State Safety Office Vital Few

Safety Campaign—Social Marketing

Task 4.2 Creation of Assessment Instrument

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DISCLAIMER

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16. Abstract

The State Safety Office of the Florida Department of Transportation (FDOT) has planned to implement the Target Zero Safety Campaign designed to reduce fatalities and serious injuries caused by motor vehicle crashes. It is based upon the FDOT Strategic Highway Safety Plan to focus upon the Vital Few Safety (VFS) emphasis areas of lane departures, intersections, and crashes involving bicyclists and pedestrians. FDOT engaged the University of South Florida's Center for Urban Transportation Research to provide guidance and recommendations for developing the campaign based upon principles of social marketing. This document summarizes the evaluation component of the Target Zero Safety Campaign. It was informed by an initial literature review of previous safety campaigns, their study designs, performance metrics, approaches to monitoring and evaluation, and overall impacts of the campaigns. Based upon the objectives of the Target Zero Safety Campaign to target behaviors leading to speeding, aggressive driving and distracted driving, this document presents a logic model of the overall initiative detailing inputs, activities, outputs, and the intended short-term and long-term outcomes. Performance metrics identified measure the short term and intermediate impacts upon the primary audience by the Safety Campaign. A plan for monitoring and evaluation includes recommendations for a baseline assessment instrument to measure changes in knowledge, attitudes and beliefs, behavioral intent, and self-reported behaviors. The monitoring and evaluation plan also provides recommendations for collecting behavioral observations and a conceptual evaluation timeline for Phase 1 and Phase 2. A baseline survey has been drafted for use by the collaborative partners and is contained in the Appendix.

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EXECUTIVE SUMMARY

The State Safety Office of the Florida Department of Transportation (FDOT) has planned to implement the Target Zero Safety Campaign designed to reduce fatalities and serious injuries caused by motor vehicle crashes. It is based upon the FDOT Strategic Highway Safety Plan to focus upon the Vital Few Safety (VFS) emphasis areas of lane departures, intersections, and crashes involving bicyclists and pedestrians. FDOT engaged the University of South Florida's Center for Urban Transportation Research (CUTR) to provide guidance and recommendations for developing the campaign based upon principles of social marketing. Social marketing seeks to develop and integrate marketing concepts with other approaches to influence behaviors that benefit individuals and communities for the greater social good.

Based upon an analysis of crash reports by CUTR's collaborative partners, four regions within the state of Florida were identified as having the highest VFS crash activity. The crash reports revealed the first contributing actions for those crashes and the population of motorists most involved in crashes as young males. Further research performed by CUTR involved a literature review of how previous campaigns were developed, how audiences were segmented and overall impact of the efforts. This research coupled with secondary data analysis allowed the team to break down broad behaviors into specific behavioral determinants and to arrive at a priority population for the study that was more prone to be involved in crashes. Following selection of behavioral focus and priority population, CUTR developed a questionnaire to guide a series of focus groups with the priority population to explore their knowledge and awareness of the issue, their engagement in the behavior, the challenges they face while driving and how they wish to receive information and where. Research findings from the focus groups guided the creation of a creative brief, which served as a blueprint for the development of prototype messages and materials. The goal of these communication messages is to influence knowledge, attitudes and beliefs, and to reduce the incidence of precursor behaviors that lead to crashes. These precursor behaviors were initially identified and investigated by the University of Michigan Transportation Research Institute (UMTRI).[1]

This document summarizes the evaluation component of the Target Zero Safety Campaign. It was informed by an initial literature review of previous safety campaigns, their study designs, performance metrics, approaches to monitoring and evaluation, and overall impacts of the campaigns. Based upon findings from the literature review and the objectives of the Target Zero Safety Campaign to target behaviors leading to speeding, aggressive driving and distracted driving, this document presents a logic model of the initiative, which outlines the campaign inputs and activities, evaluation processes, outputs, and outcomes. Performance metrics are identified to measure the short term and intermediate outcomes of the Safety Campaign. A plan for monitoring and evaluation follows, including recommendations for a pre/post design

[1] Molnar, L. J., Eby, D. W., Zakrajsek, J. S., Kostyniuk, L. P., Zanier, N., LeBlanc, D. J., & Sayer, T. (2021). *Guidelines for Development of Evidence-Based Countermeasures for Risky Driving-Final Technical Report, Volume 2*. University of Michigan, Ann Arbor, MI: Transportation Research Institute.

using a survey instrument to measure changes in knowledge, attitudes and beliefs, behavioral intent, and self-reported behaviors. Additional recommendations relate to collecting behavioral observations and a conceptual evaluation timeline for Phase 1 and Phase 2. A baseline survey has been drafted for use by the collaborative partners and is contained in Appendix 2.

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Chapter 1—INTRODUCTION

This report has been prepared in completion of Task 4 Monitoring and Evaluation, as part of the development and implementation of the Target Zero Safety Campaign, funded through the Florida Department of Transportation (FDOT), State Safety Office. This report contains a recommended monitoring and evaluation plan, recommended performance metrics, and a baseline assessment instrument to guide the evaluation stage of Target Zero.

This project has been conducted in coordination with a larger team of consultants that are providing support to Safety Campaign initial research, campaign design, implementation and evaluation. The role of the Center for Urban Transportation Research (CUTR) at the University of South Florida (USF) has been to provide technical assistance and serve in an advisory role in the planning, launch and evaluation of the Safety Campaign. This project represents a new approach to the design, implementation and evaluation of safety campaigns by FDOT in its application of social marketing.

FDOT's safety outreach efforts have preceded the Target Zero Safety Campaign, using funding from multiple sources. Campaigns utilizing NHTSA funding abide by NHTSA guidance.[2] NHTSA encourages pre/post evaluations using survey instruments. The FDOT State Safety Office works in partnership with the Florida Department of Highway Safety and Motor Vehicles (FLHSMV) that also provides funding for safety outreach activities.

1.1 Florida Strategic Highway Safety Plan

The Florida Strategic Highway Safety Plan (SHSP), most recently updated in 2021, is a five-year plan that focuses upon reducing crashes, prioritizing 11 emphasis areas, four of which are the Vital Few focus areas for the Target Zero Safety Campaign. These are lane departures, intersections, pedestrians and bicyclists.[3] FDOT has committed to eliminating roadway fatalities and serious injuries to zero as its highest priority, in coordination with its traffic safety partners through the Target Zero statewide initiative. FDOT has deployed the "4 Es" of Safety: Engineering, Enforcement, Emergency Response, and Education that is aimed at raising awareness and improving safe driving habits through a safety campaign targeting specific behaviors. The "4 Es" are bolstered by the "4 Is" of Safety: Innovation, Insight, Investment, and Intelligence.

FDOT monitors the total number of motor vehicle-related fatalities and serious injuries, the rate of fatalities and serious injuries per 100 million vehicle miles traveled (VMT), and the total

[2] National Highway Traffic Safety Administration. USDOT. (2018). "Uniform Procedures for State Highway Safety Grant Programs." Final Rule. Federal Register. Vol. 83, No. 17, pp. 3466-3528.

[3] Florida Department of Transportation (FDOT). "Florida Strategic Highway Safety Plan." (2021). Tallahassee, FL: FDOT Safety Office. March. https://www.fdot.gov/Safety/shsp/shsp.shtm

number of fatalities and serious injuries involving non-motorized transportation users. Table 1 lists the federal performance metrics for Florida statewide. As required by the federal government, these are reported as a five-year rolling average to help monitor trends over time. Per federal requirements, the objective of the SHSP is an annual trend toward a target of zero traffic fatalities and serious injuries.

TABLE 1. FEDERAL PERFORMANCE MEASURES, FLORIDA STATEWIDE

Federal Performance Measure (Five-Year Rolling Average)	2015	2016	2017	2018	2019	Trend	Calendar Year 2021 Target	Target met?
Fatalities	2,535.60	2,690.00	2,827.00	2,973.40	3,110.60	Increasing	0	No
Fatality Rate (per 100 million VMT)	1.29	1.33	1.36	1.40	1.43	Increasing	0	No
Serious Injuries	20,552.00	20,877.20	20,943.00	20,737.00	20,166.40	**Decreasing**	0	No
Serious Injury Rate (per 100 million VMT)	10.45	10.37	10.14	9.77	9.29	**Decreasing**	0	No
Non-Motorized Fatalities and Serious Injuries	2,266.20	3,361.60	3,371.40	3,410.40	3,401.80	Increasing	0	No

Source: Florida Department of Transportation. Florida State Highway Safety Plan. 2021. p. 8
https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/safety/shsp-2021/shsp_mar21.pdf?sfvrsn=5452dad_0

Safety campaigns are part of the Education approach of the SHSP, which includes the following three targeted efforts.

1. Develop and implement targeted outreach and communications strategies to improve road users' awareness of safety issues, including sharing the road with other users, driver responsibilities when involved in a crash, as well as their understanding of roadside and in-vehicle technologies, best practices, and other safety countermeasures.

2. Educate and train beginning and experienced road users to improve driving and riding skills and understand traffic laws.

3. Educate and train current and new safety professionals including planning, engineering, law enforcement, emergency response, elected officials, and other personnel, on best practices as well as new and innovative countermeasures.

1.2 Social Marketing Approach

To add to this work and focus on behavior change and specifically the mechanism of change, FDOT has selected social marketing for this Target Zero Safety Campaign as a planning framework to bolster efforts and to achieve sustainable change.

Social marketing seeks to develop and integrate marketing concepts with other approaches to influence behaviors that benefit individuals and communities for the greater social good. At the heart of social marketing is a focus on research, listening to and understanding the consumer's desires and motivations, perceived barriers and potential benefits associated with adopting a new behavior or abandoning an undesirable one. Social marketing uses a combination of activities addressing multiple levels of social ecology to encourage behavior change.

The next section provides a brief description of the tasks completed in the preparation for the Target Zero Safety Campaign evaluation. The results from these tasks have laid the groundwork for the campaign messaging and activities. The completion of these tasks also sets the stage for the development of a monitoring and evaluation plan, of which an assessment instrument is a part.

1.3 Background

This monitoring and evaluation plan has been informed by a literature review of performance measurement from Task 2.2. Key observations and recommendations from the literature review are enumerated below.

1. Plan for the evaluation at the beginning of a campaign, based on available resources.
2. Behavioral theory can lend insight into what interventions and messaging work better for targeted audiences. The Target Zero Safety Campaign evaluation uses key constructs from the Theory of Planned Behavior, the Health Belief Model and Social Cognitive Theory.
3. Campaign messaging can target influencers of groups that engage in risky behavior. This will be incorporated into Phase 2.
4. Campaign evaluations sometimes uncover target audience sub-groups that respond differently to the intervention.
5. Disengaged audiences may respond better to messaging that uses positive descriptive norms. The creative messaging of Phase 1 incorporates a positive and empowering tone with the primary audience.

