nuro

Fall 2021

Law Enforcement Interaction Plan

Law Enforcement Interaction Plan

Nuro is making this plan available to the public to advance public awareness and education about our vehicles. Additional First Responder-only information, such as the emergency hotline, is provided directly to departments in our operating areas. Anyone can contact Nuro directly at feedback@nuro.ai for more information.

Law Enforcement Interaction Plan

About Nuro

Nuro is the first company to operate an autonomous commercial delivery service open to the general public. We've been testing our autonomous vehicle technology since 2016 and have been conducting active on-demand home delivery operations for several years using our modified Autonomous Prius Vehicles and our custom R2 Autonomous Delivery Vehicle.

Our R2 Autonomous Delivery Vehicle is lighter, nimbler, narrower, and drives more slowly than a passenger car. It's equipped with innovative software and sensing capabilities that never get distracted or fatigued.

Nuro's vehicles are engineered to make delivery of everything more accessible—from groceries to packages, prescription drugs, to pizza—and help all of us spend time on the things and people we care about the most.

About the Law Enforcement Interaction Plan

Nuro's Law Enforcement Interaction Plan includes the background information, how-to guides, and supplemental materials necessary for law enforcement officers and first responders to successfully interact with Nuro's technologies.

This document is intended to be used by trained law enforcement officers and first responders and assumes a professional-level background in emergency response.

Any questions about this document should be directed to feedback@nuro.ai.

Content

01 Basic Vehicle Information

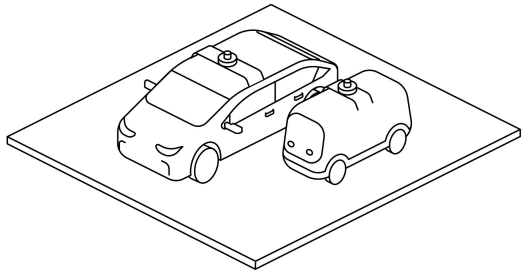
Emergency Hotline

In the event of an emergency, law enforcement can contact a Nuro remote operations specialist using the dedicated Emergency Hotline.

If there is a crash that requires immediate emergency services, a Nuro remote operations specialist will contact local first responders.

We ask that law enforcement calling this hotline identify the vehicle's numerical ID, license plate, and location.

Please note: This document does not include the dedicated Emergency Hotline as we wish to reserve it for exclusive use by law enforcement.

