consideration is being given to the design of a Model Inventory of Emergency Care Elements. Its goal will be to develop and populate a repository of the Model Inventory of Emergency Care Elements (MIECE) for the State. The MIECE repository will be used to provide First Responders an inventory of emergency care resources in the occurrence of a mass casualty event.

- *Integration and Information Distribution Component* considers results produced from all the above-planned projects, and thus transcends them with the goal of integrating data and results from the six operational components above. A major effort is proposed to populate the current Safe Home Alabama web portal so that it will integrate the information generated by all agencies and present it in one unified source to the traffic safety community. An example of this is the Safety Portal that is a hub for all traffic safety and related data analytics. Maintaining and upgrading this Safety Portal is another project being conducted. General innovations of MOVE are also included. Finally, a number of ETLs will be developed that will enable the integration of crash, citation, roadway, EMS/injury and vehicle data so that analytics can be performed on these datasets to generate information that is not currently available. ETL (Extract-Translate-Load) is middleware that sits between the raw data and the information generator (e.g., CARE) to pre-process the raw data to make it more understandable and useful to the users that are generating information.

In reviewing the above, it is very important to recognize that the plan under consideration is for the next five fiscal years (FY2024 through FY2028 inclusive). Some of the projects are underway, but others might not be started for a few years. The reason for getting them into the plan is to shape the overall strategies of all the development groups that will be involved, many of which have a large proportion of their responsibilities outside of the traffic records arena. Many things can happen over this planning horizon, and we anticipate, for example, that strides that will be made in automated vehicle (AV) development will be quite surprising perhaps eclipsing those of the past five years with exponential growth.

Countermeasure Strategies in Traffic Records Program Area

Countermeasure Strategy	Increase Accessibility of Crash and EMS Database
Problem being addressed and description of the Link between problem and strategy	Improving accessibility of the crash data to all users (including law enforcement, traffic safety professionals and even the general public) and the Emergency Medical Service data to qualified users is of utmost importance because of the usefulness of the information the portal dashboards produce and the impact it can have on planning, both strategic long-term planning and day-to- day planning. This countermeasure will greatly complement other similar data attribute improvement countermeasures that will be targeted in these traffic records projects. All the countermeasures relate to improvements in some aspect of the data.
List of Countermeasure(s) and Justification	Improves accessibility of a core highway safety database (UG #10)
Performance Target and Link between Strategy and Target	Upgrade CARE dashboard user interface will result in significant recognized improvements in making it easier for users to get available information from the available datasets. Results of user survey of stakeholders will measure level of success. See performance measure chart for project reference, baseline, and target.
Estimated Funding Source	Section 405(c)
Estimated 3-Year Funding	$2,500,000.00 (split among other TR countermeasures)
Considerations to determine projects	Traffic Safety Data, Traffic Records Coordinating Committee Input, Latest Recommendations from Traffic Records Assessment
Uniform Guideline/ NHTSA Assessment Recommendations and Description	As stated in “Uniform Guidelines for State Highway Safety Programs”, “A State’s traffic records information should be maintained in a form that is of high quality and readily accessible to users throughout the State. “Additionally, the NHTSA Traffic Records Program Assessment Advisory encourages the implementation of information quality best practices and the use of NHTSA’s Model Performance Measures for State Traffic Records Systems found in NHTSA document DOT HS 811 441. Data accessibility is one of the core performances attributes. Improved accessibility is therefore a worthy countermeasure.

Countermeasure Strategy	Improves accuracy of a core highway safety databases in the state's information system.
Problem being addressed and description of the Link between problem and strategy	Improving accuracy of the location components of the crash data is of extreme importance as it facilitates better analysis of the data. The location variables are some of the most important data that users want to know about the crash data. If the location data is faulty, it skews the hotspot analysis on which Alabama relies to direct enforcement efforts. This countermeasure will greatly complement other similar data attribute improvement countermeasures that will be targeted in these traffic records projects. All the countermeasures relate to improvements in some aspect of the data.
List of Countermeasure(s) and Justification	Improves accuracy of a core highway safety database (UG #10)
Performance Target and Link between Strategy and Target	The "Has" Coordinate variable in the crash database can target accuracy. This variable refers to presence of a GPS coordinate associated with the location of the crash within the crash record. Improving the accuracy of MapClick will ensure fewer coordinates will have to be manually entered and increase accuracy of the crash reporting in the state. See performance measure chart for project reference, baseline, and target.
Estimated Funding Source	Section 405(c)
Estimated 3-Year Funding	$2,500,000.00 (split among other TR countermeasures)
Considerations to determine projects	Traffic Safety Data, Traffic Records Coordinating Committee Input, Latest Recommendations from Traffic Records Assessment
Uniform Guideline/ NHTSA Assessment Recommendations and Description	Uniform Guidelines for State Highway Safety Programs states that accuracy is one of the metrics used to measure the quality of a State's traffic records information system. Additionally, the NHTSA Traffic Records Program Assessment Advisory encourages the implementation of information quality best practices and the use of NHTSA's Model Performance Measures for State Traffic Records Systems found in NHTSA document DOT HS 811 441. Data accuracy is one of the core performance attributes. Improved accuracy is therefore a worthy countermeasure.

Countermeasure Strategy	The crash countermeasure strategy of the TSIS is to complete the development and processing of a comprehensive core highway safety database.
Problem being addressed and description of the Link between problem and strategy	The projects this year will improve completeness to more than one core highway safety database. A particular emphasis will be on the further development in the crash and the EMS databases. Completeness will be improved as the MMUCC 5 version of eCrash is developed and as more agencies start using the NEMSIS 3.5 compliant RESCUE, which is the electronic patient care report for EMS runs. Improving completeness in the crash and the EMS data is extremely useful and essential. This countermeasure will greatly complement other similar data attribute improvement countermeasures that will be targeted in these traffic records projects. All the countermeasures relate to improvements in some aspect of either the data content or its processing.
List of Countermeasure(s) and Justification	Improves completeness of a core system database (UG #10)
Performance Target and Link between Strategy and Target	Variables in the crash database and the EMS database will be surveyed to determine how many null values there are, and a comparison will be made in the two study periods (current year vs previous year) of the number of records with a null value. A decrease in the percentage of null values will show improvement in data completeness. Several variables will be tested such as the "citation issued" variable and the "crash severity" variable and many others. See performance measure chart for project reference, baseline, and target.
Estimated Funding Source	Section 405(c)
Estimated 3-Year Funding	$2,500,000.00 (split among other TR countermeasures)
Considerations to determine projects	Traffic Safety Data, Traffic Records Coordinating Committee Input, Latest Recommendations from Traffic Records Assessment
Uniform Guideline/ NHTSA Assessment Recommendations and Description	As stated in "Uniform Guidelines for State Highway Safety Programs", "A State's traffic records information should be maintained in a form that is of high quality and readily accessible to users throughout the State." The NHTSA Traffic Records Program Assessment Advisory encourages the implementation of information quality best practices and the use of NHTSA's Model Performance Measures for State Traffic Records Systems found in NHTSA document DOT HS 811 441. Data completeness is one of the core performance attributes. Improved completeness is therefore a worthy countermeasure.

Countermeasure Strategy	Improve timeliness of a core highway safety database
Problem being addressed and description of the Link between problem and strategy	The countermeasure strategy is to improve timeliness of a core highway safety database. One of the projects this year will improve timeliness to the EMS database. The development of the Recording of Emergency Services Calls and Urgent-Care Environment (RESCUE) data entry system for the Electronic Patient Care Report (ePCR – also known as ambulance run reports) has been quite successful. As Alabama continues to expand the user base through the RESCUE project this year, the timeliness of the state EMS database will improve. Improving timeliness of the EMS data for Alabama is very helpful as it facilitates better analysis of the data. In addition, the data can be transferred to the federal database in a timelier manner. This countermeasure will greatly complement other similar data attribute improvement countermeasures that will be targeted in these traffic records projects. All the countermeasures relate to improvements in some aspect of the data.
List of Countermeasure(s) and Justification	Improving timeliness of a core highway safety database (UG #10)
Performance Target and Link between Strategy and Target	The "Submission Lag" variable in the EMS patient care report (PCR) database will be studied. This variable refers to the submission lag time for the first submission of the EMS data. A PCR may be submitted multiple times for a variety of reasons. It may have Schematron errors that need to be corrected. Or it could have data that needs to be updated/corrected. So, the earliest submission time is the first time that patient care report is submitted. A comparison will be made in the number of "Less than 24 hours" values in the records and compared with the previous year's data to ascertain improvement. See performance measure chart for project reference, baseline, and target.
Estimated Funding Source	Section 405(c)
Estimated 3-Year Funding	$2,500,000.00 (split among other TR countermeasures)
Considerations to determine projects	Traffic Safety Data, Traffic Records Coordinating Committee Input, Latest Recommendations from Traffic Records Assessment
Uniform Guideline/ NHTSA Assessment Recommendations and Description	As stated in "Uniform Guidelines for State Highway Safety Programs", "A State's traffic records information should be maintained in a form that is of high quality and readily accessible to users throughout the State." The NHTSA Traffic Records Program Assessment Advisory encourages the implementation of information quality best practices and the use of NHTSA's Model Performance Measures for State Traffic Records Systems found in NHTSA document DOT HS 811 441. Data timeliness is one of the core performance attributes. Improved timeliness is therefore a worthy countermeasure.

Countermeasure Strategy	Improve uniformity of a core highway safety database
Problem being addressed and description of the Link between problem and strategy	Improving uniformity of the crash, citation and the EMS data is of utmost importance as it facilitates better analysis of the data. Improving uniformity to these two national data standards makes the Alabama data easier to compare to other states to see how we rank nationally and how traffic safety issues are trending. This countermeasure will greatly complement other similar data attribute improvement countermeasures that will be targeted in these traffic records projects. All the countermeasures relate to improvements in some aspect of the data.
List of Countermeasure(s) and Justification	Improving uniformity of a core highway safety database (UG #10)
Performance Target and Link between Strategy and Target	Percentage of records in the State EMS data file that are National Emergency Medical Service Information System (NEMSIS)-compliant. The higher the percentage, the more uniform the EMS data is. One of the goals and deliverables of the RESCUE project is to keep it up to date with the latest version of the NEMSIS standard. See performance measure chart for project reference, baseline, and target.
Estimated Funding Source	Section 405(c)
Estimated 3-Year Funding	$2,500,000.00 (split among other TR countermeasures)
Considerations to determine projects	Traffic Safety Data, Traffic Records Coordinating Committee Input, Latest Recommendations from Traffic Records Assessment
Uniform Guideline/ NHTSA Assessment Recommendations and Description	As stated in "Uniform Guidelines for State Highway Safety Programs": "A State's traffic records information should be maintained in a form that is of high quality and readily accessible to users throughout the State." Also, the NHTSA Traffic Records Program Assessment Advisory encourages the implementation of information quality best practices and the use of NHTSA's Model Performance Measures for State Traffic Records Systems found in NHTSA document DOT HS 811 441. Data uniformity is one of the core performance attributes. Improved uniformity is therefore a worthy countermeasure.

Traffic Records Countermeasure Performance Measures

Countermeasure Strategy	Performance Measure	TSIS Project Reference	Baseline	Target - 2024
Increase Accessibility of Crash Database	Number of accounts and results of user survey of stakeholders will measure level of success.	Crash Component, Item 4.3.2.3 eCrash Upgrades & Crash Component, Item 4.3.2.5 Upgrade CARE dashboard user interface	4/1/22 - 3/31/23: 59 accounts were created between April 2022 and March 2023 (441 total accounts).	480 total accounts
Improve accuracy of a core highway safety database (crash) in the state's information system.	The "Has" Coordinate variable in the crash database can be used to target accuracy	Crash Component, Item 4.3.2.3 eCrash Upgrades, Pages 24, TSIS Strategic Plan 2024-2028, June 8, 2023	4/1/22 - 3/31/23: Value "Coordinates entered manually" value Frequency 3252 Percentage 2.25%	2.0%
Improve completeness of a core highway safety database (crash) in the state's information system.	Null value records	Crash Component, Item 4.3.2.3 eCrash Upgrades, Pages 24, TSIS Strategic Plan 2024-2028, June 8, 2023	4/1/20 - 3/31/21: Value "No Coordinate value" value Frequency-4784 Percentage-3.62%	3.30%
Improve timeliness of a core highway safety database (EMS)	The "Submission Lag" variable in the EMS patient care report (PCR) database will be studied.	EMS-Medical Surveillance Component, Item 4.3.7.1 – "Continued enhancements and support of RESCUE", Page 35, TSIS Strategic Plan 2024-2028, June 8, 2023	4/1/21 - 3/31/22: Value "Less than 24 hours" value Frequency 683087 Percentage 72.77%	73.0%
Improve uniformity of a core highway safety database (EMS)	Percentage of records in the State EMS data file that are National Emergency Medical Service Information System (NEMSIS)-compliant (v3.4 vs. v3.5)	EMS-Medical Surveillance Component, Item 4.3.7.1 – "Continued enhancements and support of RESCUE", Page 35, TSIS Strategic Plan 2024-2028, June 8, 2023	4/1/22 - 3/31/23: NEMSIS v3.4 – 100% NEMSIS v3.5 – 0%	NEMSIS v3.4 – 10% v3.5 – 90%

Performance Measures	Timeframe							
		2020	2021	2022	2023	**2024**	**2025**	**2026**
Accessibily								
CARE/SAFETY crash data analysis web portal passwords	4/1 - 3/31			382	441	**480**	**500**	**525**
Accuracy								
C050: Has Coordinate variable								
Coordinates entered Manually	4/1 - 3/31			14.47%	2.25%	**2.00%**	**1.90%**	**1.85%**
Completeness								
"Distracted Driver Opinion" variable								
the number of "Null" values in the records	4/1 - 3/31	3.81%	3.62%			**3.30%**	**3.20%**	**3.10%**
Timeliness								
the "Earliest Submission Lag" variable								
"Less than 24 hours" value	4/1 - 3/31		71.20%	72.77%		**73.00%**	**73.50%**	**74%**
Uniformity								
NEMSIS compliance (v3.4 vs v3.5)								
updating from v3.4 to v3.5	4/1 - 3/31				v3.5 = 0%	**v3.5 = 90%**	**v3.5 = 95%**	**v3.5 = 100%**

Program Area: Impaired Driving (Drug and Alcohol)

Description of Highway Safety Problems

The AOHS conducted a problem identification analysis for Impaired Driving in the State of Alabama to pinpoint common factors and assess strategies that could be used to combat the growing issue. AOHS compared FY2018-2022 Impaired Driving (ID) crashes against FY2018-2022 non-ID crashes to determine any significant differences that have occurred in the most recent five-year time frame. Impaired Driving (ID) includes both alcohol and all other drugs, and the goal was to pinpoint common factors and assess strategies that could be used to combat any growing issues. It is important to recognize that alcohol is a drug, and that is the reason for the term "alcohol and other drugs." The findings of these analytics were then taken into consideration when planning both enforcement campaigns and training programs to fund in the upcoming fiscal year.

The comparison of ID crashes against non-ID crashes covered the most recent five-year period for which state data were available (CY2018-2022). An *over- represented* value of an attribute is a situation found where that attribute has a greater share of ID crashes than would be expected when comparing its proportion of ID crashes to its non-ID crash proportion. That is, the non- ID crashes are serving as a control to which the ID crashes are being compared, attribute by attribute. In this way anything different about ID crashes surfaces and can be subjected to further analyses. These findings typically do not change in any significant way from year to year as long as the normal influences on crashes remain in effect.

Overall Crashes by Year

Before getting into the ID subset, it is good to review the overall difference in the crash frequencies over the past years. The following table gives a comparison of total crashes over CY2018-2022 by severity that will be useful when the ID crashes are presented by severity.

Crashes by Severity for Years 2018-2022 (All Crashes)

Crash Severity	2018	2019	2020	2021	2022	Total
Fatal Injury	872	846	857	887	907	4,369
Suspected Serious Injury	5,235	3,906	3,579	3,893	3,655	20,268
Suspected Minor Injury	11,914	12,794	11,325	12,141	11,879	60,053
Possible Injury	15,132	14,789	11,511	11,953	10,745	64,130
Property Damage Only	122,762	122,570	103,419	118,876	113,676	581,303
Unknown	4,248	4,220	3,521	4,006	3,396	19,391
TOTAL	**160,163**	**159,125**	**134,212**	**151,954**	**144,258**	**749,712**

Location Analysis

FY2024 - Impaired	Hotspots
Mileposted Interstate Locations	29
State and Federal Routes	44
Intersections	162
Segments	87
TOTAL	**322**

Problem Identification Analysis Results for Impaired Driving in the State of Alabama

A summary of findings is given after the analyses presented below. All the categories below (e.g., Geographical Factors, etc.) are obtained from a comparison of ID vs. Non-ID crashes for all five years (2018-2022).

Impaired Driving (ID) Comparison Against Non-ID Crashes for CY 2018-2022

- In a comparison over all five years, there were 895 fatal ID crashes (3.26% of all the ID crashes). It also had a fatality proportion that was over six (6.769) times the proportion for non-ID fatal crashes.
- Suspected Serious Injury (SSI) and Suspected Minor Injury (SMI) crashes were also highly overrepresented with an Odds Ratio for SSI of 3.978 times its expectation for non- ID, and the Odds Ratio for SMI being 2.063 times its non-ID expectation.

Geographical Factors- [Terminology: *expected numbers* (or expectations) for attribute items below are obtained from a comparison to the proportions for non-ID crashes.]

