

goMARTI Shuttle First Responder Guide

September 2022 - Grand Rapids, MN



Agenda

- **goMARTI Project Overview**
- **Local Operations**
- **Autonomy Overview**
- **Vehicles**
- **Procedures & Scenarios**
- **Contacts**





goMARTI

Project Overview

A self-driving shuttle pilot in Grand Rapids

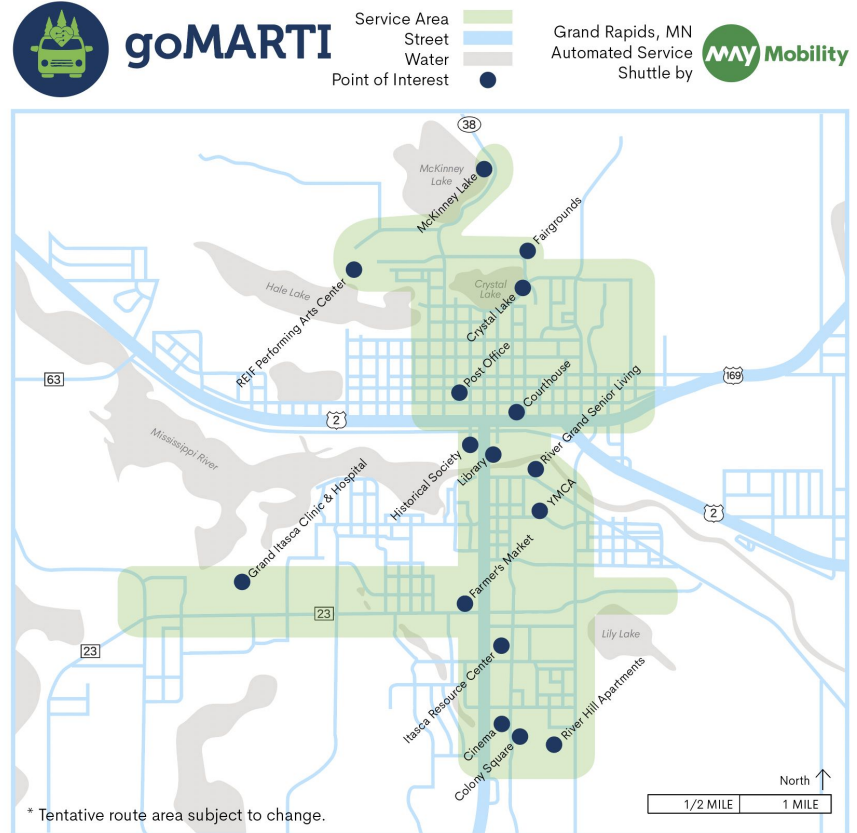
Project Highlights: goMARTI

- **goMARTI** will launch in Grand Rapids, MN, to the public at the end of September 2022
- Riders can download the May Mobility app on their mobile device to book rides
- Riders can also call 2-1-1 to book a ride through the First Call local call center
- Wait times for a ride are typically less than 15 minutes
- There are 5 shuttles and 3 are wheelchair accessible, loading from the back
- Rides will be offered for free during the pilot, which is 18-20 months
- For more project details, visit **goMARTI.com**



Grand Rapids, MN - Stops Overview

- **LOCAL EMPLOYEES: 20+**
- **ON-DEMAND AREA: 17 SQUARE MILES**
- **PICKUP/DROPOFF POINTS: 70+**
- **PROJECT PARTNERS: 13**
- **goMARTI SHUTTLES: 5**
- **WHEELCHAIR-ACCESSIBLE SHUTTLES: 3**
- **COMMUNITY ENGAGEMENT:**
 - 2 Community Listening Sessions
 - Weekend of Wheels & Tall Timber Days



Grand Rapids, MN – Points of Interest

Category	POI's
Entertainment	- YMCA, Rapids Brewing, Cinema, Klockow, Brewed Awakening, Anytime Fitness, Reif Center, Fairgrounds
Grocery	- Super One, Aldi
Grocery/Shopping	- Ace Hardware, Walgreens, L&M Fleet Supply
Church	- St. Andrews, Alliance Church, Church of God,
Services	- Hospital, IRC, Library, Schools, DMV, Post Office, Central Square Mall, Courthouse, Civic Center
Residential and Other	- Lakeshore, River Grand, River South, Pillars, Lakewood Heights



