

Investigating opportunities and developing an Action Plan to improve
safety for all road users on rural roads in Lake & Sumter Counties

Prepared by

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Due: Monday, July 10, 2023 (UCF needs everything ready 7 working days before that)

Type: SS4A Planning & Demonstration Grant – Planning and Demonstration Grants have three different types of activities:

a) Develop an Action Plan for Lake and Sumter Counties

Concept Project Key Points:

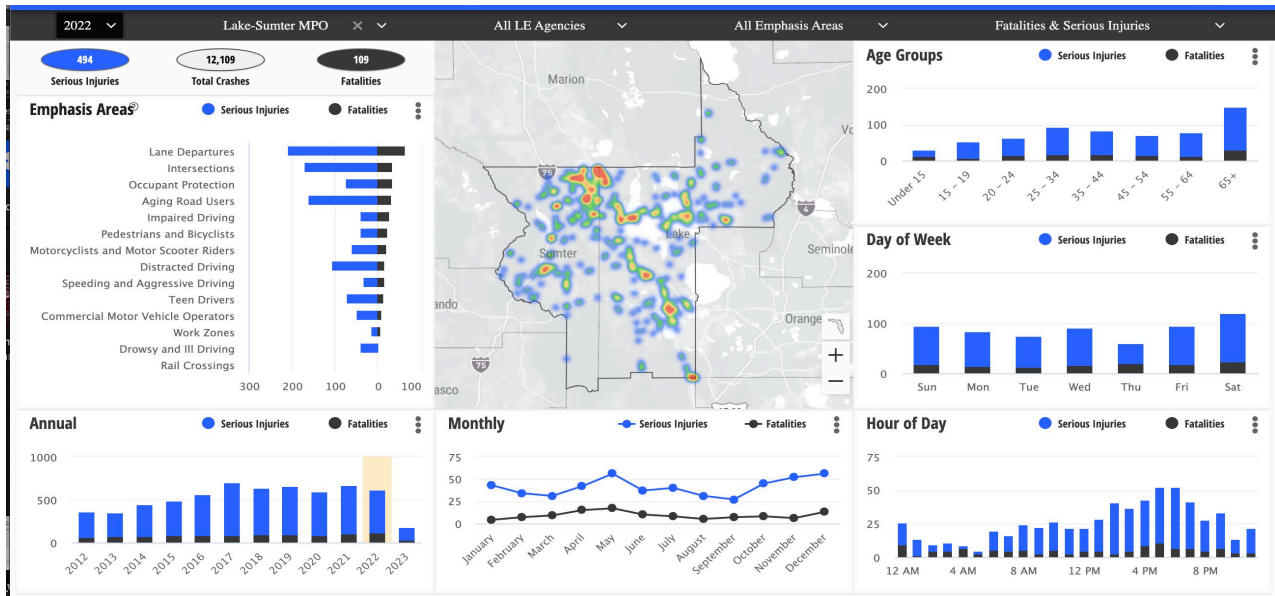
- Perform network screening and analyze the existing data to identify the most critical locations in both counties.
- Provide an equitable approach to increasing safety and accessibility for all road users.
- Develop an Action Plan to enhance safety on rural roads in Lake and Sumter Counties.
- Create the Vision Zero Safety Plan element for the 2050 Long Range Transportation Plan

1. Introduction

The Lake-Sumter MPO aims to improve transportation in both counties for all modes of travel. The mission of the MPO is to provide comprehensive, coordinated, and continuous transportation planning for the safe and efficient movement of people that is consistent with the region's overall economic growth. The developed plan will also aim to support environmental and equity goals and consider the safety performance measures.

Because of the nature of the network, the team expects to investigate crashes that are typical for Lake-Sumter rural roads and identify the most effective ways to address them. Figure 1 presents the type of crashes in the region of interest in 2022.

Figure 1. Fatalities and serious crashes in Lake-Sumter Counties (source S4A).



Given the unique distribution of the roads in the region (Table 1 and Table 2) and the specific needs of the region, the Action Plan will provide an equitable approach to addressing safety for all types of road users. The exact target for the roads of interest will be consistent with the FDOT context classification shown in Figure 2. Table 1 presents the road distribution by context classification in both counties.

Figure 2. FDOT context classifications.