- County - Generally, the overrepresented counties are those with combined large population centers and large rural areas, as opposed to the highly urbanized counties or the extremely rural counties. One reason the highly urbanized counties are under-represented is the large number of low severity crashes that occur there separate and apart from impaired driving (ID). See the rural-urban comparison below. Placed in Max Gain order, the counties with the highest potential for reduction which had a minimum potential saving of 200 ID crashes were: Baldwin, Madison, Cullman, Limestone, and Marshall.
- City Comparisons of ID crashes to Non-ID Crash Frequency. There is little surprise in this result, which generally tracks the rural areas in the counties by population. Traffic safety professionals should look for any locations that fall counter to this trend. The (virtual rural county area) cities (worst-first order) with a potential for ID crash reduction of at least 200 ID crashes are: Rural Mobile, Rural Madison, Rural Cullman, Rural Baldwin, Rural Limestone, and Rural Tuscaloosa.
- Overall Area Comparisons Conclusions – Generally those rural areas adjacent to (or containing) significant urbanized areas are overrepresented, since these urban areas generate more traffic in the rural areas. Possible factors for relatively fewer severe ID crashes within urban areas include:
    - Less need for motor vehicle travel and shorter distances to the drinking establishments or parties;
    - Larger police presence in the metropolitan areas; and
    - Lower speeds in rural areas.
- Severity of Crash by Rural-Urban – While only about 41.04% of ID crashes occur in rural areas, 68.38% of the fatal ID crashes occur there. Similar results are found for the highest severity non-fatal crashes (Suspected Serious Injury), where the proportion is 56.70%. This is obviously the result of higher impact speeds in the rural areas. Note that additional causes of increased severity are given in the Factors Affecting Severity Section, below.
- Rural/Urban ID Crash Frequency – Not only are impaired driving crashes more severe in rural areas, but the frequency of ID crashes in rural areas is quite high, despite the much lower population and traffic volumes. ID crashes occurred in about 41.04% rural as compared to about 58.96% urban areas. Compared to non-ID crashes, only 23.16% of non-ID crashes are expected in the rural areas, so the rural proportion is over double its expected value (significant odds ratio = 1.772).

- Highway Classifications – County roads had 1.96 times their expected proportion of crashes, and State routes had about 4.2% more than expected. All other roadway classifications were underrepresented. County road characteristics no doubt contribute to the crash frequency. County roads are also known to be less "crashworthy," i.e., they result in more severe crashes at comparable impact speeds because of narrow shoulders and obstacles close to the roadway.
- Locale – Reflecting the rural over-representation, open country, residential roadways, and playgrounds show a high-level of over-representation (1.543, 1.329, and 1.160 odds ratios, respectively) as compared with the more urbanized area types, especially Shopping or Business, which only had about half (0.540) of its expected proportion.

Time Factors

- Year –2020 and 2021 were found to be the most overrepresented. These have significantly high Odds Ratios of 1.098 and 1.050, respectively. The earlier years and the most recent year (2022) all have Odds Ratios that indicate fewer ID crashes than would be predicted from their non-ID counterparts. As a result of this mix, there was no measurable trend over the years, and we conclude that the proportion of ID to non-ID crashes is effectively stable, and no trend can be determined at this time.
- Month – ID crashes were significantly higher than expected in March and April, which had Odds Ratios of 1.080 and 1.083, respectively. October was the only significantly underrepresented month, with Odds Ratio 0.926.
- Day of the Week – The analysis by day of the week is not only useful for the typical work week, but it also reflects the typical "holiday (virtual) weekend" patterns. The days can be classified as follows:
    - Typical work weekday (Monday through Thursday) – these days are significantly underrepresented in ID crashes due to the need for many to go to work the following day.
    - Friday – this pattern is also reflected in the day before a weekend (or holiday), i.e., before a day off. The high ID frequency on this day is due to those who are getting an early substance abuse start to the weekend, recognizing they have no work responsibilities the following day. However, the large numbers of non-ID crashes on Fridays causes Friday to be underrepresented, with an Odds Ratio of 0.913 despite it having the third highest ID crash frequency, right behind Saturday and Sunday.
    - Saturday – the "Saturday" pattern is the worse for ID crashes in that it has both an early morning component (like Sunday) and a late-night component (like Friday). So, it could be viewed as a combination of the typical Friday and Sunday.

- Sunday – since this is the last day of a holiday sequence or weekend, its over- representation comes mainly from those who start on Saturday night and do not complete their use of alcohol/drugs until after midnight. Sunday is the most overrepresented day (Odds Ratio = 1.996) with nearly twice its expected number of ID crashes; however, the low number of non-ID crashes on Sunday also contributes to this overrepresentation.
- "Holiday Weekends" – these can be viewed as a sequence of the weekend-pattern days. For example, the Wednesday before Thanksgiving would follow the Friday pattern assuming most are at work on Wednesday (which has not been typical recently). The Thanksgiving Thursday, Friday and Saturday would follow the Saturday pattern, and the Sunday at the end of the weekend would follow the typical Sunday pattern. This is the reason long holiday events (i.e., several days off) can be more prone to ID crashes than the typical weekend. Each day off can be viewed as a repetition of a Saturday. Three-day weekends typically give Monday off, so Monday would behave like the typical Sunday, and both the Saturday and Sunday would follow the Saturday pattern.

- Time of Day – The extent to which nighttime hours are overrepresented is quite striking. Optimal times for ID enforcement would start immediately following any rush hour details and would continue through at least 4:00 to 4:59 AM (Odds Ratio 3.017). The 5-6 AM hour is also significantly overrepresented with an odds ratio of 1.293. All the hours from 8 PM through 4:59 AM have Odds Ratios greater than two. Conversely, the daytime hours from 7 AM through 3:59 PM all have Odds Ratios less that 0.5 (less than half of the typical non-ID proportion of crashes).
- Time of Day by Day of the Week – This quantifies the extent of the crash concentrations on (1) Friday nights, (2) Saturday mornings and Saturday nights; and (3) early Sunday mornings. This is a very useful summary for deploying selective enforcement details, especially during weekend hours.

Factors Affecting Severity

- ID Crash Severity - The rate of injuries and fatalities are consistently higher in ID crashes than that of non-ID crashes. Fatality crash proportions for ID crashes are 6.769 times their expected proportion, while the next two highest (non-fatal) injury classifications have over twice their expected values when compared with non-ID crashes. The odds ratio is over three (3.978) for the highest non-fatal classification, Suspected Serious Injury.
- Speed at Impact – All impact speeds above 50 MPH (with the sole exception of 61-65 and 66-70 MPH) are dramatically overrepresented with odds ratios above 2.00. The overrepresentations increase, as expected, with increased speed with 51-55 MPH having an odds ratio of 2.091, and over 100 MPH being 9.643. Past analyses have found the general rule of thumb that for every 10 MPH increase in speeds, the probability of a crash being fatal doubles. This was validated by a cross-tabulation of impact speeds by severity for CY2018-2022.

- Fatality Crashes by Restraint Use for Impaired Drivers – A comparison of the probability of a fatal crash indicates that a fatality is over five (5.05) times more likely if the impaired driver is not using proper restraints. Generally, one in 60 ID crashes are fatal; but without restraints, the fatal crash ratio is 1 in about 11. So, the combined effect of lower restraint use and higher speeds is a devastating combination that accounts for much of the high lethality of ID crashes.
- Number Injured (Including Fatalities) – Not only are ID crashes generally more severe to the driver, but the number of multiple injuries in these ID crashes is overrepresented as well. This might have something to do with the preference of those going out to socialize to take some of their friends with them. All of the multiple injury categories are overrepresented in the ID crashes, as is the single injury classification. The multiple injury classifications of 4, 5 and 6 injured had at least twice their expectations, and the 2 and 3 injuries all had close to twice their expectations (as measured by the Odds Ratio) as well.
- Police Arrival Delay – ID crashes generally had longer police arrival delays; in this case all arrival delays between 0 and 5 minutes and over 31 minutes were overrepresented. There can be little doubt this has to do with the rural nature of these crashes and the potential that the late-night occurrence might not be discovered for some time. Delay times of 91 to 120 minutes had over twice its expected proportion (Odds Ratio 2.077) as compared to non-ID crashes. The delay of 121-180 minutes was about the same with an Odds Ratio of 1.895.
- EMS Arrival Delay – Higher EMS delays were overrepresented for impaired driving injury crashes in all categories above ten minutes, and dramatically (over twice the expected) for the very longer times of 61 minutes and above. This obviously contributes to the injury severity of crashes including the chances the crash results in one or more fatalities. As for the very long times, these might be due to the delay in discovering crashes that have run off the roads due to their generally overrepresented rural locations.

Driver and Vehicle Demographics

- Driver Age – Younger (16 to 20-year-old) drivers have a very serious problem in crash causation even in the absence of impairment. However, ID crashes are not generally caused by youth and inexperience. In fact, 16-18-year-old drivers are highly statistically underrepresented, with Odds Ratios of 0.158, 0.276, and 0.463, respectively, but this under-representation diminishes linearly through age 22, where it first becomes statistically over-represented. The over-representations continue on to age 60. There is a bimodal distribution in the 21–60-year-olds; the first group is 21 through about 40; a second group is seen from 41 to 60. Generally, the first of these might be classified largely as social drinkers; while it is inescapable that the middle-aged driver-caused ID crashes are largely attributed to problem drinkers, or those addicted to alcohol or other drugs.

- Impaired Driver Gender – Males are a far greater issue in ID crashes, and if there are countermeasures that can be directed toward them, doing so would be much more cost- effective than those that are not gender-based, all other things being equal. The ratio of male to female causal ID drivers is close to 3 to 1, with males having 71.90% of the crashes and females having 24.60%.
- Causal Vehicle Type – Pick-ups had a significant overrepresentation and came out at the top of the Max Gain (1662) order because of their number of ID involvements. Motorcycles were also highly overrepresented. Also of interest is the proportion of pedestrians that involve ID, which is over twice their expected number (2.641). Four-wheel ATVs had the highest over-representation (Odds Ratio = 3.564), perhaps because ATV drivers do not believe the ID laws apply to them as long as they are not on the public highways. In order of their number of their ID crashes, the following had significant odds ratios: Passenger Car, Pick- Up (Four-Tire Light Truck), Motorcycle, Pedestrian, and 4-Wheel/Off Road ATV.
- Driver License Status – ID crashes are very highly overrepresented in causal drivers without legitimate licenses, which challenges the effectiveness of license suspension and revocations as a traffic safety countermeasure. There is no way to estimate its deterrent value, but the correlation of irregular licenses with ID crashes indicates that within itself, these actions are not definitive. Those who will drive while intoxicated will only rarely be affected by their license status. Revoked is overrepresented for the ID causal drivers by over six times its expected proportion (compared to non-ID crashes). The following gives the highest overrepresented categories along with the number of additional crashes (in parenthesis) that were attributed to the over-representation in the five-year period: Suspended (2237), Revoked (1439), Not Applicable or Unlicensed (3031), and Expired (519).
- Driver Employment Status – ID driver unemployment rate is 19.71%, and its proportion is about 80% higher than expected over the 2018-2022 time period. Self-employed and employed sum to 43.27%. This is an important factor that will be given continued consideration as the economy rebounds from the 2020 COVID-19 pandemic.

Countermeasure Strategies in Program Area

Countermeasure Strategy	Decrease the rates of crashes caused by impaired drivers.
Problem being addressed and description of the Link between problem and strategy	The five-year average of impaired driving fatalities in Alabama is 260 (2018-2022). The rate of injuries and fatalities are consistently higher in ID crashes than that of non-ID crashes. Fatality crash proportions for ID crashes are 6.769 times their expected proportion, while the next two highest (non-fatal) injury classifications have over twice their expected values when compared with non-ID crashes. The odds ratio is over three (3.978) for the highest non-fatal classification, Suspected Serious Injury. A proven countermeasure to combat impaired driving is well publicized enforcement campaigns.
List of Countermeasure(s) and Justification	5.2 Mass Media Campaigns (CTW, 3 stars) 2.2 High Visibility Saturation Patrols (CTW 4 Stars)
Performance Target and Link between Strategy and Target	Performance Measures Affected C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS) AOHS will fund four local Alcohol High Visibility Enforcement projects during the coming year as well as one statewide Alcohol High Visibility Enforcement project. Each of these projects will focus on alcohol related Hotspot crashes and the problem locations that have been identified across the state. This HVE campaign will be accompanied by a comprehensive, multiplatform media campaign throughout the state.
Estimated Funding Source	Federal Fund Description Section 405(d)
Estimated 3-Year Funding	Estimated 3-year Funding $6,240,000.00
Considerations to determine projects	Public Feedback and Crash Location Data will help identify messaging target demographics and geographical deployment of messaging. The enforcement effort is evidence-based, which will prevent traffic violations, crashes, and crash fatalities and injuries in locations most at risk. The enforcement program will continuously be evaluated, and the necessary adjustments will be made.
Uniform Guideline/ NHTSA Assessment Recommendations and Description	Taken from Uniform Guidelines No. 8. Impaired Driving: B. ENFORCEMENT Each State should conduct frequent, highly visible, well publicized and fully coordinated impaired driving (including zero tolerance) law enforcement efforts throughout the State, especially in locations where alcohol-related fatalities most often occur. To maximize visibility, States

	should maximize contact between officers and drivers using sobriety checkpoints and saturation patrols and should widely publicize these efforts—before, during, and after they occur. Highly visible, highly publicized efforts should be conducted periodically and also on a sustained basis throughout the year. To maximize resources, the State should coordinate efforts among State, county, municipal, and tribal law enforcement agencies. States should utilize law enforcement liaisons for activities such as promotion of national and local mobilizations and increasing law enforcement participation in such mobilizations, and for collaboration with local chapters of police groups and associations that represent diverse groups to gain support for enforcement efforts. Each State should coordinate efforts with liquor law enforcement officials. To increase the probability of detection, arrest, and prosecution, participating officers should receive training in the latest law enforcement techniques, including Standardized Field Sobriety Testing, and selected officers should receive training in media relations and Drug Evaluation and Classification (DEC). C. PUBLICIZING HIGH VISIBILITY ENFORCEMENT Each State should communicate its impaired driving law enforcement efforts and other elements of the criminal justice system to increase the public perception of the risks of detection, arrest, prosecution and sentencing for impaired driving. Each State should develop and implement a year-round communications plan that provides emphasis during periods of heightened enforcement, provides sustained coverage throughout the year, includes both paid and earned media and uses messages consistent with national campaigns. Publicity should be culturally relevant, appropriate to the audience, and based on market research

Countermeasure Strategy	Increase the number of law enforcement professionals trained in the identification of impaired drivers on the roadways
Problem being addressed and description of the Link between problem and strategy	The five-year average of impaired driving fatalities in Alabama is 260 (2018-2022). Alabama is one of 49 states and the District of Columbia to implement the Drug Evaluation and Classification Program (DECP). At the heart of this program is the Drug Recognition Expert (DRE). A DRE is a law enforcement officer trained in detecting and recognizing impairment caused by substances other than alcohol.
List of Countermeasure(s) and Justification	Enforcement Training -Drug Recognition Expert Training Program (UG #8)
Performance Target and Link between Strategy and Target	Performance Measures Affected C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS) The presence of DREs in Alabama will impact both the highway and the courtroom. A Drug Recognition Expert Program (DRE) will be funded to train and certify law enforcement officers from various agencies around Alabama as Drug Recognition Experts. A continuation and expansion of this program in Alabama will enable law enforcement officers to better detect, apprehend, assess, document, and subsequently help the prosecutor prove, in court, the defendant was under the influence of a drug while driving.
Estimated Funding Source	Federal Fund Description Section 405(d)
Estimated 3-Year Funding	$1,150,000.00
Considerations to determine projects	Traffic Safety Data and Citation Information will help determine target locations and agencies for program management and administration.
Uniform Guideline/ NHTSA Assessment Recommendations and Description	From *Uniform Guidelines* No. 8: To increase the probability of detection, arrest, and prosecution, participating officers should receive training in the latest law enforcement techniques, including Standardized Field Sobriety Testing, and selected officers should receive training in media relations and Drug Evaluation and Classification (DEC).

Countermeasure Strategy	Increase the rate of successful DUI prosecution in the state through education and training of law enforcement, prosecutors, judges, and related occupations.
Problem being addressed and description of the Link between problem and strategy	The five-year average of impaired driving fatalities in Alabama is 260 (2018-2022). By offering educational opportunities and technical support throughout the state, courts are better prepared to prosecute DWI offenders. AOHS will allocate sufficient funds to allow for a full time Traffic Safety Resource Prosecutor to provide training requirements to all District Attorneys, ADAs, and their staff to increase the level of readiness and proficiency for the effective prosecution of traffic impaired driving cases.
List of Countermeasure(s) and Justification	Traffic Safety Resource Prosecutor (UG #8)
Performance Target and Link between Strategy and Target	Performance Measures Affected C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS) Alabama's state's goal is to achieve both specific and general deterrence through goals defined as: •Specific deterrence focuses on individual offenders and seeks to ensure that impaired drivers will be detected, arrested, prosecuted, and subject to swift, sure, and appropriate sanctions, and thereby reduce recidivism. •General deterrence seeks to increase the public perception that impaired drivers will face severe consequences, thus discouraging all individuals from driving impaired.
Estimated Funding Source	Section 402
Estimated 3-Year Funding	$650,000.00
Considerations to determine projects	Traffic Safety Data, Citation Information
Uniform Guideline/ NHTSA Assessment Recommendations and Description	From *Uniform Guidelines* No. 8: States should implement a comprehensive program to prosecute and publicize impaired-driving-related efforts, including use of experienced prosecutors (e.g., traffic safety resource prosecutors), to help coordinate and deliver training and technical assistance to prosecutors handling impaired driving cases throughout the State visibly, aggressively, and effectively.

