



## Call for Proposals: Mobility Network Research Consortium (MNRC)

February 20, 2025

### 1. Overview

The Mobility Network Research Consortium (MNRC) at the University of Toronto invites proposals for innovative and applied research projects that address critical transportation challenges in the GGH. **This call supports interdisciplinary research teams in conducting high-impact studies that contribute to academic knowledge while generating practical insights for municipal, regional, provincial, and federal partners.**

The [Mobility Network](#) is a University of Toronto initiative that connects researchers across disciplines to advance innovative solutions for more just, sustainable, and efficient cities.

Within this capacity, the Mobility Network is forming the [Mobility Network Research Consortium](#) (MNRC), a partnership among municipalities and provincial and federal agencies in the Greater Golden Horseshoe region and the University of Toronto. **The MNRC will provide a platform for collaborative research in support of evidence-based decision-making, generating new tools, methods, and policy recommendations that bridge the divide between strategic objectives and actionable solutions.** By fostering coordinated research and training efforts that address the most pressing transportation challenges across the GGH and beyond, the MNRC positions itself as a leading network at the intersection of academia, government, industry, and community.

To this end, the MNRC is co-creating a slate of research projects to combine into an NSERC (Natural Sciences and Engineering Research Council of Canada) Alliance Advantage grant. This grant provides matching for research collaborations among university researchers and partners from the private-sector, public-sector, or not-for-profit organizations. The goal is to reach an annual research budget of \$1 million, for five years, through partners' cash contributions and NSERC matching. This will allow funding for numerous research projects of various sizes (approximately \$50-150k, per year) and lengths (1-5 years).

With this Cfp, the MNRC is calling for interested researchers to join public-sector partners in solving the transportation challenges the GGH is facing. As the Canadian council for research in the natural sciences and engineering, the NSERC Alliance Advantage grant prioritizes research proposals from engineering and natural sciences. However, a portion of the research (up to 30%) may be dedicated to adjacent fields in health and social sciences. **Applications from all fields are welcomed!**

On February 12, 2025, the MNRC held a workshop with potential public-sector partners to identify top-priority policy-relevant research themes and guiding questions that address the key transport-related challenges partners are experiencing. **Through group discussions and interactive sessions, partners identified five themes and voted on the most urgent questions within each theme (listed in section 5 below).** These themes and questions serve as inspiration for setting the research priorities of the MNRC and our NSERC Alliance Advantage grant.

### 2. Funding and Eligibility

The MNRC is accepting proposals for research projects of various sizes (approximately \$50-150k per year) and lengths (1-5 years) to be included in our NSERC Alliance grant. If our grant application is successful, projects will receive funding to facilitate research activities and student and postdoctoral training opportunities toward the development of both academic and policy-relevant deliverables.

To serve as a Principal Investigator (PI), applicants must hold a faculty position at the University of Toronto. Research teams should include faculty from multiple disciplines, and may incorporate co-applicants from outside of UofT. **Early-career researchers are strongly encouraged to participate.**

### **3. Research Project Selection Process**

The MNRC is seeking to fund state-of-the-art research that directly addresses the priorities that partners identified during the February 12 workshop. To this end, an iterative co-creation process was developed during the workshop to ensure that selected projects align with partners' priorities. This process includes several stages:

- Stage 1: Proposal submission (by March 12)
  - Info session will be held on March 3 (see details in section 8)
- Stage 2: Feedback from MNRC partners, including interest in potential collaborations (by March 26)
- Stage 3: PIs and partners workshop (by April 14)
- Stage 4: Final partners' feedback and proposal selection (by April 21)

### **4. Evaluation Criteria**

Proposals will be evaluated based on the following criteria:

- Alignment with MNRC themes and partners' priorities
- Scientific merit
  - State-of-the-Art contribution
  - Applied/high-impact research
- Interdisciplinary team of investigators, including junior faculty
- Opportunities for student/PDF training
- Outputs
  - Anticipated academic deliverables
  - Anticipated non-academic deliverables (deliverables for partners' benefit)

### **5. Themes and Guiding Questions**

A core purpose of the February 12 workshop was to develop a list of key themes and guiding questions that will assist partners in addressing the key transportation challenges their localities or agencies will be facing in the coming years. The five themes and guiding questions were identified during the workshop through group discussions and a voting process. The MNRC is seeking research proposals that broadly align with these themes and one or more guiding questions. In addition, projects should contribute to the broader goals of social inclusion, decarbonization, and economic vibrancy among others. The themes and top-voted guiding questions are listed here:

#### ***5.1 Integrated regional planning and governance***

- How can advanced simulation and modeling be used to optimize multi-modal transportation networks and predict the long-term impacts of coordinated infrastructure investments?
- What are the key barriers to land use and transportation coordination across municipal boundaries and how can they be addressed through planning and policy interventions?
- What policy mechanisms, regulatory frameworks, and governance structures are needed for promoting integrated multi-modal transportation and land use planning across jurisdictions?
- What data and methodologies are needed for modeling and supporting the advancement of accessibility and mobility across municipal and regional boundaries?
- What data, methodologies, and simulations are needed to improve the accuracy and effectiveness of transportation-land use integration models?
- How can machine learning or AI-driven approaches be leveraged to enhance predictive modeling for regional transportation planning and cross-jurisdictional transportation-land use integration?