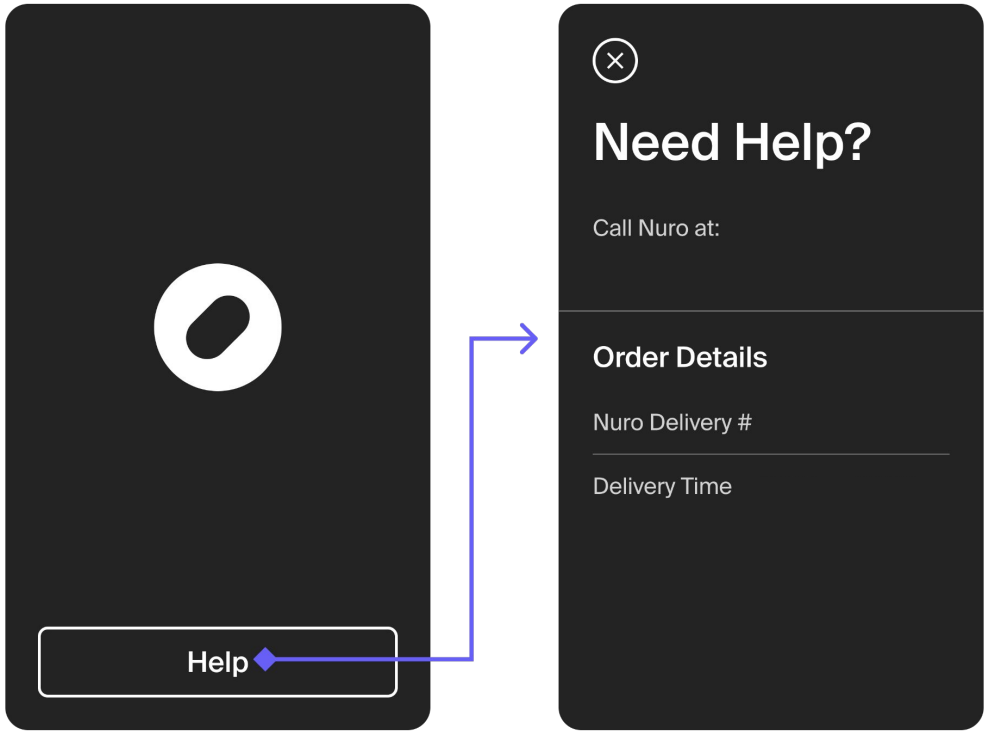


Non-Emergency Contact

Customers interacting with the R2 Vehicle can reach the Customer Support Line by pressing the “Help” button on the touchscreen and dialing the number displayed.

If needed, the customer service representative can direct you to the Emergency Hotline.

Anyone may contact Nuro’s Community Feedback Line at feedback@nuro.ai.



Vehicle Ownership Information

OWNER NAME

Nuro, Inc.

NON-EMERGENCY CONTACT

feedback@nuro.ai

LOCAL MAILING ADDRESSES

Arizona

1717 N 77th Street
Suite 20
Scottsdale, AZ 85257

California

1300 Terra Bella Avenue
Suite 200
Mountain View, CA 94043

Nevada

7065 Speedway Blvd.
Las Vegas, NV 89115

Texas

5333 Gulfton Street
Suite 100
Houston, TX 77081

Identifying the R2 Autonomous Delivery Vehicle

The R2 Autonomous Delivery Vehicle ("R2") is a zero-occupant vehicle that can be recognized by its unique profile and the "Nuro" logo.

The R2 Vehicle is:

- 1.86m (6 ft) tall
- 2.74m (9 ft) long
- 1.10m (3.5 ft) wide
- 2535 lbs unloaded

Identifying the Autonomous Prius Vehicle

The Nuro Autonomous Prius Vehicle looks similar to a traditional consumer Toyota Prius vehicle with the addition of sensors and other hardware on the exterior of the vehicle and interior modification.

The Nuro Autonomous Prius Vehicle displays the "Nuro" logo on the exterior of the vehicle.

The Nuro Autonomous Prius Vehicle is monitored by an In-Vehicle Safety Operator at all times and can be manually driven.

R2 Vehicle Documents

Proof of insurance and contact information are always kept with the vehicle. Please return all documents to the vehicle after use.

Nuro can provide electronic documentation for all Nuro vehicles to Law Enforcement upon request. Please use the Emergency Hotline.

Autonomous Prius Vehicle Documents

Proof of insurance and contact information are always kept with the vehicle.

Physical documents can be provided to law enforcement by the Prius In-Vehicle Safety Operator.