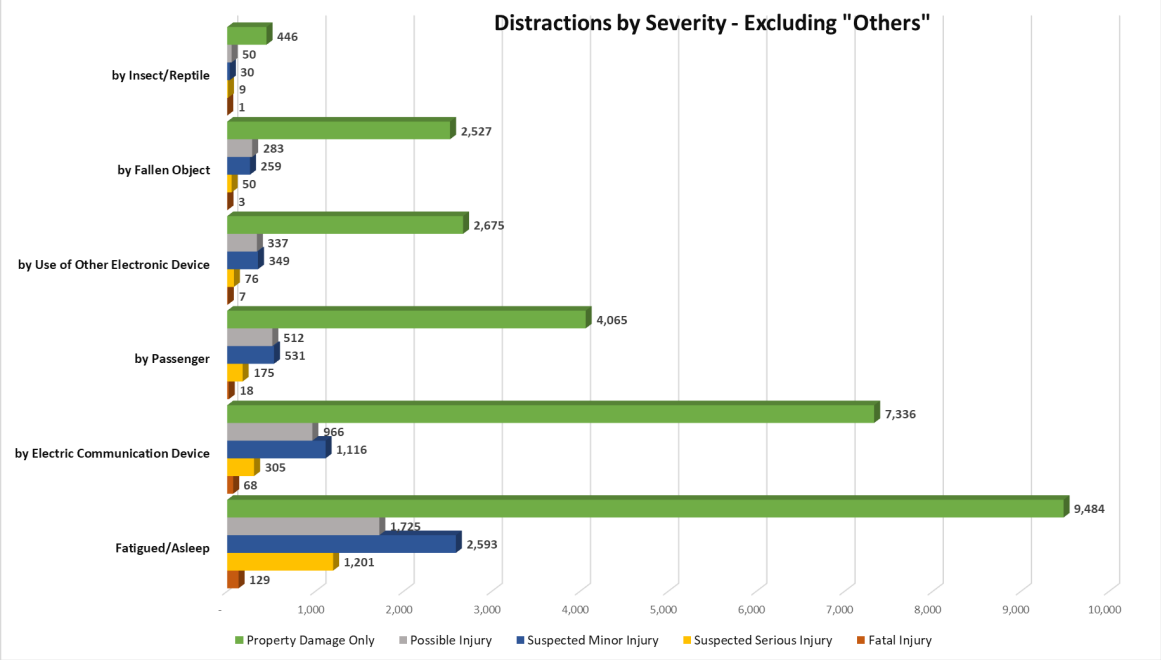
Program Area: Distracted Driving

Description of Highway Safety Problems

Driving deserves the full attention of the driver and everyone will agree that distracted driving is a problem. No one wants to admit to distracted driving so it is hard to get accurate numbers that show the full extent of the problem. Alabama decided to add a field on the crash report for the officer's opinion if the driver was distracted. Other states may not do this, but we want to address the problem as best we can and having data of the officer's opinion of driver distraction is very helpful. This section will explain the last available five years of Distracted Driving data (CY2018-2022), and it will provide the rationale for the methods that are applied to process it for the 2024 HSP problem identification.

The following are the relevant values found from the Distracted Driving Officer's Opinion in the order from the smallest to the largest frequency (directly from the crash report database):

Distraction Descriptor	**Frequency**	**Percent (Non-Other)**
Distracted by Insect/Reptile	547	1.4%
Distracted by Fallen Object	3,178	8.4%
Distracted by Use of Other Electronic Device	3,492	9.2%
Distracted by Passenger	5,419	14.3%
Distracted by Communication Device	9,951	26.2%
Fatigued/Asleep	15,436	40.6%
Total Usable Values	**38,023**	



Five analyses will be performed from these six categories: (D1) Insect/Reptile, (D2) Fallen Object, (D3) Passenger, (D4) Fatigued/Asleep, and (D5) A combination of the two Electronic Devices categories.

D1. Insect/Reptile (1 fatal, 9 Suspected Serious, 30 Suspected Minor)

This is the lowest frequency distraction, but it should not be discounted. The months of April through September were over-represented, with a high point in June (as would be expected). Preventative actions (e.g., warnings) should be taken during these months as well as the morning and early afternoon hours. County roads showed the expected significant over-representation in the rural areas.

The largest crash problem drivers had with this distraction was with collisions with other vehicles (over half; 56.49%). The second crash problem resulted from Running Off the Road, where collisions were essentially with whatever obstacle was closest on the roadside. The largest vehicle collision type (nearly half; 46.25%) was that of Rear Ends (front to rear). About a third (33.23%) of the crashes were single vehicle.

D2. Fallen Object (3 fatal, 50 Suspected Serious, 259 Suspected Minor)

Generally, this distraction will occur from some object being dropped within the vehicle. Exceptions are impossible to determine, but there is an "Other" code for distractions outside of the vehicle that would probably be used if an object fell outside the vehicle. It is important that drivers maintain discipline and pull off the roadway in a safe manner if they or one of their passengers has lost control of an object. Most (73.66%) of the crashes involve collisions with other vehicles. Of these, the majority (64.44%) are Rear End (front to rear) crashes, and only about 17.81% were single vehicle crashes.

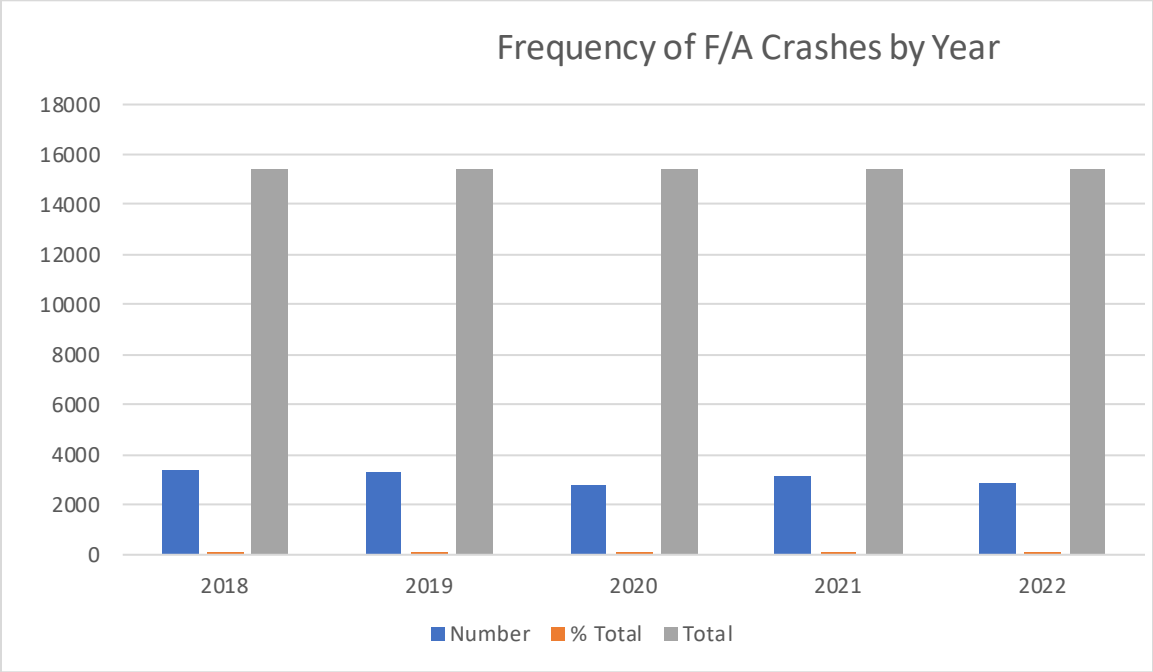
D3. Passenger (18 fatal, 175 Suspected Serious, 531 Suspected Minor)

Saturday and Sunday are over-represented in passenger-caused distractions, probably because weekend travel tends to be less formal. The late afternoon rush hours (3 PM through 4:59 PM) are over-represented as well. Federal, State, and County roads had significant over-representations, while Interstate highways were significantly under-represented. There is a correlation between this distraction and disregarding traffic signs and signals. A very large majority (72.84%) of these crashes involve "Collisions with Vehicles in Traffic." Drivers who tend to tailgate need to be particularly aware of issues with this distraction, in that nearly 49.86% of these crashes were Rear End (front to rear). A large number of correlated crashes involved Following Too Close (481) and Misjudged Stopping Distance (277).

The next section will cover Fatigued/Asleep (F/A) distractions. It will be followed by discussions of distractions caused by a combination of the following two electronic device distractions: (1) Electronic Communication Devices or (2) Any other Electronic Device. These electronic devices will be referenced collectively as Electronic Devices (EDs). We will spend more time and space on these two sections because these particular distractions have a significantly higher number of fatalities and serious injuries than the other distraction items considered above.

D4. Fatigued/Asleep (129 fatal, 1,201 Suspected Serious, 2,593 Suspected Minor)

The following presents a summary of Fatigued/Asleep (F/A) crashes by year.



Significant Fatigue/Asleep Findings and Recommendations

This Section will continue by presenting the major findings for the Fatigue/Asleep (F/A) Distraction item organized by the following major attribute groupings: Geographical, Time and Weather, Driver Related, Severity and Vehicles.

Geographical Findings

- Rural or Urban. Rural areas had over twice (Odds ratio of 2.358) their expected proportion with over half of the F/A crashes being in rural areas, while the non-F/A crashes only had about 23% in the rural areas. Roadside views tend to get uninteresting when the roadside scenery is not changing, and rural areas tend to involve longer, and

potentially more boring trips. The recommendation here would be to place some type of diversion on those highways that are exhibiting excessive F/A crashes. Notifying drivers of the fact that these roads exhibit more than their expected F/A crashes would seem to be a way to reduce F/A crashes on them.

- Highway Classification. This reflects the rural/urban finding above. Interstates have been found to be particularly vulnerable to F/A-caused crashes, and they have the highest over-representation. However, in Alabama, State and County roads are also significantly over-represented, probably for different reasons. The monotonous nature of driving on Interstates is obvious; however, they may be much more forgiving than State and County roads when it comes to vehicles veering off the roadway and making a safe recovery.
- At Intersection. Intersections occur much more often in urban areas, so the rural tendency of F/A crashes is supported by the finding of under-representation at intersections. It might also be reasoned that the intersection itself provides a "wake-up call" for the driver.
- Mileposted Routes. This is one of the most important findings in that it differentiates the particular roadways that exhibit a proclivity toward F/A. It is reasonable that some roadway types and specific roads are more prone to create the conditions for F/A than others. Findings from Alabama confirm this result, showing that some roadways have up to five times the relative proportion of F/A crashes than those of their non-F/A crashes. The highest route for potential F/A crash reduction was I-65, which had a reduction potential of over 700 crashes (over the five-year period of the study). Other busy Interstates also had high reduction potentials. For instance, the odds of F/A crashes is 5.630 times higher on I-22.
- Locale. As expected, Open Country is the only Locale that is significantly over-represented. Note that some Open Country areas occur within town or city limits, which would classify them as urban. The odds of F/A crashes is 2.163 times higher on open country roads.
- Driver Residence Distance. The Driver Residence Distance Greater than 25 Miles (from home) is about 60% higher than what would be expected from the proportion of non-F/A crashes, which is statistically significant at a very high level.

Time and Weather Findings

- Year. The proportion of F/A to non-F/A crashes has remained stable at effectively the same levels, with no statistically significant differences over the past five years. This indicates neither improvement nor deterioration in the degree for F/A caused crashes. This is interesting as evidence does not support that the Covid-19 pandemic had any effects on F/A crashes.
- Month. It would be expected that the months in which longer trips occur would be over-represented in F/A crashes. This over-representation starts in March, and it becomes significant for May, June, and July, (collectively) which are the expected vacation months. Public PI&E warnings regarding the dangers of drowsy driving should be timed appropriately. However, even the lowest F/A crash months have over 1000 F/A crashes, so it is important to not marginalize any month, and to keep the recognition of this problem before the public all year round.
- Day of the Week. Clearly Saturday and Sunday are the bad days for F/A crashes, which would be expected since the bulk of the traffic during the week is for commuting and delivery. Also, see C122 and C123, which show the high correlation of F/A with Impaired Driving (ID/DUI).
- Time of Day. Ten PM and after, and the later hours, including late early morning until 8 AM are overrepresented in F/A crashes in the state. F/A crashes happen during the day, but not nearly as much as in the late night and early morning (dark) hours. This also illustrates the correlation with ID/DUI.
- Lighting Conditions. It is not just the time, but also the presence or absence of light. Most of the Dark-Roadways that are Lighted do not show over-representations. But this must be qualified by the fact that these conditions exist mainly in the urban rather than the rural areas. Lighting and environmental conditions all work together, and it is difficult to analyze each of them independently.
- Weather. There appears to be something about rain that keeps drivers awake. Perhaps it is the fear of the obvious consequences of dozing off. For now, it appears that bad weather is a positive factor in reducing the number of F/A crashes.

Driver Related Findings

- First Harmful Event. There is nothing unexpected in these results. When a person drifts off to sleep behind the wheel, the results are random. If there happens to be a vehicle in its path, the crash may be avoided only by evasive action on the part of the victim driver. Any evasive action would be expected to avoid the perceived worst-case scenario, even if it results in an alternative crash. Thus, this attribute generally identifies the objects that are the first things encountered by a vehicle that randomly departs the roadway and is effectively driverless.
- Manner of Crash. The major finding here is obviously that F/A crashes are dominated (66.46%) by single-vehicle crashes, which is consistent with many of the findings above.

Even though there are some large numbers on some of the two-vehicle Manner of Crash types, most of them are under-represented.

- Number of Vehicles. This quantifies the dominance of single-vehicle crashes at 69.33% of all F/A crashes. Those that do involve more than one vehicle are distributed over the number of vehicles involved.
- Causal Unit (CU) Left Scene. The proportion of F/A crashes where the causal driver left the scene is one of the lowest found for all crash types. Perhaps this is due to their not being fully cognizant of what went on prior to the crash. Also, the severity of most F/A crashes would make many of them impossible to drive away from.
- CU Driver Raw Age. The youngest drivers (aged 16-17) are significantly under-represented (16-17). Ages 18 and above are significantly over-represented up until age 46. Ages above 60 are generally under-represented. This is evidence of a correlation with alcohol and drugs, and it also indicates that the 16–17-year-olds are typically not driving on the longer trips in which F/A becomes problematic. We would also expect the very youngest drivers to have a high level of excitement from driving that would make sleep and fatigue less likely.
- CU Driver Gender. Very clearly, males are significantly over-represented in F/A crashes, with their proportion being over 40% higher than expected. The reason for this is not clear, but it probably is related to males typically being the primary drivers both on longer trips and those that go late into the night.
- CU Officer Opinion Alcohol. The effect of alcohol and drugs on creating drowsy drivers cannot be disputed. Here the proportion of F/A drivers who were using alcohol is over 70% higher for F/A crashes than for non-F/A crashes.
- CU Officer Opinion Drugs. (Non-alcohol) drugs are even more over-represented than is alcohol. The proportion of F/A drivers using drugs is estimated to be close to four times that of non-F/A drivers.
- Vehicle Maneuvers. Falling asleep at the wheel can be described as an unforced error (in tennis terminology). After that, what happens are random occurrences. It seems that if that event is at a curve, there is an excellent chance (over 60% higher proportion) that it will result in a crash. Even worse is if the vehicle departs the roadway where the probability of a crash is increased by over a factor of three. However, the overwhelming proportion of F/A crashes (80.85%) are on straight and level roadways, attesting to the effects of boredom.

Findings Related to Severity

- Crash Severity. The highest non-fatal injury categories (Incapacitation and Non-Incapacitating) are highly over-represented by over twice the proportion that occurs for non-F/A crashes. The fatal proportion is smaller than these, but its proportion is still 31% higher than non-F/A crashes. Some possible reasons for these higher severities will be given in the next attributes considered in this section. We also postulate that the consequences of crashes are more severe when drivers do not have awareness to take defensive actions once the inevitable crash event sequences are in process.

- Adjusted EMS Arrival Delay Time. The 0 to 5-minute delay from crash time to ambulance arrival is significantly under-represented, as is the 6-10-minute delay. After that, all the delay categories are over-represented. All the delay times above 10 minutes and under 90 minutes are significantly over-represented. We expect that this is due to the rural nature of many of these crashes. The times being analyzed here are from the crash report to the time that the ambulance arrives. There is no accounting for the delay between the crash itself and when it is reported. This is especially relevant in late night times, which characterize F/A crashes. Certainly, rural roads that have relatively few vehicles late at night would be susceptible to this increased delay problem.
- Number Injured Including Fatalities. Single injury crashes have the highest over-representation. However, all the multiple injury classifications are over-represented up to and including 7 injuries. Eleven crashes had multiple fatalities.
- CU Estimated Speed at Impact. This is the largest single factor that determines whether a crash results in a fatality or not. It has been determined in many former studies within Alabama that, above 40 MPH, each increase in the impact speed of 10 MPH doubles the probability of that given crash being fatal. Since this doubling is from its next lower 10 MPH-lower speed estimate, this is an exponential increase. So, for example, if the probability of a crash being fatal at 40 MPH is 1%, the probability at 50 MPH would be 2%, the probability at 60 MPH would be 4%, and the probability at 70 MPH would be 8%, doubling from its previous value for each increase in 10 MPH (hypothetical numbers are used here for illustration only). This reflects the laws of physics and kinetic energy. Severity display C025 shows that the probability of a F/A crash being fatal is 0.84%, while that same probability for a non-F/A crash is only 0.58%. This explains the major cause of the increased severity of F/A crashes.

Findings Related to Vehicles

- Causal Unit (CU) Type. Pick-ups (21.48%) and Passenger Cars (50.34%) were the only two vehicle types over-represented in F/A crashes. If anything, it would be the drivers that are prone to use these vehicles that might be over-represented, as opposed to the vehicles themselves.
- CU Model Year. Vehicle years that are over-represented start in 1992 and go through 2009. Only 2022 is statistically significant above expectations.

Hotspot Analysis

Route Type	*F/A Hotspots*	*Years*	*Minimum F/A Crashes*	*Hotspot Length*
Mileposted	22	2018-2022	50	10
Segments	12	2018-2022	3	Local Segment
Intersections	13	2018-2022	3	Local Intersection
Total F/A Hotspots	**47**	2018-2022	--	--

These high crash locations are quite important since it has been determined that characteristics of the roadway itself can tend to produce an affinity toward drowsiness. The following guidance is given for these analyses:

- Hotspot analyses can be performed using a F/A filter for any type of roadway in Alabama. Such a filter will only allow F/A crashes to be considered in the analysis.
- Since Interstate, State and County Roads tend to have more F/A crashes, hotspot analyses on these roadway types will be the most fruitful for Hotspot Analyses.
- As an example, the first F/A hotspot (criteria: more than 50 F/A crashes in a ten-mile segment) was not found on I-65 until about the 40-mile marker.
- The above does not indicate that no F/A crashes occurred; only that they were not of such a concentration to qualify according to the noted hotspot criterion (50 F/A crashes in a ten-mile segment).
- Clearly, it will usually take most drivers some time and distance before they become drowsy. The Hotspot analyses that are performed should have the goal of determining where such criteria are met in order to establish potential countermeasures at critical mile markers.
- Taking a break more frequently than every hour or 80 miles would be an excellent recommendation.

