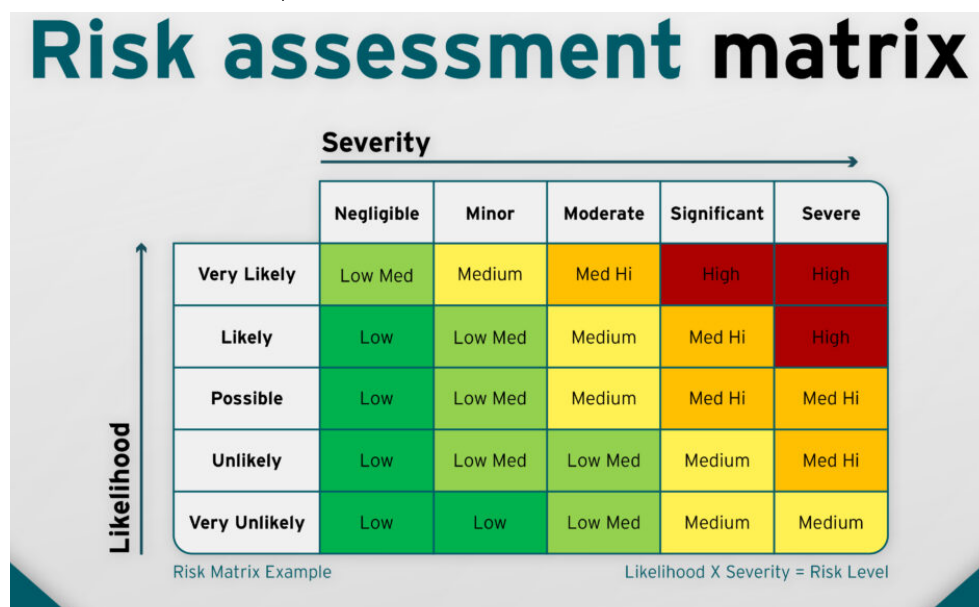


## Newlab at Michigan Central: Safer Crossings Pilot Project Safety Plan

### High-level Assessment:

As the robot will intentionally be deployed on smaller side streets within the neighborhoods of Corktown & Hubbard Richard and not on main thoroughfares like Michigan Ave, we anticipate a lower level of vehicular traffic that will encounter the technology. Our approach to deployment is scheduled so that the robot will only be operating on specific dates and times for a specific range of time at confirmed partner sites in the community. An operator and other team members from the project will be present on-site for all pilot deployments so the robot will never be left unattended. As such, we foresee this project’s overall risk level to be low for both severity & likelihood. The robot is equipped with emergency stop switches that can be activated to immediately halt its operation in the event of an emergency. Furthermore, to ensure safety, the crossing guard robots are limited to a maximum speed of 1 mph during operation, reducing the risk of collisions with pedestrians and vehicles.



Source: <https://riskpal.com/risk-assessment-matrices/>

Specific potential risks are outlined below.

### Potential Risks & Mitigation:

<u>Potential Risk</u>	<u>Potential Impact</u>	<u>Likelihood</u>	<u>Severity</u>	<u>Mitigation</u>
A driver does not respond to the robot and continues driving.	The robot is hit & can no longer function and pilot test users may be injured.	Very Unlikely	Moderate to Significant	-Ensure that the robot has the necessary visual cues (lights/signs,etc) to alert approaching drivers. -Ensure that the robot operator is always on-site to intervene in the event of a careless/ distracted driver and remove the

				<p>robot from the road.</p> <ul style="list-style-type: none"> <li>-Inform first responders (Police, Fire etc) of planned schedule of tests and locations.</li> <li>-Call emergency services for support if needed</li> </ul>
<u>Potential Risk</u>	<u>Potential Impact</u>	<u>Likelihood</u>	<u>Severity</u>	<u>Mitigation</u>
The robot runs into a person or test user and/or a person runs into the robot.	A person becomes injured.	Very Unlikely	Moderate to Significant	<ul style="list-style-type: none"> <li>-Ensure that the robot has the necessary visual cues (lights/signs,etc) to alert approaching drivers and pedestrians/test users.</li> <li>-Ensure that the robot operator is always on-site to intervene in the event of a careless/ distracted driver.</li> <li>-Make police, ems, fire aware of testing schedule &amp; locations</li> <li>-Work with the site partner in advance to prepare the users for the pilot test experience</li> </ul>
Users are worried about personal images being captured by the camera on the robot.	There is community backlash to the project and the project is shutdown. Complaints are shared back to the project team and the City.	Possible	Minor	<ul style="list-style-type: none"> <li>-Work with community and pilot partners in advance of deployments to ensure stakeholders are properly informed &amp; aware of the capabilities and data collection protocol for the robot. Stakeholders should be notified that no personally identifiable data will be recorded and stored as part of this project. Live video will only be used for active computing &amp; processing for the robot's safety functionality &amp; navigation.</li> </ul>
Community is worried about disruption to typical flow of traffic or mobility in an area.	There is community backlash to the project and the project is shutdown. Complaints are shared back to the project team and the City.	Possible	Moderate	<ul style="list-style-type: none"> <li>-The project team will ensure that the robot follows the pilot deployment plan &amp; schedule and only test for short periods of time on specific days and times for a fixed period.</li> <li>-The community and stakeholders will be informed and briefed in advance of any pilot deployment in the real world.</li> </ul>
The robot is subjected to theft/ vandalism or mischief by the public.	The robot is stolen, vandalized or made non-functional due to criminal mischief. The project is delayed or suspended/stopped as a result.	Unlikely	Moderate	<ul style="list-style-type: none"> <li>-The project team will be on-site monitoring the tests when the robot is deployed</li> <li>-The robot will not be stored or left unattended in an uncontrolled, public access area. It will remain stored and recharged at the Newlab campus when not in use for the pilot tests.</li> </ul>
The robot loses charge during testing.	The robot is unable to respond to the operator or electronic commands and stalls on the street.	Unlikely	Minor	<ul style="list-style-type: none"> <li>-The project team will ensure that the robot is fully charged in advance of any pilot site deployment.</li> <li>-The team will work with pilot site partners to get local access to power at the site, if needed.</li> <li>-The non functioning robot will immediately be removed from the public right of way if the battery is low or loses charge.</li> </ul>
Test users do not understand how to use	The project team is unable to collect	Unlikely	Negligible	<ul style="list-style-type: none"> <li>-There will be a project team on site to help users with the robot and testing.</li> </ul>

the robot.	valuable data from users on the solution.			-The robot's call button and app will be available in both Spanish & English and will communicate in both languages.
Network bandwidth (signal strength) is too low to support communication amongst the software & hardware.	The robot is unable to receive and process requests.	Unlikely	Minor	-There is a fail safe so that the robot will shut down automatically if there is not enough network connectivity. -Operator approval will be solicited for the robot's actions. -The team is also pursuing 5G Verizon support through Newlab's 5G studio.
The battery of the robot catches fire.	The robot injures others or catches other things on fire.	Unlikely	Significant	-There will always be members of the project team monitoring the robot's performance. -We will be in close vicinity to fire extinguishers at pilot partner sites if one is needed. -Make police, ems, fire aware of testing schedule & locations -Emergency services will also be dialed if necessary.