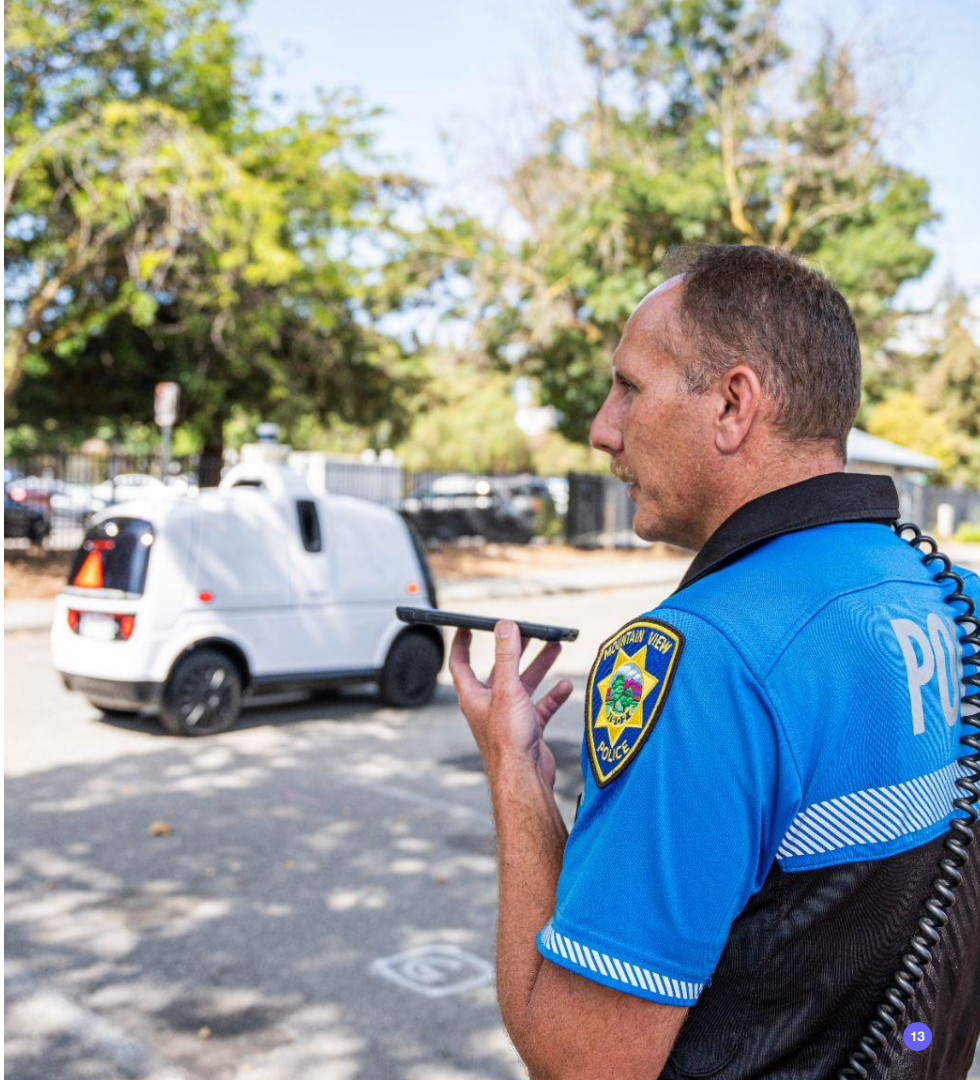
Nuro can also provide electronic documentation for all Nuro vehicles to Law Enforcement upon request. Please use the Emergency Hotline.

Is the vehicle in Autonomous Mode?

In autonomous mode, the vehicle will operate without the active control of a human operator. Nuro vehicles will activate hazard lights to indicate that the autonomous mode has been disabled.

Law enforcement can also use the Emergency Hotline to confirm with a Remote Operations Specialist whether or not a vehicle is in autonomous mode.

If pulled over, the vehicle will not resume autonomous operations until the Nuro Remote Operations Specialist receives verbal confirmation from law enforcement that it can resume operations.



02
Vehicle How-To’s

Pulling Over a Nuro Vehicle

When a Nuro vehicle detects emergency signals, it will safely come to a stop.

1. **Approach from either side of the vehicle.**
    - When the **R2 Vehicle** comes to a stop, it will disable the motor system, lock brakes to prevent rolling, and activate hazard lights to indicate the autonomous mode has been disabled. Avoid standing in front of or behind the vehicle.
    - When the **Autonomous Prius** vehicle comes to a stop, the Nuro Safety Operator will disable the autonomous mode and put the vehicle in park. The vehicle will activate its hazard lights.
2. **Retrieve vehicle documents.** Law enforcement can access copies of documents from the R2 vehicle, or receive them from the In-Vehicle Safety Operator.
3. **Call the Emergency Hotline.** A Nuro Remote Operations Specialist may be able to maneuver the vehicle via teleoperation, if requested.
4. **Depart the scene.** Please return any vehicle documents.