D5. Electronic Device Distractions (75 fatal, 381 Suspected Serious, 1,465 Suspected Minor) Combined Electronic Communication Device (e.g., phone) and Other Electronic Device

The following is a summary of Electronic Communication and Electronic Other Device Distraction (ED) crashes by year.

Frequency of ED Crashes by Year Electronic Other

Year	Communication	Electronic	Total ED	% of Total
2018	1953	767	2720	20.2%
2019	1975	759	2734	20.3%
2020	1851	614	2465	18.3%
2021	2226	712	2938	21.9%
2022	1943	640	2583	19.2%
TOTAL	**9948**	**3492**	**13440**	**100.0%**

Significant ED Findings and Recommendations

This Section will continue by presenting the major findings for the Electronic Communication and Other Electronic Devices (ED) Distraction items organized by the following major groupings of the attributes: Geographical, Time and Weather, Driver Related, Severity and Vehicles.

Geographical Findings

- County. Counties with moderately large cities and large traffic in the rural areas tend to be the most over-represented. For example, counties with the highest potential ED reductions (> 80 ED crashes over the five years) are Baldwin, Lee, Shelby, Cullman, Houston, and Madison.
- Rural or Urban. Rural areas are over-represented in ED crashes by a proportion that is about 18.68% higher than the non-ED rural crash areas. The overall rural-urban breakdown for ED crashes is 29.17% Rural and 70.83% Urban.
- Highway Classification. In comparison with their non-ED crashes, County, State and Federal roads ED crashes are significantly over-represented. Interstates and Municipal roads are significantly under-represented.
- Intersection Related. Intersection related crashes were under-represented. Only 24.17% of all ED crashes were Intersection Related. This is clearly an indication that drivers put the electronic devices away when encountering cross traffic.
- Locale. The open country locale had about a 16.2% higher ED proportion than expected, in comparison with the comparable non-ED crashes. Other significantly over-represented locales included Residential (11.4%) and School Zones (22.7%).

Time and Weather Findings

- Month. October through February, except for November, are under-represented, while the spring and summer months are generally over-represented. This would be a good indication of the time of year when more people are using their electronic devices in the vehicles.
- Day of the Week. Weekends are significantly over-represented. All the weekdays are under-represented, Wednesday, significantly so. The use of EDs seems not as prevalent on business as opposed to pleasure trips.
- Time of Day. All of the hours after 4.59 PM are over-represented, right through the midnight hour. Hours after 3:59 AM are under-represented until 5-5:59 PM. The rest of the hours are all significantly under-represented.
- Weather. Crashes in the rain are only about 0.562% of what is expected, showing that there is a greater concentration on driving (as opposed to the use of EDs) during inclement weather conditions.

Driver Related Findings

- First Harmful Event. The following are the highest First Harmful Events, in general order of their frequency:
  - Collision with Vehicle Traffic
  - Ran Off Road Right
  - Collision with Parked Motor Vehicle
  - Collision with Ditch
  - Collision with Tree
  - Ran Off Road Left
  - Collision with Utility Pole
  - Collision with Vehicle in (or from) Other Road
  - Collision with Mailbox
  - Overturn/Rollover
  - Crossed Centerline
  - Collision with Culvert Headwall
  - Collision with Signpost
  - Collision with Other Fixed Object
  - Collision with Embankment
  - Collision with Fence
  - Evasive Action (Swerve/Brake)

- Driver Raw Ages. Ages from 16-40 are all significantly over-represented. Most of those 49 and above are significantly under-represented (where there were enough cases to determine statistical significance). Thus, ED crashes seem to be highly correlated with the younger ages, i.e., the younger the causal driver age, the greater their involvement in ED crashes.
- Driver Gender. Male drivers are significantly higher in their proportion of ED crashes (58.68%) than in non-ED crashes (50.30%), a factor of nearly 17% higher ED proportion than expected.
- Driver Employment Status. Drivers who cause ED crashes are much more likely to be employed (57.58%) than those involved in non-ED crashes (45.75%); the proportion being about 26% higher than expected. This is probably related to their vehicle ownership.
- Officer Opinion Alcohol. The proportion of DUI drivers who cause ED crashes (4.10%) is significantly higher in the crash being caused by alcohol than in the non-ED crashes (2.82%), a proportion increase of about 45.5%.
- Officer Opinion Drugs. The proportion of drivers under the influence of drugs who cause ED crashes (1.18%) is significantly greater than those involved in non-ED crashes (0.96%), a proportion increase of about 23%.

Findings Related to Severity

- Crash Severity. Comparing ED with non-ED crashes, fatal crashes are only about 96% of what would be expected. The ED proportion of fatal crashes is 0.56%, while the non-ED proportion of fatal crashes is 0.58%. However, all the other injury classifications are over-represented, with Property Damage Only crashes being significantly under-represented.
- Adjusted EMS Arrival Delay. Due to the ED occurrences in the rural areas, ambulance delay times when ED crashes occur have longer delay times. They are under-represented in both the 0-5 and 6-10 delay times. With only a few exceptions, all the other (longer) delay times are over-represented.
- Number of Vehicles. The number of 2-vehicle ED crashes is only about 93% of that for non-ED crashes. ED crashes are over-represented in single vehicle, but also in most of the multiple vehicle crashes above 1 vehicle. Three-, 4- and 5-vehicle vehicle crashes are all over 50% higher than expected if they were the same as non-ED crashes.

ED Findings Related to Vehicles

- Number of Pedestrians. Reflecting the under-representation in urban areas, ED crashes are also under-represented in pedestrian collisions. The single pedestrian involved proportion for ED crashes was 0.28% (one pedestrian in every 357.14 ED crashes), while the non-ED proportion was 0.51% (one in every 196.1 non-ED crashes). This demonstrates that drivers pay more attention when pedestrians are present.
- Number of Pedalcycles. A quite comparable effect appears to occur when drivers encounter riders on bicycles. They wake up and are much less likely to allow their fatigue or drowsiness to cause a crash. Because of the relatively few bicycle (the most common pedalcycle) crashes, it is not accurate to compare ED with non-ED as we did with pedestrian crashes above. There is no reason to think that drivers would not respond to the presence of bicycle riders similarly to the way that they respond to the presence of pedestrians.
- CMV Involved. CMVs are involved in about 40.6% fewer crashes that would be expected from the proportion occurring in non-ED crash population. The proportion for ED crashes is 1.35%, while the proportion for non-ED crashes is 3.34%.
- Causal Unit Type. The causal vehicle types that are most over-represented in order of worst first (% higher than expected from non-ED crashes): Passenger Cars (12.1%), Sport Utility Vehicles (8.6%), and Pick Ups (5.3%). While the causal unit type per se obviously has little impact on causing ED crashes, the personality types of the drivers of these vehicles may lead to certain drivers engaging in dangerous distracting activities more than drivers of other vehicle types.
- Causal Unit Model Year. Vehicle model years 2009 through 2017 are over-represented in their proportions of ED crashes, showing that those who are inclined to be distracted are driving neither brand-new vehicles, nor those that will shortly be in need of replacement.

Countermeasure Strategies in Program Area

Countermeasure Strategy	Decrease the amount of distracted driving crashes in Alabama
Problem being addressed and description of the Link between problem and strategy	While we know Distracted Driving crashes are underreported, there were 60 distracted driving related fatalities in Alabama in 2022. Public education can be a deterrent for this dangerous behavior.
List of Countermeasure(s) and Justification	2.1 Communications and Outreach on Distracted Driving CTW notes that there is strong public support for outreach on Distracted Driving and gives examples of national campaigns. This outreach campaign will be informed using the results of a planned observational survey, and comes at the beginning of a new hands-free law in Alabama that will become effective in 2024. Based on these factors, AOHS feels this will be a worthy countermeasure to effect change.
Performance Target and Link between Strategy and Target	C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven Alabama will craft and administer a comprehensive, community-based communication and outreach program educating the public on the dangers of driving while distracted. AOHS is partnering with ADPH and creating a program that is modeled after their tobacco education curriculum, which has had great success in the state. Alabama feels that by looking at crash data and public feedback, an education program targeting overrepresented and underserved communities on the dangers of distracted will prove effective. The program will be modeled after the state health department's Tobacco Cessation education program.
Estimated Funding Source	405(e) and state funding
Estimated 3-Year Funding	$900,000.00
Considerations to determine projects	Public Feedback, Crash Location Data will aid in identifying program locations.
Uniform Guideline/ NHTSA Assessment Recommendations and Description	Uniform Guidelines does not currently have a section for Distracted Driving. However, modeling this request after the Occupant Protection Program guidelines can give structure to planned activities. In No 20., the Outreach section lists the following components: Each State should encourage extensive statewide and community involvement in occupant protection education by involving individuals and organizations outside the traditional highway safety community.

	Representation from the health, business, and education sectors, and from diverse populations within the community, should be encouraged. Community involvement should broaden public support for the State's programs and increase a State's ability to deliver highway safety education programs. To encourage statewide and community involvement, States should: • Establish a coalition or task force of individuals and organizations to actively promote use of occupant protection systems; • Create an effective communications network among coalition members to keep members informed about issues; • Provide culturally relevant material and resources necessary to conduct occupant protection education programs, especially directed toward young people, in local settings; and • Provide material and resources necessary to conduct occupant protection education programs, especially directed toward specific cultural or otherwise diverse populations represented in the State and in its political subdivisions. States should undertake a variety of outreach programs to achieve statewide and community involvement in occupant protection education, as described below. Programs should include outreach to diverse populations, health and medical communities, schools and employers

Countermeasure Strategy	Countermeasure Strategy: Observational Survey
Problem being addressed and description of the Link between problem and strategy	While we know Distracted Driving crashes are underreported, there were 60 distracted driving related fatalities in Alabama in 2022. An observational survey could give the state firmer numbers and broader understanding of the behavior and related factors.
List of Countermeasure(s) and Justification	Observational Survey (UG # 20) This is a countermeasure for Occupant Protection, but AOHS feels confident it will translate well for identifying and creating benchmarks for Distracted Driving.
Performance Target and Link between Strategy and Target	C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven In the U.S. in 2021, approximately 2.5% of drivers were observed to be taking on handheld cell phones and 3.4% were observed to be visibly manipulating a handheld device based on NHTSA's National Occupant Protection Use Survey (NCSA 2022). These values are estimates that apply to any daylight moment. Additionally, in 2020, 3,142 people were killed by distracted driving (NHTSA 2020). While there is an awareness of the problem distracted driving causes in Alabama, there currently are no established observed usage rates. This, along with the known underreporting of distracted driving on crash reports, is compelling reasoning for the state to conduct its own observational survey. Pre- and post- Distracted Driving Awareness Month surveys will be conducted by the University of Alabama Center for Advanced Public Safety (UA-CAPS) at the top 20 distracted driving crash locations in the state.
Estimated Funding Source	Section 405(e)
Estimated 3-Year Funding	$660,000.00
Considerations to determine projects	Public Feedback, Crash location data
Uniform Guideline/ NHTSA Assessment Recommendations and Description	"Uniform Guidelines for State Highway Safety Programs" states that as an effective component of program management and analysis, states should conduct and publicize at least one statewide observational survey of seat belt and child safety seat use annually. While this guideline was intended for Occupant Protection, currently there are no guidelines for Distracted Driving. AOHS feels that to fully understand the scope of the Distracted Driving problem in Alabama, an observational survey would serve as a useful benchmark and measurement tool.

Program Area: Pedestrian Safety

Description of Highway Safety Problems

The AOHS conducted a problem identification analysis for Pedestrian Safety in the State of Alabama to pinpoint common factors and assess strategies that could be used to combat the growing issue. Where pedestrian involved crashes occur, along with pedestrian demographics, depend on social and economic conditions.

The AOHS conducted a problem identification analysis for Pedestrian-Involved Crashes (PIC) in the State of Alabama to determine causal factors and evaluate potential countermeasures for this issue that has shown growth in the most recent years.

Pedestrian Injury Severity by Year

It is beneficial to get an overall view of how pedestrian crashes have been changing by severity over the years. The following table gives a comparison of total PIC crashes over CY2018-2022 by severity. The yellow shaded boxes show over-representation. The red shaded boxes show highly over-representation.

Pedestrian Involved Crashes (PICs) by Year and Severity

	2018	2019	2020	2021	2022	TOTAL
Fatal Injury	107	115	99	126	112	559
Suspected Serious Injury	169	203	188	204	177	941
Suspected Minor Injury	266	280	229	251	280	1306
Possible Injury	189	178	112	123	115	717
Property Damage Only	32	34	22	35	34	157
Unknown	53	62	54	41	41	251
TOTAL	816	872	704	780	759	**3931**

Considering PIC crashes of all severities, the high year was 872 in 2019. While 2020 may have been affected by the COVID pandemic, there is no reason to believe that its effect went into 2021. Thus, 2021 should be considered as a relatively favorable year from a pure frequency point of view, with a reduction below the average of the previous two years (ignoring 2020) from the two-year average of 844 to 780, which is 64 crashes. This is a significant 7.6% reduction, with an even higher percentage reduction in 2022.
The 2021 year showed a significant increase in the fatality number compared to the first three years (2018-2020). But in 2022 the number of PIC fatalities dropped to about its 2018-2019

level. The 2020 year was greatly affected by the COVID pandemic that resulted in fewer traffic crashes overall, so this cannot figure into these conclusions.

Total Pedestrian Involved Crashes (PICs) generally decreased (by 7%) over the five-year study period (CY2028-2022). Fatal PICs peaked in 2021 even though the total PICs that year was generally lower than in 2018 and 2022. Because of their vulnerability, PICs have a higher fatality rate (about 1 in 7) than crashes in general (about 1 in 172). This works out to be close to a 25 (24.57) times higher probability of death because of a pedestrian involved crash compared to all other crashes.

Suspected Serious Injury and Suspected Minor Injury PICs were also highly overrepresented with its proportion for Suspected Serious Injury of 9.2 times its expected value for non-PIC crashes, and the same indicator for Suspected Minor Injury being 4.2 times its non-PIC expectation. Thus, it is clear: as expected, not only are fatalities over-represented for PICs, but so are all of the severe injury categories.

The following are some of the characteristics that increase the severity (probability of death) in Pedestrian Involved Crashes (PICs):

- Impaired Walking – This is a very significant factor not only in causing the PIC, but in increasing its severity. PIC victims were found to be under the influence of alcohol 6.68 times the proportion of drivers in general that were found to be under the influence of alcohol. They were also 5.16 times the expected proportion of those that were determined to be under the influence of non-alcohol drugs.
- It was also found that those under the influence of alcohol had a one in 5.67 chance of being killed, while those that were sober had about one in 7.12 chance of being killed. The reason attributed to this is the lack of those who are inebriated to take actions to protect themselves when they recognize the inevitability of being hit by a motor vehicle. In many cases there may not even be such a recognition.
- Number Injured (Including Fatalities) – Not only are PIC crashes generally more severe to the victims, but many of these crashes have multiple injuries. This might have something to do with the preference of those walking to take some of their friends with them. Generally, this is a good practice to improve safety. However, it is critical that none of the members of the group engage in unsafe practices.
- Adjusted EMS Arrival Delay – The very shortest arrival times had the highest over-representations, clearly indicating that the problem of PIC crashes being generally of greater severity is not a problem with EMS arrival delay.

The remaining sections will present the results of comparisons of PIC crash compared to non-PIC crash attributes in the most recent five-year period for which state data are available (CY2018-2022). An over-represented value of an attribute is a situation found where that attribute has a greater share of PIC crashes than would be expected if it were the same as that attribute for non-PIC crashes. Thus, the non-PIC crashes are serving as a control to which the PIC crashes are being compared. In this way all significant differences between PIC and non-PIC crashes will surface, and they can be subjected to further analyses. These findings typically do not change from year to year as long as the normal influences on pedestrian crashes remain in effect. [Terminology: *expected numbers* (or expectations) for attribute items are obtained from a comparison to the proportion of PIC with non-PIC crashes.]

The section below is a location analysis to determine where the pedestrian crashes are most often occurring, so that location-specific countermeasures (such as selective enforcement) can concentrate on the most critical areas. Following that is a section devoted to an overview of pedestrian crashes in general, e.g., all pedestrian crashes by severity. The next major section gets into determining what is different about pedestrian crashes from other crash types. It starts with the basic causes (Primary Contributing Circumstances) of Pedestrian Involved Crashes (PICs). After that it gets into characteristics of severity, geography, time, and then driver and pedestrian demographics.

PIC Location Analysis

Top Pedestrian Involved Crash Statewide Locations

FY2024 - Pedestrian	Hotspots
Mileposted Interstate Locations	**18**
Mileposted State and Federal Routes	**50**
Intersections	**18**
Segments	**32**
TOTAL	**118**

Problem Identification Analysis Results for Pedestrian Crashes in the State of Alabama

Overall Pedestrian Involved Crashes (PICs) by Year

It is beneficial to get an overall view of how pedestrian crashes have been increasing or decreasing by severity over the years. The following table gives a comparison of total PIC crashes over CY2017-2021 by severity.

Pedestrian Involved Crashes	2017	2018	2019	2020	2021
Fatal Injury	113	106	114	99	125
Serious Injury	197	185	224	197	214
Minor Injury	315	290	287	257	254
Not Visible but Complains of Pain	168	196	188	110	131
E Unknown Injury	27	20	13	9	10
Person was Not a Victim	63	64	78	54	66
TOTAL	883	861	904	726	800

It is clear from considering the high total frequencies of fatal injury pedestrian crashes in 2021, there is a significant increase in the fatality trend over the five years (2017-2021). Fatal pedestrian crashes also had a dramatic increase in 2019, while there has been a regression to the mean in the year that followed (2020), which could also have been caused by the COVID pandemic.

