

Special Commission on Micromobility

April 9, 2025



Today's Agenda

- 1. Call to Order & Oath of Members**
- 2. Purpose & Scope of the Commission**
- 3. Commission Member Introductions**
- 4. Review of Existing Regulations**
- 5. Next Steps & Close Out**

Commission Purpose & Scope: Legislative Language

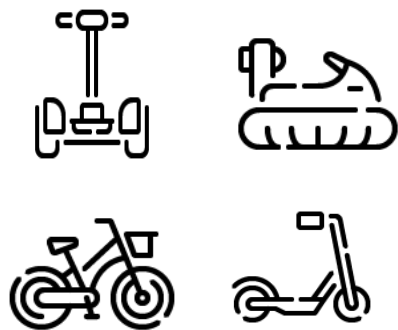
Acts of 2024, Chapter 238, Section 306

There shall be a **special commission to study and recommend** ways to regulate micromobility vehicles.

The study shall include, but not be limited to:

1. a review of current state and local laws and regulations for micromobility vehicles;
2. recommendations to regulate micromobility vehicles, including on bike paths, sidewalks and shared use paths; and
3. recommendations to support the expansion of micromobility vehicle use and innovation including shared micromobility options for municipalities.

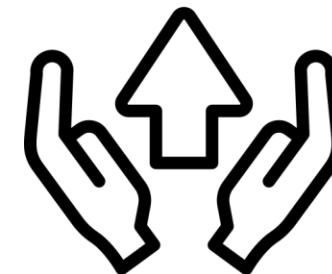
Commission Purpose & Scope: Questions to Answer



How should we **classify vehicles** to reduce confusion?



Where can vehicles **operate** to ensure safety and ease of compliance?



How can we **support micromobility growth** to deliver on the Beyond Mobility 2050 priorities?

Proposed Meeting Plan

April 9
1p-3p

Kick-off
Conversation &
Regulatory
Landscape

MassDOT
Boardroom

June 10
11a-1p

Expansion &
Innovation

Virtual Meeting

September 16
10a-12p

Safety
Considerations
and Regulatory
Language

TBD/MassDOT
Boardroom

November 6
1p-3p

Finalizing
Recommendations

Virtual Meeting

Report to legislature due in December

In between meetings, Commission members will be asked to suggest topics of discussion, review documents, provide comments on proposed recommendations, and contribute to the final report.

Commission Members

Monica Tibbits-Nutt, Chair

Secretary and CEO, *MassDOT*

Leonardi Aray

President, *Consulting Planners of Massachusetts*

Rep. James Arciero

Chairperson, Joint Committee on Transportation; Rep 2nd Middlesex

Gerald Autler

Director of Trails and Greenways, *DCR*

Naroa Coretti Sanchez

Researcher, *MIT Media Lab*

Sen. Brendan Crighton

Chairperson, Joint Committee on Transportation; Senator 3rd Essex

Dorothy Fennell

Co-Founder & CEO of *Cargo-B*

Nick Gove

Deputy Chief of Transportation, *City of Boston*

Chief John G. LeLacheur

Chief, *City of Beverly Police Department*

Nathaniel Malloy

Senior Planner, *Town of Amherst*

Galen Mook

Executive Director, *MassBike*

Scott Mullen

TDM Director, *A Better City*

Kara Oberg

Owner, *The Ride Cafe*

Stefanie Seskin

Director of Policy and Practice, *NACTO* | *Walk Massachusetts* Board

Susan Terrey Deputy Secretary

Secretary, *EOPSS*

**Oath
for Special Commission on
Micromobility Members**

Commission Introductions & Table Setting

There are 15 Commission Members, please take only 3 minutes to introduce yourself, your affiliation, preferred pronouns, and answer these two questions:

1. What are your hopes and goals for this Commission?
2. What topics are you hoping for this Commission to discuss?

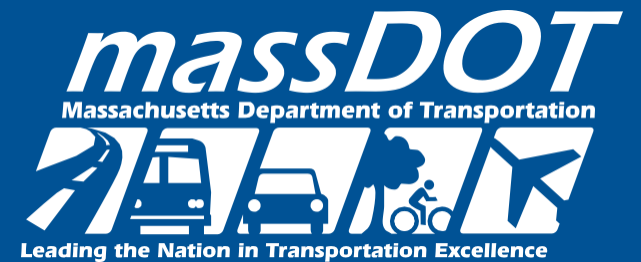
Optional: If you have a designee attending for part of today, please introduce them as well