6. Campaigns can be staged at different scales and use different delivery formats. Phase 1 for Target Zero will include broad scale messaging as evaluated by a baseline and endline assessment instrument. A Phase 2 will add the secondary audience, the influencers. Social marketing campaigns demonstrate to expand outreach to include not only broad scale messaging, but other elements that engage the primary and secondary audiences, such as training, workshops, and competitions. Phase 2 evaluation components should be developed at that time.
7. Quasi-experimental designs for an evaluation can help control for confounding variables. From the beginning of the baseline measurements through to the end of the follow-up measurements, time the campaign launch to hold as many of these other activities as possible constant. It is recognized that time and other constraints limit the ability to control for these variables, such as the kinds listed under Contextual Factors at the bottom of the Logic Model illustrated in Appendix 1 and further described in Chapter 2—Monitoring and Evaluation Plan. The recommendation to use a simple pre/post test evaluation design is practical and satisfactory for Phase 1. Future safety campaign evaluation design and implementation can potentially control for confounders if these are known well in advance and if there are sufficient resources to implement a more complex, multi-stage evaluation design.
8. Statistical analysis tools are useful to determine whether measured changes are random or due to the intervention. This guided the recommendation for the survey sample size, discussed further in Chapter 4—Assessment Instrument.
9. Design behavior observation strategy to enable collection of sufficient number of observations (e.g., busy intersection, during a work shift change, arrivals just prior to beginning of school day). In Phase 1 it is recommended to identify high traffic volume, high crash corridors within or in the vicinity of the residential zip codes of interest.
10. Conduct pretesting of the campaign messaging to make sure it has intended effect upon target audience.
11. Measure observed behavior immediately after campaign and again 6 months later to determine sustained change. This is recommended for Phase 2.
12. Use a repeated cross-sectional design (observing different individuals at each location for the collection of observations in the pre- and post-intervention steps).
13. Incorporate cyclical time trends, e.g., the time period when the most crashes occur, to maximize opportunity for the intervention to have a measurable impact.

An initial crash analysis conducted by HNTB identified geographic regions within the state that demonstrated higher levels of VF crash types. As a result, four specific campaigns targeting each of the four VF emphasis areas has been assigned.

1. The campaign designed to prevent crashes relating to lane departures will be implemented in the Orlando/Volusia region.
2. The campaign designed to prevent crashes relating to intersections will be implemented in the Tampa Bay region.
3. The campaign designed to prevent crashes relating to bicyclists will be implemented in the West Palm Beach/Ft. Myers/Naples region.
4. The campaign designed to prevent crashes relating to pedestrians will be implemented in the Miami/Broward region.

These four regions were later identified by the risky driving behaviors the campaigns address.

Further analysis by HNTB of the crash data identified the top reasons cited by law enforcement at the scene of the crashes relating to the four Vital Few safety (VFS) areas. The crash analysis, supplemented by a literature review on audience segmentation by CUTR, resulted in the selection of the primary audience. The initial primary audience selected was male motorists, ages 18-34; because this segment was demonstrated to have the highest involvement in first actions leading to crashes of the four VFS areas. Later development of a creative brief informed by formative research, further narrowed the initial audience segment to males aged 22-27. Reasoning behind this selection include that this age group consists of young adults who are emerging into financial independence, assuming responsibility for their own health insurance, entering into long term relationships and assuming new responsibilities for loved ones, including children, etc. and so may be more sensitive to various types of safety messaging.

From the crash data analysis, we know the "driving behavior" that directly contributes to VFS area crashes. Yet the "driving behaviors (e.g., failing to yield, running a red light)," happen because of behaviors that are precursors, as described in Figure 1.

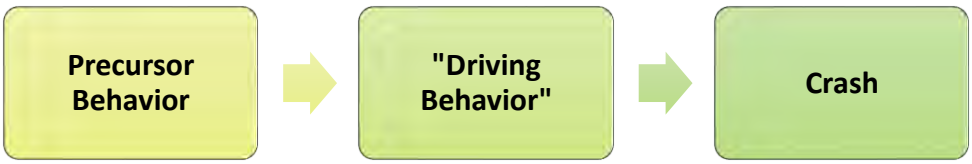

FIGURE 1. PRECURSOR BEHAVIORS LEAD TO THE DRIVING BEHAVIOR THAT CONTRIBUTES TO THE CRASH.

The formative research phase was conducted to delve further into better understanding the behaviors of the primary audience. Guided by a research questionnaire with questions based on the social marketing mix of Product, Price, Place, and Promotion, a series of focus groups were held throughout the state with the primary audience. Analysis of the data revealed insights about risky driving behaviors and precursor behaviors that lead up to the risky driving behaviors. Three behavioral themes emerged: distraction, reckless/aggressive, and speeding.

The data were supplemented with information from interviews with officers with the Florida Highway Patrol. Officers shared that reckless/aggressive driving was characterized by distraction. These findings were consistent with research conducted at the University of Michigan Transportation Research Institute (UMTRI). Table 2 below describes precursor behaviors that influence driving behaviors, also identified in the initial crash analysis.

Based on Table 2, this project has focused on the precursor behaviors that characterize distraction, speeding and aggressive driving as major causes of crashes, according to the crash data. The UMTRI findings also align with other findings from the Target Zero formative research. The findings of the formative research were translated into a formal creative brief that provides direction for the development of the campaign and the ensuing activities, messages and materials.[4] From the standpoint of the evaluation of the Target Zero Safety Campaign, the Creative Brief helped establish measurable objectives. As a result of exposure to the Safety Campaign messages, these objectives include that the primary audience will become more self-aware of their actions, including distraction, as well as risky driving behaviors, such as speeding and aggressive driving.

TABLE 2: DETERMINATION OF PRECURSOR BEHAVIORS THAT INFLUENCE DRIVING BEHAVIOR

Precursor Behavior → influence driving behavior thus increasing the risk of a crash	
Behaviors that increase risk of a crash (Precursor Behavior) *	**Driving behavior****
• Answering/making calls on cell phone • Manipulating cell phone for texting, email, web searching, social media, etc. • Eating/drinking • Grooming • Reaching for, holding, looking at, or manipulating other objects inside the vehicle • Talking to/listening to passengers • Looking at objects external to the vehicle	• Operated vehicle in careless/negligent manner • Failure to yield right of way • Failure to keep in the proper lane • Ran red light • Ran off roadway

* Molnar, L. J., Eby, D. W., Zakrajsek, J. S., Kostyniuk, L. P., Zanier, N., LeBlanc, D. J., & Sayer, T. (2021). *Guidelines for Development of Evidence-Based Countermeasures for Risky Driving-Final Technical Report, Volume 2*. University of Michigan, Ann Arbor, MI: Transportation Research Institute.

** Crash Data analysis conducted by HNTB.

While crash causation is complex, the prior crash analysis conducted by HNTB has uncovered the most prevalent actions prior to each of the four selected crash types of concern. The formative research delivered more specificity to the underlying behaviors behind the actions leading to crashes. It is recommended that the safety campaign interventions and messaging concentrate on encouraging specific mitigating behaviors, ideally one selected behavior, for a clear message and clear directive. Such specificity lends focus and power to the campaign

[4] Florida Department of Transportation. Target Zero Creative Brief. December 1, 2021.

messaging. More than one behavior can be selected for simultaneous change; however, this potentially can result in campaign messaging that is more complex for the target audience to comprehend, remember and act upon. The objective to change multiple behaviors also means that the evaluation also will become more complex in that survey instruments will have to contain more questions, and observational studies will have to be designed to observe multiple behaviors, adding a degree of complexity and expense that can introduce challenges. The Target Zero Safety Campaign selected one behavior for each of the four regions.

Based upon the progress made by the Target Zero Safety Campaign team, Table 3 below describes a conceptual evaluation timeline that recognizes that the safety campaign will unfold over a period of years. Changing an in-grained behavior, such as using one's phone while driving, is difficult and requires consistent and continuing intervention over a period of time that is longer than a few months. For those who do change a behavior, consistent and continuing intervention must be ongoing to reinforce and maintain that change in behavior. This means that effective safety campaigns consisting of carefully selected interventions and messaging must be ongoing over the long term. A stronger evaluation design measures change against a pre-campaign measured baseline, not just immediately after the campaign, but also at least one additional time interval thereafter to measure whether there is a sustained change in behavior.

TABLE 3. TARGET ZERO CAMPAIGN CONCEPTUAL EVALUATION TIMELINE

Phase	Audience	Campaign	Assessment Instruments	Short Term Obj.	Intermediate Obj.	Long term obj.
Phase 1 (2022)	• Statewide • Primary audience	Mass media	• Baseline survey • Endline survey	• Campaign recall • Small effect size change in attitudes from baseline	--	--
Phase 2 (2023)	• Statewide • Primary audience • Secondary audience	• Mass media • Targeted outreach activities	• Baseline survey for secondary audience • Endline survey for primary audience • Observational baseline for primary audience, compared with historical data	--	• Campaign recall • Small effect size change in attitudes and behavioral intent of primary audience compared to Phase 1 results • Small effect size change in knowledge, attitudes and behavioral intent of secondary audience compared to their baseline • Small effect size change in observational metrics for primary audience compared to baseline • Outreach evaluation	--
Beyond Phase 2 (2024+)	• Statewide • Primary audience • Expanded segments of primary audience • Secondary audience	• Mass media • Targeted outreach activities	• Baseline survey for expanded primary audience segments • Endline surveys for primary and seconday audiences • Observational baseline for expanded segments of primary audience, compared with historical data • Observational endline for primary audience	--	--	• Campaign recall • Small effect size change in attitudes of expanded primary audience segments, compared to baseline • Small effect size change in attitudes and behavioral intent of primary audience and secondary audience, compared with Phase 2 results • Small effect size changes in observational metrics in primary audience,

Phase	Audience	Campaign	Assessment Instruments	Short Term Obj.	Intermediate Obj.	Long term obj.
						compared to Phase 2 results • Small effect size changes in observational metrics of expanded segments of primary audience, compared with their baseline • Outreach evaluation

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Chapter 2—MONITORING AND EVALUATION PLAN

FDOT plans to conduct the safety campaign under a unified statewide brand, with tailored messaging targeted to specific geographic locations of interest. FDOT seeks to evaluate the effectiveness of the safety campaign to reduce crash-related serious injuries and fatalities.

The development of a monitoring and evaluation plan is essential to determining whether the project has achieved its stated objectives and whether the intervention has influenced intention to change behavior. A reduction in risky driving behaviors (short-term objective), as measured by observational studies, could lead to a reduction in crash-related fatalities and serious injuries (long-term objective). To help visualize the process of campaign development, implementation and evaluation, a logic model was developed, which identifies the inputs, activities, and outputs of the process, for the purpose of generating short-term, intermediate, and long-term outcomes. The Logic Model Target Zero Behavioral Safety Campaign in Appendix 1 illustrates the chronological steps in the process and the expected results and provides an overview of this complex, multi-level intervention.

We recommend an observational component based upon the selected behavior and geographic focus (e.g., specific high crash corridors, or intersections). An illustrative example, the Street Smart New Jersey study by Jalayer et al. (2020) evaluated the effectiveness of the campaign, "An Observational Analysis of Pedestrian Safety Campaign: A Case Study in New Jersey,"can be used as a guide for this project. It provides a detailed description of the methodology and data collection for eight intersections, collecting pre- and post-intervention observations via video recording.[5]

Focusing on selected intersections kept the task of measuring behavior change manageable. The Street Smart New Jersey campaign approach generated templates for outreach and evaluation instruments that resulted in scaling up the campaign to targeted intersection trouble spots in over 160 communities across the state (https://bestreetsmartnj.org/). It is recommended that the FDOT safety campaign concentrate messaging/intervention and evaluation resources to carefully selected specific geographies, such as intersections or particular corridors. The Target Zero Safety Campaign has generated lists of specific zip codes from which to select for targeted messaging. This approach enables incorporating refinements to the strategy before expanding delivery of the campaign to more locations across communities statewide.