Considering crashes of all severities, the high year was 869 in 2019. While 2020 may have been affected by the COVID pandemic, there is no reason to believe that its effect when into 2021. Thus, 2021 should be considered as a relatively favorable year, with a reduction below the average of the previous three years (ignoring 2021) from the three-year average 837 to 776, which is 61 crashes. This is a significant 7.3% reduction.

Performing a comparable analysis over the Suspected Serious Injury and Suspected Minor Injury severities (combined) results in a total of 1,386 pedestrian injury crashes over the prior 3 years (2017 through 2019), which comes out to 462 severe non-fatal crashes per year. The reduction in 2021 is down to 452 (202=250) for that year, which is not significant. So, while there was a significant reduction in fatal pedestrian crashes, the comparison of non-fatal injury showed very little, if any, reduction.

Pedestrian Involved Crashes (PIC) Comparison Against Non-PIC Crashes for CY 2017-2021

The remaining sections will present the results of comparisons of PIC crash compared to non-PIC crash attributes in the most recent five-year period for which state data are available (CY2017-2021). An over-represented value of an attribute is a situation found where that attribute has a greater share of PIC crashes than would be expected if it were the same as that attribute for non-PIC crashes. Thus, the non- PIC crashes are serving as a control to which the PIC crashes are being compared. In this way any significant difference about PIC crashes surfaces, and it can be subjected to further analyses. These findings typically do not change from year to year as long as the normal influences on pedestrian crashes remain in effect.

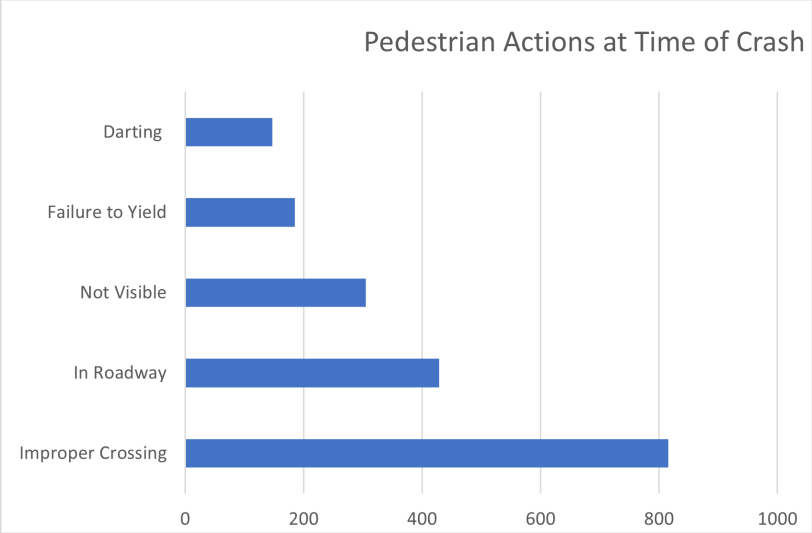
Primary Contributing Circumstances

This attribute gives facts to help explain causes. Improper crossing of roadways was one of the highest causes of pedestrian mishaps, and it resulted in the most fatal pedestrian crashes (166 Pedestrian Involved Crashes and 36 fatal crashes per year). Improper crossing includes J-walking (crossing between intersections), walking out from between parked cars, and not following safe practice in allowing approaching vehicles to pass.

The following are the highest **Primary Contributing Circumstances of pedestrian crash frequency**; the frequency and its percentages and their totals over five years are listed:

Improper Crossing	831	21.14%
Unseen Object/Person/Vehicle	688	17.50%
Failed to Yield the Right-of-Way	443	11.27%
Not Visible	192	4.88%
Pedestrian Under the Influence	130	3.31%
Lying or Sitting in Roadway	50	1.27%

The following summarizes **pedestrian actions at the time of the crash**, giving a slight difference in the pedestrian crash causation:



Geographical Factors

[Terminology: *expected numbers* (or expectations) for attribute items below are obtained from the proportion for non-PIC crashes.]

- County - Generally, the overrepresented counties are those with large urban areas (big cities). It is reasonable that more pedestrian crashes will occur in areas of combined heavy motor and pedestrian traffic. The largest potential for pedestrian crash reductions were in Mobile, Montgomery, and Jefferson counties.
- City Comparisons of PIC crashes to Non-PIC Crash Proportions. There is little surprise in this result, which generally tracks the rural areas in the counties by population. Traffic safety professionals should look for any locations that fall counter to this trend. The cities with the highest potentials for PIC crash reduction generally track the population of the cities: Birmingham, Montgomery, Mobile, Rural Mobile, Huntsville, and Tuscaloosa.
- Rural/Urban PIC Crash Frequency – The more general Rural/Urban analysis confirms the initial county and city findings. The Urban to Rural breakdown is about 80% Urban and 20% rural.
- Severity of PIC Crashes by Rural-Urban – While only about 20.20% of PIC crashes occur in rural areas, 28.84% of the fatal PIC crashes occurred there. Similar results are found for the highest severity non-fatal crashes (Suspected Serious Injury), where the proportion is 30.86% for rural (as compared with the 22.19% for urban. This seems clearly to be the result of higher speeds and accompanying loss of control in the rural areas. Increased speeds might also be the result of less enforcement in the rural areas.
- Highway Classifications – The most dramatic over-representation was found on Private

Property, where over four (4.024) times the expected number of PIC crashes occurred as compared to the non-PIC proportion. Private Property includes parking lots, and that is where most of these crashes are occurring. The only over-represented Highway Classification was Municipal roads, with 16.4% more crashes than expected. All other highway classifications were under-represented.

- Interstate highways had 101 (48.79% of all fatal PICs) during the five-year period, which was about three times higher than would be expected compared to Interstate crashes in general. Very few people walk along the Interstates, and we conclude that these fatalities are due largely to disabled motorists. It is important that disabled vehicles be parked as far off the traffic way as possible when such is necessary, and that those forced to walk at night carry a flashlight.
- Locale – Reflecting the more urban over-representations, residential roadways show an over-representation (33.5 higher than expected). More troubling is the 2.834 multiplier above expectation in the school locale. While this was only 135 PIC crashes (3.43%), the fact that it is over-represented should provide a warning to all school administrators and parents.

Time Factors

- Month – PIC crashes were significantly higher than expected in September, October, and November, reflecting potential issues in school zones as students who walk to school would be more exposed during these months (see Locale above).
- Day of the Week – The only two days of the week that are over-represented are Saturday and Sunday, probably because of the normally increased pedestrian traffic during these days. This analysis is not only useful for the typical work week, but it also reflects the typical "holiday (virtual) weekend" patterns, which is discussed below.
- "Holiday Weekends" – these can be viewed as a sequence of the weekend-pattern days. The Thanksgiving Thursday, Friday and Saturday would follow the Saturday pattern of people being off work. The day at the end of the weekend off period would follow the typical Sunday pattern. This is the reason long holiday events (i.e., several days off) can be more prone to PIC crashes (or for that matter, crashes in general) than the typical weekend.
- Time of Day –Optimal times for PIC enforcement would start immediately following any rush hour details and would continue at least through 1:59 AM (which has a proportion 1.939 times the expected proportion for non-PICs). Clearly pedestrians are harder to see at night especially if they are not wearing reflective clothing. Problems have also been detected in many of them walking with (as opposed to against) traffic.
- Time of Day by Day of the Week – A cross-tabulation was performed, and it quantifies the extent of the PIC crash concentrations on: (1) Friday nights, (2) Saturday mornings, Saturday nights, and (3) early Sunday mornings. This is a very useful summary for deploying selective enforcement details, especially during weekend hours.

Driver and Pedestrian Demographics

Pedestrian Victim Age – The following is the pedestrian age distribution for those cases in which ages are available:

4 to 5 Years	15
6 to 8 Years	37
9 to 12 Years	40
13 to 15 Years	43
16 to 20 Years	304
21 to 25 Years	303
26 to 64 Years	1836
65 or Older (senior)	397

Pedestrian Victim Gender - The gender breakdown for pedestrian involved crashes is 1,980 Males (63.30% and 1,148 Females (36.70%).

Causal Driver Age – (for cases where the pedestrian did not cause the crash) – The following is the causal age range distribution of PIC crashes (frequencies, and percentage of all drivers):

Age Range	Frequency	% of all Drivers
	191	
21 to 25 Years	157	3.99
	145	
31 to 35 Years	131	3.33
	131	
41 to 45 Years	117	2.98
	131	
51 to 55 Years	112	2.81
	109	
61 to 65 Years	90	2.42
	98	
71 to 75 Years	74	1.88
	39	
81 to 85 Years	23	0.59
	17	
91 to 95 Years	2	0.05

Countermeasure Strategies in Program Area

Countermeasure Strategy	Decrease Pedestrian Fatalities
Problem being addressed and description of the Link between problem and strategy	Alabama's five- year average of Pedestrian Fatalities is 114 (2018-2022). An assessment can identify trends and potential best practices and programs to implement in the future.
List of Countermeasure(s) and Justification	NHTSA Facilitated Pedestrian Assessment
Performance Target and Link between Strategy and Target	C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-10) Pedestrian Fatalities Alabama is requesting a NHTSA facilitated Pedestrian Assessment in order to assist the HSO in reviewing the programs currently offered throughout the state by other state agencies or community groups. An assessment would help establish a benchmark to have in evaluating program implementation and progress, as well as identify strengths, weaknesses, and opportunities Alabama may have where it pertains to pedestrian safety.
Estimated Funding Source	Section 402
Estimated 3-Year Funding	$40,000.00
Considerations to determine projects	Traffic Safety data, Crash Location Data
Uniform Guideline/ NHTSA Assessment Recommendations and Description	*"Uniform Guidelines for State Highway Safety Programs"* encourages states to promote effective pedestrian program evaluations by "Evaluating the use of program resources and the effectiveness of existing countermeasures for the general public and high-risk populations; and Ensuring that evaluation results are used to identify problems, plan new programs, and improve existing programs." For Alabama, this would best be achieved by have a Pedestrian Assessment provided in order to review potential programs the state could enact to effect change in pedestrian fatalities.

Program Area: Police Traffic Services

Description of Highway Safety Problems

The HSP is completely evidence-based as demonstrated by the results of these problem identification steps that are documented in detail in the plan. AOHS also works with the University of Alabama Center for Advanced Public Safety (UA- CAPS) to assist with the problem identification, and to work with the AOHS staff in assembling a tentative statewide planning document. Using the CARE system, a complete listing and mapping of problem crash locations (or hotspots) throughout the state is developed. In addition to a breakdown by CTSP/LEL region, the results are also subdivided by crash type and roadway classification. This is because different agencies may deal with different roadway classifications, and different tactics may be applied to different types of crashes.

A similar exercise involves the ALEA/State Troopers Division, which is given information on interstates and rural state routes that it is responsible to patrol. Generally, each ALEA region receives a package of information that is formatted just like the statewide results but tailored to their particular region or roadway subset. In addition, all agencies have access to the preliminary statewide plan. By providing both statewide information and information specific to each area, the regional coordinators are able to identify the problems and locations in their region, and they can also determine how these locations relate to the statewide plan.

Once this information is provided to the CTSP/LEL Coordinators, they are instructed to focus their plans for the coming year on the hotspot locations given in the reports for their region. At this point it is a minor adjustment for them to revise the hotspot definition part of their plan. Other issues presented in their tentative plans are reviewed by AOHS staff to ensure integrity and consistency among the regions. The enforcement program is continuously evaluated, and any necessary adjustments are made. The implementation of the Evidence-Based Enforcement Plan is demonstrated below in the following sections by major issue areas:

- Impaired driving and speed related crash hotspots – 402 funds
- Alcohol- and drug-related crashes hotspots – 405d funds
- Restraint-deficient hotspots – 405b funds

These enforcement efforts are supported by media campaigns to the extent possible. The value of such integrated enforcement efforts is demonstrated by studies referenced in NHTSA *Countermeasures that Work,* the URL reference:
Countermeasures That Work: A Highway Safety Countermeasure Guide for Highway Safety Offices Tenth Edition, 2020

Beginning in 2010 it was determined that a tool should be established to enable decision-makers to view the state's traffic safety issues at the highest possible level. This tool was named "Table 1" and it appears below. It was reasoned that, all other things being equal, traffic safety resource allocations should go to address those issues that cause the greatest number of fatalities. While this is a good default position to start from, all other things are rarely equal, and optimal resource allocations must also consider the cost of the countermeasures being considered and the proportion of the crashes that can reasonably be reduced by any given countermeasure. Thus, an item with a lower number of fatalities could become optimal to address if a lower cost countermeasure would reduce a larger number of its crashes.

The eCrash system that went into effect July 1, 2009 creates data that meets most of the Model Minimum Uniform Crash Criteria (MMUCC). It provides data that are much timelier, since in many cases these reports are available the same day as the crash. Careful work was done to ensure that no variables or codes that could indicate a particular crash category of Table 1 were missed, and that the search criteria captured all of the crashes for each of the particular categories for this evidence-based analysis.

There are no limitations on the various subjects that may be added for consideration in Table 1, and all SHSP participants are encouraged to add any categories that they feel are appropriate. Distracted Driving (DD) was added most recently for the FY 2018 HSP. The category with the highest number of fatal crashes is listed at the top of Table 1, descending to the crash type category with the lowest number of fatal crashes listed last. The number and percent of crashes by severity are listed for each category (see footnote for the exception of "restraint deficient"). This enables an easy comparison between the various crash types. It is important to realize the categories of Table 1 are not mutually exclusive. However, since this is true in all of the categories, these numbers serve to give the relative criticality of the particular categories that most often are the targets for funding or other resource allocations.

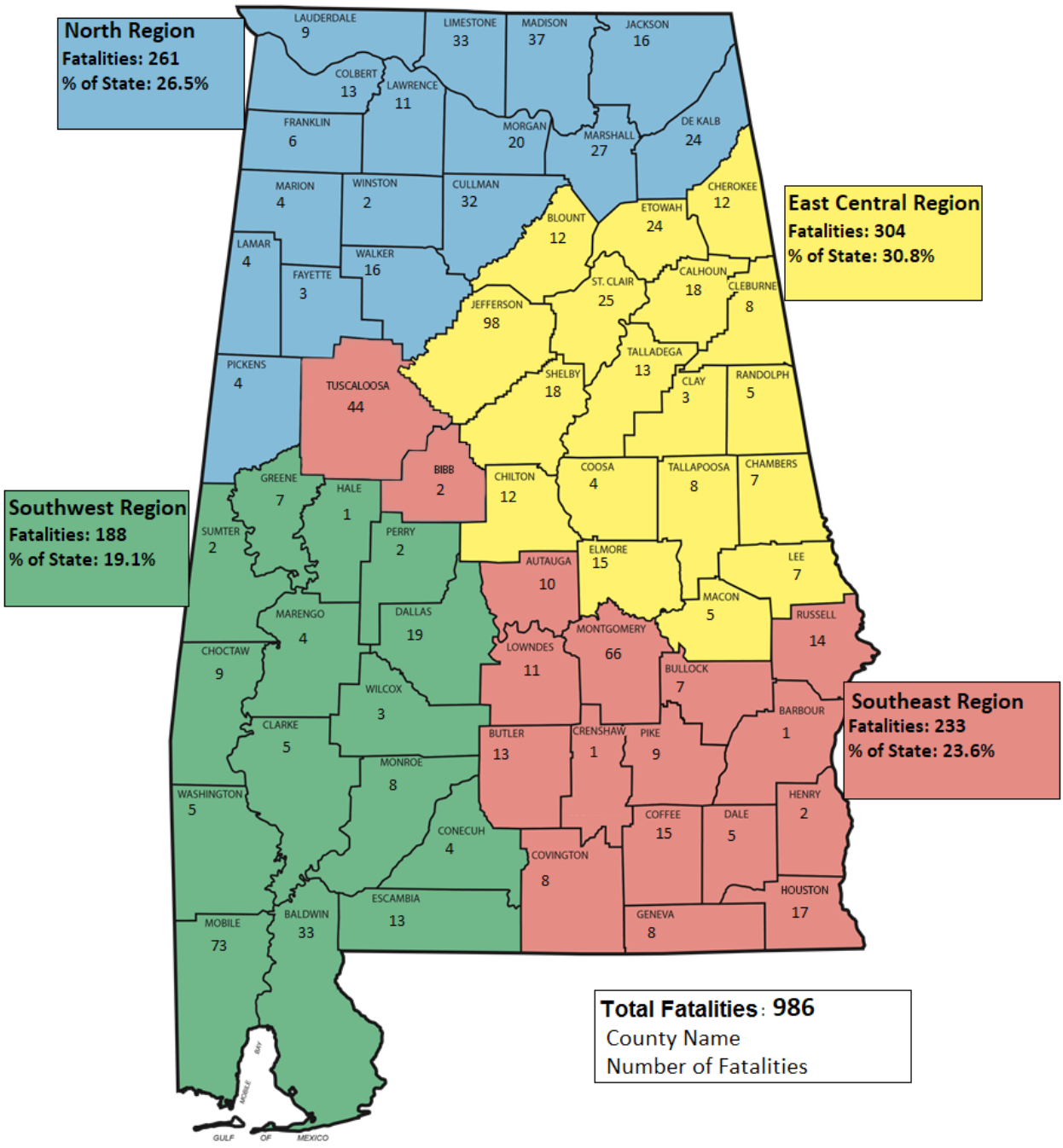
The comparison of gross fatality and injury counts is merely a first step in the analytical process to find optimal allocations of resources among programs. Obtaining this first-cut perspective is essential for intelligent decision making. Once the high-level decisions are made regarding which of the crash types will be addressed, further analyses must be performed to define countermeasures and improve their implementation. The severity classification in Table 1 also helps in this regard. For example, it might be noticed that the relative severity percentage of pedestrian, bicycle, motorcycle, and railroad crashes are significantly higher than the other categories, as is true for the top three categories as well. This is an important aspect to be considered when the ultimate goal is reducing deaths.

