



Maine Vulnerable Road User Safety Assessment

November 15, 2023





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

November 15, 2023

RE: Maine's Initial Vulnerable Road User (VRU) Safety Assessment

This letter indicates our support for the Initial edition of Maine’s Vulnerable Road User (VRU) Safety Assessment required by the Bipartisan Infrastructure Law. This initial VRU Safety Assessment is based on Maine’s 2018-2022 bicycle and pedestrian fatality and serious injury data and is being published as an addendum to our recently published 2022 Strategic Highway Safety Plan update. Future assessments will be included as an appendix in our SHSP updates.

The State of Maine has made pedestrian and bicycle safety a priority for more than a decade and have included a bike/ped focus area as part of our Strategic Highway Safety Plan since at least 2010. Maine experienced a sharp rise in pedestrian fatalities beginning in 2015 prompting the Maine Department of Transportation and Maine Bureau of Highway Safety to start our HeadsUp! Program which identified twenty-one communities experiencing a higher number of pedestrian and bicyclist crashes than expected. Focused outreach to those communities and implementation of solutions has resulted in improved safety performance in many of those communities. As a result, many of the original HeadsUp! Communities are not included in our new list of towns which represents Maine’s current “VRU high risk areas”.

This VRU Safety Assessment references the important and recent strategies already identified and under way in Maine’s Strategic Highway Safety Plan, Highway Safety Plan, and MaineDOT Active Transportation plan. These coordinated planning efforts represent great teamwork between our offices and many other highway safety partners. The plans reflect many updates and outlines data driven strategies developed to improve safety on our highways. Elements of the Safe System Approach to highway safety were incorporated into this assessment as well as Maine’s 2022 SHSP.

Coordinated and focused safety efforts must continue. This plan requires ongoing attention, and it is important to continually discuss, assess, update, and implement safety strategies outlined in our safety plans. Maine continues to support the national goal of Driving Toward Zero Deaths and VRU safety is an important part of that goal.

Sincerely yours,

Bruce A. Van Note
Commissioner
Maine Department of Transportation

Michael Sauschuck (Nov 7, 2023 08:09 EST)

Michael Sauschuck
Commissioner
Maine Department of Public Safety

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Introduction

On October 21, 2022, the Federal Highway Administration released a Vulnerable Road User Safety Assessment Guidance memorandum the intent of which was to:

“...provide background and guidance to clarify the requirements for the Vulnerable Road User Safety Assessment as described in 23 U.S.C. 148(l), as amended by the Infrastructure Investment and Jobs Act (IIJA) (Pub. L. 117-58, also known as the “Bipartisan Infrastructure Law” (BIL)). All States are required to develop a Vulnerable Road User Safety Assessment as part of their Highway Safety Improvement Program (HSIP) in accordance with 23 U.S.C. 148(l).”

The intent of this requirement is for each State to include their VRU Safety Assessment as an appendix to their Strategic Highway Safety Plan (SHSP), but individual States publish their SHSP updates on different schedules. Maine’s 2022 SHSP Update was essentially complete when the FHWA guidance was issued so Maine’s Initial VRU Safety Assessment is being released as a separate document to meet the deadline specified in 23 U.S.C. 148(l).

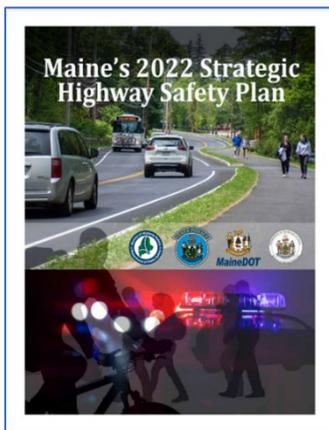
What is a Vulnerable Road User?

The definition of “vulnerable road user” is provided in 23 U.S.C. 148(a)(15) as “a non-motorist” which includes all individuals involved in crashes that meets FARS person attribute codes: (5) Pedestrian, (6) Bicyclist, (7) Other Cyclist, and (8) Person on Personal Conveyance.

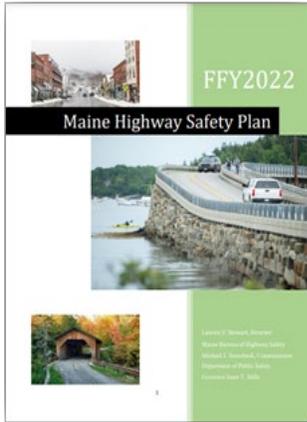
Recent VRU Safety Planning Initiatives

The State of Maine has made Pedestrian and Bicycle Safety a priority for more than a decade and have included a bike/ped focus area in our Strategic Highway Safety Plan since at least 2010. Maine experienced a sharp rise in pedestrian fatalities beginning in 2015 prompting the Maine Department of Transportation to start our Heads Up! Program.

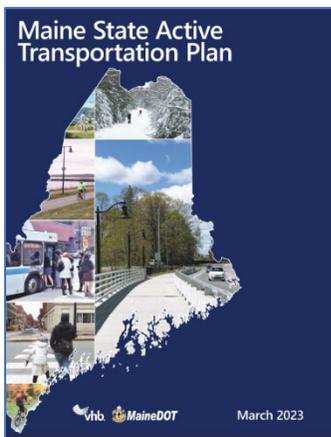
Based upon Maine’s (2011-2015) crash experience, 21 communities were identified as having a disproportionate number of pedestrian crashes. These “Focus Communities” represented about 67% of the state’s pedestrian crashes, including 44% of pedestrian fatalities. In addition to dedicating funding to support targeted infrastructure improvements within these communities, our Heads-Up Pedestrian Safety Project emphasized municipal and community engagement efforts to raise awareness of pedestrian safety.



Published in the fall of 2022, **Maine’s 2022 Strategic Highway Safety Plan** again includes a Pedestrians and Bicyclists Focus Area to address VRU safety in the State. This update contains 18 strategies for improving pedestrian safety and 8 strategies for improving bicycle safety throughout the State. For this first time, Maine’s SHSP also applies the Safe System Approach to build a portfolio of Strategies/Actions that address Safe Roads, Safe Users, and Safe Speeds to ensure redundancy in our approach to solving Maine’s highway safety issues.



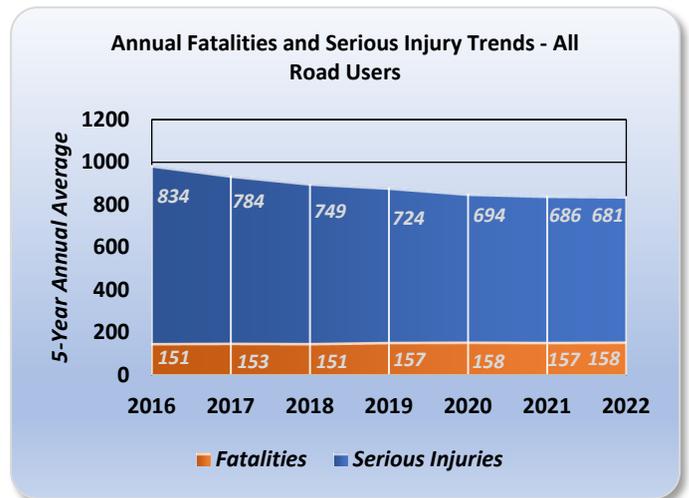
The Maine Bureau of Highway Safety creates and publishes their annual Highway Safety Plan which has recently included a strategy to provide **Pedestrian and Motor Vehicle Traffic Enforcement Grants** to fund focused enforcement in VRU high-risk areas identified as part of the HEADSUP! Program described above. This ongoing strategy funds both education and enforcement activities, including those towns with populations of disadvantaged system users such as those who are unhoused, older adults, and those whose primary language is not English represented in pedestrian crashes and injuries



In March of 2023, **Maine’s State Active Transportation Plan** was published as part of MaineDOT’s “Family of Plans”. This plan involved significant public and planning stakeholder outreach as well as consideration of demographic data to inform MaineDOT’s VRU planning efforts. Several significant strategies related to Safe Roads, Safe Users, and Safe Speeds are included in this plan which are applicable to this VRU Safety Assessment.

These recent planning documents will go far in meeting the required elements of Maine’s VRU Safety Assessment and may be incorporated by reference in appropriate sections later in this document rather than “reinventing the wheel.”

Maine’s Statewide Safety Performance Trends (2013-2022)



Maine Vulnerable Road User Safety Assessment (2023)

The State of Maine experienced a steady reduction in the number of all road users seriously injured in crashes from 2013-2020 when serious injuries reached a low point of 606 serious injuries. The low 2020 serious injury count, 83 fewer than any other year in the past decade, was an outlier value likely due to reduced traffic volumes related to COVID-19. 2021 and 2022 have reversed that trend and Maine's annual serious injury counts are now trending upward. On a five-year annual average (5YAA) basis, Maine continues to see a gradual decrease in serious injuries but the 2020, 2021, and 2022 5YAA data points are heavily impacted by the very low 2020 serious injury outlier value.