Pilot Operating Hours

Sunday

8:00 am - 2:00 pm

Monday

Closed

Tuesday - Friday

2:00 pm - 10:00 pm

Saturday

10:00 am - 10:00 pm



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Project Goals

- Advance and inform the operation of automated vehicle technology in rural, winter conditions
- Engage and educate the local community by providing real-world automated vehicle experiences
- Provide safe, accessible mobility for residents, especially those with transportation challenges
- Understand what economic development this innovative pilot brings while attracting future talent and technology to the Iron Range



Local Operations

Local Operations- The Forge: 1201 7th Ave SE, Grand Rapids

- Multi-use tech space
- **3000 ft²** of office/garage space
- Site Manager: Jon Dege - Jon.Dege@maymobility.com
- Phone number to site coming soon



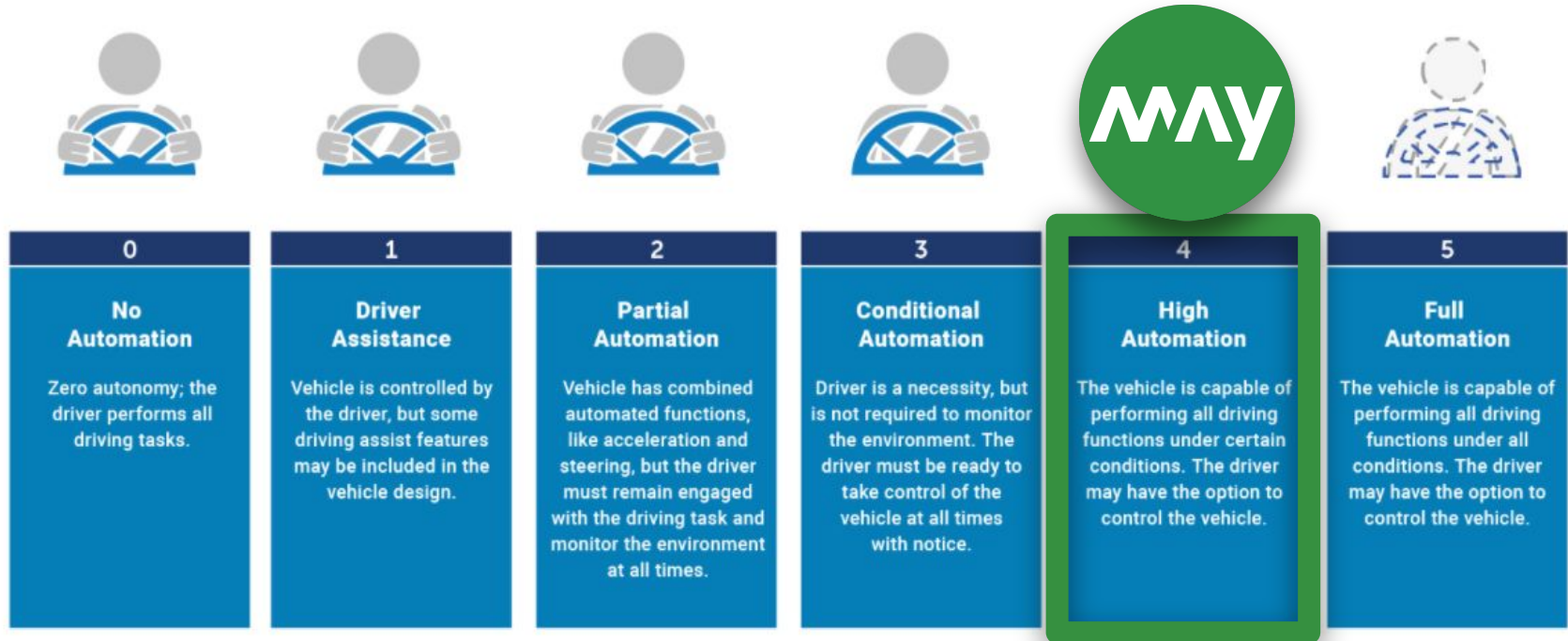
Autonomy Overview

Levels of Autonomy

From NHSTA.gov

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) AUTOMATION LEVELS

Full Automation



May Mobility's Tech

- Perception
 - "Eyes" and external sensors
 - Inertial sensing
 - Health + diagnostic sensing
- Behavior
 - Multi-Policy Decision Making (MPDM)