Table 1. Top Fatality Causes Alabama CY2022 Data

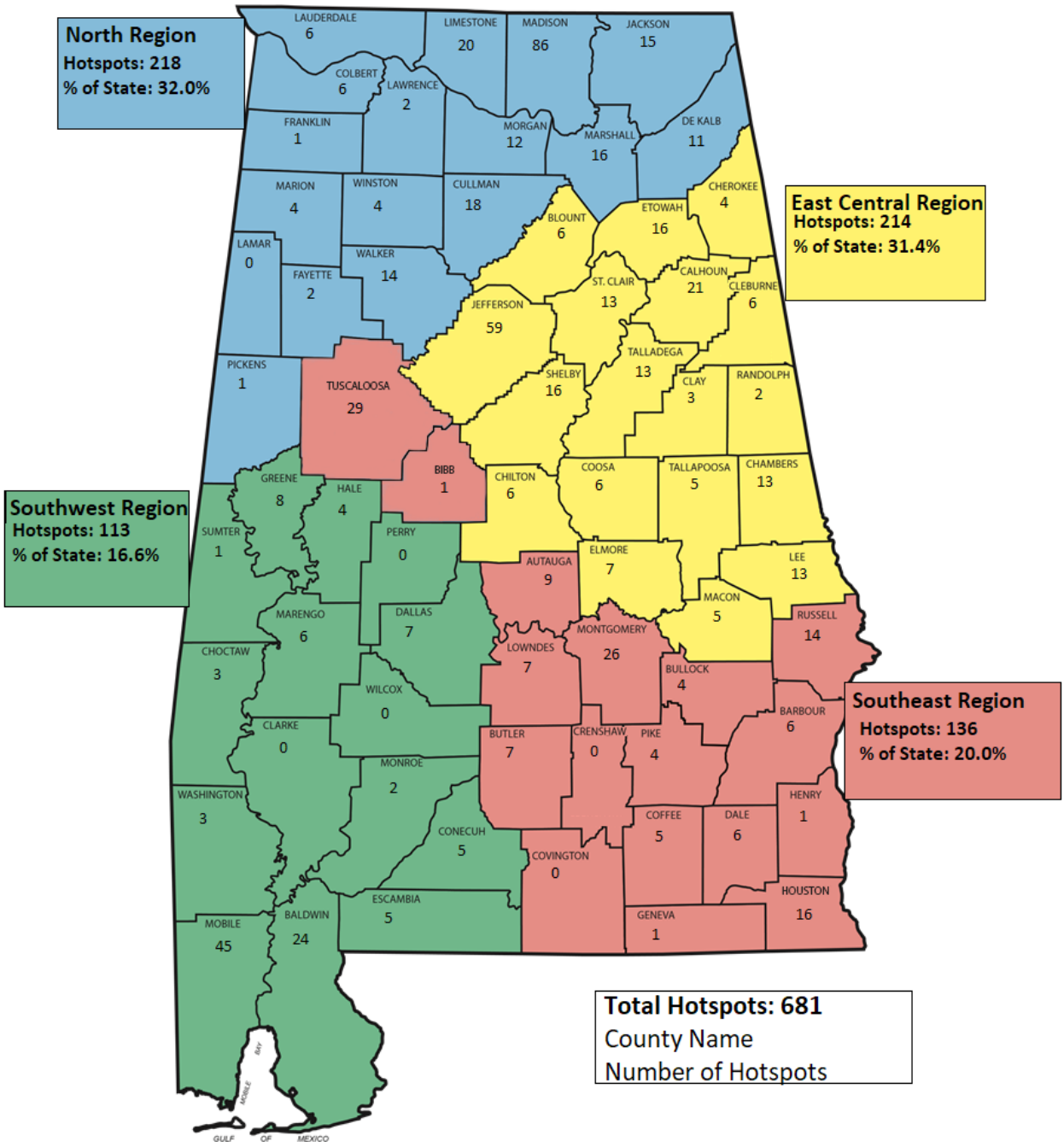
	Crash Type (Causal Driver)	Fatal Number	Fatal %	Injuries	Injury %	PDO No.	PDO %	Total
1.	Seat Belt Restraint Fault*	390	3.99%	3,753	38.35%	5,643	57.66%	9,786
2.	ID/DUI All Substances	179	3.58%	1,702	34.01%	3,018	60.30%	5,005
3.	Speed Involved	172	2.24%	2,319	30.17%	5,058	65.81%	7,686
4.	Hit Obstacle on Roadside	134	2.46%	1659	30.50%	3573	65.58%	5,440
5.	Large Truck Involved	127	1.32%	1,580	16.43%	7,753	80.63%	9,616
6.	Mature (65 or Older) Causal	120	0.92%	2,662	20.36%	10,018	76.61%	13,077
7.	Fail to Yield or Ran (All)	116	0.38%	8,078	26.58%	21,546	70.91%	30,387
8.	Pedestrian Involved	112	14.76%	572	75.36%	34	4.48%	759
9.	Wrong Way Items	108	3.29%	675	20.57%	2,391	72.85%	3,282
10.	Motorcycle Involved	89	5.49%	1,025	63.19%	461	28.42%	1,622
11.	License Deficiency Causal	79	1.38%	1,600	27.98%	3,875	67.76%	5,719
12.	Youth (16-20) Causal Driver	74	0.37%	3,720	18.68%	15,730	79.00%	19,912
13.	Aggressive Operation	64	2.28%	712	25.32%	1,917	68.17%	2,812
14.	Distracted Driving	60	0.46%	2,494	19.06%	10,277	78.53%	13,086
15.	Utility Pole	37	1.61%	698	30.41%	1,457	63.49%	2,295
16.	Drowsy Driving	30	0.92%	1,186	36.38%	1,970	60.43%	3,260
17.	Vehicle Defects – All	29	0.78%	710	19.22%	2,863	77.48%	3,695
18.	Work Zone Related	16	0.84%	382	19.94%	1,498	78.18%	1,916
19	Vision Obscured	13	1.09%	293	24.66%	857	72.14%	1,188
20.	Bicycle	12	4.84%	180	72.58%	50	20.16%	248
21.	Railroad Trains	5	9.09%	13	23.64%	35	63.64%	55
22.	Child Restraint Fault*	4	0.17%	247	10.37%	2,132	89.47%	2,383
23.	School Bus Involved	1	0.18%	71	12.98%	452	82.63%	547
24.	Roadway Defects – All	0	0.00%	27	18.88%	111	77.62%	143

* This item is measured in the number of each severity of crash that *resulted* from the failure to use the proper restraint, as opposed to other items that are measured by the number of crashes *caused by* or *related to* the involvement of the particular item.

State Map with Fatalities by Region



State Map with STEP Hot Spots by Region



Countermeasure Strategies in Program Area

Countermeasure Strategy	Decrease traffic fatalities and serious injuries related to speeding, restraint deficiency, impaired driving, CMV caused, and pedestrian related crashes.
Problem being addressed and description of the Link between problem and strategy	Alabama's five-year average of traffic fatalities is 950 (2018-2022). High Visibility Enforcement is shown to be a strong deterrent in multiple focus areas covered in this year-round enforcement campaign.
List of Countermeasure(s) and Justification	High Visibility Enforcement (UG #19) Community Traffic Safety Program (UC #19)
Performance Target and Link between Strategy and Target	C-1) Number of traffic fatalities (FARS) C-2) Number of Serious Injuries C-3) Fatalities Per 100 Million Vehicle Miles Driven C-5) Alcohol-Impaired Driving Fatalities C-4) Unrestrained Passenger Vehicle Occupant Fatalities, All Seat Positions C-6) Speeding-Related Fatalities C-9) Drivers Age 20 or Younger Involved in Fatal Crashes C-10) Pedestrian Fatalities There will be four local and one state Selective Traffic Enforcement Program (STEP) projects during the coming year. Each of these STEP projects will focus on Hotspot crashes and the problem locations that have been identified across the state. One STEP project will take place in each of the four CTSP/LEL regions and the statewide STEP project will be conducted in conjunction with the ALEA. By conducting these STEP projects, additional efforts can be focused on the reduction of impaired driving related crashes and speed related crashes. The enforcement effort is evidence-based, with the objective of preventing traffic violations, crashes, and crash fatalities and injuries in locations most at risk. The enforcement program will continuously be evaluated, and the necessary adjustment will be made. CTSP/LEL – will provide coordination for the local implementations of the statewide evidence-based enforcement program, and the CTSP/LEL Coordinators and the administrative support for their offices will be maintained. The major focus of the CTSP/LEL efforts is involved with assuring the effective execution of focused evidence-based selective enforcement on alcohol and speed hotspots. This covers three of the four basic strategies recommended in *Countermeasures that Work* to reduce alcohol-impaired crashes

	and drinking and driving: (1) Deterrence: enact, publicize, enforce, and adjudicate laws prohibiting alcohol-impaired driving so that people choose not to drive impaired; (2) Prevention: reduce drinking and keep drinkers from driving; and (3) Communications and outreach: inform the public of the dangers of impaired driving and establish positive social norms that make driving while impaired unacceptable.
Estimated Funding Source	Section 402
Estimated 3-Year Funding	$8,000,000.00
Considerations to determine projects	Traffic Safety and Crash Location Data will assist in locating appropriate locations and partners for the project.
Uniform Guideline/ NHTSA Assessment Recommendations and Description	Guideline No. 15 from "Uniform Guidelines for State Highway Safety Programs" for State Highway Safety Programs states, "Each State, in cooperation with its political subdivisions, tribal governments, and other parties as appropriate, should develop and implement a comprehensive highway safety program, reflective of State demographics, to achieve a significant reduction in traffic crashes, fatalities, and injuries on public roads. The highway safety program should include a traffic enforcement services program designed to enforce traffic laws and regulations; reduce traffic-crashes and resulting fatalities and injuries; provide aid and comfort to the injured; investigate and report specific details and causes of traffic crashes; supervise traffic crash and highway incident clean-up; and maintain safe and orderly movement of traffic along the highway system. "

Program Area: Planning & Administration

Description of Highway Safety Problems

In a coordinated effort over the past four decades, Alabama has been committed to supporting the various NHTSA focus areas. It has done this by meeting the requirements for Section 402 funding since the creation of NHTSA in the late 1960s. AOHS is organized with a central staff and four regional Community Traffic Safety Program (CTSP) Coordinators who report directly to the Governor's Representative. The CTSP Coordinators work closely together with the AOHS central administration to implement all programs that involve local police and county agencies as well as safety advocates.

In order to manage the AOHS's programs, staff are employed at the state level. Planning and Administration (P&A) costs are those direct and indirect expenses that are attributable to the overall management of the State's HSP. Costs include salaries and related personnel benefits for the GRs and for other technical, administrative, and clerical staff in the SHSOs. P&A costs also include office expenses such as travel, equipment, supplies, rent, and utilities necessary to carry out the functions of the SHSO. The level of funding to accommodate the state office's needs is evaluated each year, just as in other program areas.

Alabama's HSP has been consistent over the past decade with the following established attributes:

- **Vision:** To create the safest surface transportation system possible, using comparable metrics from other states in the Southeast to assess progress in maintaining continuous recognizable improvement.
- **Primary ideals:** To save the most lives and reduce the most suffering possible.
- **Countermeasure selection approach:** To apply an *evidence-based* approach that draws upon detailed problem identification efforts to quantify and compare alternatives that are given within the NHTSA document *Countermeasures That Work*.
- **Primary focus:** To implement Evidence-Based Enforcement (E-BE), concentrating on enforcement with special emphasis on speed reduction, impaired driving elimination and increasing the use of restraints; using data that are centered around the hotspot analyses performed for each of these countermeasure subject areas.
- **Implementation Approach:** To stress the necessity for a cooperative effort that involves teamwork and diversity, including all organizations and individuals within the state who have traffic safety interests.
- **Participant mission:** To focus crash reduction countermeasures on the locations with the highest potential for severe crash frequency and severity reduction, as identified

for speed and impaired driving, which were the largest two causes of fatal crashes, and for restraint non-use, which is the greatest factor causing increased crash severity.

There are several approaches used in the *evidence-based* approach that are outlined as follows:

- Compare similar results from year to year from the data that is used to drive the countermeasure selections. For example, similar hotspot analyses are performed from year to year to determine the changes in the crash statistics as well as the correlated demographics. This quantifies both improvements and setbacks.
- If the indications are that a program implemented in the previous fiscal year fell short of its intended target, analyses are performed to determine the various causes in terms of continual improvement in the future.
- If it is determined that a specific program was particularly successful, then its characteristics are studied to determine if they can be applied or even reinforced in future efforts.
- For new countermeasures, at the highest level, evaluate alternative overall countermeasure strategies and select the ones that will best solve the problem; this will be illustrated at the highest level with Table 1, found below.
- Once new countermeasures are resolved, use further analytical techniques to fine-tune those that have been selected for implementation. For example, the highest level might resolve that selective enforcement and PI&E are the superior countermeasure types to employ, while the second level would establish the specific locations and media markets to implement these countermeasures.

Countermeasure Strategies in Program Area

Countermeasure Strategy	Countermeasure Strategy: Planning and Administration
Problem being addressed and description of the Link between problem and strategy	P & A will include both direct and indirect costs for personnel with their associated costs. Personnel in the direct cost category include the Highway Safety Unit Chief who spends 100% of her time with NHTSA programs, as well as the Justice Programs Unit Chief who will spend approximately 25% of his time on highway traffic safety related issues. Personnel in the indirect cost category will use ADECA Indirect Cost Rate, which includes the LETS Division Chief/GR, an Administrative Assistant, the LETS Accounting Unit Manager and one Accounting Staff Member devoted to highway traffic safety. All P & A costs will be split 50% Federal and 50% State. For additional support, we have a State Highway Safety Program Supervisor as well as two Program Managers who will work as a centralized point of contact for regional CTSP/LEL offices, Training Programs, and administers the Public Engagement activities for the highway safety office. They act as liaison to municipal, county, state and federal officials or individuals regarding the administration so that program goals and objectives of the 402 Highway Safety program are accomplished effectively within ADECA and NHTSA guidelines. The Program Supervisor or Managers review, monitor and recommend program expenditures, assists in the development of program plans, budgets: reviews and recommends grants, contracts and related budgets, assists in the development and reporting of program policies and procedures as necessary to ensure compliance with appropriate rules, regulations and procedures.
List of Countermeasure(s) and Justification	NA
Performance Target and Link between Strategy and Target	NA
Estimated Funding Source	Section 402
Estimated 3-Year Funding	$2,365,000.00
Considerations to determine projects	Traffic Safety data, Project load staffing requirements, Time studies
Uniform Guideline/ NHTSA Assessment Recommendations and Description	“Uniform Guidelines for State Highway Safety Programs” for State Highway Safety Programs states in almost every program area where management and administration are needed. Planning and Administrative costs are built into the 3HSP application to staff a Highway Safety Office that can accommodate the requirements of the BIL legislation and provide a suite of programs aimed at improving traffic safety in Alabama.

Appendix A- Highway Traffic Safety Public Input Survey

Highway Traffic Safety Public Input Survey

963	16:46	Active
Responses	Average time to complete	Status

1. What is your zip code?

963
Responses

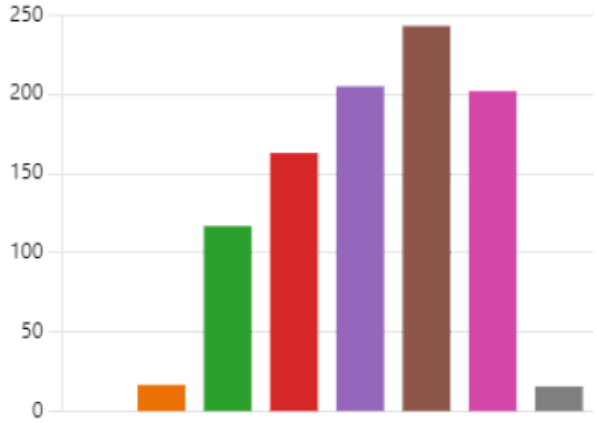
Latest Responses
"35055"
"36064"
"36064"

2. What is your gender?

Male	424
Female	528
Prefer not to answer	11

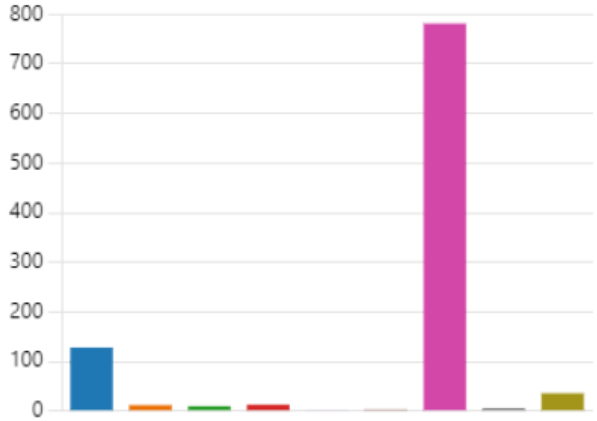
3. What is your age range?

under 18	0
18-24	17
25-34	117
35-44	163
45-54	205
55-64	243
65 and older	202
prefer not to answer	16



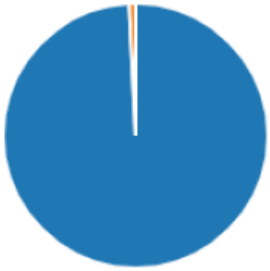
4. How would you describe yourself?

Black or African American	128
American Indian	12
Asian	10
Hispanic	13
Native Hawaiian or Pacific Island...	2
Middle Eastern or Northern Afri...	3
White or Caucasian	781
Unknown	6
Prefer not to answer	36



5. Are you a licensed driver?

Yes	956
No	7



6. What state issued your current driver's license?

Alabama	942
Other	21

7. Are you interested in answering questions on seatbelt safety?

Yes	904
No	59

8. Do you always wear your seatbelt?

Yes	838
No	66

9. Have you always worn your seatbelt, or did you change your habit?

Always	694
Change in habit	144

10. What made you change your habit and start wearing your seatbelt?

144
Responses

Latest Responses
"Girlfriend in High School had family member killed not wearin...