R2 Vehicle Crash Response

If the R2 Autonomous Delivery Vehicle has been involved in an accident, the vehicle will activate its hazard lights to indicate that the autonomous mode has been deactivated.

Identify the R2 Autonomous Delivery Vehicle by its ID number (arrow) or license plate number.

Crash or Stalled Vehicle Response

1. Do NOT attempt to turn the vehicle off.
2. Call the Emergency Hotline and identify the vehicle by the ID number or license plate to a remote operations specialist. A Nuro Operations Team Member will arrive to assist.
3. If you see smoke or fire, stay away and await the fire department.
4. Chock wheels to prevent rolling, if available.
5. Nuro will tow the vehicle.

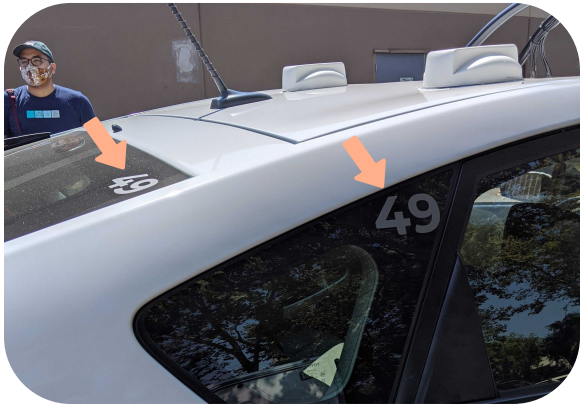
Liquids Information

Any liquids that leak from the R2 are standard automotive type and may include:

- Antifreeze (ethylene glycol/water)
- Washer fluid
- Lead-acid battery electrolyte

Autonomous Prius Crash Response

If the Nuro Autonomous Prius Vehicle has been involved in an accident, it will not attempt to drive autonomously.



Identify the Nuro Autonomous Prius Vehicle by its ID number (arrows) or license plate number.

Crash or Stalled Vehicle Response

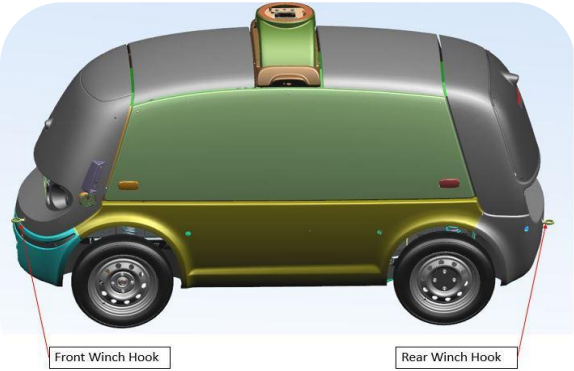
1. A Safety Operator will disengage autonomous systems and pilot the car manually to a safe stop.
2. If you see smoke or fire, stay away and await the fire department.
3. A Nuro Operations Team Member will arrive to assist. Law Enforcement can call the Emergency Hotline for additional support.
4. Nuro will tow the vehicle.

Liquids Informations

Any liquids that leak from the Prius are standard automotive type and may include:

- Antifreeze (ethylene glycol/water)
- Washer fluid
- Lead-acid battery electrolyte
- Engine motor oil

R2 Vehicle Towing



Nuro will tow the vehicle. Please contact Nuro rather than arranging third party towing.

- If the R2 Vehicle is idle or has been in an accident, a remote operations specialist will be notified and arrange for towing.
- Law Enforcement can also arrange for towing by calling the Emergency Hotline.

R2 Vehicle Battery Information

Lithium-ion batteries contain a flammable liquid electrolyte that may vent and ignite if damaged or subjected to high temperatures.

Location of the battery on the R2 Vehicle.