The San Francisco Metropolitan Transportation Authority (SFMTA) provides another example of a campaign that targeted left turns. This ongoing work has involved surveys to ascertain

[5] Jalayer, M., Patel, D. Szary, P., & Hamas, K. (2020) An observational analysis of pedestrian safety campaign: a case study in New Jersey. International Conference on Transportation and Development 2020: Transportation Safety. Monograph. 182-193.

impacts on a campaign targeting failure to yield right of way while making left turns at specific intersections that were high-crash locations.

2.1 Assessment Instrument

Informed by a literature review on performance metrics, a pre/post-test assessment instrument was developed to measure baseline (prior to intervention) and endline (post-intervention) knowledge, beliefs and behavior. Specifically, we aim to understand whether the campaign resulted in "intention to change behavior."

The assessment instrument addresses distraction, aggressive driving and speeding, which are considered precursor behaviors that precede and lead to risky driving behaviors.[6] It is a premise of this evaluation that reductions in precursor behaviors will lead to reductions in risky driving behaviors.

The monitoring and evaluation plan includes the following.

1. Unit of analysis: Florida residents, specifically:
   - Primary audience: males, ages 22-27 year of age, who drive within Florida.
   - Secondary audience: those who influence the primary audience. Influencers may include different groups, such as parents, children, friends, employers, and celebrities.
2. Recommendations for short-term monitoring objectives, corresponding to a Phase 1 campaign for the primary audience
3. Recommendations for intermediate term monitoring objectives, corresponding to a Phase 2 campaign that continues to engage the primary audience and also addresses the secondary audience
4. Data sources
5. Data collection methods and tools for the selected behaviors
6. Timeline for data collection

2.2 Evaluation Approach

We recommend a pre/post evaluation design, consisting of an electronic survey administered to the primary audience using probability-based sampling as a recruitment strategy. The intervention is defined as the community/community-based intervention launched and implemented in the four geographic regions in Florida aligned with the four Vital Few Safety areas.

It is recommended that the FDOT Target Zero Safety Campaign evaluation plan include both survey and observational components. Baseline pre-intervention survey and pre-intervention observations must be completed prior to the public launch of the campaign. Pre- and post-

[6] Target Zero Approach Chart, January 6, 2022.

intervention survey instruments are developed after the targeted underlying behaviors to be changed have been selected. Performance metrics are then identified. The pre- and post-intervention survey instruments were designed, drawing upon several strong survey examples from prior research, which contain validated questions and scales. The survey can be delivered to a stratified sample, based on target audience age and geographic region. Options for survey distribution include using a combination of telephone contact via random digit dialing, online survey, intercept, and other delivery methods to reach the target audience. Specific recommendations are provided in Chapter 4—Assessment Instrument.

Based upon findings from the formative research and applicable theories of behavior change, the survey questions collect information relating to awareness and recall of the statewide campaign brand, demographic information of survey participants, and some combination of the following: key message recognition, knowledge relating to relevant laws of motor vehicle operation, perceptions relating to targeted behaviors, attitudes relating to the campaign message, beliefs relating to one's personal ability to change behavior, beliefs relating to degree to which reducing crashes is under one's control, intent to change behavior, and self-reported behavior. The most comprehensive and illustrative survey example was developed at The University of Michigan Transportation Research Institute and was used as the basis for the baseline survey for the Target Zero Safety Campaign.[7] The proposed baseline survey is attached as Appendix 2.

2.3 Behavioral Observations

Beyond the use of the baseline and post-test survey to measure knowledge, attitudes, and behavioral intent during Phase 1, it is recommended that the Target Zero Safety Campaign incorporate behavioral observations as part of Phase 2. Because the behavior campaign messaging is targeting the selected zip code areas, it is recommended to select identified high crash corridors within or proximate to these zip codes for observation measurement.

Cost estimates for collecting observational data can be based upon FDOT traffic study cost estimates per location, and number of staff hours of data collection.

The following discussion provides general direction to the monitoring and evaluation plan, based upon the literature review completed under Task 2.2.

While it is challenging to isolate the impact of a safety campaign on crash reduction directly, it is more realistic to measure the impact of a campaign on change in behaviors that are known to lead to crashes. It is known that human error is a contributing factor in an overwhelming

[7] Lisa J. Molnar, David W. Eby, Jennifer S. Zakrajsek, Lidia P. Kostyniuk, Nicole Zanier, David J. LeBlanc, Emeka Nriagu, and Tina Sayer. January 2021. UMTRI-2021-2. "Guidelines for Development of Evidence-Based Countermeasures for Risky Driving—Final Technical Report", Volume 2, pp. 169-189.

majority of crashes. It is a premise of the safety campaign that changing underlying behavior can prevent crashes (e.g., reduce speed) or lessen the severity of crash outcomes (e.g., wear seatbelts.

2.4 Campaign Duration and Time Frame to Measure Impact

Crashes are rare events. Monitoring trends in the incidence of crashes over a period of time (i.e five years) can help to determine if an increase or decrease in crash occurrence is not due to chance. We recommend an evaluation design that captures output measures but is outcome focused. To obtain outcome measures, it is recommended to carry forward the activities over an extended time period.

Behavior change requires time and ongoing efforts to maintain and reinforce the change. Monitoring over an extended period of time and measuring outcomes is not new to FDOT. For example, change was demonstrated by tracking trends for the national "Buzzed Driving is Drunk Driving" campaign by the Ad Council and NHTSA. FDOT contributed to this overall effort in its "Drive Sober or Get Pulled Over" campaign implemented statewide 2015-2021. Monitoring was conducted for the national Buzzed Driving campaign over a period of 15 years, with a baseline survey conducted in 2005, and a survey each year thereafter through 2019. Lightspeed Research, Inc. conducted the annual tracking survey from 2005-2018. C+R Research, Inc. has conducted the survey starting in 2019. The survey measured ad recall and intent to drive while impaired. The baseline 2005 survey results for the core target of men ages 21-35 indicated that 46 percent agreed that "there was a time recently when I probably had too much to drink before getting behind the wheel." The 2019 endline survey showed a decrease to 25 percent who agreed with the above statement.[8] This same survey showed that in 2005, 50 percent of men ages 21-35 indicated they would always get a ride/taxi/public transport after drinking or never drink if planning to drive; in 2019, this increased to 66 percent.[9]

Furthermore, the evaluators of the NHTSA/Ad Council's Buzzed Driving Prevention campaign also noted, "The trends reported in this survey correlate with the Ad Council's campaign activities, but the findings do not isolate the response to this campaign apart from the other national and local initiatives, including law enforcement initiatives and other communications programs. Other external factors such as increased ride-share availability likely contribute to shifts in behavioral trends."[10] This highlights an ongoing challenge in pinpointing the specific change and degree of change that can be directly attributed to a safety campaign when other

[8] Ad Council and National Highway Traffic Safety Administration. (2020). "Buzzed Driving Prevention. Tracking Survey Report." Slide 22.
[9] Ad Council and National Highway Traffic Safety Administration. (2020). "Buzzed Driving Prevention. Tracking Survey Report." Slide 20.
[10] Ad Council and National Highway Traffic Safety Administration. (2020). "Buzzed Driving Prevention. Tracking Survey Report." Slide 5.

external factors are present. Evaluators can aim to identify as many other influencing variables, then design the evaluation to control for as many of those impacts as possible.

2.5 Selection of High Crash Corridors

It also is recommended to initially select one corridor in one of the regions to test the observational measurement process first, before applying it to all four regions. Existing crash rates as compiled in Table 4 are organized by the four behavior campaign regions. These represent the selected MPOs/TPOs in Florida based on the counties chosen for the focus groups and represent the five-year rolling average for the time period 2015-2019. It is recommended to first select an MPO/TPO within the region. This could be guided by comparing total fatalities and serious injuries across the MPOs/TPOs in each region, in addition to comparisons of the rates of fatalities and serious injuries. It is interesting to note that while the counties in each of the regions that are more urbanized have higher absolute numbers of fatalities and serious injuries, the rates for fatalities and serious injuries tend to be higher in the more rural counties. For example, in the Tampa Bay region, Hillsborough TPO had 1,317.4 serious injuries for a rate of 9.318 serious injuries per 100M VMT. However, while the Pasco County MPO had a lower number of serious injuries at 1,119.2, its rate of serious injuries is more than double that of Hillsborough TPO, at 23.197 serious injuries per 100M VMT. It is **recommended to select high crash corridors in counties with higher rates of fatalities and serious injuries, and which also have high traffic volumes to collect sufficient observational data.**

The earlier HNTB crash analysis mapped street locations of the crashes of interest, providing information from which to identify high crash corridors. There also are other map resources. For use in the Miami/Broward and Palm Beach/Ft. Myers/Naples regions, the campaigns of which are concentrating on speeding with respect to pedestrian and bicyclist fatalities and serious injuries, there are a few other sources of information about high crash corridors. These include the FDOT State Safety Office's ArcGIS web mapping application. This app displays the street locations of nonmotorized crashes that resulted in fatalities and serious injuries in the top 25 counties for crashes. Developed at the request of the State Bicycle/Pedestrian Safety Program Manager, in coordination with the Data, Analysis and Evaluation Emphasis Team of Florida's Pedestrian and Bicycle Safety Coalition, this tool focuses on those crashes that involve at least one motorist, and includes several useful layers, including a zip code layer and a summary layer that allows users to see locations of higher crash density.
https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=2af15253ea564927bcbad1cc7002f9ff

Another resource is an analysis of high crash corridors with crashes involving pedestrian and bicycle fatalities and serious injuries, which occurred between 2016 and 2020. This analysis was conducted by Asha Planning Consultancy, Inc. and identified and mapped highway segments for use for HVE efforts in 2021-2022. The segments were ranked based on a combination of the number of crashes and crash density. The ranked segments also were identified by zip code and divided into Tier 1 and Tier 2. The Tier 1 segments are prioritized for having the highest crash activity.[11]