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The Current Regulatory Environment

Presentations from
Bonnie Polin, Highway Safety and
Niren Sirohi, Registry of Motor Vehicles



Vulnerable Users (VU) / Vulnerable Road User (VRU) / Micromobility in Massachusetts

April 9, 2025



Table of Contents

3	VU Definitions
4	VU and crash severity
5	Background
6	Current definitions
7	UMASS Project
8	VU Categories
9-17	VU Defined
18-19	Regulations
20	Crash data review of VU
20-22	Status of UMASS Project

Definitions

Vulnerable Users, Vulnerable Road Users, Micromobility and why language matters

13

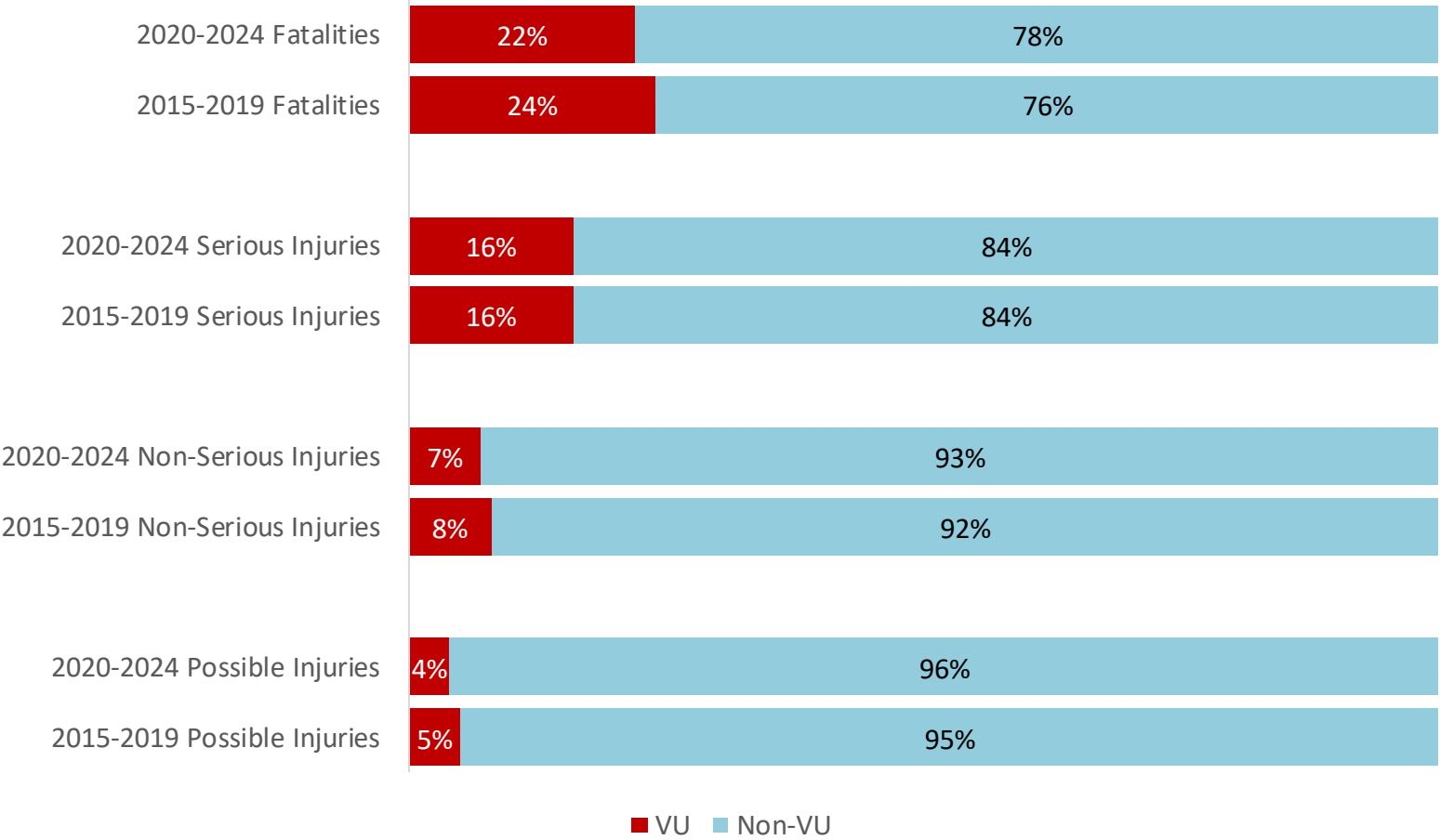
The beginning of wisdom is the definition of terms (maybe Socrates or someone else)