The R2 Autonomous Delivery Vehicle:

- is powered by a 350V electric battery system, with a maximum voltage of 405V.
- uses automotive grade lithium-ion batteries similar to those used by passenger vehicles on the road today.
- has a 31.7kWh 350V lithium-ion battery located near the bottom-center of the vehicle.
- has two 12V non-spillable lead-acid batteries located near the front base of the vehicle, behind the bumper. These are standard automotive-grade and are non-flammable.

Contact Nuro for the Material Safety Data Sheet (MSDS) via the Emergency Hotline.

R2 Vehicle Electrical Safety

Electrocution can occur if the R2 Vehicle is damaged or submerged.

Disable the Electrical System

1. Prior to disabling electrical system, ensure wheels are chocked to prevent the vehicle from rolling, if available.
2. Locate the charging receptacle behind the rear license plate door. The charging receptacle is a standard J1772 EVSE receptacle.
3. There is a red high-voltage interlock loop which will disable the high voltage system. It can be cut using any tool, or unlatched and removed.

Electric vehicles should be disabled only by trained emergency responders.

R2 Vehicle Water Submersion

The interaction of water or water vapor with the battery electrolyte may result in the generation of hydrogen and hydrogen fluoride (HF) gas.

Contact with the battery electrolyte or resulting gasses may be irritating to the skin, eyes, and mucous membranes.

First responders should don full firefighting PPE and self-contained breathing apparatus (SCBA) when working with previously submerged and damaged vehicles.

In the Event of Water Submersion

1. **Call the Emergency Hotline.** Do not attempt any disabling activities while the vehicle is submerged in water.
2. Avoid contact with high voltage (HV) components, cabling, or service disconnects on a submerged vehicle.
3. The body of the vehicle does not present a shock hazard in water. The HV system is isolated from the chassis and will not pose a shock hazard.
4. Remove the vehicle from water.

Small bubbles may be seen coming from the immersed HV battery. This does not indicate a shock hazard.

Following Removal From Water

1. Avoid contact with a damaged HV battery. Do not interact with vehicles exhibiting signs of damaged or overheating HV batteries, including leaking fluids, sparks, smoke, bubbling noises, or unusual odors.
2. Drain the water from the vehicle.
3. Proceed with disabling the HV system **(previous slide)**.
4. Nuro will retrieve the vehicle.

R2 Vehicle Fire Safety

The interaction of water or water vapor with the battery electrolyte may result in the generation of hydrogen and hydrogen fluoride (HF) gas.

Contact with the battery electrolyte or resulting gasses may be irritating to the skin, eyes, and mucous membranes.

First responders should use the appropriate Personal Protective Equipment, including a self-contained breathing apparatus (SCBA).

Rescue of persons at risk and containment of the fire with prevention of toxic gas emissions should be the goals of firefighting efforts.

In the Event of Fire

1. **Immediately call local fire response**.
2. In the case of a small fire (e.g. equipment fire), use only sand, dry chemical, CO2, N2, halon, or regular foam. Continuously apply media until fire is extinguished.
3. In case of a large fire (e.g. complete bot fire), use copious amounts of water. **Large fires should be extinguished only by trained firefighters. Do NOT submerge vehicle to extinguish a battery fire.**
4. After smoke has visibly subsided, a thermal imaging camera can actively measure battery temperature. There must be no fire, smoke, audible popping/hissing, or heating present in the battery for at least 45 minutes before the vehicle can be released to law enforcement, vehicle transporters, etc.
5. Law enforcement should be aware of potential re-ignition.

Staffed Nuro vehicles carry a fire extinguisher and other fire-related equipment.

Prius Vehicle Fire Safety

The NiMH battery electrolyte is a caustic alkaline (pH 13.5) that is damaging to human tissues. **To avoid injury by coming in contact with the electrolyte, wear proper personal protective equipment.**

The battery modules are contained within a metal case and accessibility is limited.