Table 1. Distribution of roads by context classification (Sumter-Lake County)

County	Context Classification	Segment Count	Percent Distribution
Sumter	C1	6	6.82%
	C2	29	32.95%
	C2T	7	7.95%
	C3R	36	40.91%
	C3C	9	10.23%
	C4	1	1.14%
	C5	0	-
	C6	0	-
	Total	88	100.00%
Lake	C1	7	3.23%
	C2	42	19.35%
	C2T	15	6.91%
	C3R	89	41.01%
	C3C	36	16.59%
	C4	22	10.14%
	C5	6	2.76%
	C6	0	-
	Total	217	100.00%

Given the exact road distribution in both counties, the Action Plan will primarily target C2 and C2T (rural and rural town) as well as C3R (suburban residential).

2. Background

Considering the safety performance measures, the first step in exploring the status quo on rural roads in Lake-Sumter Counties implies evaluating the severity of the crashes in the last five years. Table 2 shows descriptive statistics on the number of crashes for the Lake and Sumter Counties (2018-2022). The crash classification is defined as follows: fatal crashes (K), incapacitating injury crashes (A). Lastly, because safety of the non-motorized road users is a big

component of the 2050 Transportation Plan, the pedestrian-related crashes on rural/suburban roads are presented in Table 3.

Table 2. The number of crashes by severity.

County	Severity	2018	2019	2020	2021	2022
Lake	Fatal (K) (% within group)	36 1.96%	30 1.58%	24 1.51%	25 1.34%	38 2.10%
	Serious Injury (A) (% within group)	181 9.83%	162 8.52%	141 8.88%	170 9.11%	96 5.31%
	Total crash	1,841	1,902	1,588	1,866	1,808
Sumter	Fatal (K) (% within group)	16 4.01%	16 4.34%	13 3.69%	16 2.47%	24 3.64%
	Serious Injury (A) (% within group)	50 12.53%	39 10.57%	65 18.47%	94 14.53%	81 12.27%
	Total crash	399	369	352	647	660
Fatal (K) (% within group)		52 2.32%	46 2.03%	37 1.91%	41 1.63%	62 2.51%
Serious Injury (A) (% within group)		231 10.31%	201 8.85%	206 10.62%	264 10.51%	177 7.17%
Total Crash		2,240	2,271	1,940	2,513	2,468

According to Table 2, in Sumter County, serious injury crash rate is much higher compared to that of Lake County.

When turning to the pedestrian-related crashes, it can be found that while the number of fatal and serious injury crashes is overall low (which could be a consequence of low number of people walking), the percentage of fatal/serious injury pedestrian-related crashes is substantially higher compared to the non-pedestrian related crashes.

Table 3. The number of pedestrian-related crashes.

County	Severity	2018	2019	2020	2021	2022
Pedestrian-related	Fatal (K) (% within group)	6 25.00%	4 13.79%	5 15.15%	3 8.33%	7 18.42%
	Serious Injury (A) (% within group)	8 33.33%	8 27.59%	12 36.36%	9 25.00%	14 36.84%
	Total crash	24	29	33	36	38
Pedestrian Not related	Fatal (K) (% within group)	46 2.08%	42 1.87%	32 1.68%	38 1.53%	55 2.26%
	Serious Injury (A) (% within group)	223 10.06%	193 8.61%	194 10.17%	255 10.29%	163 6.71%
	Total crash	269	235	226	293	218

	Total crash	2,216	2,242	1,907	2,477	2,430
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3. Action plan

The objective of the Action Plan is not only to align it with the existing Transportation Plan but also quantitatively evaluate the network and propose data driven recommendations to support safety improvements.

There are several data sources available to the team:

- Crash data (S4A)
- Real operating speeds HERE/INRIX/TomTom data (note: not real time)
- Bicycle/pedestrian crashes
- Land use information
- Google street view (to evaluate vegetation/buildings/design etc.)
- Population distribution (Census)

In addition to examining vehicle crashes, the team proposes to address one or more items from the list below:

- Bicycle and pedestrian needs
- Complete streets
- Safe routes to school

First, the UCF team will evaluate both counties and perform network screening to identify the most unsafe locations. Next, the team will use the existing data sources to perform more in-depth analysis. In cases when more data are needed, the team has a broad experience with collecting and processing microscopic data (such as drone-based trajectories, computer vision for identifying the movements from CCTV). The team has also experience with designing and disseminating community surveys to identify specific needs of the residents.