11. In your opinion, what do you think are effective methods for Alabama to increase seatbelt usage?

Additional education and training	480
Additional enforcement	540
Additional media and awareness	550
Other	71

12. Are you interested in answering questions related to Child Passenger Safety ?

Yes	776
No	128

13. Are you familiar with the Alabama Child Restraint Law?

Yes, very familiar	462
Yes, but not sure on details	274
No	40

14. If you regularly transport a child that requires a car or booster seat, are you confident that their seat is correctly installed?

Yes	386
No	27
NA, do not regularly transport c...	363

15. Would you be interested in informational opportunities regarding child passenger safety informational events like seat checks or educational classes?

Yes	312
No	464

16. Are you aware of strategies to prevent children being left in an unoccupied car (heatstroke prevention) ?

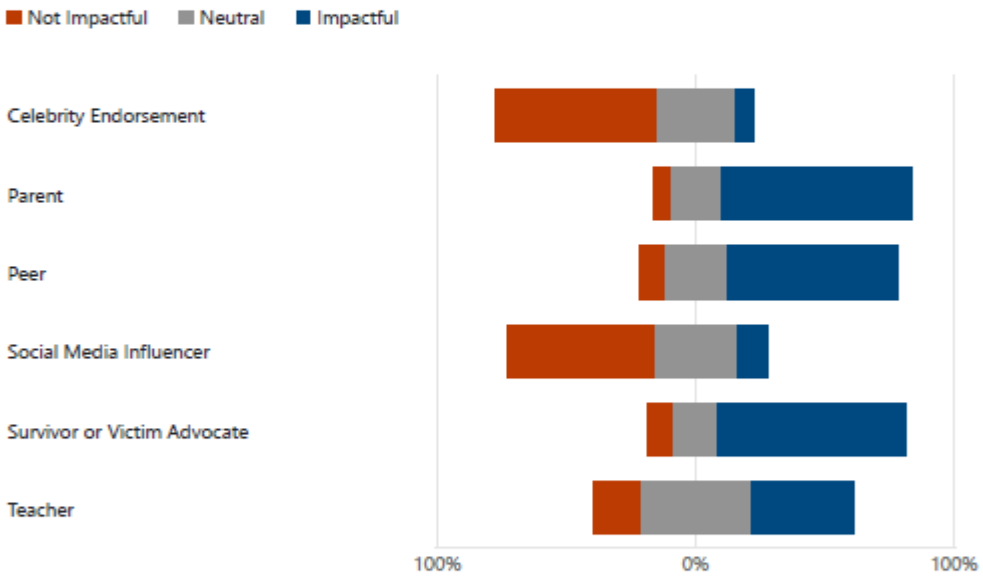
Yes	639
No	137

17. Are you interested in answering questions on impaired driving?

Yes	875
No	88

18. Have you ever driven impaired?

19. For impaired driving messaging, who or what has shaped your opinion?



20. In your opinion, is it ever okay to drive after drinking or taking drugs?

21. Are you familiar with Alabama's Medical Marijuana Law, the Darren Wesley 'Ato' Hall Compassion Act?

Yes, very familiar	90
Yes, but unsure of details	291
No	494

22. In your opinion, is it okay to drive after taking cannabis products?

yes	46
yes, but only if prescribed	105
no	720

23. In your opinion, what do you think are effective methods for Alabama to enhance impaired driving prevention initiatives?

Additional education and training	546
Additional enforcement	629
Additional media and awareness	534
Other	57

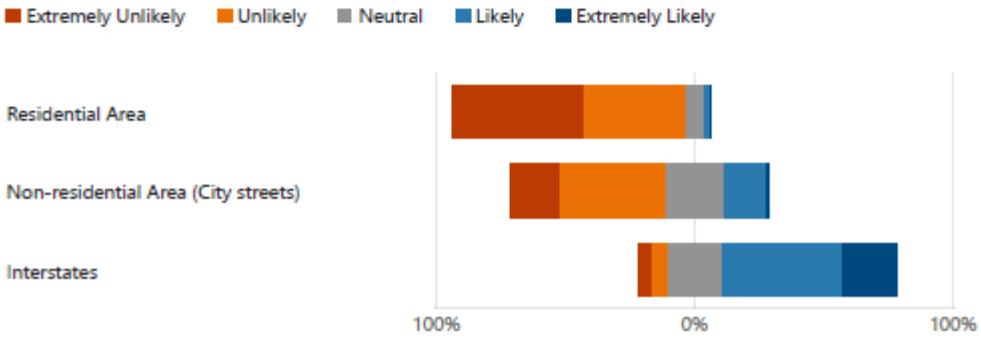
24. Are you interested in answering questions on speeding?

Yes	883
No	80

25. How frequently do you speed* while driving?

Always	39
Often	195
Sometimes	410
Rarely	215
Never	24

26. Are you more or less likely to speed on the following types of roadways?



27. At what speed do you consider speeding to be a problem?

Exceeding the posted speed limi...	14
Exceeding the posted speed limi...	96
Exceeding the posted speed limi...	466
Exceeding the posted speed limi...	249
Exceeding the posted speed limi...	58

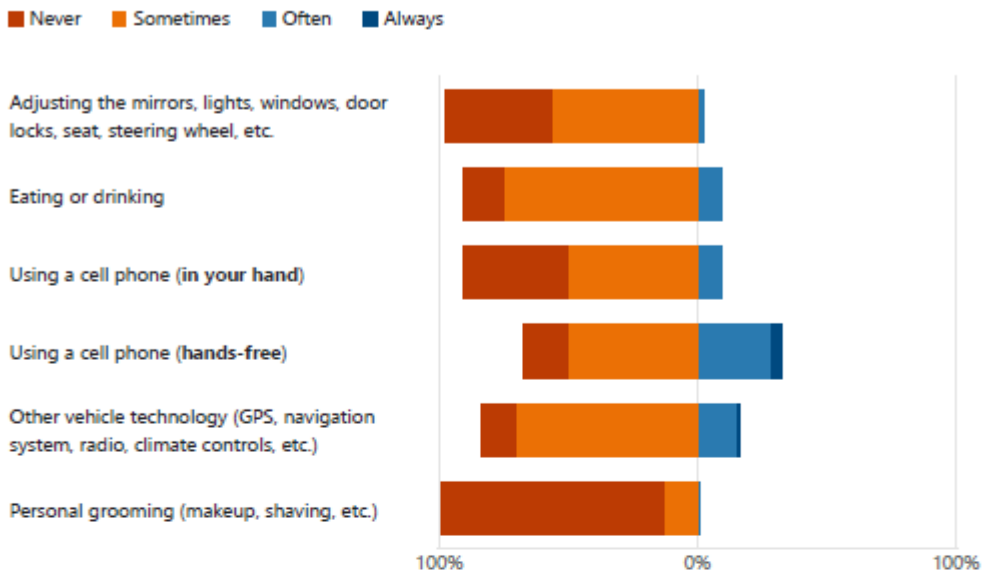
28. In your opinion, what do you think are effective methods for Alabama to decrease speeding?

Additional education and training	368
Additional enforcement	671
Additional media and awareness	411
Other	92

29. Are you interested in answering questions on distracted driving?

Yes	889
No	74

30. How often do you drive distracted by...

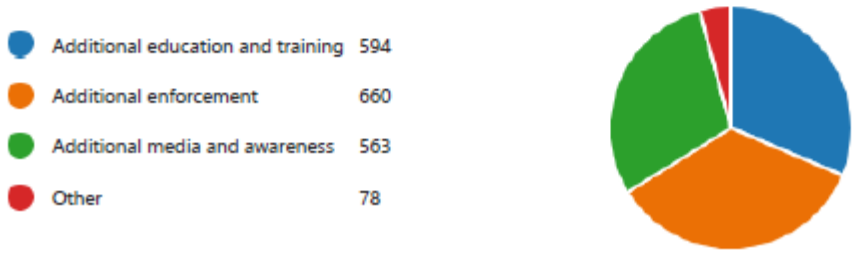


31. If you indicated that you never drive distracted by any of the distractions listed above, why not?

312
Responses

Latest Responses

32. In your opinion, what do you think are effective methods for Alabama to decrease distracted driving?



33. Are you interested in answering questions on pedestrian safety?

Yes	843
No	120

34. As a driver, do you drive more cautiously around crosswalk and in areas with high pedestrian activity?

Yes	812
No	6
Maybe	25

35. As a pedestrian, do you **only** cross at crosswalks?

Yes	280
No	387
Maybe	176

36. As a pedestrian, do you make eye contact with the driver to ensure they see you and will stop before crossing?

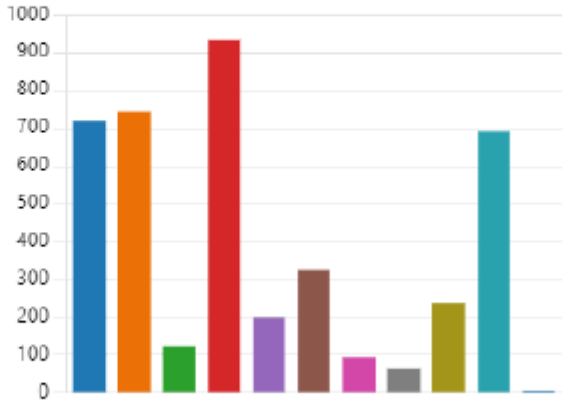
Yes	612
No	87
Maybe	144

37. In your opinion, what do you think are effective methods for Alabama to enhance pedestrian safety awareness initiatives?

Additional education and training	572
Additional enforcement	487
Additional media and awareness	519
Other	79

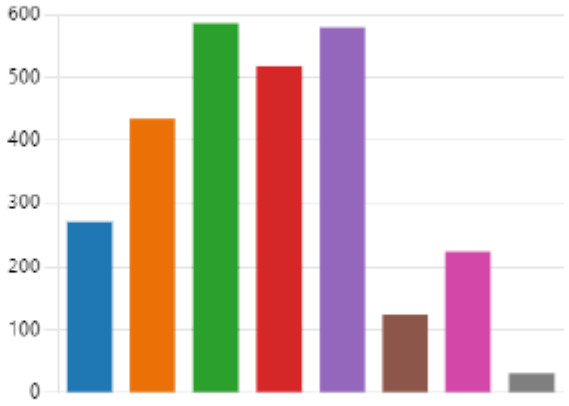
38. Which of the following safe driving slogans are familiar to you?

Buzzed Driving is Drunk Driving.	717
Drive Sober or Get Pulled Over	743
If You Feel Different, You Drive ...	123
Click It or Ticket	932
Seatbelts. It's Hard to Live With...	200
U Drive. U Text. U Pay.	325
Don't Text Your Life Goodbye	94
Operation Southern Slowdown	65
Look Before You Lock	238
Drive Safe Alabama	690
I am not familiar with any of the...	8



39. What platforms do you typically hear or view messaging ?

Streaming Platforms (Netflix, Hu...	272
Cable TV	435
Radio	586
Social Media	517
Billboards	579
Music Streaming Apps (Pandora...	125
Online ads	224
Other	32



40. In your opinion, what do you think are effective methods for Alabama to enhance highway safety awareness initiatives? Please provide specific examples, if possible.

548
Responses

Latest Responses

"Behavioral driving has little effect on many of the most egregi...

Appendix B- Deep Data Dive Presentation

Deep Data Dive Overview

- The Deep Data Dive seeks to better understand:
  - Risky driving behaviors;
  - Impacts on vulnerable road users; and
  - Populations who are over-represented in the data.
- Outcomes:
  - Short-term: multi-dimensional injury and fatality data that can help identify areas and populations that need to be focused on now
  - Long-term: a more timely, well-rounded view of the traffic safety situation in Alabama

The Deep Data Dive Process

- The Deep Data Dive process provides additional information and details for Alabama's educational grants and media campaigns.
- The CTSP Program and enforcement grants will continue to use the University of Alabama hot spot mapping to determine where to focus their efforts.
- Disclaimer: Correlation is not causation

Data Sources

- NHTSA FARS Data
- NHTSA FARS Data Visualization Tool
- NHTSA FIRST Query
- U.S. Census Data
- U.S. Census Community Resilience Estimates

Top Counties Overview

The following slides describe the top counties for 2020 for fatalities and VMT rates. The top three intersections for 2018, 2019, and 2020 for the top counties are also included. Additional demographic data is presented from the U.S. Census.

Top Counties

Localities by 2020 Ranking (Fatalities)		Localities by 2020 Ranking (Fatalities per 100,000 Population)	
1. Jefferson	110	6. Macon	83.82
2. Mobile	61	7. Bullock	70.17
3. Madison	43	8. Conecuh	50.63
4. Montgomery	37	9. Greene	50.06
5. Tuscaloosa	37	10. Butler	46.14

Source: FARS Data- NHTSA STSI Tool

Jefferson County

- Population: 674,721
- Demographics:
  - White alone, not Hispanic or Latino: 48.9%
  - Black or African American alone: 43.8%
  - Asian alone: 1.8%
  - Hispanic or Latino: 4.3%
- Language other than English spoken at home, percent of persons age 5 years+: 5.7%
- Median Household income 2021: $58,330
- Persons in Poverty: 16.9%

1

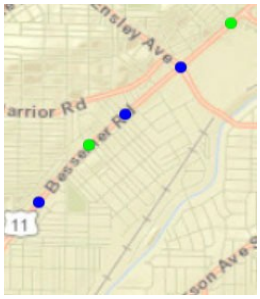
3rd Avenue West/8th Street SW

2

1-20 (By Fairfield)

3

Bessemer Road/Highway

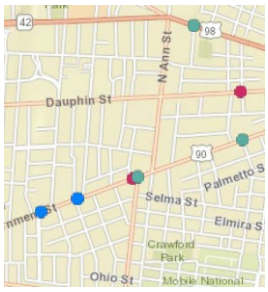


Mobile County

- Population: 414,809
- Demographics:
  - White alone, not Hispanic or Latino: 56%
  - Black or African American alone: 36.6%
  - Asian alone: 2.1%
  - Hispanic or Latino: 3.1%
- Language other than English spoken at home, percent of persons age 5 years+: 4.4%
- Median Household income 2021: $51,169
- Persons in Poverty: 18.2%

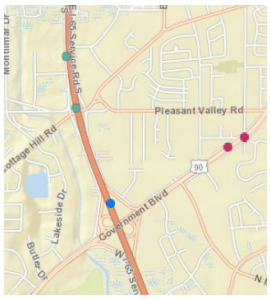
1

Government Street



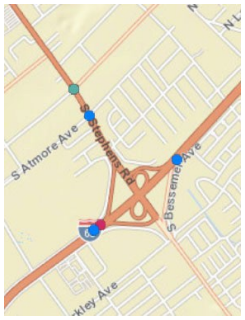
2

1-65 (especially towards SR 90)



3

St. Stephen Road by I-65

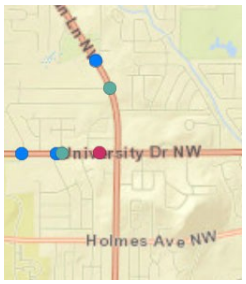


Madison County

- Population: 388,153
- Demographics:
  - White alone, not Hispanic or Latino: 64.2%
  - Black or African American alone: 24.8%
  - Asian alone: 2.7%
  - Hispanic or Latino: 5.5%
- Language other than English spoken at home, percent of persons age 5 years+: 7%
- Median Household income 2021: $71,153
- Persons in Poverty: 10.2%

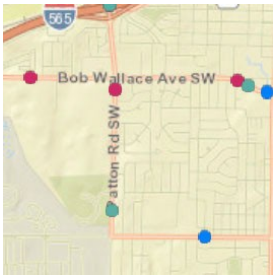
1

University Drive SW



2

Bob Wallace Avenue SW



3

State Route 231

Montgomery County

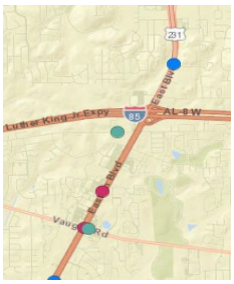
- Population: 228,954
- Demographics:
  - White alone, not Hispanic or Latino: 31.1%
  - Black or African American alone: 60.6%
  - Asian alone: 3.4%
  - Hispanic or Latino: 3.9%
- Language other than English spoken at home, percent of persons age 5 years+: 6.2%
- Median Household income 2021: $52,511
- Persons in Poverty: 21.7%

1

West South Boulevard

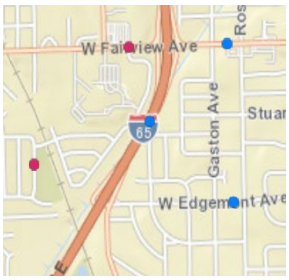
2

Eastern Boulevard



3

West Fairview Avenue (Surrounding Intersections)

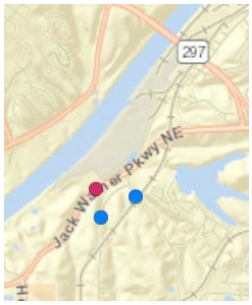


Tuscaloosa County

- Population: 227,036
- Demographics:
  - White alone, not Hispanic or Latino: 63.6%
  - Black or African American alone: 32.9%
  - Asian alone: 1.7%
  - Hispanic or Latino: 4.2%
- Language other than English spoken at home, percent of persons age 5 years+: 5.6%
- Median Household income 2021: $57,508
- Persons in Poverty: 14.7%

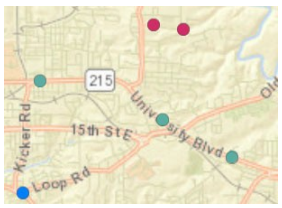
1

Jack Warner Parkway



2

University Boulevard



3

1-20

Macon County

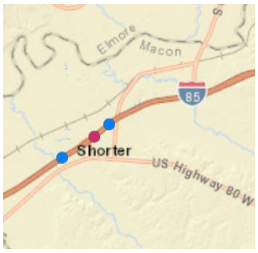
- Population: 19,532
- Demographics:
  - White alone, not Hispanic or Latino: 17%
  - Black or African American alone: 79.9%
  - Asian alone: .5%
  - Hispanic or Latino: 2.1%
- Language other than English spoken at home, percent of persons age 5 years+: 1.2%
- Median Household income 2021: $39,303
- Persons in Poverty: 27.5%