To avoid serious injury or death from severe burns or electric shock, **never breach or remove the high voltage battery pack cover under any circumstances, including fire.**

Excerpt from the Toyota Prius Safety Manual

In the Event of Fire

1. Approach and extinguish a fire using proper vehicle firefighting practices as recommended by NFPA, IFSTA, or the National Fire Academy (USA).
2. **Extinguishing agent.** Water has been proven to be a suitable extinguishing agent.
3. **Initial fire attack.** Perform a fast, aggressive fire attack. Divert the runoff from entering watershed areas. Attack teams may not be able to identify a Prius until the fire has been knocked down and overhaul operations have commenced.
4. **Fire in the HV Battery Pack.** Should a fire occur in the NIMH HV battery pack, attack crews should utilize a water stream or fog pattern to extinguish any fire within the vehicle except for the HV battery pack.
5. When allowed to burn themselves out, the Prius NIMH battery modules burn rapidly and can be reduced to ashes except for the metal.

Prius Vehicle Fire Safety (continued)

The NiMH battery electrolyte is a caustic alkaline (pH 13.5) that is damaging to human tissues. **To avoid injury by coming in contact with the electrolyte, wear proper personal protective equipment.**

The battery modules are contained within a metal case and accessibility is limited.

To avoid serious injury or death from severe burns or electric shock, **never breach or remove the high voltage battery pack cover under any circumstances, including fire.**

Excerpt from the Toyota Prius Safety Manual

Offensive Fire Attack

1. Normally, flooding an NiMH HV battery park with copious amounts of water at a safe distance will effectively control the HV battery pack fire by cooling the adjacent NiMH battery modules to a point below their ignition temperature. The remaining modules on fire, if not extinguished by the water, will burn themselves out.
2. However, flooding the Prius HV battery pack is not recommended due to the battery case design and location preventing the responder from properly applying water through the available vent openings safely. Therefore, it is recommended that the incident commander allow the Prius HV battery pack to burn itself out.

Prius Vehicle Fire Safety (continued)

The NiMH battery electrolyte is a caustic alkaline (pH 13.5) that is damaging to human tissues. **To avoid injury by coming in contact with the electrolyte, wear proper personal protective equipment.**

The battery modules are contained within a metal case and accessibility is limited.

To avoid serious injury or death from severe burns or electric shock, **never breach or remove the high voltage battery pack cover under any circumstances, including fire.**

Excerpt from the Toyota Prius Safety Manual

Defensive Fire Attack

1. If the decision has been made to fight the fire using a defensive attack, the fire attack crew should pull back a safe distance and allow the NiMH battery modules to burn themselves out.
2. During defensive operations, fire crews may utilize a water stream or fog pattern to protect exposures or to control the path of smoke.

Prius Electrical Safety

The vehicle has high voltage DC and AC systems as well as a 12-voltage system.

DC and AC high voltage is very dangerous and can cause severe burns and electric shock that may result in death or serious injury.

Excerpt from the Toyota Prius Safety Manual

High Voltage Precautions

- Never touch, disassemble, remove, or replace the high voltage parts, cables, or their connectors.
- The hybrid system will become hot after starting as the system uses high voltage. Be careful of both the high voltage and the high temperature, and always obey the caution labels attached to the vehicle.
- Do not splash or spill liquid in the vehicle, such as on the floor, in the hybrid battery (traction battery) air vents, and in the luggage compartment. Doing so may cause the hybrid battery (traction battery), electrical components, etc. to malfunction or catch fire.

Prius Electrical Safety (continued)

The vehicle has high voltage DC and AC systems as well as a 12-voltage system.

DC and AC high voltage is very dangerous and can cause severe burns and electric shock that may result in death or serious injury.