#### ***5.2 Transportation and Housing Affordability***

- What data, methodologies, and policy mechanisms are needed for modeling and addressing trade-offs between housing and transportation costs?
- What data, methodologies, and policy mechanisms are needed to plan for, mitigate, and prevent transit-induced gentrification and displacement?
- What are the key barriers to housing and transportation integration and how can they be addressed through planning and policy interventions?
- What policy mechanisms, regulatory frameworks, and governance structures are needed for promoting integrated multi-modal transportation and housing planning to improve affordability?
- How can simulation and modeling techniques help evaluate the long-term affordability impacts of integrated multi-modal transportation and housing policies?

### ***5.3 Transportation and Climate justice***

- What data and methodologies are needed for designing decarbonization strategies, and sustainable transportation initiatives and policies that meaningfully reduce transportation emissions while also advancing social equity for underserved populations?
- How can we design and deploy green transportation technologies to maximize transportation benefits while minimizing environmental impact?
- What policy and funding mechanisms are needed to support equitable decarbonization efforts?
- How can simulation and modeling tools help evaluate the trade-offs between environmental impact, cost, and accessibility in low-carbon transportation planning?
- How can infrastructure for active transportation be optimized to enhance accessibility and reduce emissions in different urban and regional contexts?

### ***5.4 Financing, funding, and cost management***

- What funding and financing mechanisms (e.g., integrated transportation funding approaches for transit and roads), and revenue options are needed for supporting sustainable and fair delivery?
- What is the optimal cost model (least cost plan) for integrating housing, transport, and infrastructure?
- What data and methodologies are needed for aligning transportation solution(s) to context and needs?
- What data and methodologies are needed for making new transit and transit expansion faster and less expensive?
- What data and methodologies are needed for estimating the economic and business case for transit? What is the true value of transit to the community?
- How can integrated data systems and predictive analytics be applied to improve the alignment of transportation investments with real-time demand and local needs?
- How can innovative design approaches and construction methodologies reduce the cost and time required for transit expansion while maintaining quality and safety standards?

### ***5.5 New technologies and planning methodologies***

- How do emerging transportation technologies (e.g., EVs, AVs) align with existing transportation policy objectives (e.g., reducing congestion, mode choice)?
- What data, methodologies, and designs are needed to support infrastructure adaptation to new mobility solutions (e.g., e-scooters in bike lanes; taking car lanes for e-mobility)?
- How can information technology be used to inform travel and lifestyle decisions and nudge these decisions towards more sustainable outcomes?
- What policy mechanisms and regulatory frameworks can improve vehicle-for-hire and food delivery industries?

- What data collection, modeling, and simulation techniques can be developed to assess the impacts of emerging mobility technologies on traffic patterns, congestion, and transportation system performance?
- How can advanced simulation and modeling, new data sources, and innovative methodologies be leveraged to support decision-making around the design and deployment of new transportation technologies?

## 6. Submission Guidelines

Proposals should have the following sections:

- Project description (up to 500 words) including:
  - Background, research questions, and methods
  - Statement on alignment with MNRC priorities
- Expected outcomes, academic and non-academic deliverables such as policy briefs, tools, data sets, training and workshops. Note that funding will be available to support the development of all deliverables (approximately 200 words)
- Research team (including number of trainees)
- Budget table and justification
- Timeline
- Target consortium partners

## 7. Deadline

Submissions must be made by March 12, 2025, to [mobilitynetwork@utoronto.ca](mailto:mobilitynetwork@utoronto.ca). Email subject and file naming should follow this structure MNRC\_PILastName.pdf.

## 8. Further Information and Inquiries

An information session will be held on March 3<sup>rd</sup>, 2-3 pm. The meeting will be held on Teams via the following [link](#) (Meeting ID: 273 090 220 516; Passcode: aU37wZ74).

For further inquiries, please contact [mobilitynetwork@utoronto.ca](mailto:mobilitynetwork@utoronto.ca), with the PI's name and MNRC NSERC Grant in the Subject line.

We look forward to receiving innovative proposals that will shape the future of mobility and transportation planning in the GGH!