May Mobility's Tech - MPDM



Perception

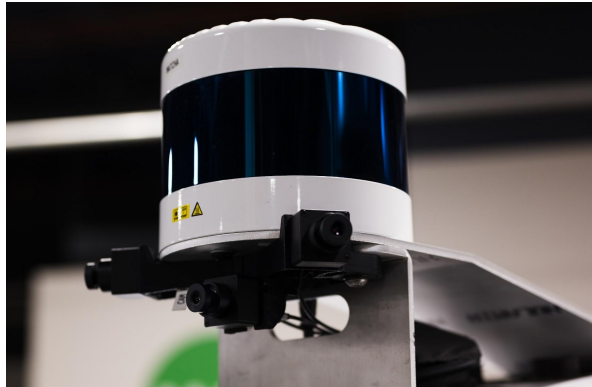
External sensors:

- Radar
- Lidar
- Cameras
- On-Vehicle Traffic Light Sensor (OVTL)
- 360 degree views



Internal sensors:

- Cabin Awareness Monitor
- Internal Cameras
 - Driver view
 - Passenger view

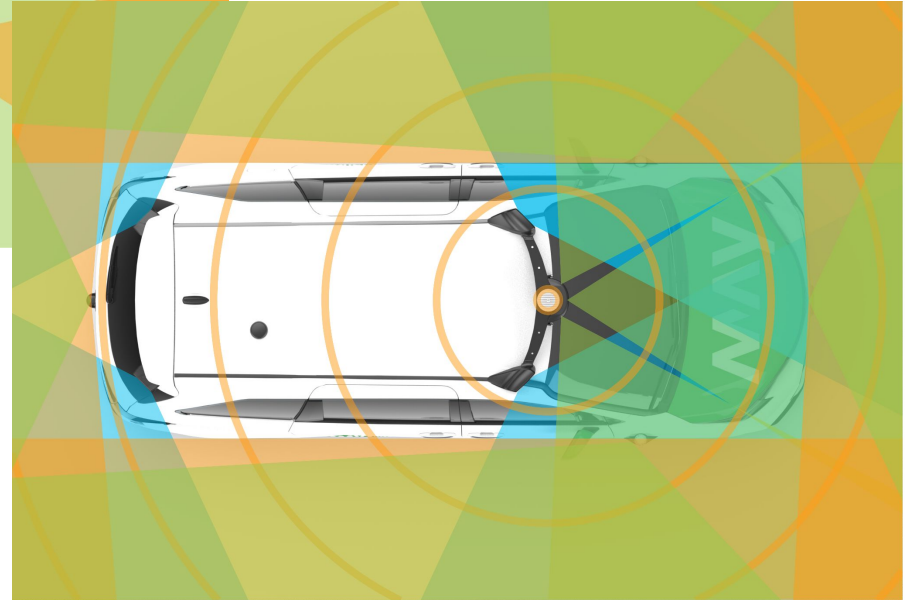


Perception



Field of View (FOV):