High Voltage Precautions

- If electric wires are exposed inside or outside the vehicle, an electric shock may occur. Never touch exposed electrical wires.
- If a fluid leak occurs, do not touch the fluid as it may be strong alkaline electrolyte from the hybrid battery (traction battery). If it come into contact with your skin or eyes, wash it off immediately with a large amount of water or, if possible, boric acid solution. Seek immediate medical attention.
- If a fire occurs in the hybrid vehicle, leave the vehicle as soon as possible. Never use a fire extinguisher that is not meant for electric fires. Even using a small amount of water may be dangerous.
- If your vehicle needs to be towed, do so with the front wheels raised. If the wheels connected to the electric motor (traction motor) are on the ground when towing, the motor may continue to generate electricity. This may cause a fire.

R2 Vehicle Internal Emergency Door Release

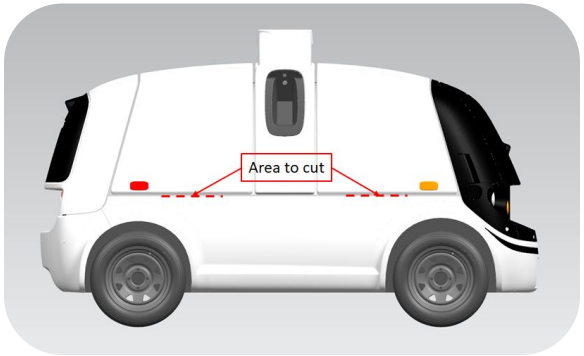
Push the white lever to the right to release the door latch from the inside.

Release Doors

- The R2 Vehicle compartment doors can be manually opened from the inside.
- Push the white lever located at the bottom center of the door to the right (direction shown by the arrow).

R2 Vehicle External Emergency Door Release

Location of cut areas to remove the door from the outside, if it cannot be opened remotely



Release Doors

- If law enforcement needs emergency access to the compartments of the R2, **call the Emergency Hotline** and request that a Nuro Operations Specialist remotely open the doors.
- If the vehicle is damaged and the doors cannot be electronically opened, they can be manually opened and removed with standard vehicle extraction equipment, such as the jaws of life.
- Use the graphic on this slide to guide where to make cuts.

03 Vehicle Operational Design Domain

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Vehicle SAE Autonomy Level

SAE Autonomy Level

The R2 and Autonomous Prius vehicles are designed to be SAE level 4 autonomous vehicles. These vehicles are capable of performing all driving tasks within their operational design domains (ODD).

In the event a vehicle enters an out-of-scope ODD condition or experiences a failure, it will achieve a minimal risk condition and safely come to a stop.

Vehicle Minimal Risk Condition

Safely Come to a Stop

All Nuro vehicles are designed with a high level of redundancy to ensure the vehicle can continue safe operations after a single fault. If a significant fault occurs, Nuro's vehicles are programmed to come to a safe stop.

In the case of the Nuro Autonomous Prius vehicle, an In-Vehicle Safety Operator will take control of the vehicle operation and pull the vehicle over.

Roadway Operations

Roadway Types

The R2 and Autonomous Prius vehicles will operate on surface streets with a posted speed limit of no more than 35 mph, unless otherwise permitted by law. They do not travel on high-speed roads, such as interstate highways, in autonomous mode.

Vehicle Speed Range

The R2 and Autonomous Prius will drive a maximum speed of 25 mph on all roads when in autonomous mode.

Light and Weather Conditions

Time of Day

Nuro vehicles can operate during the day or night.

Weather

Nuro vehicles can operate autonomously in fair to moderate weather conditions. This includes dry or wet pavement or asphalt, during light rain, and light to moderate fog. We do not operate in autonomous mode when the weather falls outside of these parameters.

In the event the vehicle encounters the following conditions mid-operation, it will achieve a minimal risk condition until conditions improve enough for autonomous mode to resume or for a remote operator to take control:

- Snow or icy conditions
- Heavy rain
- Heavy fog

Geographies

As of September 2021, Nuro has active vehicle operations in Arizona, California, and Texas.

Nuro may conduct limited mapping and other operations in additional geographies.

Please contact feedback@nuro.ai if you have questions about Nuro vehicles in your area.


Thank
You.
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