- What is it?
- Who/what does it include?
- How, where and by whom can they be used? (define operation location)
- How does law enforcement capture the data? (for research, design and safety)
- How do engineers design the roadways?

VU Crash Data and Injury Severity

Severity of Crashes disproportionately affects Vulnerable Road Users

Percentage of VU by Injury Severity



Background

VU VRU Micromobility

- In 2022, the Massachusetts General Laws (MGL) were updated with the Acts of 2022, Chapter 358 “An Act to Reduce Traffic Fatalities,” for vulnerable users (VU).
- This act went into effect on January 1, 2024.
- The Commonwealth of Massachusetts Motor Vehicle Crash Report has been updated and in production to include a section for details about VUs involved in crashes.

Current VU Definition

In M.G.L.

16

“Vulnerable user”, (i) a pedestrian, including a person engaged in work upon a way or upon utility facilities along a way or engaged in the provision of emergency services within the way; (ii) a person operating a bicycle, handcycle, tricycle, skateboard, roller skates, in-line skates, non-motorized scooter, wheelchair, electric personal assistive mobility device, horse, horse-drawn carriage, motorized bicycle, motorized scooter, or other micromobility device, or a farm tractor or similar vehicle designed primarily for farm use; or (iii) other such categories that the registrar may designate by regulation.

www.mass.gov/info-details/mass-general-laws-c90-ss-1

UMass Project: VU General Laws State of Practice

Project Scope:

Develop recommendations for potential changes to VU definitions and types within the Massachusetts General Laws (MGLs) and Code of Massachusetts Regulations (CMRs) and/or the Massachusetts Crash Report as well as how they relate to the Code of Federal Regulations (CFRs) and clarify allowable uses/restrictions on the roadway to optimize the safety of all users.

Tasks	Mo 1	Mo 2	Mo 3	Mo 4	Mo 5	Mo 6	Mo 7	Mo 8	Mo 9
Kick-off meeting with MassDOT	█								
Review Massachusetts VU definitions and types in MGL and RMV police crash report.	█	█							
Conduct key informant interviews to further understand the current challenges.		█	█						
Research VU definitions and crash report VRU types in other states and national best practices.			█	█	█				
Develop draft proposed changes.					█				
Conduct focus groups and/or key informant interviews.						█	█	█	
Develop final recommendations.								█	█

Categories of VU

Related to Safety / Crash

In VU Definition in MGL

Pedestrian
Bicycle
Handcycle
Tricycle
Skateboard
Roller skates
In-line skates
Non-motorized scooter
Wheelchair
Electric personal assistive mobility device (EPAMD)
Horse
Horse-drawn carriage
Motorized bicycle
Motorized scooter
Other mobility device
Farm tractor
Worker (Utility)

VU Defined in MGL

E-bike (Class 1 and 2)
Motorized bicycle
Motorized scooter

On the crash report form

Pedestrian
Bicyclist
Skateboarder
Train/Trolley Passenger
Roller Skater
In-Line Skater
Non-Motorized Scooter Rider
Non-Motorized Wheelchair User
Motorized Bicyclist
Hand Cyclist
Tricyclist
Motorized Scooter Rider
Electric Personal Assistive Mobility Device User
Horse Rider
Horse-drawn Carriage Driver
Farm Equipment operator
Other Micromobility Device User
Utility Worker - Outside of vehicle
Roadway Worker - Outside of vehicle
Emergency Responder - Outside of vehicle
Other