The number of all road users fatally injured each year varied significantly over the past decade and the COVID pandemic does not appear to have altered Maine's overall highway fatality counts and trends as significantly as it did our serious injury performance. Maine's fatality count for 2022 was the highest since 2004. On a five-year annual average basis, Maine's fatality performance for all users continues to trend upwards slightly.

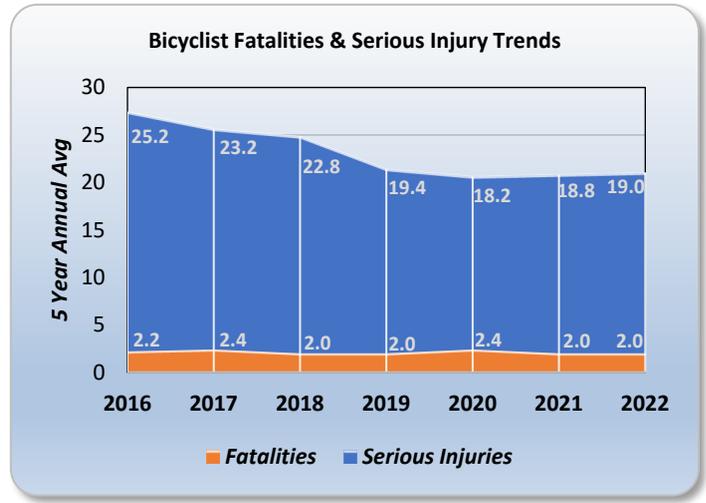
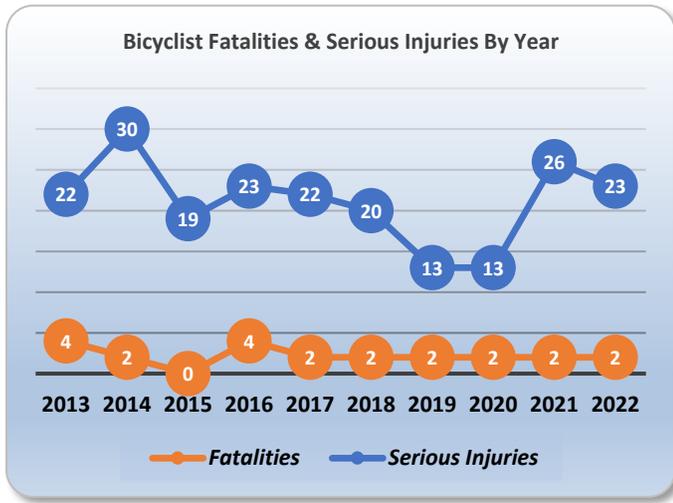
Pedestrian Safety Performance (2013-2022)



Historically Maine's annual pedestrian fatality and serious injury can vary widely on a year-to-year basis and that was the case over the past decade as illustrated in the charts above. Annual serious injury counts for pedestrians ranged from a low of 34 in 2020 to a high of 59 back in 2014. Pedestrian fatalities ranged from a low of 6 in 2018 to a high of 21 in 2022.

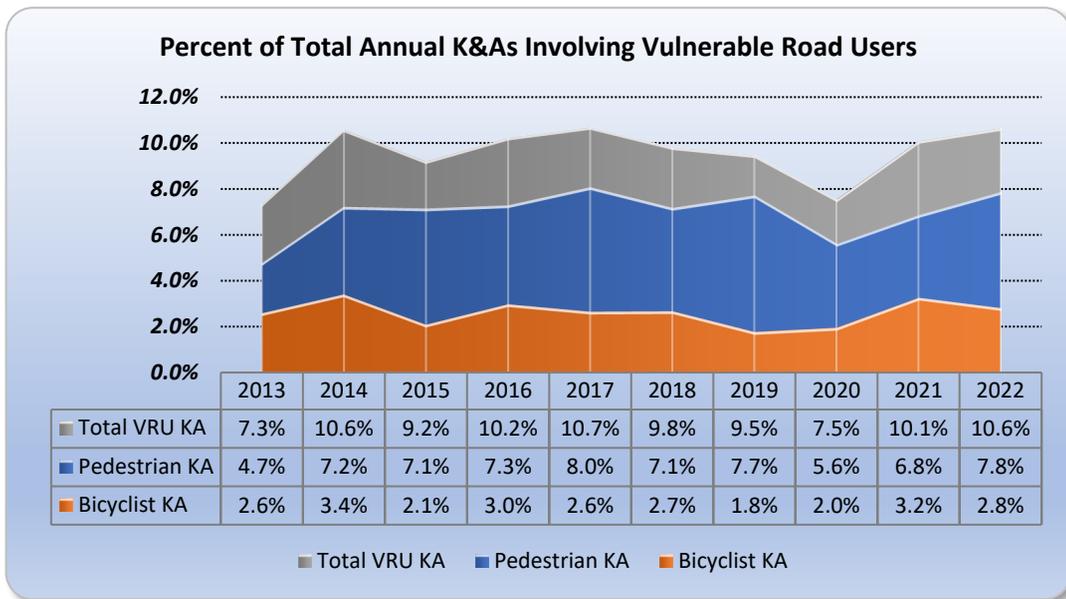
Considering both pedestrian fatality and serious injury counts together, Maine's 2020 Pedestrian KA total was the lowest in the past decade. This the year most impacted by COVID traffic reductions, teleworking, and travel restrictions. Annual Pedestrian fatal and serious injury counts in 2021 and 2022 both show an increasing trend from that low point in 2020, which remains true on a five-year annual average basis for pedestrian fatalities, but the five-year annual average of pedestrian serious injuries continues to trend lower.

Bicyclist Safety Performance (2013-2022)



As with pedestrians, Maine’s annual bicyclist serious injury counts vary widely on a year-to-year basis, ranging from a low of 13 in 2019 and 2020 to a high of 30 in 2014. A spike in post-COVID bicyclist serious injuries have resulted in an increasing five-year annual average trend recently, but prior to 2020 these averages were trending downward. Maine’s annual bicyclist fatality numbers have remained quite constant with an average of slightly over 2 fatalities per year over the past decade regardless of the COVID pandemic.

Vulnerable Road K&A Injuries in Terms of Maine’s Overall K&A Performance (2018-2022)



Maine has experienced approximately **33,000 total crashes per year** on average over the past ten years. VRUs are involved in approximately 1.2% of these crashes (0.7% Pedestrian, 0.5% Bicycle).

Maine Vulnerable Road User Safety Assessment (2023)

When looking at the most severe injuries in Maine’s crash history for the same period, VRUs make up approximately 9.6% of Maine’s total annual road user fatalities and serious injuries (7.0% Pedestrian, 2.6% Bicyclist.)

Annual Safety Performance Targets for Nonmotorized Users.