TABLE 4: FEDERAL SAFETY PERFORMANCE METRICS FOR SELECTED MPOS/TPOS

Region	MPOs/TPOs that serve specific counties	Counties Chosen for Focus Groups	# Fatalities (5yr)	Rate of Fatalities per 100M VMT (5yr)	# Serious Injuries (5yr)	Rate of Serious Injuries per 100M VMT (5yr)	# Non-Motorized Fatalities and Non-Motorized Serious Injuries (5yr)
Orlando/Volusia							
		Flagler	19.4	1.395	79.4	5.711	11.4
	River to Sea TPO	Volusia	114.0	1.906	730.0	12.217	104.8
	MetroPlan Orlando	Orange	273.0	1.156	2,575.4	11.156	386.8
		Osceola					
	Lake-Sumter MPO	Lake	79.2	1.449	521.4	9.515	50.2
Tampa Bay area							
	Hillsborough TPO	Hillsborough	200.8	1.416	1,317.4	9.318	228.8
	Pasco County MPO	Pasco	92.2	1.883	1,119.2	23.197	122.8
	Sarasota/Manatee MPO	Manatee	119.0	1.445	1,503.4	18.267	187.2
Miami-Dade/Broward							
	Miami-Dade TPO	Miami-Dade	302.0	1.481	1,664.4	8.169	426.6
	Broward MPO	Broward	225.4	1.276	1,365.8	7.758	312.2
West Palm Beach/Ft. Myers/Naples							
	Palm Beach TPA	Palm Beach	176.0	1.243	1093.0	7.712	207.8
	St. Lucie TPO	St. Lucie	38.4	1.091	146.2	4.196	26.2
	Martin MPO	Martin	28.0	1.224	112.0	4.850	17.8
	Lee County MPO	Lee	101.0	1.313	562.4	7.289	100.2
	Collier MPO	Collier	41.2	1.105	225.8	6.043	44.6
	Heartland Regional TPO	DeSoto	77.4	2.442	468.6	14.794	35.6

Source: Florida Department of Transportation.
2019_FHWA_PerformanceMeasuresPerMPO_DataExtractAsOf2020-12-04_Light_DRAFT.xlsx

Miami/Broward Region

Using Miami-Dade County as an example for the Miami/Broward region, several identified and prioritized Tier 1 highway segments also are within the zip codes identified as the residential location of the most numbers of motorists in the primary audience that contributed the first

[11] Asha Planning Consultancy, Inc. 2021. Memorandum regarding 2021-2022 HVE Segments, Top 25 Counties. Prepared for FDOT Central Office and IPTM. Orlando, FL.

action in a crash. Table 5 lists these identified zip codes in the Miami/Broward region. The contiguous zip codes 33162 (North Miami Beach) and 33169 (Miami Gardens) contain a cluster of four Tier 1 high crash corridors. These are located in the north part of Miami-Dade County. This general area also is identified in the Bicycle Pedestrian Master Plan as a Community of Concern and include the following.

- NW 183rd Street, from NW 12th Avenue to N. Miami Avenue
- NE 167th Street, from NE 5th Avenue to N. Miami Beach Blvd.
- NW 2nd Avenue, from NW 199th Street to Broward County Line
- NE 167th Street, from NW2nd Avenue to NE 2nd Avenue

Before selecting corridors for observational measurement, it is recommended to consult with the Miami-Dade TPO that plans for bicycle and pedestrian improvements through its 2045 Bicycle Pedestrian Master Plan[12], to determine if roadway improvements are scheduled for those segments during the campaign. It is recommended that consultation also include seeking the TPO's concurrence that the selected zip code(s)/corridor(s) is a good choice. The TPO may have more up-to-date information about the area. Finally, it is recommended to seek the concurrence of the law enforcement agencies that serve the selected zip code(s) to learn of any ongoing or imminent HVE activity. While this knowledge might not necessarily change the zip code/corridor selection, it is good to identify as many other factors as possible, which might influence the success of a campaign.

TABLE 5: CANDIDATE ZIP CODES AND COMMUNITIES IN THE MIAMI/BROWARD REGION

County	Zip codes	Communities
Broward	33311, 33024, 33312, 33313, 33309, 33064, 33023, 33068, 33025, 33063	Oakland Park, Pembroke Pines, Melrose Manners, South Ft. Lauderdale, Pompano Beach, Miramar
Miami-Dade	33142, 33147, 33161, 33012, 33055, 33033, 33013, 33162, 33179, 33032, 33056, 33054, 33169, 33135	Miami, North Miami, North Miami Beach, Miami Shores, Miami Gardens, Biscayne Park, Hialeah, Brownsville, Miami Springs, Liberty Square, West Little River, Gladeview, Westview, Pinewood, Golden Glades, Sweetwater, Homestead, Homestead Base, Leisure City, Opa-locka, Ojus, Ives Estates, Naranja, Princeton, Lake Lucerne, Bunche Park, Andover, Norland

Source: HNTB. 2021. Statewide analysis. Prepared for the Florida Department of Transportation. State Safety Office Target Zero Safety Campaign.

[12] 2045 Miami-Dade Bicycle Pedestrian Master Plan. https://miamidade2045lrtp.com/supporting-documents

Palm Beach/Ft. Myers/Naples Region

The Palm Beach/Ft. Myers/Naples region safety campaign also is focusing on nonmotorized and speeding. Table 6 lists the identified zip codes in the Palm Beach/Ft. Myers/Naples region. A comparison of reported federal safety performance metrics indicates that in this defined region, the highest numbers of nonmotorized crashes have occurred in Palm Beach County. The second highest numbers of crashes have occurred in Lee County but the rate for serious injuries is the highest in the Heartland Regional TPO in which DeSoto County is located. It is recommended to compare the locations of zip codes in the selected county with the ranked and tiered high crash corridors identified for priority HVE activity.[13] It is recommended to confer with the MPO/TPO of the selected zip code(s)/corridor(s) and their bicycle and pedestrian master plan, as well as the law enforcement agency that serves the area to confirm the selection and learn of any construction activity or HVE activity in the area.

TABLE 6: CANDIDATE ZIP CODES AND COMMUNITIES IN THE PALM BEACH/FT. MYERS/NAPLES REGION

County	Zip codes	Communities
Collier	34104	Eastern Naples
Desoto	34266	Arcadia
Lee	33971, 33919	Lehigh Acres, Ft. Myers
Martin	33458	Jupiter
Palm Beach	33444, 33461, 33463, 33467, 33436, 33445, 33415, 33432, 33435, 33406	Delray Beach, Lake Worth, Boynton Beach, West Palm Beach, Boca Raton, Lake Clark
St. Lucie	34953	Port St. Lucie

Source: HNTB. 2021. Statewide analysis. Prepared for the Florida Department of Transportation. State Safety Office Target Zero Safety Campaign.

Orlando/Volusia Region

The Orlando/Volusia campaign will focus on distracted driving. Table 7 lists the identified zip codes in the Orlando/Volusia region. Like the other three regions, it is recommended to compare the zip code locations with known high crash corridors as identified in various planning documents, including those developed by MetroPlan Orlando, River to Sea TPO and Lake-Sumter MPO.

[13] ASHA Planning Consultancy, Inc. (2021). Memorandum regarding 2021-2022 HVE Segments, Top 25 Counties. Prepared for FDOT Central Office and IPTM. Orlando, FL.

TABLE 7: CANDIDATE ZIP CODES AND COMMUNITIES IN THE ORLANDO/VOLUSIA REGION

County	Zip Codes	Communities
Flagler	32164	Palm Coast, Bunnell
Lake	34711	Clermont, Groveland
Orange	32808, 32828, 32822, 32818, 32825, 32703, 32712, 32839, 34787, 32807	Orlando, Pine Hills, Orlovista, University Park, Ocoee, Alafaya, Union Park, Apopka, Forest City, South Apopka, Plymouth, Orlando, Oak Ridge, Holden Heights, Edgewood, Pine Castle, Winter Garden, Horizon West, Oakland, Four Corners, Tildenville, Bay Lake, Azalea Park
Osceola	34744, 34746, 34759, 34758	Kissimmee, St. Cloud, Campbell, Poinciana
Volusia	32725, 32738, 32174	Deltona, Ormond Beach, Daytona Beach, Bunnell

Source: HNTB. 2021. Statewide analysis. Prepared for the Florida Department of Transportation. State Safety Office Target Zero Safety Campaign.

Tampa Bay Region

Lastly, the behavior campaign for the Tampa Bay region will focus on aggressive driving. Table 8 lists the identified zip codes in the Tampa Bay region. Like the other three regions, it is recommended to compare the zip code locations with known high crash corridors as identified in various planning documents, including those developed by the Hillsborough TPO, the Pasco County MPO and the Sarasota-Manatee MPO.

TABLE 8: CANDIDATE ZIP CODES AND COMMUNITIES IN THE TAMPA BAY REGION

County	Zip Codes	Communities
Pasco	34668, 34667, 34691, 34652,34655, 34653, 34654, 33523	New Port Richey, Hudson, Holiday, Elfers, Trinity, Dade City
Manatee	34207, 34203, 34221, 34208,34205, 34209	Bradenton, Palmetto
Hillsborough	33570, 33511, 33619, 33578,33614	Ruskin, Riverview, Palm River-ClairMel, Egypt Lake

Source: HNTB. 2021. Statewide analysis. Prepared for the Florida Department of Transportation. State Safety Office Target Zero Safety Campaign.

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Chapter 3—PERFORMANCE METRICS

The outcome metrics of concern to the Target Zero Safety Campaign, which also are defined and required to be monitored under the federal Highway Safety Program, are a reduction in fatalities and serious injuries resulting from crashes. The goal of campaign evaluation is to determine, in the long term, the degree to which the reductions are attributable to the Target Zero Safety campaign.

Twelve different categories of performance metrics were identified from the previous literature review completed under Task 2.2 of this project. Of particular interest to this project is behavior metrics that can be observed and measured. Behavior metrics (e.g., reduce speed), as can be measured in the short term, are used as a proxy for outcome metrics (e.g., number of fatalities), based on the premise that reducing risky behaviors while driving (e.g., reducing speed) can reduce fatalities that are measured on a longer-term time frame. However, for the short-term time frame of Phases 1 and 2 of the campaign, it is recommended to measure progress using key constructs identified in behavioral change theory. Progress would be measured by change in knowledge, attitudes and beliefs, injunctive norms, perceived susceptibility to risk, and intent to change behavior.

Based on the successive steps in the campaign development process, including the crash analysis, formative research, development of a creative brief, the Safe Driver Profile, and the messaging developed for the campaign, the following metrics are proposed and are reflected in the baseline assessment instrument.

1. Start the driving trip early enough to arrive on time without having to exceed the speed limit.
2. Drive at or below the speed limit.
3. Delay making phone calls until after arriving at the destination.
4. Keep full attention on driving and not allow distractions.
5. Maintain safe distance from the car in front.

3.1 Observed Behaviors

Beyond the Phase 1 baseline and endline survey of knowledge, attitudes and behavioral intentions, it is recommended to consider adding direct behavioral observation to Phase 2 and campaign cycles thereafter to supplement the survey data. It is known that some types of behavioral observation can be accomplished in coordination with law enforcement activities. For example, police traffic radar, LiDAR units, and speed displays are used during high visibility enforcement campaigns. Previous studies of campaigns, such as Street Smart New Jersey, have used video camera units to capture specific behaviors, such as failure to yield to a pedestrian in a crosswalk. Video can be set up during selected hours at locations of interest. This would require staff to set up and take down the equipment, as well as remain on site to monitor the

recording functioning and safeguard the equipment. After recording is complete, staff hours are then required to review the video and catalog the observations in preparation for analysis.