1

I-85 (By Franklin)

2

I-85 (By Shorter)



3

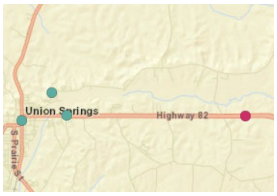
U.S. Highway 80 East

Bullock County

- Population: 10,357
- Demographics:
  - White alone, not Hispanic or Latino: 21.3%
  - Black or African American alone: 69.5%%
  - Asian alone: .3%
  - Hispanic or Latino: 9.1%
- Language other than English spoken at home, percent of persons age 5 years+: 1.2%
- Median Household income 2021: $29,063
- Persons in Poverty: 32.1%

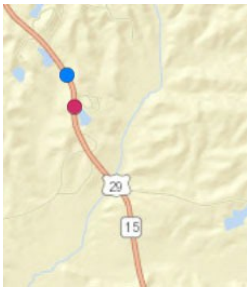
1

Highway 82



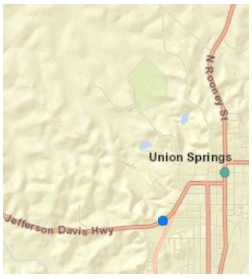
2

Highway 29



3

Jefferson Davis Highway

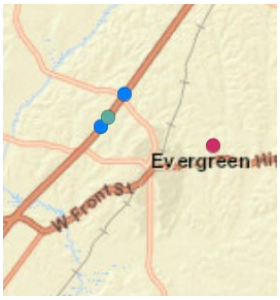


Conecuh County

- Population: 11,597
- Demographics:
  - White alone, not Hispanic or Latino: 50%
  - Black or African American alone: 45.8%
  - Asian alone: .3%
  - Hispanic or Latino: 2.8%
- Language other than English spoken at home, percent of persons age 5 years+: .4%
- Median Household income 2021: $37,986
- Persons in Poverty: 22.4%

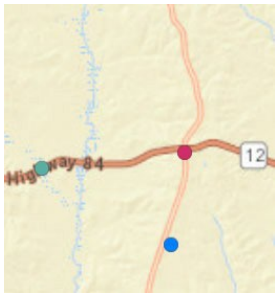
1

I-65



2

Highway 84



3

Highway 31

Greene County

- Population: 7,730
- Demographics:
  - White alone, not Hispanic or Latino: 17.4%
  - Black or African American alone: 79.7%
  - Asian alone: .4%
  - Hispanic or Latino: 1.9%
- Language other than English spoken at home, percent of persons age 5 years+: .7%
- Median Household income 2021: $28,826
- Persons in Poverty: 33.2%

1

I-20

2

US-14

3

US-11

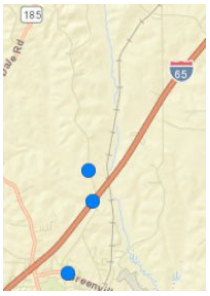
Butler County

- Population: 19,051
- Demographics:
  - White alone, not Hispanic or Latino: 50.6%
  - Black or African American alone: 45.1%
  - Asian alone: 1.4%
  - Hispanic or Latino: 1.7%
- Language other than English spoken at home, percent of persons age 5 years+: 2.3%
- Median Household income 2021: $45,236
- Persons in Poverty: 22.7%

1

2

I-65



Highway 31

Top Causes of Death by County

University of Alabama utilized FARS data to determine the trends for traffic deaths for the top ten counties for 2018 2020. The following causes of death were analyzed: Occupant Protection, Impaired Driving, and Pedestrian.

All Fatal Crashes: Chart One

All Fatal Crashes	Month 1st	DOW 1st	TOD 1st
Bullock	May	Friday	10:00pm-10:59pm
Butler	March	Thursday	2:00pm-2:59pm
Conecuh	June	Sunday	11:00pm-11:59pm
Greene	June	Friday	1:00am-1:59am
Jefferson	July	Friday	11:00pm-11:59pm
Macon	December	Saturday	7:00am-7:59am
Madison	October	Friday	0:00am-0:59am
Mobile	October	Sunday	6:00pm-6:59pm
Montgomery	December	Thursday	5:00pm-5:59pm
Tuscaloosa	October	Tuesday	2:00am-2:59am

All Fatal Crashes: Part Two

All Fatal Crashes	Collision 1st	Collision 2nd	Age	Sex	Rural	Urban
Bullock	Hit Fixed Object	Pedestrian	40-65	Male	75.0%	25.0%
Butler	Hit Fixed Object	Front-to-Rear	20-39	Male	75.0%	25.0%
Conecuh	Front-to-Front	Pedestrian	40-65	Male	69.2%	30.8%
Greene	Hit Fixed Object	Front-to-Front	20-39	Male	100.0%	0.0%
Jefferson	Hit Fixed Object	Pedestrian	20-39	Male	17.2%	82.8%
Macon	Hit Fixed Object	Front-to-Front	40-65	Male	83.3%	16.7%
Madison	Angle	Pedestrian	20-39	Male	30.1%	69.9%
Mobile	Hit Fixed Object	Angle	20-39	Male	34.4%	65.6%
Montgomery	Hit Fixed Object	Pedestrian	40-65	Male	23.7%	76.3%
Tuscaloosa	Hit Fixed Object	Front-to-Front	20-39	Male	53.0%	47.0%

All Fatal Crashes: Part Three

All Fatal Crashes	Race	Black	White	No Belt
Bullock	Black	92.3%	7.7%	38.46%
Butler	Black	53.8%	46.2%	73.1%
Conecuh	Black	53.3%	46.7%	40.0%
Greene	Black	69.0%	31.0%	55.2%
Jefferson	White	49.5%	49.8%	36.2%
Macon	Black	69.0%	31.0%	55.2%
Madison	White	23.9%	74.6%	38.8%
Mobile	White	32.4%	65.3%	49.3%
Montgomery	Black	61.3%	35.1%	37.8%
Tuscaloosa	White	36.8%	62.1%	40.0%

All Fatal Crashes: Sex and Age

County	Male	Female	Age 0-5	Age 6-14	Age 15-19	Age 20-39	Age 40-65	Age 65+
Bullock (11)	92.3%	7.7%	0.0%	0.0%	7.7%	38.5%	46.2%	7.7%
Butler (13)	65.4%	34.6%	0.0%	0.0%	3.8%	50.0%	42.3%	3.8%
Conecuh(35)	80.0%	20.0%	0.0%	6.7%	0.0%	33.3%	53.3%	6.7%
Greene (63)	72.4%	27.6%	3.4%	0.0%	6.9%	48.3%	34.5%	6.9%
Jefferson (73)	73.5%	26.5%	1.7%	1.0%	5.9%	41.5%	36.2%	12.9%
Macon(87)	82.8%	17.2%	0.0%	0.0%	6.9%	34.5%	44.8%	13.8%
Madison(89)	70.1%	29.9%	0.0%	3.0%	7.5%	36.6%	35.1%	17.9%
Mobile (97)	76.3%	23.7%	0.9%	0.0%	5.9%	44.3%	36.5%	12.3%
Montgomery (101)	70.3%	29.7%	1.8%	7.2%	3.6%	27.9%	43.2%	16.2%
Tuscaloosa (125)	73.7%	26.3%	0.0%	1.1%	8.4%	38.9%	36.8%	14.7%

All Fatal Pedestrian Crashes: Month

Pedestrians	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Grand Total
Bullock (11)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Conecuh (35)	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	100.0%
Jefferson (73)	7.0%	3.5%	8.8%	12.3%	5.3%	7.0%	8.8%	10.5%	8.8%	8.8%	8.8%	10.5%	100.0%
Macon (87)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	66.7%	100.0%
Madison (89)	6.3%	6.3%	9.4%	6.3%	3.1%	9.4%	0.0%	9.4%	9.4%	25.0%	9.4%	6.3%	100.0%
Mobile (97)	8.7%	13.0%	8.7%	8.7%	8.7%	4.3%	21.7%	0.0%	0.0%	13.0%	4.3%	8.7%	100.0%
Montgomery (101)	4.5%	9.1%	13.6%	0.0%	0.0%	0.0%	31.8%	4.5%	13.6%	4.5%	4.5%	13.6%	100.0%
Tuscaloosa (125)	16.7%	0.0%	0.0%	8.3%	16.7%	8.3%	0.0%	16.7%	16.7%	16.7%	0.0%	0.0%	100.0%
Grand Total	7.3%	6.8%	9.0%	7.9%	5.6%	5.6%	13.0%	8.5%	7.9%	12.4%	6.2%	9.6%	100.0%

All Fatal Pedestrian Crashes: Day of Week

Pedestrians	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Grand Total
Bullock (11)	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	100.0%
Butler (13)	–	–	–	–	–	–	–	–
Conecuh (35)	33.3%	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	100.0%
Greene (63)	–	–	–	–	–	–	–	–
Jefferson (73)	14.0%	17.5%	10.5%	8.8%	15.8%	19.3%	14.0%	100.0%
Macon(87)	0.0%	0.0%	0.0%	66.7%	0.0%	0.0%	33.3%	100.0%
Madison (89)	6.3%	9.4%	9.4%	15.6%	12.5%	31.3%	15.6%	100.0%
Mobile (97)	39.1%	6.5%	19.6%	10.9%	8.7%	2.2%	13.0%	100.0%
Montgomery (101)	13.6%	13.6%	0.0%	18.2%	36.4%	9.1%	9.1%	100.0%
Tuscaloosa (125)	8.3%	8.3%	33.3%	0.0%	16.7%	16.7%	16.7%	100.0%
Grand Total	18.6%	11.3%	13.0%	12.4%	15.3%	15.8%	13.6%	100.0%

All Fatal Pedestrian Crashes: Time of Day

Pedestrians	0:00am-0:59am	1:00am-1:59am	2:00am-2:59am	3:00am-3:59am	4:00am-4:59am	5:00am-5:59am	6:00am-6:59am	8:00am-8:59am	9:00am-9:59am	11:00am-11:59am	12:00pm-12:59pm
Bullock											
Conecuh											
Jefferson	3	4	1	7		4	1	2		1	
Macon			2		1						
Madison	5	2				1	5				2
Mobile	4		3	5	1	4	2	2	1		
Montgomery				1		2					
Tuscaloosa	2			1	4						
Grand Total	14	6	6	14	6	11	8	4	1	1	2

All Fatal Pedestrian Crashes: Time of Day

Pedestrians	2:00pm-2:59pm	3:00pm-3:59pm	4:00pm-4:59pm	5:00pm-5:59pm	6:00pm-6:59pm	7:00pm-7:59pm	8:00pm-8:59pm	9:00pm-9:59pm	10:00pm-10:59pm	11:00pm-11:59pm	Grand Total
Bullock									1	1	2
Conecuh										3	3
Jefferson	1		1		5	4	4	2	9	8	57
Macon											3
Madison					3	3	3	4	4		32
Mobile				1	9	4	3	7			46
Montgomery	1	1	2	1	2		4	2	3	3	22
Tuscaloosa				1	2		2				12
Grand Total	2	1	3	3	21	11	16	15	17	15	177

All Fatal Impaired Driving Crashes: Time of Day

Impaired Driver	0:00am-0:59am	1:00am-1:59am	2:00am-2:59am	3:00am-3:59am	4:00am-4:59am	5:00am-5:59am	6:00am-6:59am	7:00am-7:59am	8:00am-8:59am	10:00am-10:59am	1:00pm-1:59pm
Bullock	1										
Butler			2	2							
Conecuh											
Greene		3	2		1						
Jefferson	2	4	1	3	1						
Macon	2							1			
Madison	4	1		2	2	2	1	2		2	
Mobile	8	3	4	6	2	2	1	2	1	3	3
Montgomery	1	3	1	4	2	2					2
Tuscaloosa		2	6	1		1			1		
Grand Total	18	16	16	18	8	7	2	5	2	5	5

All Fatal Impaired Driving Crashes: Time of Day

Impaired Driver	2:00pm-2:59pm	3:00pm-3:59pm	4:00pm-4:59pm	5:00pm-5:59pm	6:00pm-6:59pm	7:00pm-7:59pm	8:00pm-8:59pm	9:00pm-9:59pm	10:00pm-10:59pm	11:00pm-11:59pm	Grand Total
Bullock											1
Butler								2	2	1	9
Conecuh								1			1
Greene							2			2	10
Jefferson	1		1	1	2	3		6	1	3	29
Macon		1								1	5
Madison			3		5		3	2	4	3	36
Mobile	3	3	2	2	1	3	4	9	4	5	71
Montgomery	2		1	5	4		3	3			33
Tuscaloosa	2		3		3	1	2	5		1	28
Grand Total	8	4	10	8	15	7	14	28	11	16	223

All Fatal Crashes: Collision

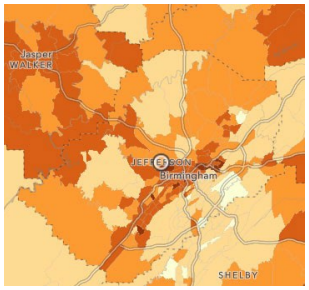
All Fatal Crashes	Angle	Front-to-Front	Front-to-Rear	Hit Fixed Object	Pedalcyclis t	Pedestrian	Railway Vehicle	Rollover/ Overturn
Bullock	2			4		2		
Butler	1	3	6	12				6
Conecuh	1	3	2	1		3		3
Greene	1	6	1	19				1
Jefferson	38	18	23	78	3	54	2	16
Macon	1	4	2	7		3		1
Madison	35	20	6	26	2	32	1	7
Mobile	45	34	7	69	2	43		15
Montgomery	16	15	6	32		22		1
Tuscaloosa	8	13	4	42		12		4

Community Data

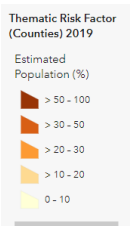
Data is included from the US Census to gauge the vulnerability of the community's population.

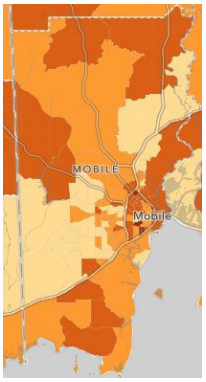
US Census Community Resilience Estimates

- Scores are calculated on risk factors from the 2019 American Community Survey:
  - Income to Poverty Ratio
  - Single or Zero Caregiver Household
  - Crowding
  - Communication Barrier
  - Households without Full-time, Year-round Employment
  - Disability
  - No Health Insurance
  - Age 65+
  - No Vehicle Access
  - No Broadband Internet Access



Jefferson County





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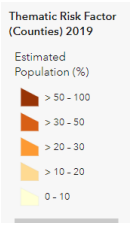
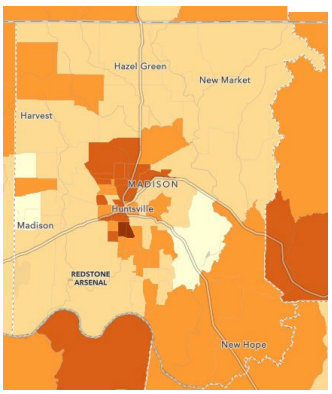
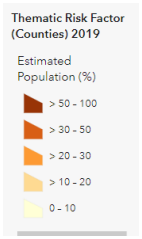
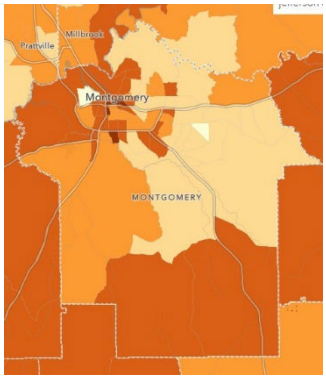




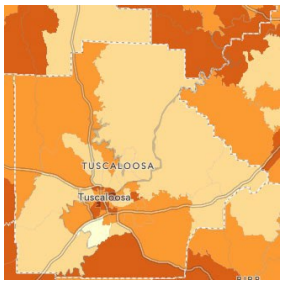
Madison County . . . . . .



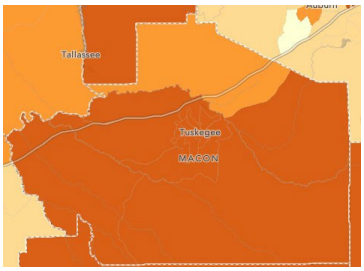


Montgomery County . . . . . .

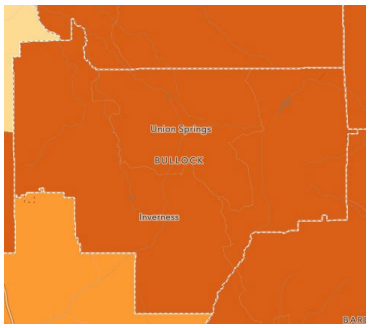
Tuscaloosa County

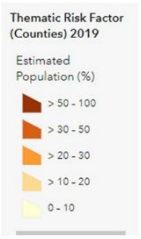


Macon County

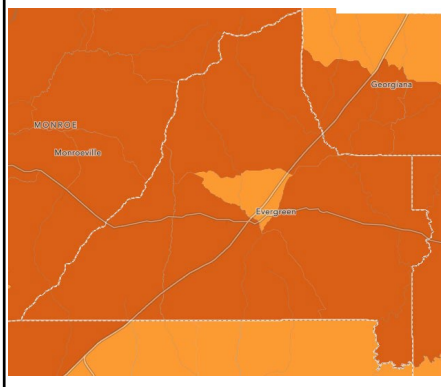


Bullock County

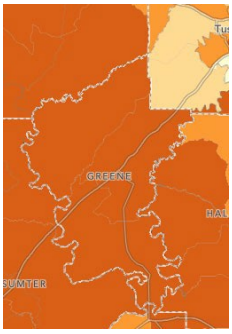




Conecuh County



Greene County



Butler County