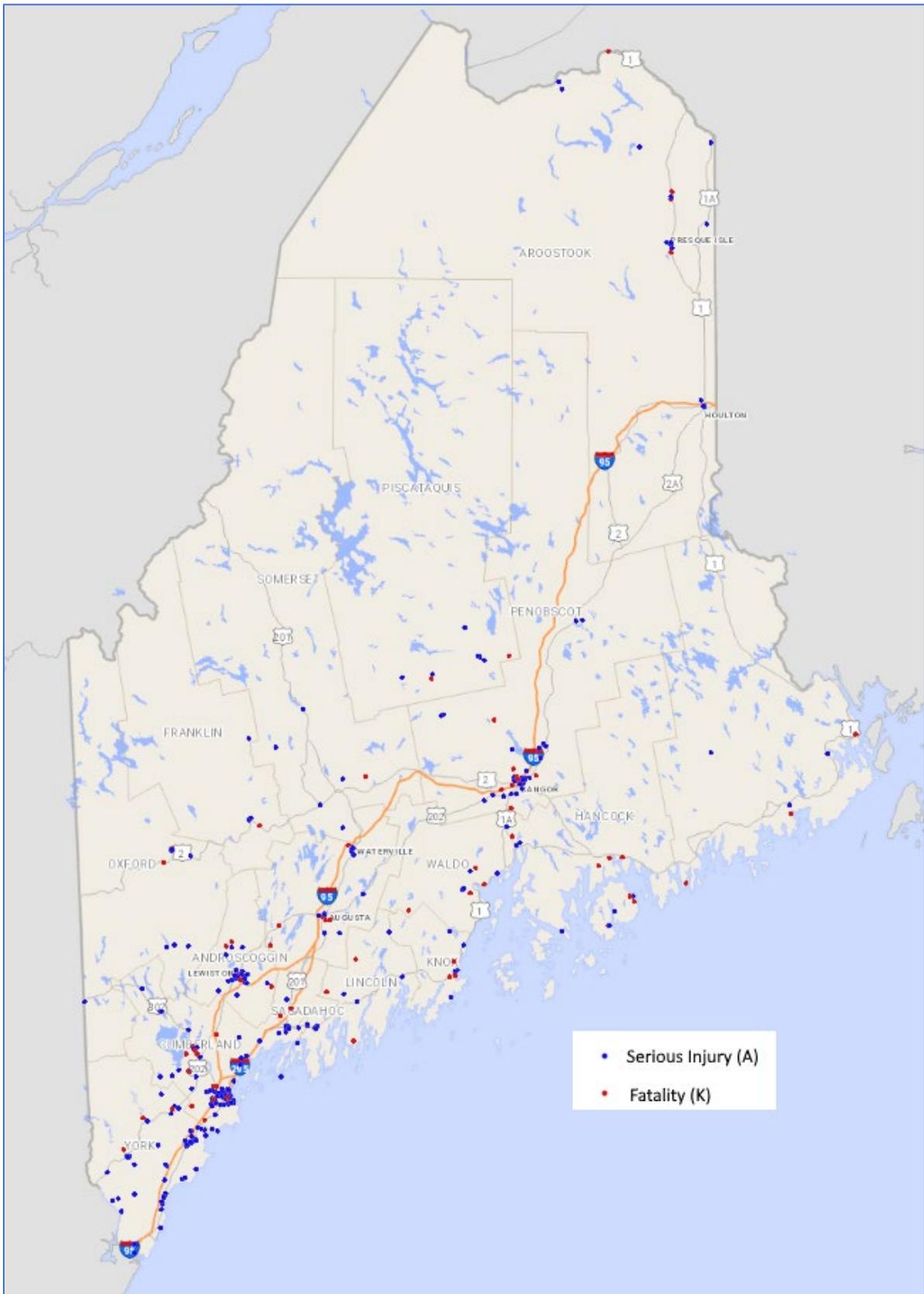
Maine has met or made significant progress towards meeting our annual Safety Performance Targets since states have been required to report these targets.

FHWA’s most recent assessment of Maine CY 2021 Safety Performance Targets:

PERFORMANCE MEASURES	2017-2021 TARGET	2017-2021 ACTUAL	2015-2019 BASELINE	MET TARGET?	BETTER THAN BASELINE?	MET OR MADE SIGNIFICANT PROGRESS?
Number of Fatalities	158.0	156.6	156.4	Yes	N/A	Yes
Rate of Fatalities	1.120	1.090	1.060	Yes	N/A	
Number of Serious Injuries	725.0	683.8	720.4	Yes	N/A	
Rate of Serious Injuries	5.020	4.744	4.876	Yes	N/A	
Number of Non-Motorized Fatalities & Serious Injuries	89.0	79.6	86.6	Yes	N/A	

Maine has consistently met our statewide non-motorized fatalities and serious injuries target.

FHWA’s VRU Safety Special Rule assessment determined that this rule did not apply to Maine during this performance period.



2018-2022 Vulnerable Road User Fatality and Serious Injury Crash Locations

Summary of Quantitative Analysis

For this initial VRU Safety Assessment, we have chosen to analyze the most recent five years of crashes (2018-2022) to determine Maine’s High-Risk Areas for vulnerable road users. The following table contains a summary of the VRU K&A injuries by mode of travel for this five-year period:

Injury Severity	Pedestrian	Bicyclist	Total
K - Fatality	73	10	83
A - Serious Injury	224	92	316
2018-2022 Total	297	102	399

TABLE 1 - 2018-2022 VRU K&A COUNTS

The following table is provided as a comparison to the previous five-year (2013-2017):

Injury Severity	Pedestrian	Bicyclist	Total
K - Fatality	76	12	87
A - Serious Injury	245	114	359
2013-2017 Total	320	126	446

TABLE 2 - 2013-2017 VRU K&A COUNTS

Maine’s HeadsUp! Pedestrian Safety Initiative was town-based as mentioned earlier in this document. For this VRU Safety Assessment, we have again selected a **“Town/City” geographic scale to define high-risk areas for this new statewide level assessment**. For individual Municipalities, Regional Planning Organizations (RPOs), and Metropolitan Planning Organizations (MPOs) a more corridor or neighborhood-specific approach is probably more appropriate, and we will consider active transportation safety plans developed by these entities as well as additional census tract-based equity and demographic data sources to inform our statewide, town-level assessment.

Based on 2018-2022 Total VRU fatality and serious injury data:

Towns With 5 or More VRU Fatalities and Serious Injuries (2018-2022)

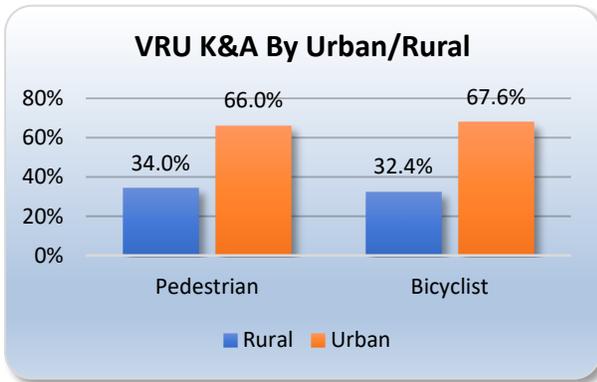
Portland	59	Bath	7
Bangor	20	*Scarborough	7
Lewiston	19	Waterville	6
Biddeford	13	*Presque Isle	6
Auburn	12	*Wells	6
South Portland	12	Westbrook	6
Augusta	11	*Windham	6
Brunswick	10	*Buxton	5
Saco	8	Rockland	5
Sanford	8	*Rumford	5
		*Gorham	5

*Towns not previously identified in Maine’s HeadsUp Initiative

This initial list of towns in the table above have **averaged one or more VRU fatalities and/or serious injuries per year** over the past five years. Fourteen of these twenty-one towns were part of MaineDOT’s HEADSUP! Initiative each of which have had substantial active transportation safety planning outreach and mitigation strategies have

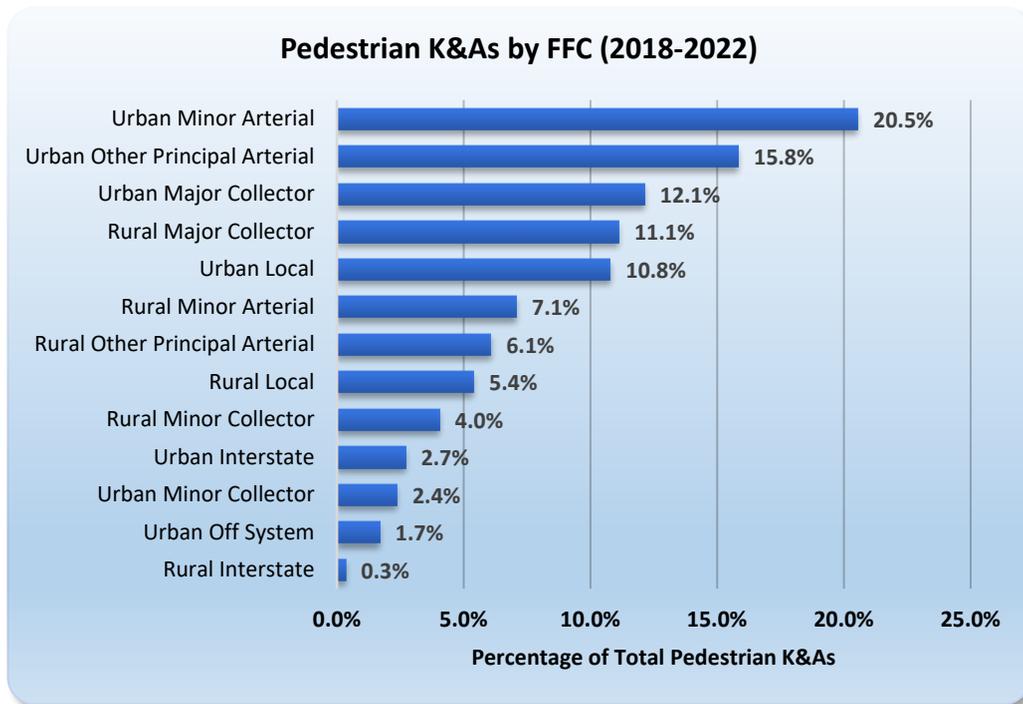
already been programmed or installed. In total, 122 Maine towns experienced at least one VRU fatalities and/or serious injuries during the time. Risk factors and demographics for VRU fatalities and serious injuries were further analyzed to identify which of the 122 towns experiencing less than one VRU K&A per year should be added to this initial list.