Other studies have stationed observers at selected locations, such as parking garage exits to observe mobile phone use.[14] These researchers described difficulties seeing inside vehicles, in addition to the limited view that prevents observation of texting if the motorist is holding the phone lower than the side window. NHTSA has published a protocol for observing distracted driving behaviors, including using hand-held phones. This is the Controlled Intersection (CI) sub-survey of the National Occupant Protection Use Survey (NOPUS). These are observations made by data collectors stationed at locations while motorists are stopped at a stop sign or traffic signal.[15] This points to other limitations to collecting street side observations of vehicle occupants. One issue relates to the definition of distracted driving. There is a lack of consensus over whether using one's phone while completely stopped at a traffic signal should be counted as distracted driving. Secondly, a growing percentage of motor vehicles have tinted glass, making it difficult or impossible to see inside the vehicle. Some evidence suggests motorists use their phones more frequently after leaving the work site. For many, the end of the workday corresponds to low light conditions at dusk, presenting further challenges to making observations. Third, any use of observers in the field must carefully consider how to ensure the safety of the observers who would have to position themselves closely enough to moving traffic to make the observations.

3.2 Data Services Companies

In recent years, many data service companies are now offering sensor data from tracking motor vehicles, which could potentially be used to represent observations of distracted driving, aggressive driving and speeding. Three examples of such companies are described below. The potential limitations of these data include that not all motor vehicles currently have sensors. Sensors were introduced to motor vehicles by numerous car makers beginning in 2014. New models of cars may now possess hundreds of different types of sensors. With time, sensors in the U.S. fleet of private motor vehicles will likely become ubiquitous.

Another potential limitation is that the data are anonymized and there is no way to distinguish with certainty, which vehicles are being driven by the primary audience. One potential way to approximate this is that data services companies can identify the type of motor vehicle. Along a corridor, each motor vehicle that passes through an area has a unique identifier that is connected to its vehicle type, vehicle movements, and event data. The baseline survey includes

[14] Joseph, B., Zangbar, B., Bains, S., Kulvatunyou, N., Khalil, M., Mahmoud, D., Friese, R., O'Keefe, T., Pandit, V., and Rhee, P. (2016). "Injury prevention programs against distracted driving: Are they effective?" *Traffic Injury Prevention*, 17(5), 460-464.

[15] National Highway Traffic Safety Administration. (2010.) "Driver Electronic Device Use Observation Protocol." Traffic Safety Facts Research Note. DOT HS 811 361. Washington, D.C.: Office of Behavioral Safety Research. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811361

a question in the demographics section, asking the type of vehicle that the survey participant drives. The selection of vehicle types in the survey corresponds to the vehicle categories tracked by the data service companies. If the data indicate strong preferences on the part of the primary audience for a particular type of vehicle, such as a pickup truck, that may point to further considering the vehicle movement and event data that are associated with pickup trucks.

Zendrive is an example of a smartphone-based telematics developer platform that uses data and artificial intelligence to generate information for fleet risk managers, automobile insurance companies and others to improve safety.[16] Zendrive can convert data from various types of sensors (e.g., Bluetooth, GPS, WiFi, Touch Screen, gravity, altitude, barometer, magnetometer, accelerometer, gyroscope) in a motor vehicle or on a smartphone, to generate data about aggressive acceleration, hard braking, excessive speeding, sharp turns, phone use, and other insights.

Wejo is an example of a data services company that provides real time traffic intelligence that enables fleet managers of public and private sector businesses to provide direction to drivers on the best routes. Wejo partners with 22 automotive manufacturers of connected vehicles. Their analytics can identify incident and congestion hotspots based on the increasing number of vehicles equipped with communication devices. Data that Wejo can collect include heading, ignition status, seatbelt unlatched, acceleration, speed tied to location, latitude and longitude, timestamp, vehicle ID and trip ID. The penetration rate for the month of January 2022 in Florida is 800,000 unique vehicles, 88 million vehicle journeys and 36 billion data points. Wejo's data capabilities can measure the number of incidents of a particular type of behavior along a defined highway segment or at an intersection, or a defined multi-county area or by zip code. For example, the rate of turn signal use could be calculated as a percentage of the number of cars turning at an intersection within a defined period. The number or percentage of vehicles exceeding the speed limit by 10+ mph within a roadway construction work zone could be documented. The data from the car manufacturers are anonymized. Presently, there are few options offered by Wejo for identifying distracted driving; however, Wejo is aware of strong interest in data to measure distracted driving and is investigating ways to do this while maintaining driver anonymity. This capability is not currently available. Wejo is presently working with the original equiment manufacturers (OEM) to access lateral G-force data that may lend insights into harsh turning.

The Tampa Bay region was used as an example for discussion with Wejo, to explore possibilities for using telematics data collected from motor vehicle sensors to measure speeding, aggressive driving, and distracted driving. A high crash corridor was selected due to its proximity to a

[16] https://www.zendrive.com

cluster of contiguous zip codes identified in the HNTB analysis, as shown in Figure 2. These zip codes are 33619, 33511 and 33578 and they contain high numbers of residential locations of motorists of the primary audience, which contributed the first action in crashes. The high crash corridor is Gibsonton Drive in Hillsborough County in the Tampa Bay region, as shown in Figure 3. It is located in zip code 33578. It was identified in the Hillsborough TPO Vision Zero planning analysis as a Corridor of Concern. The Gibsonton Drive segment could be considered as a candidate for observational measurement.

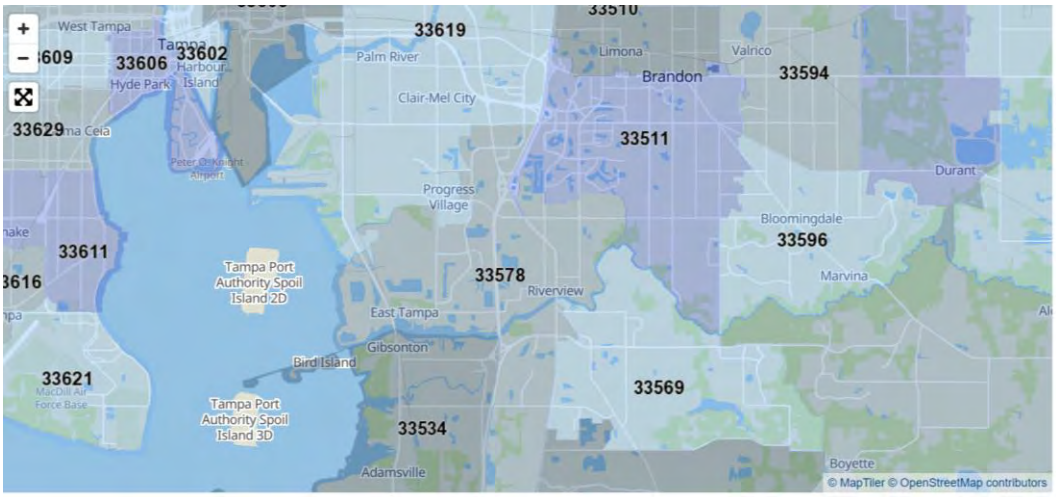

FIGURE 2. RESIDENTIAL ZIP CODES OF PRIMARY AUDIENCE IN TAMPA BAY REGION.
Source map: http://www.unitedstateszipcodes.org

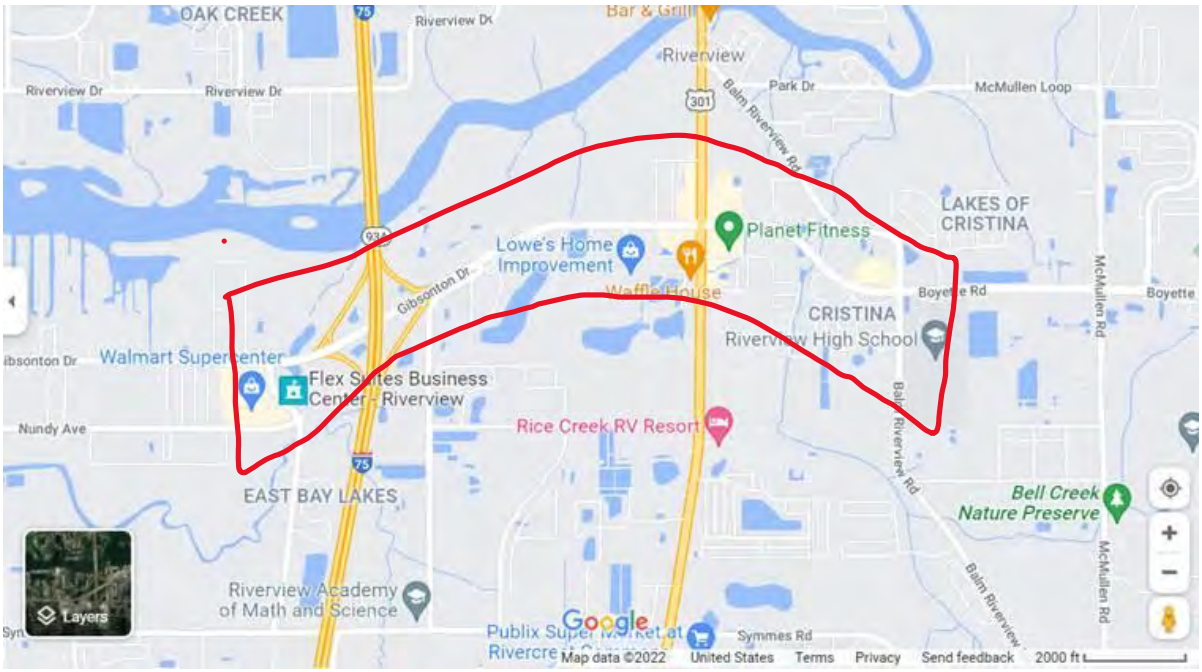

FIGURE 3. GIBSONTON DRIVE IS A HIGH-CRASH CORRIDOR WITHIN ZIP CODE 33578.
Source map: Google Maps.

Wejo data cost is defined by polygon of interest, datapoints and time. Based upon estimates provided by Wejo, the cost to purchase data for the 2-mile Gibsonton Drive segment is approximately $5,200 for one month of vehicle movements and selected driving events data. Cost includes license fee and data fee. Selected driving events include the following.

- Speeding, based upon some defined threshold
- Distracted driving
- Aggressive driving, including
    - Harsh braking
    - Not signaling intention to turn

A proxy measure for distracted driving may be an event in which the seat belt is unlatched. Drivers often will unlatch their seat belts to reach for something in the cabin, potentially indicating distracted driving. In addition, vehicle movement and selected driving event data for FDOT District Seven (including Pinellas, Manatee, Hillsborough, Hernando and Citrus) for one month would cost approximately $32,500. These data are available from May 2019; therefore, it is possible to measure a baseline from historical data.[17]

Analytics for Fleet Management

Another option to consider for evaluation data are telematics companies that provide services to companies that operate vehicle fleets. Telematics companies typically provide real-time tracking of fleet vehicles, tools for regulation compliance, routing to reduce fuel consumption, and fleet maintenance scheduling. More telematics companies are now offering driver safety monitoring, including on-board dashcams that can detect distracted driving and phone use.