In FARS

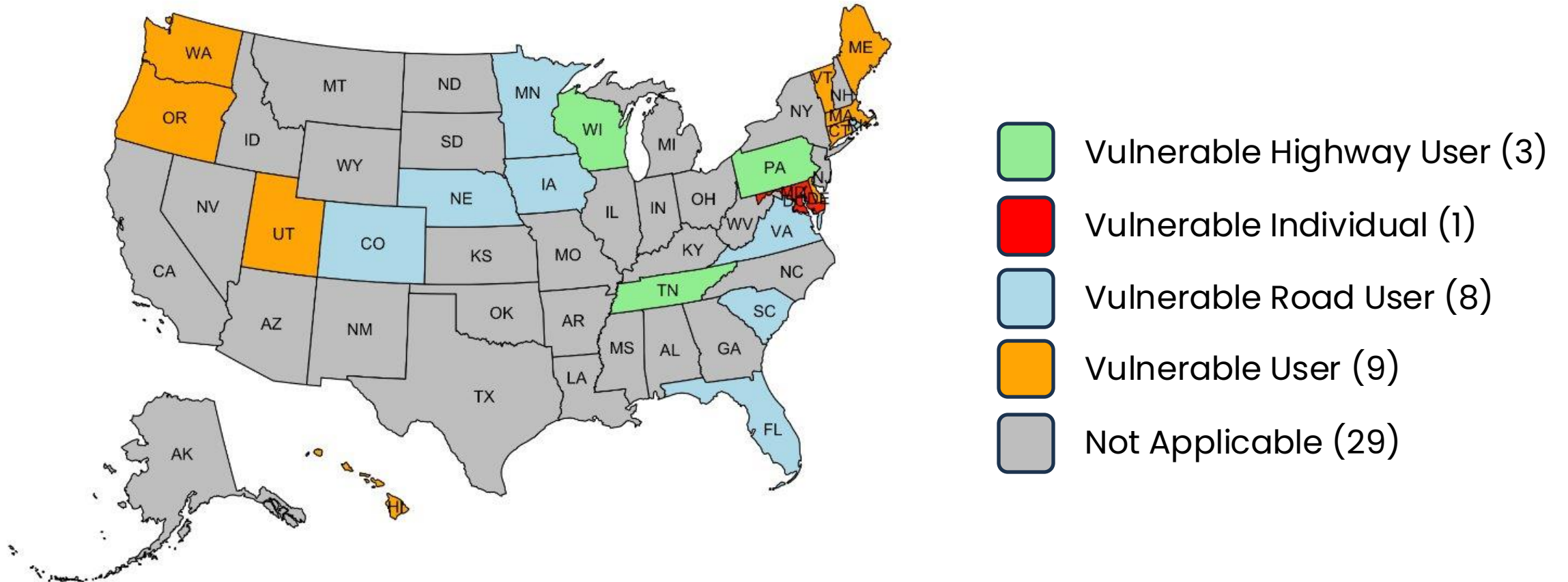
Pedestrian
Bicyclist
Other cyclist
Person on personal conveyance

FARS = Fatality Analysis Reporting System

VU/VRU/VHU Defined

Nationally

States by VU Type



Source: UMASS pending study

VU Defined in M.G.L.

Bicycle

"Class 1 electric bicycle", an electric bicycle or tricycle equipped with a motor that provides assistance only when the rider is pedaling and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour.

"Class 2 electric bicycle", an electric bicycle or tricycle equipped with a motor that may be used exclusively to propel the bicycle and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour.

"Motorized bicycle", a pedal bicycle which has a helper motor, or a non-pedal bicycle which has a motor, with a cylinder capacity not exceeding fifty cubic centimeters, an automatic transmission, and which is capable of a maximum speed of no more than thirty miles per hour; provided, that the definition of "motorized bicycle" shall not include an electric bicycle

An E-bike is NOT a motorized bicycle but it is a bicycle

VU Defined in M.G.L.