Road Features and Environmental Factors Contribution to VRU K&A Crashes



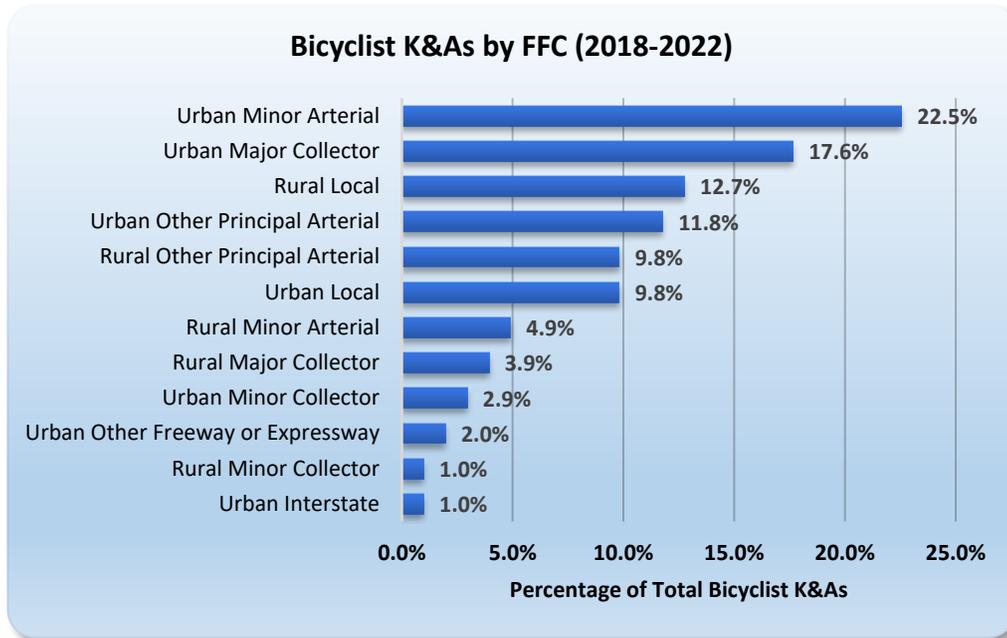
- Approximately two-thirds of Maine’s total VRU K&A injuries occurred on Maine’s urban highway system.
- When looking at VRU fatalities specifically, the results are evenly split with approximately **50% of Maine’s bicycle and pedestrian fatalities occurring on our rural highway system.** Speed is likely a large contributing factor to these fatal outcomes.

Roadway Factors



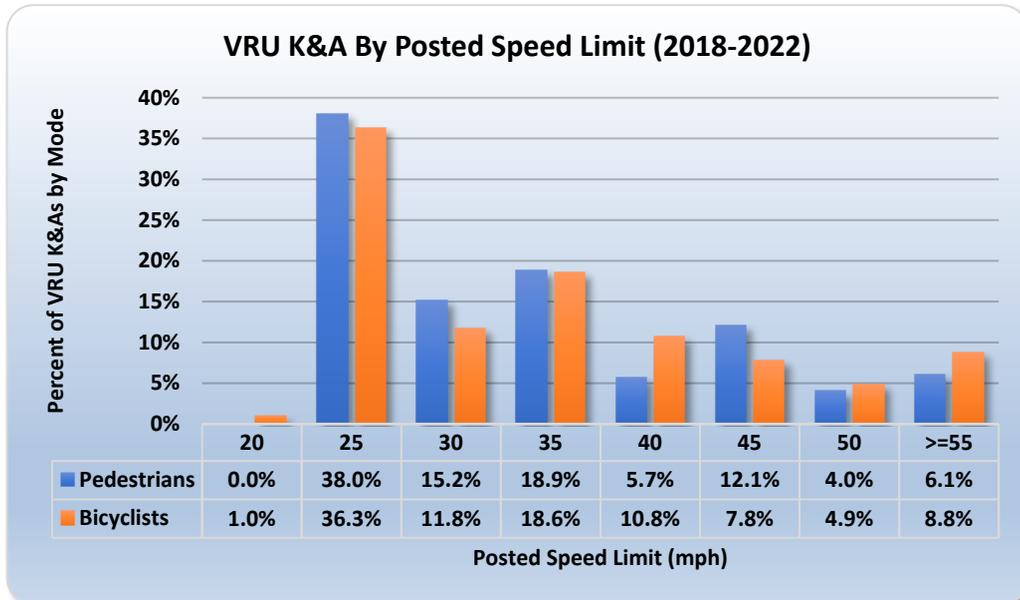
Almost half (48.4%) of Maine’s pedestrian fatalities and serious injuries occur on urban arterial and collector highways. An additional 10.8% occur on urban local roads. Combined, these highways account for approximately 60% of Maine’s pedestrian K&A experience.

Rural major collectors (11.1%), minor arterials (7.1%), principal arterials (6.1%) and local roads (5.4%) experience approximately 30% of Maine’s pedestrian K&A experience.



Maine’s bicyclist K&A experience with regards to the federal functional class of highways and urban/rural context is similar to the pedestrian experience in that urban arterials and collectors experience over half (51.9%) of bicyclist K&As.

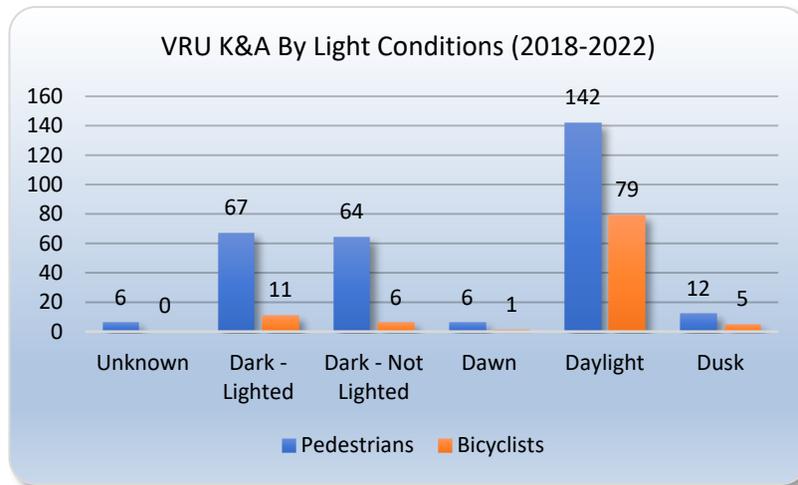
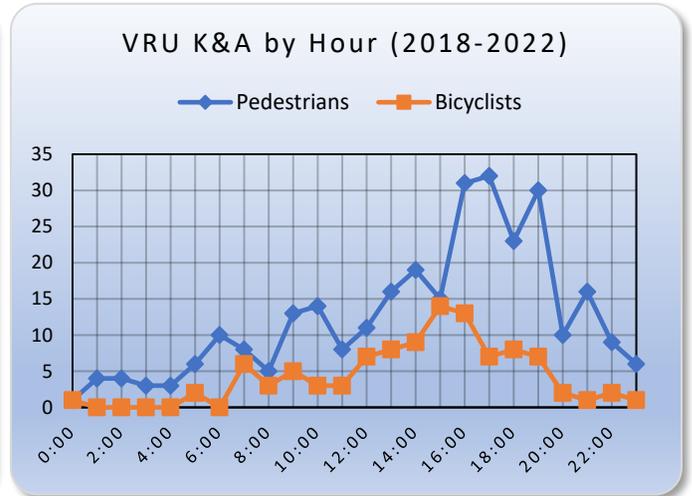
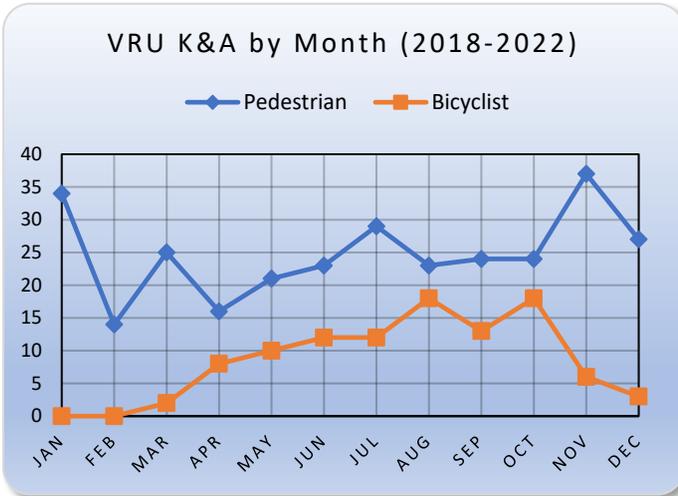
Unlike the pedestrian experience, however, rural bicyclist K&A crash numbers are highest on local roads and arterials with far fewer bicyclist K&As on the rural collector system (4.9% versus 13.5% of pedestrian K&As).