Companies that have fleets of vehicles and drivers are at the forefront in using telematics to monitor driving behavior to minimize hazardous driving, reduce crashes, reduce liability and premiums, improve insurance benefits, provide crash exoneration support, and reduce wear and tear on fleet vehicles. Companies use the reports developed through video telematics to provide driver coaching to improve driving skills. Some companies use gamification for incentivizing safe driving, with each driver getting a score based on their driving.[18] Examples of telematics companies include Keep Truckin, Omnitracs (Solera), Platform Science, Arvento, Gurtam, G7, MiX Telematics, Teletrac Navman, Fleetistics, Webfleet Solutions, Zonar, Geotab, Verizon Connect, and Trimble.

[17] Bethany Haslam. Email communication. February 21, 2022. https://www.wejo.com/

[18] Fleet Complete. "Unpacking 2021 for Fleet Telematics in North America, Europe, and Australia." p. 9. https://f.hubspotusercontent00.net/hubfs/182351/Unpacking%202021%20for%20Fleet%20Telematics%20in%20North%20America,%20Europe,%20and%20Australia%20Report.pdf

To apply this to an evaluation of the Target Zero Safety Campaign by monitoring before and after observations of the primary audience, this would require inviting representatives of the primary audience to participate in the evaluation and agree to allow the telematics company to provide a plug-in option of the equipment for use within the vehicle of the evaluation participant. This might include a dongle, or small device that can be connected to an OBDII diagnostic computer, which also allows access to protected software or to wireless broadband. This type of evaluation would require protecting the identity and privacy of the evaluation participants.

To provide an example, Fleetistics offers a vehicle GPS telematics device (https://www.fleetistics.com/). It can gather information specific to a driver and vehicle, including fast acceleration and g-forces exerted on different parts of the vehicle, as measured and logged by a GO device. Harsh side-to-side movements can detect hard cornering. The GO device applies conditional thresholds to determine the presence of aggressive driving, then transmits the data to Geotabs Store and Forward servers for processing and report generation. A Driver Safety Scorecard is generated, as shown in Figure 4. Use of an onboard DV6 Dashcam also can monitor distraction and cell phone use.

Use of detection cameras, such as that offered by Fleetistics would not be used in conjunction with Wejo anonymized data because Wejo abides by strict PII laws as required by their OEM partners.

Name	Group	Distance (km)	Total Score	Scoring Classification	Hard Acceleration	Harsh Braking	Harsh Cornering	Seat belt	Speeding	Excessive Speeding	Total Occurences
Vehicle 1	Entire Organization	1,133.69	41.5	High Risk	87.2	100.0	92.9	67.3	0.0	0.0	344
Vehicle 2	Entire Organization	256.17	57.4	High Risk	81.2	100.0	100.0	100.0	0.0	30.9	35
Vehicle 3	Entire Organization	2,148.73	97.1	Low Risk	100.0	100.0	100.0	97.1	92.8	97.0	25
Vehicle 4	Entire Organization	507.55	80.1	Mild Risk	100.0	100.0	100.0	100.0	24.1	84.1	14
Vehicle 5	Entire Organization	3,403.24	65.2	Medium Risk	100.0	99.5	100.0	96.3	0.0	53.2	270
Vehicle 6	Entire Organization	1,894.40	56.6	High Risk	94.9	94.9	67.7	100.0	0.0	36.3	265
Vehicle 7	Entire Organization	1,120.81	80.4	Mild Risk	100.0	100.0	100.0	65.3	66.8	79.9	67
Vehicle 8	Entire Organization	539.58	94.9	Mild Risk	85.1	88.1	76.1	100.0	100.0	100.0	17
Vehicle 9	Entire Organization	326.76	92.9	Mild Risk	100.0	100.0	85.2	94.4	84.6	95.1	15
Vehicle 10	Entire Organization	2,904.20	69.1	Medium Risk	100.0	100.0	100.0	87.9	5.2	68.4	205
Vehicle 11	Entire Organization	2,020.80	73.8	Medium Risk	93.6	97.6	96.0	100.0	4.1	80.9	118
Vehicle 12	Entire Organization	3,645.40	61.0	Medium Risk	100.0	100.0	99.6	100.0	0.0	36.9	350
Vehicle 13	Entire Organization	3,703.86	54.0	High Risk	97.4	99.6	94.4	89.5	0.0	23.1	551
Vehicle 14	Entire Organization	25.95	83.8	Mild Risk	38.0	100.0	0.0	100.0	100.0	100.0	5
Vehicle 15	Entire Organization	379.28	75.2	Mild Risk	100.0	95.8	91.5	82.5	0.0	100.0	54
Vehicle 16	Entire Organization	4,788.07	51.5	High Risk	89.9	97.6	79.2	100.0	0.0	16.0	761
Vehicle 17	Entire Organization	2,703.78	49.2	High Risk	97.0	99.4	95.2	100.0	0.0	0.0	509
Vehicle 18	Entire Organization	1,788.38	48.3	High Risk	96.4	97.3	91.0	99.2	0.0	0.0	284
Vehicle 19	Entire Organization	411.32	53.8	High Risk	25.7	96.1	49.1	92.5	0.0	60.9	67
Vehicle 20	Entire Organization	727.20	61.9	Medium Risk	73.4	100.0	60.2	90.6	11.6	60.2	98
Vehicle 21	Entire Organization	1,122.49	54.9	High Risk	95.7	100.0	79.9	81.3	0.0	36.9	168

FIGURE 4. EXAMPLE OF DRIVER SAFETY SCORECARD.
Source: Fleetistics. http://www.fleetistics.com/compare-fleet-management-platforms/driver-safety-scorecards/

Chapter 4—ASSESSMENT INSTRUMENT

It is proposed that an assessment instrument, such as the draft survey contained in Appendix 2, be used to gauge changes in attitudes and beliefs, behavioral intentions, and self-reported behaviors relating to the precursor behaviors identified during campaign planning. Precursor behaviors precede and lead to risky driving behaviors. Reductions in precursor behaviors will lead to reduction in risky driving behaviors that contribute to crash fatalities and serious injuries.

4.1 Background Research that Informed Survey Development

The development of this survey is informed by previous work conducted by Molnar et al. (2021) from the University of Michigan Transportation Research Institute (UMTRI). UMTRI conducted a study to create a set of guidelines to inform the development of evidence-based countermeasures reducing risky driving behaviors.[19] The UMTRI work started with an extensive literature review of 82 identified theories of behavior change, which describe, explain and predict how people change their behavior. Theories identify constructs, or components that relate to behavior change.

Constructs include attitudes (people's evaluation of consequences of performing a behavior), norms (social pressure), self-efficacy (belief in one's power to change), intentions (decisions to act), risk and threat perceptions, and others. UMTRI researchers were particularly interested in theories that had evidence linking them to driving, and theories that addressed campaigns to change behavior and intentions to change. The UMTRI review resulted in narrowing the focus to the Theory of Planned Behavior/Theory of Reasoned Action, the Health Belief Model and the Social Cognitive Theory. These three models collectively contained the key constructs, including attitudes, norms, self-efficacy, intentions, and perception of risk related to driving and these were applied in this evaluation. For behavior change to be observed, this theoretical basis strengthens the development of the behavior change program and guides the development of the evaluation. Combined with application of theory, multi-component interventions that address the "4 Es" consistently and over the long term have the best chance to change behavior.

Results from the UMTRI research revealed four risky driving behaviors that strongly predict intention to engage in a behavior, and subsequently, predict actual observed engagement in that behavior. These behaviors included use/hold cell phone, eat/drink, tailgate, and speed.

[19] Molnar, Lisa J., David W. Eby, Jennifer S. Zakrajsek, Lidia P. Kostyniuk, Nicole Zanier, David J. LeBlanc, Emeka Nriagu, and Tina Sayer. (2021). "Guidelines for Development of Evidence-Based Countermeasures for Risky Driving—Final Technical Report, Volume 2." UMTRI-2021-2. Ann Arbor, MI: The University of Michigan Transportation Research Institute. Appendices C through G, pp. 158-217. https://deepblue.lib.umich.edu/handle/2027.42/166094

These behaviors correspond to the focused behavioral themes listed in the Target Zero Approach Chart (January 6, 2022), as bulleted below.

- **Using/holding a cell phone and eating/drinking** were identified through the formative research as **distraction-related** precursor behaviors leading to risky driving actions that contribute to lane departure crashes.
- **Tailgating** was identified through the formative research as a **reckless/aggressive-related** precursor behavior leading to risky driving actions that contribute to intersection crashes.
- **Running late/rushing** was identified through the formative research as **speeding-related** precursor behaviors leading to risky driving actions that contribute to bicyclist and pedestrian crashes.

Distracted/Reckless/Aggressive. The UMTRI research identified that an attitude favoring talking/using a cellphone predicted talking/using a cellphone. Intention to talk on a hand-held cellphone and being age 18-25 predicted the observed number of using/holding cellphone tasks per minute of observed driving. Higher intention to talk on a hand-held cellphone and higher injunctive norms for placing a cellphone close, meaning that most people close to them think it is all right for them to place their cellphone close to them, predicted more observed tailgating per trip and per minute of observed driving. Observed tailgating per trip was also predicted by longer average trip length.

Speeding. The UMTRI research found that the attitude that speeding is necessary predicted intention to speed. Higher intention to speed, lower perceived susceptibility to crash if speeding, and longer average trip length predicted more observed speeding per trip. Higher intention to speed and longer average trip length predicted more observed speeding per minute.

These research findings from the UMTRI study, along with previous literature reviews and formative research, informs us that ***messaging aimed at changing attitudes and intentions may have the intended effect of reducing distracted driving, tailgating and speeding***. To measure these attitudes and intentions, we recommend the evaluation design to consist of a baseline/endline survey designed to measures these changes.

4.2 Baseline Survey Instrument

The purpose of the baseline/endline surveys are to measure change in knowledge, attitudes and intention relating to reducing distracted driving, aggressive driving and speeding while driving, after exposure to the Target Zero Safety campaign.

Topic areas of the survey include demographic, self-reported driving behaviors, behavioral intentions, attitudes about driving, injunctive norms, and perceived susceptibility to a crash due to engaging in certain behaviors. Survey questions were developed based upon the FDOT

Safety Campaign team crash analysis, literature reviews, formative research, segmentation and selection of primary and secondary audiences. The survey questions also were developed based on the Creative Brief that define the objectives of the Target Zero Safety Campaign to help the audiences know (learn), feel (believe), and do (behavior). Finally, the resulting creative messaging developed from a Safe Driver Profile was used to refine and finalize the survey questions relating to the specific behaviors of interest. To the extent possible, survey questions and associated scales were taken verbatim or adapted from other validated surveys.[20] Validated means that the survey questions have been pre-tested and used by other researchers, and there have been data collected in response to those survey questions.

4.3 Survey Outreach

It is recommended to hire a professional survey company to administer the survey and to work with one or more panel companies to recruit respondents. Panel companies assemble people who are collectively representative of the U.S. population. Panels consist of large groups of people who have agreed to be on a panel and are paid a small stipend to complete the survey. Panelists periodically provide detailed demographic information to their panel companies. This information is used to survey targeted segments of the population. Examples of panel companies are Amazon MechnicalTurk (MTurk) and Prime Panels. MTurk is an online recruitment platform commonly used in academia. Prime Panels is an aggregate of online research panels.

Each panel company may have slightly different procedures. The survey will be programmed to be administered online. The survey company will work with the panel company to notify by text message or other means appropriate to the target audience, the targeted respondents of the survey opportunity and ask interested respondents to click on the survey link.