Scooter

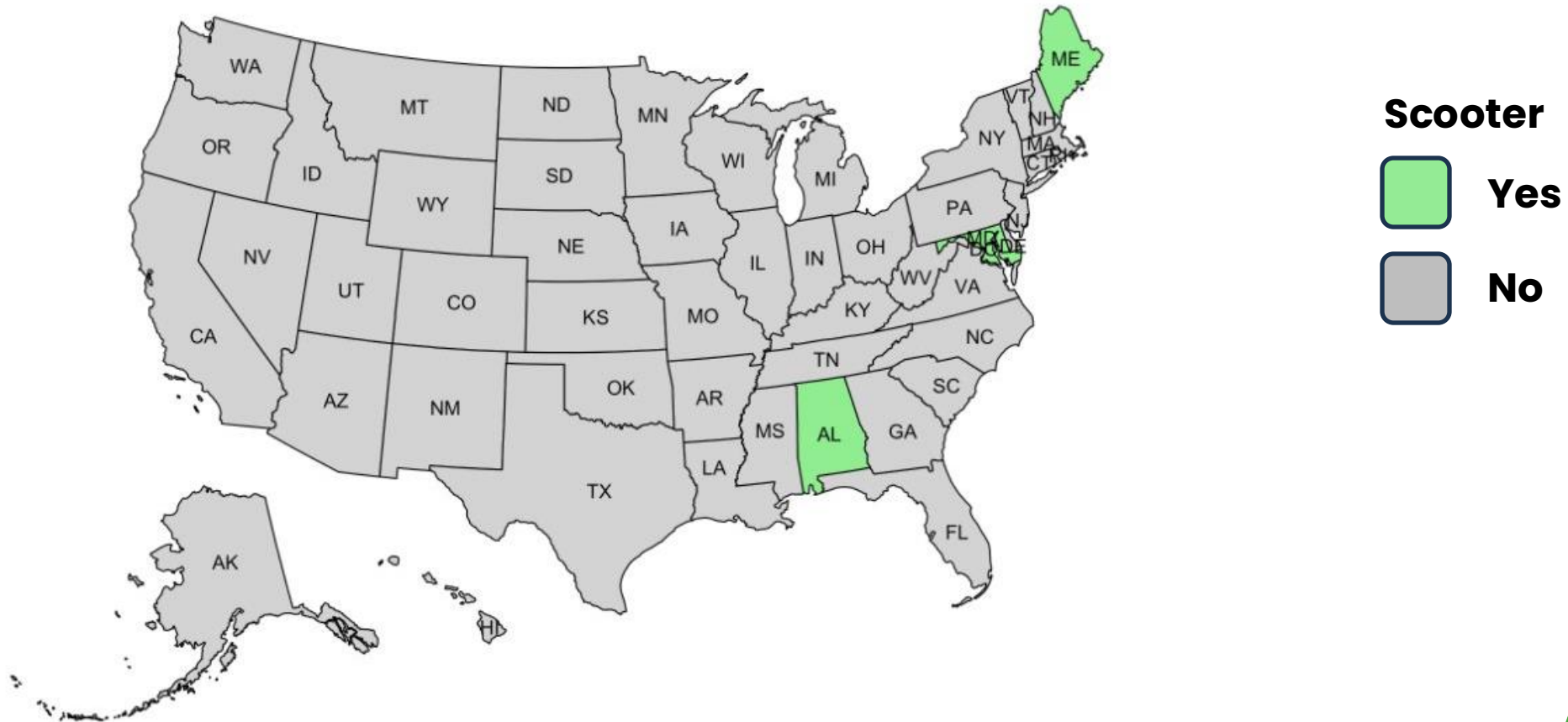
"Motorized scooter", any 2 wheeled tandem or 3 wheeled device, that has handlebars, designed to be stood or sat upon by the operator, powered by an electric or gas powered motor that is capable of propelling the device with or without human propulsion. The definition of "motorized scooter" shall not include a motorcycle, electric bicycle or motorized bicycle or a 3 wheeled motorized wheelchair.

An E-scooter is NOT a scooter but a motorized scooter

Scooter Defined

Nationally

States with Scooter Recognition



VU Defined for Crash Data Collection

Wheelchair and Electric personal Assistive Mobility device

26

'Non-motorized Wheelchair user

A person riding on a manually propelled wheelchair. (For motorized wheelchair see *Electronic Personal Assistive Mobility Device*.)