Approximately 72% of Maine’s pedestrian K&As and 67% of Maine’s bicyclist K&As occur on road sections with posted speed limits of 35 mph or less. From a fatality perspective, 43.8% of pedestrian fatalities and 50.0% of bicyclist fatalities also occur at or below 35 mph posted speed limits. This supports the observation that Maine’s

urban highway system, where the majority of these lower speed limits exist, are high risk. Safe Speed strategies to improve VRU safety are included later in this document.

Environmental Factors

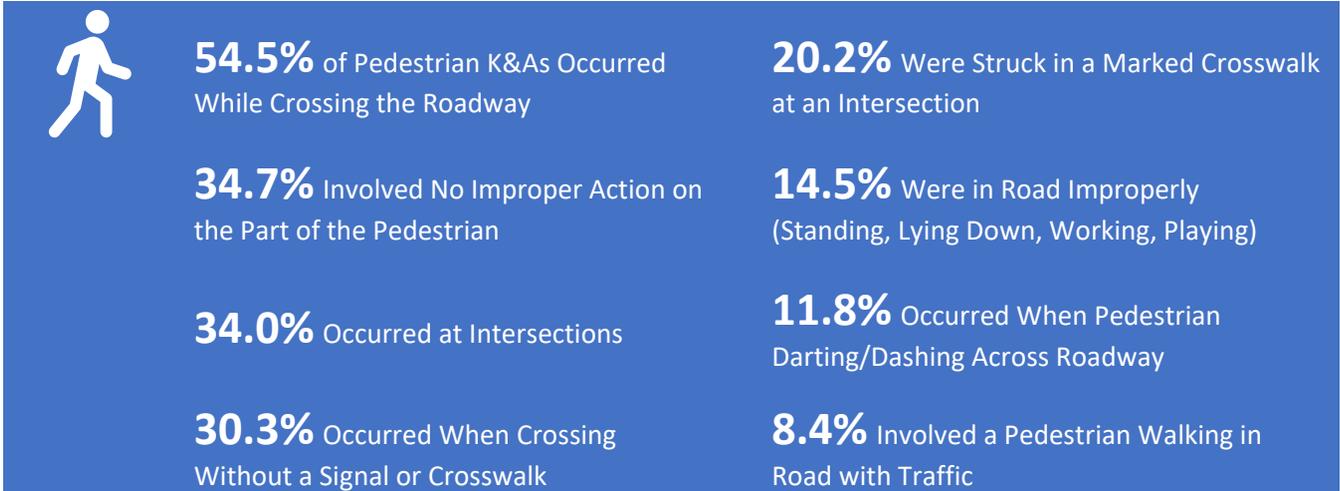


The charts above illustrate the occurrence of VRU K&A crashes by Month, Time of Day, and Light Conditions for the 2018-2022 analysis period. We can draw a number of conclusions from these factors:

- Pedestrian K&As occur quite uniformly throughout the year with a slight increase during winter months. The likely explanation for this is lack of winter maintenance of sidewalks forcing pedestrians to walk within the roadway limits where plows have passed by.
- Bicyclist K&As occur quite evenly through Maine’s warmer months and peak slightly in late summer or early fall. Few bicyclists K&As are experienced during the winter months when roads are often ice or snow-covered.
- Pedestrian K&As peak between 4:00 PM and 7:00 PM. This generally coincides with the PM peak traffic time slots found in Maine’s more urbanized areas.
- Bicyclist K&As peak slightly earlier between 3:00 PM and 5:00 PM. This could indicate use of bicycles for commuting purposes during the warmer months.

- *The majority of both Bicyclist and Pedestrian K&As occur during Daylight* conditions though significant numbers of Pedestrian K&As continue to occur at night. About one half of these dark pedestrian crash locations were lighted by some type of artificial lighting system.

Pedestrian Road User K&A Factors



Bicyclist Road User K&A Factors



Consideration of Maine Demographics

Maine has small urban areas surrounded by sprawling suburban areas resulting in the vast majority of the state being rural. Because Maine is so rural, access to a vehicle, availability of transit, and/or ridesharing options can be essential in meeting mobility challenges. Infrastructure for biking and walking is also very important in communities throughout the state, especially in village centers and downtown areas.

MaineDOT’s Statement on Equity identifies the following underserved users of our transportation system:

- low-income individuals or households
- People of color, including Maine’s Indigenous peoples
- New Mainers

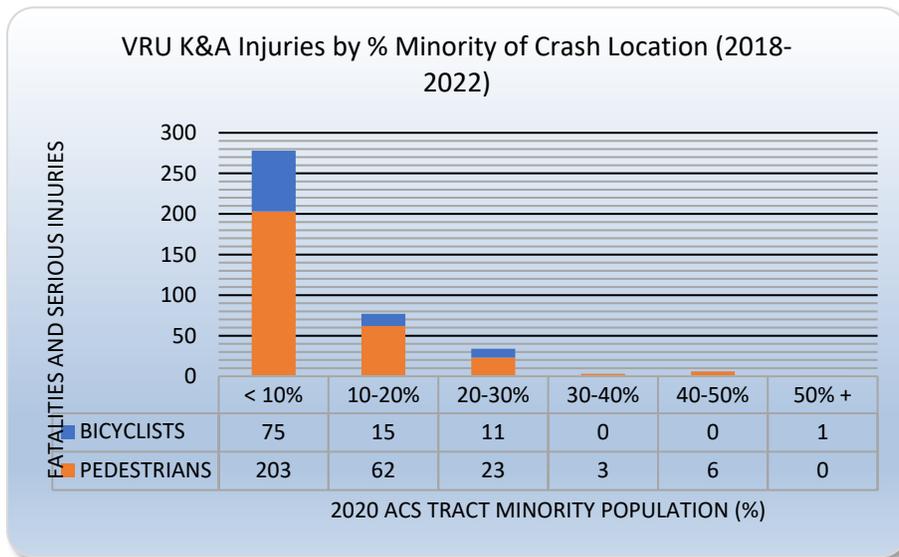
- rural and otherwise geographically isolated communities
- commuters/workers and potential workers
- individuals and households without access to a vehicle and/or for whom a driver’s license is unattainable
- individuals in substance use recovery
- individuals with physical or mental disabilities
- individuals for whom English is a second language

Race and Ethnicity

MaineDOT recently completed an overview of trends that impact active transportation in Maine as part of our 2023 Active Transportation Plan referenced earlier in this document. As part of that plan, MaineDOT identified factors that include demographics, micro mobility trends, synergy with public transit, and regional and municipal planning efforts. (Section 5.4 – pp. 29-34.) Of import from this section:

*“Related to race and ethnicity, **non-white residents make up six percent of Maine’s population**, including 1.4 percent who have self-identified as exclusively Black or African American, 1.1 percent as exclusively Asian, 0.6 percent as Native American, and 2.6 percent as a mix of races or ethnic groups or a member of another group altogether.”*

Maine’s crash report and data systems do not currently include race or ethnicity as fields for law enforcement officers to fill out in the field, and so race data of actual VRU fatalities and serious injury victims is not available.



In lieu of this data Maine chose to use American Community Survey Racial Data to identify the percentage of minority population of the census tracts where 2018-2022 VRU K&As occurred. The following table lists the Census Tracts with the highest % minority population that experienced VRU K&A injury crashes:

VRU K&A Counts by Maine Census Tracts with Top 20 Percent Minority

TOWN	NAME	TOTAL VRU	PEDESTRIANS	BICYCLISTS	% MINORITY
Lewiston	Census Tract 204.01	1	0	1	67.9
South Portland	Census Tract 30.02	3	3	0	44.3
Portland	Census Tract 5	3	3	0	42.4
Perry	Census Tract 9556	1	1	0	33.9

Lewiston	Census Tract 203.03	2	2	0	31.0
Day Block Twp	Census Tract 9551	1	1	0	29.9
Portland	Census Tract 6	2	0	2	27.0
Lewiston	Census Tract 201	2	1	1	24.7
Portland	Census Tract 22	2	1	1	24.6
Portland	Census Tract 3	1	1	0	24.6
Lewiston	Census Tract 204.02	2	2	0	22.4
Portland	Census Tract 23	7	4	3	22.1
Portland	Census Tract 10	11	10	1	22.0
Biddeford	Census Tract 252.05	2	2	0	21.4
Portland	Census Tract 11	4	1	3	21.0
Augusta	Census Tract 103	3	3	0	18.7
Portland	Census Tract 21.02	2	2	0	17.3
Saco	Census Tract 52	3	2	1	16.9
Raymond	Census Tract 120.02	1	1	0	16.3
Auburn	Census Tract 101	4	4	0	16.2

All but a few of these tracts fall within the top 21 Towns list earlier in this document, and most fall within tracts within Maine’s largest urban areas. Maine’s largest city, Portland, was identified earlier as the municipality experiencing the highest total of VRU K&As in the state of Maine (59) from 2018-2022. The towns of Perry, Day Block Twp, and Raymond, each with one pedestrian K or A during 2018-2022, are the only towns not on the initial town list. Unlike the patterns observed nationally and in other highly urbanized states, there is not a clear pattern that VRU K&As are overrepresented in Maine’s minority communities.