Reducing Scamming

Survey companies know that online surveys can be subject to scammers who pose as the target audience to take the survey and collect the incentive.[21] Survey companies will put safeguards in place to weed out scammers. These may include tests such as response duration, in which those who complete the survey in less than one third the expected time are weeded out. Likewise, survey takers who select the same answer across all questions would be weeded out. It is recommended that the consultant responsible for administration of the survey discuss

[20] Items measuring self-reported frequency of engaging in risk-taking driving behaviors were adapted from Feng et al. (2014) and Lajunen et al. (2004). Items relating to attitudes and to behavioral intentions or the likelihood that the primary audience would engage in risk-taking behaviors were adapted from Lee et al. (2016) and Nemme and White (2010). Items relating to injunctive norms were adapted from Feng et al. (2014) and Marulanda et al. (2015). Items relating to perceived behavioral control were adapted from Nemme and White (2010). Items relating to susceptibility to risk were adapted from Molnar et al. (2021)

[21] Hammond, Robert W., Claudia Parvanta, and Rahel Zemen. (2022). "Caught in the Act: Detecting Respondent Deceit and Disinterest in On-Line Surveys. A Case Study Using Facial Expression Analysis." *Social Marketing Quarterly*. Sage Journals. Vol. 28(1). 57-77.

these safeguards with the survey company, including how completed and returned surveys will be validated as legitimate. The consultant also should verify that the panel company can verify that recruited survey participants meet the inclusion criteria, including valid driver license.

4.4 Survey Sample

There are four regions that were defined from the crash analysis that are the locations of crash hot spots. These are the locations for which a distracted driving campaign will be launched in the Orlando/Volusia region, an aggressive driving campaign will be launched in the Tampa Bay region, and speeding campaigns will be launched in both the Palm Beach/Ft. Myers/Naples region and the Miami/Broward region. For each of the four regions, the campaign messaging will target the primary audience that lives in the zip codes identified in earlier crash analysis by HNTB. These zip codes represent the residential location of the highest numbers of motorists from the primary audience that contributed the first action to crash types of interest. The purpose of the safety campaign messaging targeting the home zip codes of the primary audience is to convey the messages before they start their trip, empowering the primary audience to consider and engage in pre-planned behaviors that can lead to reducing distracted driving, speeding and aggressive driving.

Because the creative messaging and behavior media campaign will be targeting specific zip codes within each of the four regions, the baseline survey participants should be representatives of the primary audience who also live within these zip codes. The primary audience has been defined in the Target Zero Creative Brief (December 1, 2021) as Florida male drivers ages 22-27.

The sample size depends on the observable change that is desired, or effect size. To consider an expected effect size, the literature was reviewed. Two distracted driving studies provide a benchmark for a reasonable expectation of change by one point on the Likert scales used regarding changes in attitudes for the initial Phase I campaign.[22] A probability sample ensures that the sample is truly representative of the population of interest. With the aim of obtaining equal numbers of respondents from the four geographic regions, it is recommended to recruit a cluster sample of the primary audience from the specific residential zip codes. Applying a 95 percent confidence interval and power of 80, as used in the public health sciences to measure expected effect, a total baseline survey sample of 1,600 is suggested, as shown in Table 9. That is approximately 400 successfully completed and returned baseline surveys from each region. After completion of the campaigns, an endline survey would be conducted following a similar process.

[22] See Joseph et al. (2016) and NHTSA (2011).

If the survey company cannot obtain 400 surveys within the selected zip codes of each region, then it is recommended to supplement the sample of surveys from the primary audience members within other zip codes within each defined region.

TABLE 9: RECOMMENDED SURVEY SAMPLE SIZE AND DISTRIBUTION

Primary audience living in selected zip codes* within the region	Test	Number of successfully completed surveys
Orlando/Volusia	Baseline	400
Orlando/Volusia	Endline	400
Tampa Bay	Baseline	400
Tampa Bay	Endline	400
Miami/Broward	Baseline	400
Miami/Broward	Endline	400
Palm Beach/Ft. Myers/Naples	Baseline	400
Palm Beach/Ft. Myers/Naples	Endline	400
Total		3,200

*Zip codes identified in HNTB analysis. Prepared for the Florida Department of Transportation. State Safety Office Target Zero Safety Campaign.

Inclusion Criteria

1. male
2. ages 22-27
3. Have a valid driver license
4. Reside in zip codes identified during initial crash analysis as the residential zip codes representing highest concentrations of drivers from the primary audience, who were involved in the four crash types.

Exclusion Criteria

1. Not meeting all of the inclusion criteria
2. Not able to read or understand English or Spanish clearly, as eliminated by the panel
3. Employee of FDOT, FHP, and others as identified by the exclusion criteria applied for the focus groups

4.5 Survey Procedures

An online informed consent form will be presented first. Respondents will be instructed to click on a link to provide consent to participate in the survey. Those providing consent will be immediately directed to the online survey instrument. All data from the survey will contain only subject codes. No names or contact information will be associated with the information.

The survey will consist of questions relating to their sociodemographics (to validate successful targeted audience recruitment), self-reported behavior, beliefs and attitudes, and intentions to engage in the selected risky driving behaviors. The survey will be designed to be taken both on a smart phone as well as a laptop computer.

The survey is designed to be completed in under 10 minutes. Participants will be compensated by their panel company for completing the survey according to the panel company's standard payment procedure.

The data files generated from the survey will be managed by FDOT's consultant. The same survey instrument should be used for all four regions, as illustrated in Table 10 so that the three regions not exposed to behavior-specific messaging will serve as the control to compare against the results for the region exposed to the messaging.

The data will be a de-identified dataset from the survey company containing the survey participants' responses. The survey instrument is included in Appendix 2.

TABLE 10: TARGETED PRIMARY AUDIENCE AND CONTROLS

Campaign	Orlando/Volusia region Distracted Campaign = D		Tampa Bay region Aggressive Campaign = A		Miami/Broward region Speeding Campaign = MBS		West Palm/Ft. Myers/Naples region Speeding Campaign = WPS	
	Regionwide	Selected zip codes	Regionwide	Selected zip codes	Regionwide	Selected zip codes	Regionwide	Selected zip codes
Distracted	D	D	C	C	C	C	C	C
Aggressive	C	C	A	A	C	C	C	C
Speeding/ Pedestrians	C	C	C	C	MBS	MBS	C	C
Speeding/ Bicyclists	C	C	C	C	C	C	WPS	WPS
Statewide	ST	ST	ST	ST	ST	ST	ST	ST

C= not exposed to the campaign (control group)
ST= exposed to the general statewide campaign

Campaigns

1. One statewide campaign will expose all people in the state to general safety awareness messaging.
2. Four behavioral campaigns, each with messaging tailored to a specific behavior and a specific region.
3. Specific zip codes within each region will be saturated with messaging for its assigned campaign.

The same baseline and endline survey can be used for ***all*** groups. This allows for numerous comparisons among survey participant groups.

For all survey participants, include questions about general statewide campaign recall in endline survey.

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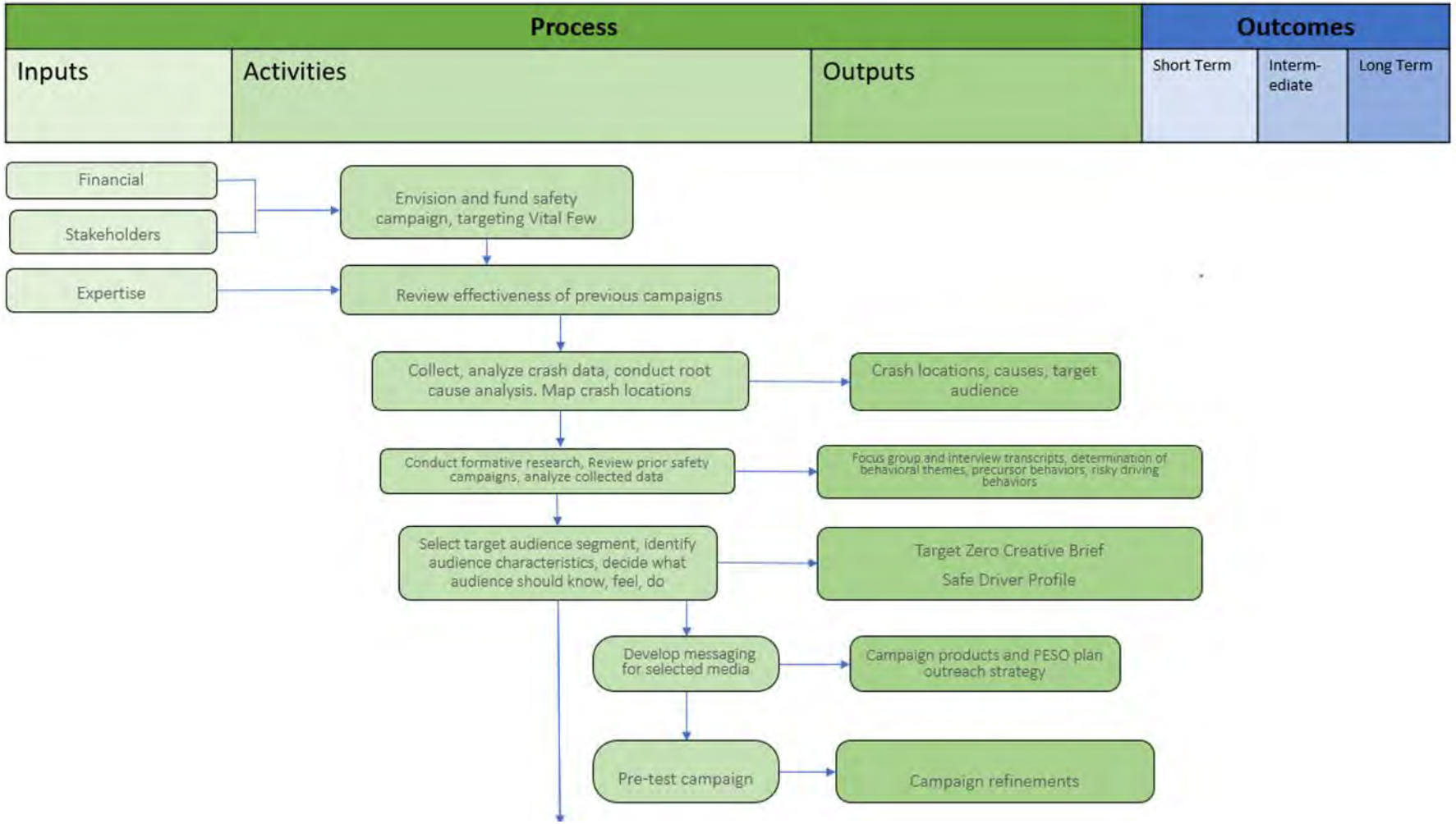
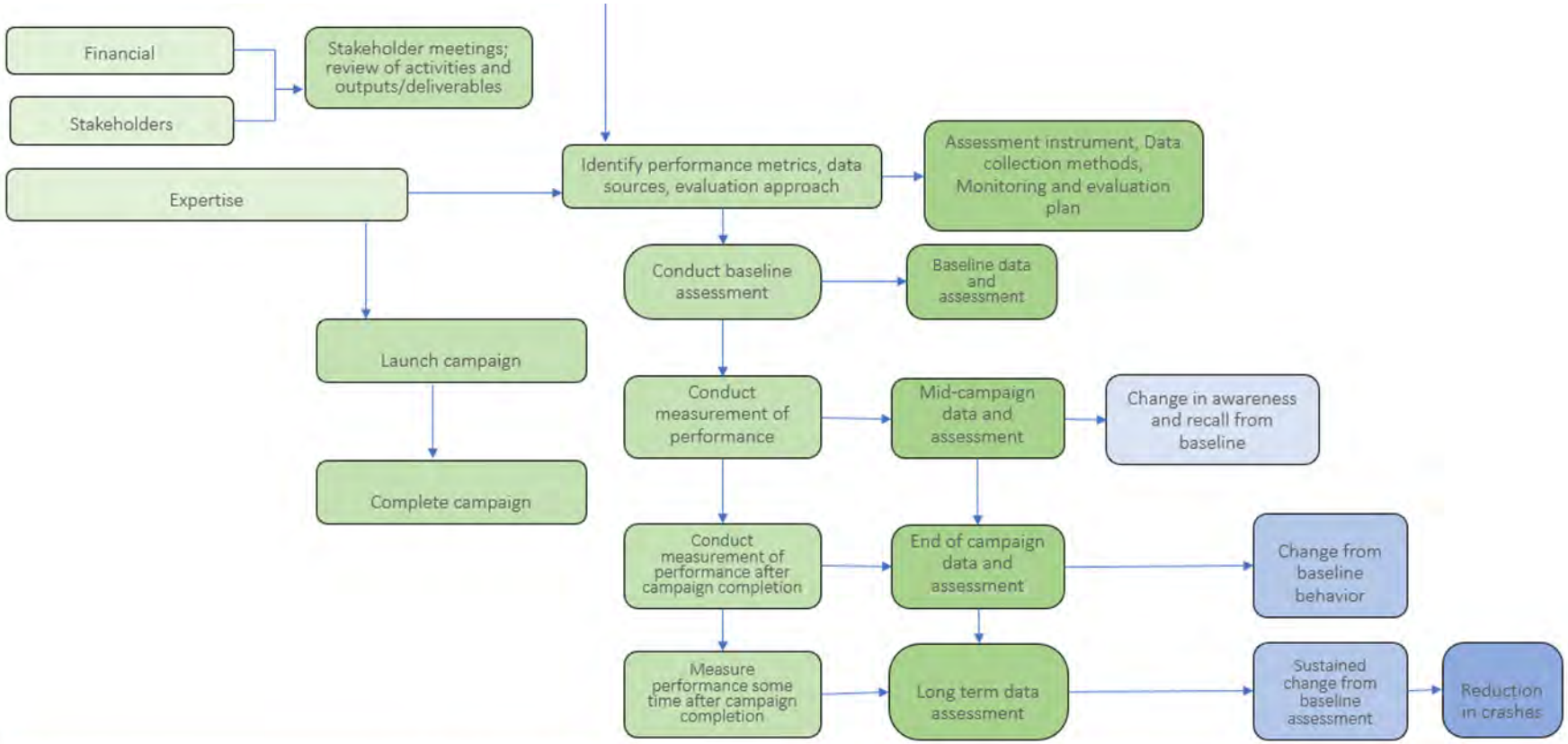
APPENDIX 1—Logic Model Target Zero Behavioral Safety Campaign