- Overlapping FoV from all 3 types of sensors



Vehicle Demo - Video



Vehicles

Toyota Sienna Hybrid

Autonomous Max Speed:
30mph

Manual Max Speed:
40mph

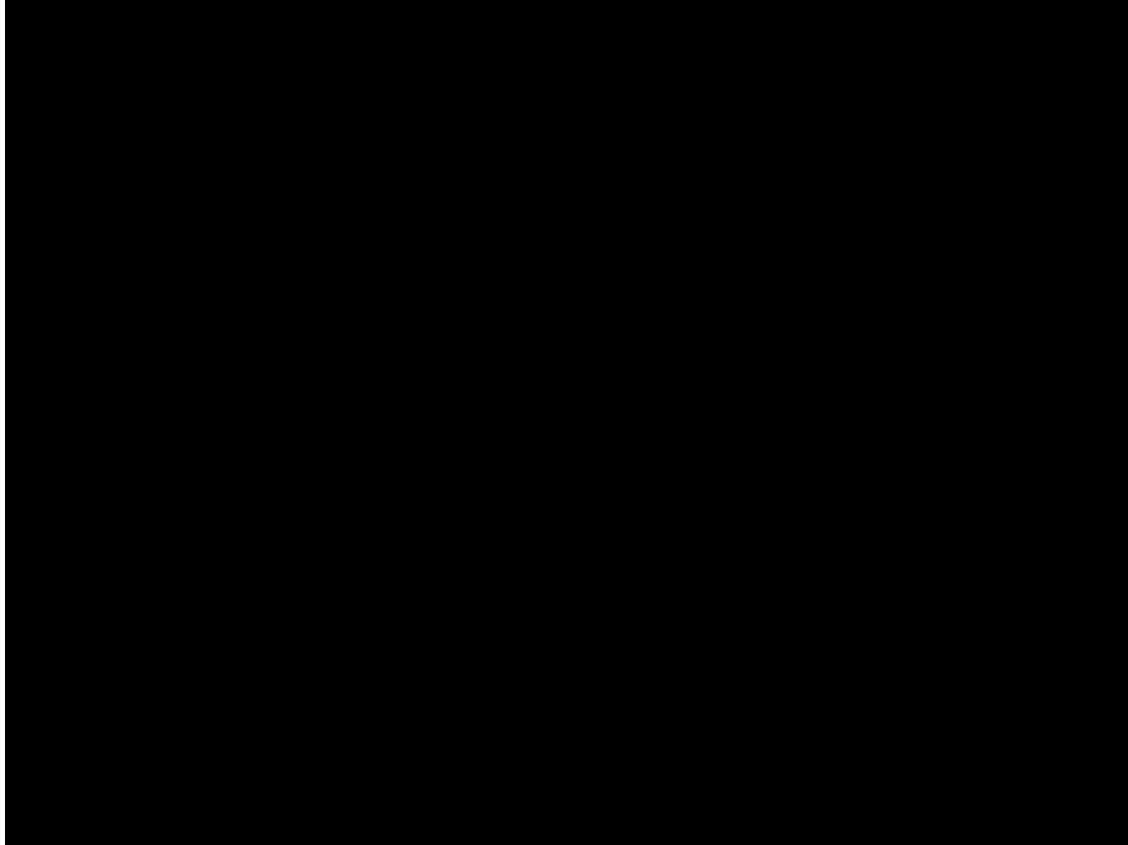


ADA [Accessible] Sienna



- ADA-Compliant for Wheelchair Accessibility
- Stowable bench-seat
- Operates Autonomously
- Can carry Wheelchair riders and non-wheelchair riders simultaneously
- Outfitted on 3/5 vehicles for this deployment
- 4 safety harnesses to secure the wheelchair rider
 - ADA Sienna can transport 1 wheelchair and 2 passengers at the same time

ADA [Accessible] Sienna



Procedures and Scenarios

Communication

May uses a headset with a dedicated voice channel to communicate from the May AV to Base Station – plus an emergency backup phone.

Autonomous Vehicle Operators (AVOs) are in constant contact and report any issues during shifts.

Some examples are:

- Route changes, such as detours or network issues
- Passenger incidents
- Road conditions
- Vehicle issues



AVOs are not authorized to provide interviews with media and are instructed to direct media requests to media@maymobility.com

Being a Good Road Citizen

At May, we pride ourselves with being a partner in the community. We strive to provide an excellent experience with not only our riders, but with all members of the communities.

With that in mind, we train all our AVOs to be friendly, courteous drivers of the road and that includes moving with the flow of traffic, safety to pedestrians and cyclists, and obeying all traffic laws.