Disadvantaged Communities

Additional analysis of demographic information supporting underserved users identified in MaineDOT’s Statement on Equity we also looked at the 2018-2022 VRU K&A locations with respect to whether they occurred in Disadvantaged Communities as defined in the USDOT Equitable Transportation Community (ETC) Explorer.

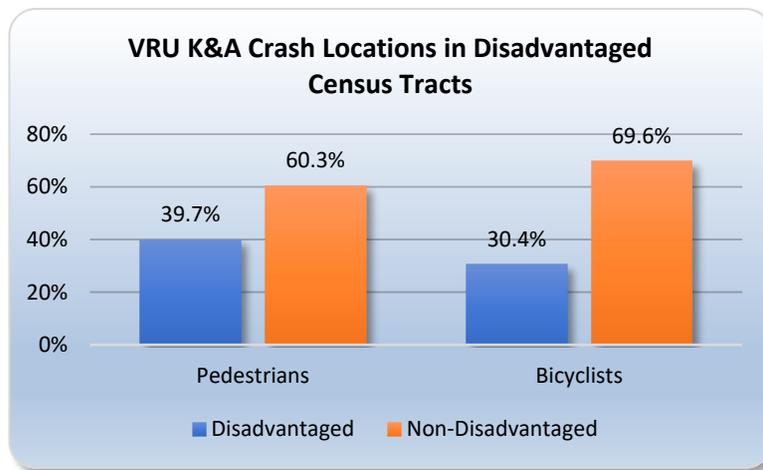
<https://www.transportation.gov/priorities/equity/justice40/etc-explorer>

For the purposes of this analysis the VRU K&A locations were identified where they occurred in a census tract with a “Disadvantaged Communities Indicator = 1” meaning the census tract is disadvantaged in terms of the *five components of disadvantage*:

- **Transportation Insecurity** occurs when people are unable to get to where they need to go to meet the needs of their daily life regularly, reliably, and safely. Nationally, there are well-established policies and programs that aim to address food insecurity and housing insecurity, but not transportation insecurity. A growing body of research indicates that transportation insecurity is a significant factor in persistent poverty.
- **Environmental Burden** component of the index includes variables measuring factors such as pollution, hazardous facility exposure, water pollution and the built environment. These environmental burdens can have far-reaching consequences such as health disparities, negative educational outcomes, and economic hardship.

- **Social Vulnerability** is a measure of socioeconomic indicators that have a direct impact on quality of life. This set of indicators measure lack of employment, educational attainment, poverty, housing tenure, access to broadband, and housing cost burden as well as identifying household characteristics such as age, disability status and English proficiency.
- The **Health Vulnerability** category assesses the increased frequency of health conditions that may result from exposure to air, noise, and water pollution, as well as lifestyle factors such as poor walkability, car dependency, and long commute times.
- **Climate and Disaster Risk Burden** reflects sea level rise, changes in precipitation, extreme weather, and heat which pose risks to the transportation system. These hazards may affect system performance, safety, and reliability. As a result, people may have trouble getting to their homes, schools, stores, and medical appointments.

Based on these criteria, the following chart illustrates the percentage of 2018-2022 VRU K&A Injuries that occurred within a disadvantaged census tract:



The table below lists the disadvantaged census tracts in Maine that experienced at least three pedestrian or bicyclist fatalities or serious injuries during the 2018-2022 evaluation period:

TOWN	NAME	TOTAL VRU	PEDESTRIANS	BICYCLISTS	DISADVANTAGED
Portland	Census Tract 3	11	10	1	1
Bangor	Census Tract 2	8	8	0	1
Portland	Census Tract 20.02	8	5	3	1
Rumford	Census Tract 9656	5	2	3	1
Auburn	Census Tract 101	4	4	0	1
Augusta	Census Tract 105	4	4	0	1
Bangor	Census Tract 7	4	4	0	1
Bar Harbor	Census Tract 9659	4	4	0	1
Belfast	Census Tract 430	4	1	3	1
Portland	Census Tract 5	4	1	3	1
Augusta	Census Tract 103	3	3	0	1
Augusta	Census Tract 104	3	3	0	1

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Bucksport	Census Tract 9653	3	3	0	1
Milo	Census Tract 9608	3	3	0	1
Presque Isle	Census Tract 9518	3	3	0	1
Turner	Census Tract 420	3	3	0	1
Waterville	Census Tract 241.01	3	2	1	1
Waterville	Census Tract 241.02	3	2	1	1

Most of the disadvantaged tracts in this list are already in the towns averaging at least one fatality per year identified earlier in this document, however there are five additional towns with disadvantaged census tracts experiencing at least three VRU K&As that warrant consideration as a “high-risk area” as part of this assessment. The towns of Bar Harbor, Belfast, Bucksport, Milo, and Turner will be added to the final list of towns for outreach.

Maine’s Final 2023 High Risk Areas (Towns)

TOWN	TOTAL VRU	PEDESTRIANS	BICYCLISTS	DISADVANT.	HEADSUP!	VPI	MPO
Portland	59	44	15	1	YES		PACTS
Bangor	21	21	0	1	YES	VPI	BACTS
Lewiston	19	14	5	1	YES	VPI	ATRC
Biddeford	13	11	2	0	YES		PACTS
Auburn	12	11	1	1	YES	VPI	ATRC
South Portland	12	8	4	0	YES		PACTS
Augusta	11	10	1	1	YES		
Brunswick	10	4	6	1	YES		
Saco	9	5	4	0	YES		PACTS
Sanford	8	8	0	0	YES		
Bath	7	4	3	0	YES		
Scarborough	7	4	3	0	NO		PACTS
Waterville	7	5	2	1	YES		
Presque Isle	6	6	0	1	NO	VPI	
Wells	6	3	3	0	NO	PPI	KACTS
Westbrook	6	5	1	1	YES		PACTS
Windham	6	4	2	0	NO		PACTS
Buxton	5	4	1	0	NO		
Gorham	5	4	1	0	NO	VPI	PACTS
Rockland	5	4	1	1	YES		
Rumford	5	2	3	1	NO		
Bar Harbor	4	4	0	1	NO	VPI	
Belfast	4	1	3	1	NO	PPI	
Bucksport	3	3	0	1	NO	VPI	
Milo	3	3	0	1	NO		
Turner	3	3	0	1	NO		

- Fourteen of the twenty-six towns listed are part of the current HEADSUP! Pedestrian Safety Initiative.
- Eleven of the twenty-six towns are within one of Maine’s four MPO regions.
- Eight of the twenty-six towns are currently engaged with MaineDOT planners for a study or project funded through the Department’s Village Partnership Initiative (VPI), or Planning Partnership Initiative (PPI) to improve bicycle and pedestrian safety.
- Only four of the twenty-six high-risk towns are not currently in the HEADSUP! Program, engaged in VPI/ PPI discussions with MaineDOT Planners, or under the jurisdiction of a MPO. (Highlighted in yellow in the table above.)

Program of Projects or Strategies

Maine has historically prioritized the safety of our most vulnerable roadway users, taking what today is known as a safe system approach toward improving the safety of these users. The Maine Transportation Safety Coalition (MTSC) has been the key strategic partnership in place to coordinate the safety efforts of the Maine Department of Transportation, Maine Bureau of Highway Safety, Maine State Police, Maine Bureau of Motor Vehicles, with dialog and help from our many safety partners representing regional and metropolitan planning organizations, federal agencies, municipalities, law enforcement, and safety advocacy groups from the private sector.

Maine’s Strategic Highway Safety Plan, to which this VRU Safety Assessment is published as an addendum, views Maine’s highway safety issues from a statewide perspective and provides a suite of safe system strategies to address fifteen focus areas. Due to this relationship between the two documents, the strategies emphasized in this VRU assessment will focus on that statewide perspective, but Maine’s safety planning work is not limited to statewide initiatives. We will highlight a selection of our past efforts and promote the important work accomplished or planned by our safety partners at the regional or local levels through links to their corridor-specific “Vision Zero” or other relevant Active Transportation safety planning efforts.

Ongoing VRU Safety Initiative Strategies

Each summary strategy in this document has also been evaluated for what **safe system principles** they represent, and the following table provides a legend to the icons used.



FIGURE 1- SAFE SYSTEM ICONS

MaineDOT created initiatives such as the HEADSUP! Pedestrian Safety Initiative and mid-block pedestrian crossing program in response to our growing concern for these system users being overrepresented in our annual fatality counts.