Contextual Factors, Assumptions, and Potential Concurrent Events	
• Funding sources prescribe certain activities and performance metrics • Ongoing construction in targeted campaign area • Newly constructed improved corridor design suddenly opens to traffic	• Potential new laws or regulations enacted • New or changed intensity of enforcement activity • Other concurrent national, FDOT District and local campaigns

APPENDIX 2– Assessment Instrument

Draft Survey Instrument for Primary Audience

Informed Consent

You are being asked to take part in a survey about improving highway safety. The information on this page should help you decide if you would like to participate in this survey.

Study Staff: This survey is being administered by Kittelson & Associates, Inc. a traffic engineering consulting company, led by Ryan Cunningham who is Principal Engineer at Kittelson & Associates, Inc. Mr. Cunningham is working in conjunction with a survey company,_____, and a panel company, _____, and a team of partners led by Brenda Young, P.E., CPM, State Safety Engineer of the Florida State Department of Transportation, with HDR, Inc., Quest Marketing and Communications, HNTB engineering consulting company, and the University of South Florida.

Study Details: In partnership with the Florida Highway Patrol and other public and private sector Ambassadors for the Target Zero Safety Campaign, this campaign and its evaluation is sponsored by the Florida Department of Transportation with funds from the National Highway Traffic Safety Administration and the Federal Highway Administration. The purpose of this survey is to help understand the knowledge, attitudes and actions of motorists while driving on Florida highways. This survey takes approximately ___ minutes to complete.

Survey Participants: You are being asked to take part in this survey because you are a Florida resident and a motorist who drives a motor vehicle on Florida roads. Your knowledge, attitudes and actions affect highway safety.

Voluntary Participation: Your participation in this survey is voluntary. You do not have to participate, and you may stop your participation at any time. There will be no penalties or loss of benefits or opportunities to you if you choose not to participate or decide to stop once you start. Your decision to participate or not participate will not affect your job status, employment record, employee evaluations or advancement opportunities.

Benefits, Compensation, and Risk: We do not know if you will receive any benefit from your participation. There is no cost to participate. You will be compensated by the panel company for completing the survey according to the panel company's standard payment procedure.

This research is considered to be minimal risk. Minimal risk means that the risks to you from participating in this survey are the same as the risks you face in daily life.

Confidentiality: When the findings of this survey are published, these findings will be presented in aggregate form, and individual survey responses are collected anonymously. No names or other identifying information will be collected or stored by the survey team.

1) What is your age? ____ years

2) In what zip code do you live?_____

3) Which category most closely matches the type of motor vehicle that you drive most often?

- Coupe
- Cross-over utility vehicle
- Hatchback
- Minivan
- Motor Home
- Pickup
- Sedan
- Supermini
- Sport utility vehicle
- Truck
- Motorcycle
- Do not drive

4) Do you identify as male?
- YES
- NO

5) Do you have a current Driver License?
- YES
- NO

6) In a typical week, how many days per week do you normally drive?_____days

7) In a typical week, how many miles do you drive?_____miles

8) How many crashes have you been involved in over the past five years when you were the driver?____

9) How many times in the past year have you been pulled over by the police, regardless of whether you received a ticket?____

10) In the past month, how often did you start your driving trip early enough so you could arrive on time without having to exceed the speed limit?

- A few times per month
- About once per week
- Two to three times per week
- Almost daily
- More than once per day

11) In the past month while driving, how often did you wait to make phone calls until after you arrived at your destination?

- A few times per month
- About once per week
- Two to three times per week
- Almost daily
- More than once per day

12) In the past month while driving, how often did you keep your full attention on driving and not allow any distractions?

- A few times per month
- About once per week
- Two to three times per week
- Almost daily
- More than once per day

13) In the past month while driving, how often did you exceed the speed limit to make up for lost time?

- A few times per month
- About once per week
- Two to three times per week
- Almost daily
- More than once per day

14) In the past month while driving, how often did you drive especially close to the car in front of you (called tailgating or following too closely)?

- A few times per month
- About once per week
- Two to three times per week
- Almost daily
- More than once per day

While driving in the next month, how likely or unlikely is it that you will do the following? Please rate the following statements on the 7-point scale ranging from 1 (Extremely Likely) to 7 (Extremely Unlikely).

Q#		Extremely Likely						Extremely Unlikely
15	Start your driving trip early enough so you can arrive on time without having to exceed the speed limit.	1	2	3	4	5	6	7
16	Delay making phone calls until after you arrive at your destination.	1	2	3	4	5	6	7
17	Keep your full attention on driving and not allow any distractions.	1	2	3	4	5	6	7
18	Exceed the speed limit to make up for lost time.	1	2	3	4	5	6	7
19	Drive especially close to the car in front of you (called tailgating or following too closely).	1	2	3	4	5	6	7

Please rate the following statements how they best describe you, on the 7-point scale ranging from 1 (Strongly Agree) to 7 (Strongly Disagree).

Q#		Strongly Agree						Strongly Disagree
20	I have the power to start my driving trip early enough so I can arrive on time without having to exceed the speed limit.	1	2	3	4	5	6	7
21	While driving, I am in control of whether to make phone calls.	1	2	3	4	5	6	7
22	While driving, I have the power to keep my full attention on driving and not allow any distractions.	1	2	3	4	5	6	7
23	While driving, staying within the speed limit demonstrates self-control.	1	2	3	4	5	6	7
24	While driving, maintaining a safe distance from the car in front of me demonstrates self-control.	1	2	3	4	5	6	7
25	While driving, I have the power to control my anxiety and stressors.	1	2	3	4	5	6	7
26	It is up to me to safeguard others by the way I drive.	1	2	3	4	5	6	7

Most people who are important to me think it is all right for me to…

Q#		Strongly agree						Strongly disagree
27	…wait to make a phone call until after I arrive at my destination.	1	2	3	4	5	6	7
28	…exceed the speed limit to make up for lost time.	1	2	3	4	5	6	7
29	…drive especially close to the car in front of me.	1	2	3	4	5	6	7

I can win the respect of most people who are important to me by…

Q#		Strongly agree						Strongly disagree
30	…starting my driving trip early enough so I can arrive on time without having to exceed the speed limit.	1	2	3	4	5	6	7
31	…waiting to make a phone call until after I arrive at my destination.	1	2	3	4	5	6	7
32	…keeping my full attention on driving and not allowing any distractions.	1	2	3	4	5	6	7
33	…exceeding the speed limit to make up for lost time.	1	2	3	4	5	6	7
34	…maintaining a safe distance from the car in front of me.	1	2	3	4	5	6	7

How likely is it that doing each of the following will result in you having a crash or close call in the next year?

Q#		Extremely likely						Extremely unlikely
35	Making a phone call while driving.	1	2	3	4	5	6	7
36	Exceeding the speed limit.	1	2	3	4	5	6	7
37	Driving especially close to the car in front of you.	1	2	3	4	5	6	7

Post Survey Campaign Recall Questions

In the post-test survey, questions could be added to measure participant recall of the campaign. Below are some proposed questions.

38) In the last 3 months, where have you seen or heard any messages about refraining from making phone calls while driving? Please check all that apply.

- Social media
- Billboards
- Radio ads
- I have not seen or heard any messages.

39) In the last 3 months, where have you seen or heard any messages about maintaining safe distance from the car in front of you? Please check all that apply.

- Social media
- Billboards
- Radio ads
- I have not seen or heard any messages.

40) In the last 3 months, where have you seen or heard any messages about not speeding? Please check all that apply.

- Social media
- Billboards
- Radio ads
- I have not seen or heard any messages.

41) In the last 3 months, where have you seen or heard any messages relating to "Let's Get Everyone Home"? Please check all that apply.

- Social media
- Billboards
- Radio ads
- I have not seen or heard any messages.