Electric Personal Assistive Mobility Device User (EPAMD)

An individual who is riding on a self-balancing, two non-tandem wheeled device or 4-tandem wheeled device designed to transport only one person, with an electric propulsion system whose maximum speed on a paved level surface is 12.5 miles per hour or less.

A powered wheelchair is NOT a wheelchair but it is an EPAMD

Vulnerable User Regulations

		VU Type			
		Bicycle	Electric Bicycle	Motorized Bicycle	Motorized Scooter
Where can VUs Operate?	All Roadways	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Bike Lanes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Sidewalks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Off-Street Paths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Natural Surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a. [Chapter 90 Section 1E](#) “No person shall operate a motor scooter upon any way at any time after sunset or before sunrise”

b. The maximum capable speed in the **definition** of a Motorized Bicycle is different than that mentioned in the **regulations** of Motorized Bicycles.

		VU Type			
		Bicycle	Electric Bicycle	Motorized Bicycle	Motorized Scooter
What is Required to Operate a VU?	Helmet	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	License	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Aged 16 or older	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Registration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lights	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input style="font-size: small; vertical-align: middle;" type="checkbox"/> ^a
	Max Allowable Speed	NA	NA	25mph	20mph
	Max Attainable Speed	NA	NA	30mph ^b	NA



Source: UMASS pending study

E-Bike Regulations

Is it a Bike? Maybe, but It has a motor. But it's not a motorized vehicle? Is it a Moped then?

Electric bicycles or operators of electric bicycles shall be afforded all the rights and privileges and subject to all duties of bicycles (as set forth in Chapter 85, Section 11B & 11B ½) however, **that electric bicycles shall not be ridden or operated on sidewalks** (Chapter 85 Section 11B3/4)

(d) An electric bicycle shall **not be operated on a trail designated for nonmotorized traffic** (Chapter 85 Section 11B3/4)

Class 3 Electric bicycles are not recognized by the MA General Law

The definition of "Motor vehicles" shall not include electric bicycles or motorized bicycles (Chapter 90D Section 1)

[Crash Report Example](#)

Crash Data Review Learnings

Of the VU crash reports submitted till Dec 2024, approximately **16%** had an issue identified upon **manual** review. Some of the key issues are summarized below:

Type of Issue	Incidence	Examples (not comprehensive)
Potentially incorrect VU classification	31%	Identified based on examining narrative. E.g. E-bikes classified as motorized bicycle, motorized bicycle (Mopeds) being entered as motorized scooter
No VU involved	21%	Identified based on examining narrative. E.g. Pedestrian was not struck, entered motor vehicle passenger as VU, animal as VU, inanimate object as VU etc
Invalid codes	15%	Entered invalid codes e.g for injury status or suspected drug/alcohol etc
Non qualify	18%	Crash in parking lot or private property

Law Enforcement Agency feedback:

- Too many VU categories on the crash form
- Some of the VU categories can be confusing
- Do not always understand the importance of collecting this information

Initial Key Stakeholder Comments

Reduce the complexity of the list for Crash Report Forms

Desire to differentiate by speed

Challenges when VUs are involved in a solo crash (not reportable)

Make the training guide a living document, lots of photos!

Problematic to lump e-bikes with bikes but not e-scooters with scooters.

Useful to know: electric, gas, motor, and how fast does the thing go AND how protected is the person.

People in wheelchairs, motorized mobility chairs important to identify them due to extra vulnerability.

Develop one page cheat sheet/reference guide to include definitions and list/photos

Status of UMASS Project

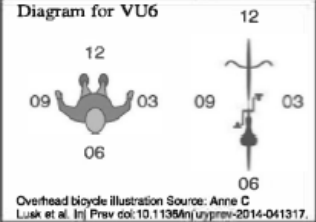
Upcoming Work:

- Follow up and focus groups:
 - Enforcement
 - Public health
 - Disability community
 - Micromobility advocates/business
 - Engineers/designers/planners
 - Registration/licensing folks
- Testing the VU type survey
- Develop **DRAFT proposals** on:
 - Redefining VU in MGL
 - Registrations, licensing, and restrictions of VUs
 - Changes to crash form

Appendix

Vulnerable User Crash Data Form

Please complete a section for each vulnerable user involved in the crash.