Maine's HEADSUP! Initiative is ongoing and implementation of the short-, medium-, and long-term recommendations on how to improve safety for vulnerable road users in the twenty-one communities initially identified in this effort is a work in progress. Results of the public process and specific strategies and locations for improvements identified by this process can be found in the individual town reports located here:

<https://sites.google.com/bikemaine.org/headsup>

While the public outreach with these initial HEADSUP! Communities is almost complete, MaineDOT continues to partner with these communities to implement the recommendations for the individual town reports. Some of this work is being accomplished by the state, and others being implemented by the municipalities themselves.



STRATEGY VRU-1 *Coordinate with the twenty-one communities identified as part of Maine's HEADSUP! Pedestrian Safety Initiative and continue to review the implementation status of previously recommended pedestrian safety. Reach out to the new communities identified as "high risk" in this assessment that have not been part of our recent/current outreach efforts to conduct a Vulnerable User Safety Review with those towns.*

MaineDOT regional planners are partnering with the four new towns highlighted in the high-risk table in the previous section (Buxton, Rumford, Milo, and Turner) and have invited them to participate in a Vulnerable User Safety Review to discuss bicyclist and pedestrian safety issues within their communities. These discussions are ongoing.



STRATEGY VRU-2 *Continue to identify opportunities to increase the conspicuity of mid-block pedestrian crossing through high visibility signing upgrades and installation of RRFBs where vulnerable road users are most at risk.*

MaineDOT implemented a successful statewide, mid-block pedestrian crossing program which improves crosswalk visibility through static pedestrian crossing signage, or for those mid-block crossing most at risk, our Rectangular Rapid Flashing Beacon procurement contract. Through this program, MaineDOT and our municipal partners have enhanced the visibility of hundreds of mid-block crosswalks throughout the state over the past few years.

2022 SHSP and 2023 MaineDOT Active Transportation Plan Strategies

Beyond our past initiatives and programs, Maine recently published our 2022 Update to our Strategic Highway Safety Plan which includes a mix of statewide strategies for pedestrian and bicyclist safety which is an SHSP focus area. Additionally, MaineDOT's 2023 Active Transportation Plan emphasizes and provides greater detail as to how MaineDOT intends to implement infrastructure improvements and outreach in support of many of those SHSP strategies from an operational standpoint. These documents are available for reference at:

2022 Maine Strategic Highway Safety Plan –

https://www.maine.gov/mdot/safety/docs/2023/strategic-hwy-safety-plan_shsp2022.pdf

2023 MaineDOT Active Transportation Plan –

<https://uploads.mainedotpima.com/61ce252e-3dec-4b84-974b-d43a957c812e.pdf>

Rather than simply copying and pasting the strategies from those documents into this one, we are including those individual strategies by reference at the links above and will instead focus on creating some new overarching statewide strategies that summarize our approach to improving the safety of Maine’s vulnerable users.



STRATEGY VRU-3 *Continue bicycle and pedestrian safety education and outreach efforts directed at all transportation system users.*

This strategy involves offering safety education in cooperation with our bike/ped advocacy organizations and other stakeholders for children and youth programs, drivers, bicyclists, pedestrians, and other modal users including a focus on vulnerable populations such as aging adults, children, and those without access to private automobiles. In those towns with relatively high numbers of limited English-speaking households, work with municipalities to develop wayfinding, advisory, or regulatory signs in multiple languages or that use pictographs to convey information. This strategy also includes the creation of VRU-specific safety PSAs that can be distributed through social media and conventional media outlets.



STRATEGY VRU-4 *Implement a substantive update of MaineDOT’s Complete Streets Policy, provide opportunities for training of MaineDOT staff, MPO/RPO partners, and MaineDOT staff, and provide clear guidance on how to fully integrate Complete Streets into the project development process.*

MaineDOT has had a complete streets policy in place for many years and project managers are required to document consideration of all modes of transportation as part of their preliminary design reports. After discussions with staff and evaluation of existing business practices and procedures, the Department has decided that further work is needed to fully consider and integrate complete streets principles and design options into all aspects of MaineDOT operations and to improve compliance with our policy. An internal task force is currently reviewing the current policy, performing research into the latest principles and practices nationwide with the goal of an improved policy with clear direction, training, and documentation of decision making.



STRATEGY VRU-5 *Improve the safety of active transportation (AT) facilities statewide with prioritized, cost-effective improvements to the AT network.*

MaineDOT’s active transportation plan includes a variety of new strategies for accomplishing this objective including:

- Promoting and implementing the **Village Partnership Initiative (VPI)** and other community-based initiatives to re-envision transportation infrastructure in Maine’s rural villages and downtowns.
- Improve Active Transportation on rural state highways by identifying **High Priority AT Corridors** and providing paved shoulders where possible.
- Create transitions from high-speed rural highways to lower-speed village areas by installing **Gateway Treatments** to help drivers recognize they are entering a different roadway context and adjust their behavior and decision-making accordingly.



STRATEGY VRU-6 *Assess existing speed limit setting and identify opportunities to change roadway features that influence driver behavior by evaluating the context of roadway segments and mode share where appropriate.*

In Maine, the Commissioner of the Maine Department of Transportation is granted the authority to establish speed limits throughout the state. Policies and procedures for speed limit setting have evolved over the years, but current Maine and national practice is to consider both the speed distribution of vehicles traveling our roadways as well as the context of the areas surrounding the roadway. Speeding is a significant safety issue for all users but particularly for vulnerable users in Maine and across the nation. Speed management cannot be accomplished by law enforcement or changing speed limits alone. Changing roadway features such as lane and shoulder widths through design or traffic calming are far more effective in changing the perception of what speed is appropriate for a particular roadway. The Department of Transportation has formed a task force that is currently working to update Maine's speed limit setting policy and procedures to improve the safety of all system users.

Maine Bureau of Highway Safety VRU Initiatives and Plans



STRATEGY VRU-7 *Continue to seek NHTSA Grant Funding for focused enforcement in high pedestrian crash locations to reduce the number of pedestrian crashes and fatalities in the State of Maine*

This strategy involves continuing outreach to law enforcement agencies to determine their willingness to provide enhanced enforcement in those communities identified as high-risk areas to vulnerable road users. Speed is most often the greatest contributing factor in determining the severity of injury in VRU crashes and encouraging compliance with speed limits in areas where vulnerable road users are active through enforcement has historically been an effective mitigation strategy. Frequent police presence at certain locations can positively impact speed limit compliance as vehicle operators who frequently travel in these areas are aware that law enforcement are often present.

Regional and Local VRU Initiatives and Plans



STRATEGY VRU-8 *Continue to coordinate and partner with municipalities, planners, and advocates on the policies, processes, and funding opportunities available to improve vulnerable road user safety.*

This strategy involves outreach to identify new strategic safety partners willing to participate in the Maine Transportation Safety Coalition collaboration efforts, provide planning and technical assistance, and to inform those responsible for improving or maintaining local infrastructure about potential funding sources for safety improvements in their areas of responsibility.

Maine's MPOs and RPOs have been developing a variety of plans which address vulnerable user safety at a more granular level than the statewide plan. These regional or local plans usually identify specific corridors in need of vulnerable road user safety improvements and provide a regional prioritization perspective rather than a statewide perspective.

The Portland Area Comprehensive Transportation System (PACTS) MPO recently created their Vision Zero safety action plan through their Unified Planning Work Program. This plan can be accessed at the following links:

<https://www.visionzerogreaterportland.org/>

<https://www.gpcog.org/DocumentCenter/View/2826/Vision-Zero-Greater-Portland>

The *Greater Portland Council of Governments (GPCOG)* is also developing a Vision Zero Action Plan for their rural and island communities, which will complement the plan that was previously adopted for the region's urban area (PACTS). Their rural and island community Vision Zero Action Plan is being funded by a discretionary Safe Streets and Roads for All (SS4A grant) which they received in the first round of awards in this new federal program created as part of the Bipartisan Infrastructure Law (BIL).

The *Androscoggin Transportation Resource Center (ATRC)* received a SS4A grant to develop two comprehensive safety plans, one for Lewiston and one for Auburn. They are currently in negotiations with a consultant to assist them with this effort. These safety plans will have safe system approaches to the top 30% HCL / Fatality locations of all roadways and intersections within the two cities, it will include municipal policy reviews and suggestions regarding policies pertaining to road access, land use, permitting, infrastructure maintenance, striping and marking, wayfinding etc. ATRC has created a web site to inform the public about these planning efforts:

<https://www.avcog.org/1260/SS4A-Safe-Streets-4-All-Users-LewistonAu>

The *Kittery Area Comprehensive Transportation System (KACTS)* received a SS4A grant to develop a Safety Action Plan for their communities and has hired a consultant firm to assist in this effort. Their data-driven Safety Action Plan will include focus areas and strategies to reduce fatal and serious injury crashes and crash rates, and identify a list projects, programs, and strategies that are potentially eligible for implementation using SS4A, and other Federal and State safety funds.