Their training involves an extensive online course combined with 20+ hours of in-vehicle instruction and supervised driving.

Unsafe Road Conditions

In the event of any unsafe road conditions like extreme weather, accident, or emergency vehicles nearby:

Autonomous Vehicle Operators (AVOs) will:

- Take manual control of the vehicle
- Notify site management
- Log details
- Wait for instructions from Base Station

Most anticipated inclement weather in Grand Rapids is extreme cold, **our vehicles cannot operate in -2 degree conditions.**

Intoxicated or Disruptive Rider

When engaging with the public, there may be instances of riders who are intoxicated or disruptive.

In the event of a disruptive/intoxicated passenger, AVOs will:

- Notify site management
- De-escalate situation if possible [verbally]
- Site management arrives at location to intervene
- Base to contact local law enforcement if situation is escalated past intervention

Accidents

In the event of an accident, we will:

- Ensure safety of driver and all passengers
- Notify site management of incident
 - Request Medical if needed
 - Request Police if needed
- Move vehicle out of traffic
- Site Leadership responds to the scene to start investigation
- Site Leadership will notify local law enforcement for report
- AVO will be pulled from service until the accident investigation is completed
 - Immediate Drug/Alcohol Screening is performed
- Vehicle will be returned to the garage for inspection
- HQ team investigates accident to determine cause

When the May AV returns, sites download data metrics including video to company servers. They are housed for 2 days. Requests for video will go through our legal department.

Scenario: Unconscious Vehicle Operator

In the event an Autonomous Vehicle Operator [AVO] becomes unconscious:

- If the vehicle is in Autonomy mode:
 - The vehicle will come to a 'controlled stop' at the nearest 'required manual' zone - these are areas on the route in which the vehicle requires input or manual driving from the AVO.
- May Mobility is in the process of implementing the Azuga Camera System in all of its vehicles
 - This system allows *active monitoring* of the AVO from our Base Station and can alert management in the event an AVO appears to be distracted, unconscious or absent from the vehicle.
- In the event this occurs, site management will notify EMS and begin responding to the scene.
 - We can actively monitor the location of the vehicle and whether it is in autonomy or manual mode as well as whether it is moving or at a controlled stop

Scenario: Vehicle Fire

In the event of a vehicle fire, here are details First Responders should be aware of:

- When in manual mode, our vehicles operate the same as their OEM version
- The **front passenger seat** of the May edition of the Toyota Sienna has been altered to house our computing hardware
 - There will never be a passenger in this seat, as the seat has been removed.
 - The front passenger floorboard houses **2 additional Marine-grade 12v batteries**, similar in design to a standard car battery - these serve only to power the Autonomous Driving Kit [ADK]

[CONTINUED...]

Scenario: Vehicle Fire [cont'd]

- First Responders should be aware of the ramp addition in our ADA-Sienna, as this will need to be lowered in the event of a wheelchair/rear vehicle evacuation.
 - This ramp has 2 built-in grips on each side and is manually [not electrically] lowered/raised.
- Additionally, wheelchairs are secured with 4 floor-mounted ratcheting safety straps attached to the wheelchair by hooks.
 - There is a **red release tab** on the aft straps that will mechanically release the tension for removal
 - There is a **red button** on the aft passenger side bulkhead that will electronically release the stern straps - the straps should be cut in the event these systems do not release and are the same material as the OEM seat belt straps

Vehicle Safety Kit

- Every vehicle includes a Safety Kit, containing the following items:
 - Fire Extinguisher
 - All AVOs undergo Fire Extinguisher training
 - Reflective Safety Vest
 - Worn anytime an AVO exits the vehicle on an active road
 - LED Roadside 'flares'
 - Basic First Aid Kit

Contacts

Location and Contacts

General Project Contact: hello@gomarti.com

Site Manager:

Jon Dege, jon.dege@maymobility.com

Customer Success Manager:

Nick Leone, 734-394-9461, nick.leone@maymobility.com

Site Location:

The Forge, 1201 7th Ave SE, Grand Rapids MN, 55744

Site Phone: TBD

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