Vulnerable User	Type <input type="text" value="VT11"/>	Action <input type="text" value="VT12"/>	Location <input type="text" value="VT13"/>					
VU: _____ <small>Last First Middle</small> Address _____ City _____ State _____ Zip _____ License # _____ St _____ DOB/Age _____		Primary Injury Area: <input type="text" value="VU7 99"/> Event Sequence <input type="text" value="VU8"/> <input type="text" value="VT18"/> <input type="text" value="VT19"/> <input type="text" value="VU8"/> Contributing Code <input type="text" value="VU9"/> <input type="text" value="VT19"/> Distracted by <input type="text" value="VT110"/> <input type="text" value="VT110"/>	Test Status: <input type="text" value="VU11"/> Type of Test: <input type="text" value="VT112"/> BAC Test Result: <input type="text" value="VU13"/> Susp. Alcohol: <input type="text" value="VU14"/> Susp. Drug: <input type="text" value="VT115"/>					
Traffic Control Device <input type="text" value="VT14"/> Origin/Destination <input type="text" value="VU5"/> Contact Point: <input type="text" value="VU6"/>	Diagram for VU6 							
	Sex	VU16 Seat Pos.	VU17 Safety Equipment	VU18 Eject Code	VU19 Trap Code	VU20 Injury Status	VU21 Transp. Code	Medical Facility
Vulnerable User								

- Some fields previously existed but additional data attributes were added (example: vulnerable user type)
- Some fields added to mimic those of the driver (example: event sequence)
- Some fields are new (example: origin/destination)

Device Classification Framework Considerations: Micromobility in Massachusetts

April 9, 2025



Why a Holistic Framework is Needed

Innovation is Outpacing Regulation



37 mph



65 mph



19.8 mph



18.6 mph

- Should the device be registered?
- Does the device meet safety standards?
- Should the user be licensed?
- Should they have insurance?
- What type of roads/paths/lanes should they be allowed on?
- Should the user wear a helmet?
- User age restrictions?
- What type of training should user have?
- Should the device have lights on it?
- Can the device be used at any time of day?
- Should the device be inspected at some cadence?
- Fines and Penalties for Enforcement?
- Should different devices of the same type be treated differently?
- How should new innovations be dealt with?

Framework Considerations

Framework should help guide legislative decision making

CONSIDERATIONS FOR DEVICE CLASSIFICATION

SAFETY STANDARDS
EXIST AND MET?

SKILLS REQUIRED
TO OPERATE

VEHICLE
CHARACTERISTICS
(WEIGHT, WIDTH, TOP SPEED,
ENGINE CAPACITY)