Maine's fourth MPO, the *Bangor Area Comprehensive Transportation System (BACTS)*, is applying for a SS4A grant to develop a Safety Action Plan in 2023.

MaineDOT will continue to partner with Maine's MPOs/RPOs and local municipalities looking to take advantage of the SS4A grant opportunities by providing technical assistance and data support.

Summary of Consultation

Substantial consultation and coordination to reduce the frequency and severity of VRU crashes in Maine is an ongoing effort and has been for many years. Our most recent consultation and outreach efforts were substantial during the preparation of our 2022 Strategic Highway Safety Plan Update, MaineDOT's 2023 Active Transportation Plan, Bureau of Highway Safety's 2022 Highway Safety Plan, and Maine's MPO Partners' Vision Zero planning efforts. Additional consultation takes place on a continuous basis through MaineDOT's Village Partnership Initiative, Municipal Partnership Initiative, and other planning program outreach efforts.

Maine's Strategic Highway Safety Plan Update process was a statewide coordinated effort that involved coordination with a wide range of highway safety stakeholders through the Maine Transportation Safety Coalition (MTSC.) The MTSC meets quarterly to work towards the safety of all road system users, but Maine's SHSP includes Bicycles and Pedestrians as one of its 15 focus areas. MTSC membership is open to all, and we are continually reaching out to include new groups. Organizations represented during the most recent SHSP Update include:

- Maine Department of Transportation
- Maine Bureau of Highway Safety

- County and Municipal Law Enforcement
- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- Maine Center for Disease Control
- Maine Department of Education
- Maine Department of Inland Fisheries and Wildlife
- Maine Office of Substance Abuse and Mental Health Services
- Maine State Police
- Maine Tribal Representatives
- Metropolitan Planning Organizations
- National Highway Transportation Safety Administration
- Regional Planning Organizations
- United Bikers of Maine
- Bicycle Coalition of Maine
- AAA Northern New England
- Maine Motor Transport Association
- Maine Turnpike Authority

MaineDOT's Active Transportation Plan was published in 2023 and involved a comprehensive public engagement process. MaineDOT reached dozens of key stakeholders during 12 distinct meetings and hundreds of members of the public at four public meetings, during web interactions, and through an online survey. MaineDOT received more than 2,000 total comments on the plan.

Four online public meetings were held between March and June 2022 to present the vision, objectives, and themes for the *AT Plan*. Nearly 500 Maine people were able to participate during the live webcasts of the meetings, verbally and through group chat. These meetings helped the *AT Plan* team understand the critical issues facing AT users in Maine and hear ideas for potential improvements. A series of 12 stakeholder and expert meetings were organized, providing a diverse set of organizations to provide input on AT needs throughout Maine. Key stakeholders included:

- Environmental and smart-growth organizations.
- Staff and board members from the Bicycle Coalition of Maine (BCM).
- Trail advocates.
- Metropolitan and Regional Planning Organizations (MPOs and RPOs).
- Age-friendly and disability-rights advocates.
- Organizations supporting people experiencing homelessness.
- Public health and safety organizations.
- Pedestrian or bicycle advisory committees.
- Social justice advocates.
- Staff from Tribes and Nations.
- MaineDOT leadership and technical experts.

Key outcomes from these meetings indicated that participants wanted:

- Safer and more separated roadway facilities for pedestrians and bicyclists.
- A strong desire for more pedestrian and bicycle off- road trails in the state and for completing gaps in regional trails.

- Continued desire to leverage the high benefit-to-cost ratio of quick-build pilot projects that allow MaineDOT and municipalities to experiment with some AT facility designs.
- Additional AT facilities and transit access are needed in communities with a high number of people experiencing homelessness or those without access to a private automobile.
- Slowing traffic will encourage more AT use and increase safety. The biggest concern for many is speeding traffic; revisiting speed limit procedures and roadway design guidelines to slow traffic was of paramount concern to some.
- Calming of high-speed rural highway traffic on the approaches to urban areas and village centers with the anticipation that the Village Partnership Initiative (VPI), a program focused on helping municipalities revitalize village centers and improve safety and accessibility for all users, can help to mitigate the challenges.
- The need for more education for all transportation system users regarding driver behavior around pedestrians and bicyclists.
- The impact of ATVs on multiuse trails from noise, speed, safety, and environmental/erosion perspectives.
- A desire for enhanced communication between MaineDOT and MPO/RPO representatives regarding AT policies, funding, programming, and prioritization to facilitate timely project planning and construction processes.
- Improved sidewalk maintenance, especially snow clearance, by local public works departments will provide a more accessible system.
- The ongoing desire by MaineDOT to institutionalize AT planning and design among a broader range of staff.
- Walking, bicycling, and rolling can be encouraged for people of all abilities with more effective traffic enforcement and education efforts.
- Signage and safety education efforts should consider other languages besides English, especially in parts of the state with significant numbers of limited English-speaking households.

In addition to these recent consultation and coordination efforts for developing our most recent statewide safety plans, the Maine Department of Transportation (MaineDOT) has partnered with the Bicycle Coalition of Maine (BCM) to facilitate a series of public meetings known as “Pedestrian Forums” or “Safer Walking Forums” in 21 communities across the state to address pedestrian safety as part of Maine’s HEADSUP! Program described earlier. These meetings were designed to:

- collect information on locations where residents feel unsafe.
- identify possible infrastructure changes to improve pedestrian safety.
- discuss specific educational and law enforcement interventions that may improve driver and pedestrian behavior.

The aim of this effort was to explore potential mitigation strategies to improve pedestrian safety and reduce the number of crashes. The process began in 2016 by identifying focus communities that experienced the highest number of pedestrian crashes between 2011 and 2015. Work continues implementing the site-specific strategies and countermeasures identified in this initiative.

The Maine Bureau of Highway Safety has provided grants to local law enforcement agencies for pedestrian enforcement activities in the original twenty-one HEADSUP! Communities. The following agencies received grants in 2023:

Bath Police Department	Westbrook Police Department	Lewiston Police Department
Auburn Police Department	Rumford Police Department	Augusta Police Department

All six of these towns are also identified as current High-Risk Areas in this new VRU safety assessment. BHS also invited the original 21 communities identified in the HEADSUP! Initiative to apply for an enforcement grant for FY 2024. Law enforcement agencies covering the 26 towns identified as “high risk areas” in this new assessment will be invited to apply for these enforcement grants for FY 2025 and beyond.

PACTS was the first of Maine’s four MPOs to have completed a Vision Zero Plan which includes the development of a “High Risk Network”. Many of the VRU High Risk towns are part of the PACTS region and while only four percent of crashes in the region involved a pedestrian, cyclist, or motorcyclist, they accounted for 40 percent of fatal crashes in the region. Putting together this plan’s high-risk network, while not developed exclusively for vulnerable road users, involved significant collaboration and cooperation with participating town officials and interviews with citizens on the streets to understand their concerns. Key findings or concerns from their community outreach include:

- Urban areas in Portland and Biddeford received the most concerns.
- Driver behavior concerns are common: speeding, failure to stop for pedestrians, and observations of running red lights and stop signs.
- Pedestrian and cycling safety concerns are common as well as a desire for more protected and/or separated bike lanes.

MaineDOT’s Regional Planners distributed a draft of this VRU Assessment to all of Maine’s Regional Planning Organizations for review and comment. Comments received were very positive but in general did not suggest specific locations or concerns beyond those identified in previous outreach efforts. MaineDOT’s planners are also engaged in conversations with many of the VRU High Risk Area towns participating in the Village Partnership Initiative which is specifically intended to create safer “downtown” areas for vulnerable road users by modifying infrastructure in those communities to a “human scale”. The four disadvantaged towns not previously engaged in the former HeadsUp! Initiative, currently in coordination as part of MaineDOT’s VPI/MPI programs, or part of an existing or future MPO/RPO Vision Zero or Safety Action Plan have been engaged by MaineDOT’s Regional Planners to discuss specific vulnerable road user safety concerns in those communities, how best to mitigate those issues, and to inform the communities as to what funding opportunities are available to improve safety. These discussions are ongoing.

In conclusion, Maine has recognized the importance of safety for vulnerable road users on our highway system for many years and work to identify and mitigate VRU safety issues continues to be a primary concern for Maine’s highway safety community. While we have made progress in some communities, additional work remains, and we intend to continue to assess our ongoing safety performance and strategies and adjust our plan(s) as necessary until we achieve our goal of eliminating fatalities and serious injuries for all highway system users in Maine.