Mcity Overview:
Mcity is a public/private partnership that aims to research, develop and deploy new mobility concepts, with a near-term research focus on both engineering and “beyond engineering” topics related to connected and automated vehicle technologies. Key Mcity resources include (i) the Mcity test facility, an 18-acre test site designed to enable connected and automated vehicle (CAV) research and development; (ii) Fleet of connected vehicles and infrastructure already deployed in Ann Arbor (Ann Arbor connected environment), (iii) Collections of field naturalistic driving data, and (iv) 2 Lincoln MKZ and 2 Kia Soul connected and automated vehicle for research use. This RFP, the sixth released by Mcity, is funded largely by the industrial members. The project PIs must work closely with researchers from the Mcity member companies to develop their research project concept, and during the execution of the projects.

Mcity Research Topics
Mcity will consider a wide array of research topics that focus in 4 main areas of outcomes where the membership would like to improve metrics in each area.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Safety</th>
<th>Efficiency</th>
<th>Accessibility</th>
<th>Commercial /Economic Viability</th>
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<tbody>
<tr>
<td>Metrics</td>
<td>• Incidents</td>
<td>• Traffic Management</td>
<td>• Access to transit for underserved populations</td>
<td>• Business models</td>
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<td>• Cyber Events</td>
<td>• Energy Management</td>
<td>• Information &amp; resource access</td>
<td>• Consumer Acceptance/Adoption</td>
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<td>• Machine &amp; Human interaction/Interface</td>
<td>• Data Management</td>
<td>• Digital divide</td>
<td>• Technical feasibility</td>
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<td>• Best Practice Development (methodologies)</td>
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<td>• Urban planning</td>
<td>• Best practice development (inform policy)</td>
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<td>• Dynamic needs assessment &amp; planning</td>
<td>• Market viability</td>
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To impact the 4 outcome areas, Mcity will focus on the following key domains:
- Big Data
- Connected & Automated Technologies & Deployments
- Cybersecurity
- Human Factors
- Legal Liability & Insurance
- Built Environment
While we will encourage a broad range of research topics in the general areas above, Mcity working groups have identified near-term open questions or topics of interest that are highly encouraged for this round of RFP:

- How HD maps are defined and used highly automated vehicle
- Validation methodologies of AV simulation software
- Evaluating/Ensuring AV safety in the era of AI/Learning systems
- Effect of severe weather to AV performance
- Understand how people use HAVs
- Characterizing road user behavior for AV testing
- Data analytics—vehicle and driver behavior from AACV data
- Calibrated microscopic Ann Arbor model for off-cycle credits of CAVs
- Systematic generation of corner test cases based on reachability analysis
- Accurate sensor fusion algorithm using infrastructure and vehicle based sensors
- Low-power high-performance computing
- Bring AACE to be Compliant with Consistent Implementations (CCIs)
- Performance of RSU bridge between DSRC and CV2X
- Develop CAV applications leveraging the AACE environment, including edge computing
- Deployment of V2I2V in heterogeneous communication environment for CAVs
- Usefulness of AACV data

For proposals that wish to be considered for Mcity funding:

- The proposal must include clear elaboration on how the research activities support Mcity’s activities.
- Both Tenured/Tenure track faculty and research faculty (research scientists and research professors) at any rank at UM are eligible to apply.
- Projects are encouraged to request usage time at the Mcity test facility, at no direct cost to the project.
- Projects with a final demonstration phase to showcase the research results are highly encouraged.
- All funded projects must have an “LC sponsor”—this can be worked out during project award negotiation. Having an LC sponsor identified at time of proposal submission will be viewed very positively.
- Teams are encouraged to include researchers from the Mcity LC and Affiliate companies. However, funds will be dispersed only to the University of Michigan faculty. You will be responsible for any subcontracts.
Total funding available for this round of competition:
  • ~$1.9M but some funds may be used to support Mcity postdoctoral researchers

Proposal Deadlines
  • July 31 – Proposals due
  • August 31 – Invitation for Full/revised proposals
  • October 11 – Full/revised proposals due
  • November 7 – Finalist proposals invited for oral presentations to the Mcity leadership circle companies

Please send your Mcity questions to Huei Peng at hpeng@umich.edu and Vicki Waters at watersvg@umich.edu.