ROADWAY TYPE
RATED FOR



DECISIONS INFORMING LEGISLATIVE MEASURES

LICENSING

REGISTRATION

OPERATIONAL
RESTRICTIONS

INSPECTION

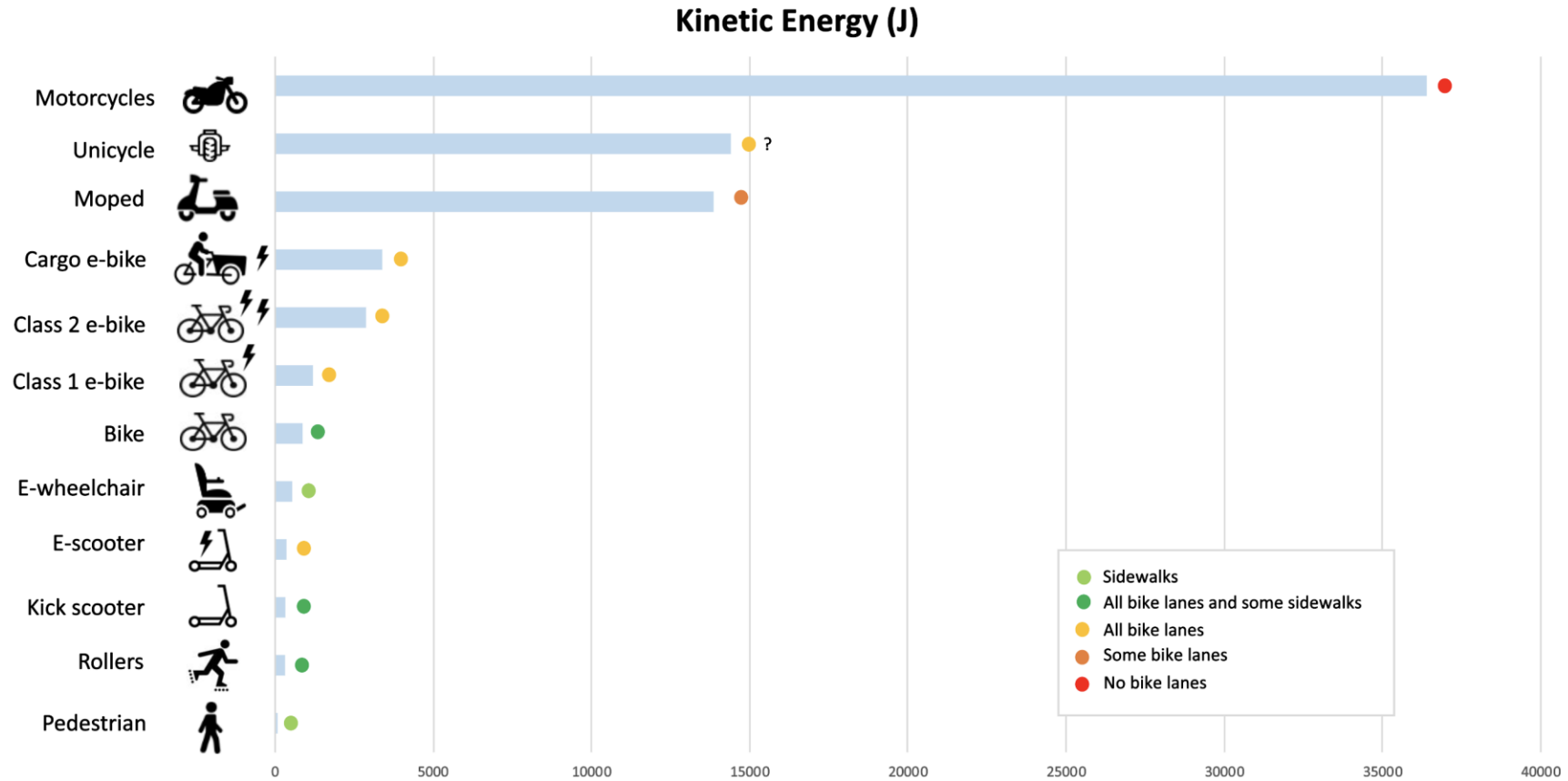
INSURANCE

ENFORCEMENT

Example of how framework can be used

Vehicle Characteristics inform Operational Restrictions

Note: Kinetic energy (KE) = $\frac{1}{2} mv^2$



Many variations exist in the real world with vastly different vehicle characteristics and implications (some examples)



Weight	330 lbs	1000 lbs	265 lbs	350 lbs
Speed	65 mph	25 mph	40 mph	28 mph
Width	29.4"	53"	28.5"	13"
Power	Twin 2000W		2000W	
Kinetic Energy	63,193J	28,327J	19,217J	12,436J

Not registered today

Can be registered as Low Speed vehicle if it is NHTSA certified as LSV

May be registered as Limited use vehicle if it has a CO, a 17-digit VIN and meets FMVSS standards

Not registered today

Examples...continued



[Click to expand](#)



Weight	550 lbs	450 lbs	450 lbs	450 lbs	325 lbs
Speed	17.3 mph	15 mph	10 mph	8.5 mph	4.7 mph
Width	38.5"	34.5"	28.8"	25.5"	21.25"
Power		350W	950W		
Kinetic Energy	7,460J	4,589J	2,039J	1,473J	325J

Not registered today

Not registered today

Not registered today

Not registered today

Not registered today

Questions & Discussion

Discussion & Next Steps

1. Reflections on meeting schedule, format, and topics identified
2. Suggestions for presentations at future meetings

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11a-1p

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