

U of T Transportation Alumni Network “New Frontiers in Transportation” Competition

The University of Toronto Transportation Alumni Network (UTTAN) is an association of UofT graduates of any discipline, working as transportation professionals. We welcome you to join the Alumni Network and to participate in the 3rd annual UTTAN “New Frontiers in Transportation” competition.

Our objective is for students studying in any discipline related to transportation, including those graduating in Spring 2021, to engage in collaborative work not only with their peers, but also with industry professionals such as planners, engineers, policymakers, and other practitioners. It is a chance to network, receive mentorship and connect with subject matter experts through research.

This Year’s Theme

Addressing Transportation Equity in the Post-Pandemic City

Competition Overview

Cross-disciplinary student teams will identify a transportation-focused research topic based on this year’s theme. Each team should consider policy, transportation equity, affordability and accessibility for all people in the community.

Participants will not attend any in-person meetings. UTTAN will support all students virtually. Students are expected to work remotely with one another. UofT students have [access to Microsoft Teams](#).

Teams will consist of 3 undergraduate and/or graduate students each, including recent graduates, representing at least two different UofT departments. During the competition launch event, students will be given access to the [registration spreadsheet](#), through which they will be able to find and connect with potential teammates, if needed.

The project will consist of two phases. At the end of Phase I, students will submit a proposal package, after which up to 5 teams will be selected to proceed to Phase II. During Phase II, the 5 short-listed teams will work with two assigned mentors, as well as pertinent partners and knowledge users to formulate their solution(s) over the course of 2 months. At the end of Phase II, teams will submit a final report and presentation. The final report will make up 60% of the score and the presentation will make up 40% of the score. The presentation event will happen within 2 weeks of the final submission deadline, during which the competition winners will be announced.

For further details pertaining to the competition’s context, timelines, startup, research methods and ethics, Phase I, Phase II, prizes, and frequently asked questions, please refer to the relevant sections below.



Competition Context

Transportation has a direct influence on access to opportunities such as employment, education, and healthcare. However, not everyone has equal access to affordable, reliable, and safe transportation. Black, Indigenous, people of color, and people with disabilities often face significant [challenges finding affordable means of transportation](#). At the same time, negative externalities imposed by our transportation systems, such as air pollution and traffic crashes, disproportionately affect historically marginalized communities. The COVID-19 pandemic has brought special attention to [structural inequalities](#) in the transportation system.

Rather than a great equalizer, the pandemic highlighted existing inequalities. In the realm of transportation, we saw the ability for some workers to continue their jobs safely at home while others relied on transit systems whose service frequencies were scaled back. Changes in transit ridership patterns included vanishing peak periods exposing a base ridership of ‘essential’ workers who were always there, but taken for granted as [transit-dependent populations](#). While many had the ability to continue their work remotely or even shift to private cars as a primary mode of transportation, this is not true for the majority of minimum-wage and low-income workers: a survey conducted by [Statistics Canada](#) shows that financially vulnerable workers have the lowest telework capacities. Many of these individuals are essential workers who need to be present at their workplaces and rely on public transit for their daily trips.

In our neighbourhoods, the pandemic led us to reconsider allocation of street space, with many cities re-allocating lanes for pedestrians, bicyclists and patio space. Toronto launched [ActiveTO](#), rolling out a series of temporary bike lanes, quiet streets, and weekend road closures for active transportation. Nevertheless, safe walking and bicycling infrastructure is unevenly distributed across the city. Who wins and loses when scarce street space is re-allocated? How can we ensure programs offer evenly distributed benefits, and will there be an appetite for such initiatives post-pandemic?

In the realm of technology, the nascence of connected and automated vehicles offers promise of improved safety, efficiency and convenience, while emerging micromobility trends such as e-bikes and e-scooters may offer expanded climate-friendly mobility opportunities. However, as with many technological innovations, we must be sure that they are deployed to help even the playing field, not exacerbate existing inequalities.

Transportation equity, which can be defined as accessible and affordable transportation for the whole community, is becoming an important topic that needs to be investigated. [Equity analysis](#) is a major part of the transportation planning which can reflect a community’s needs and values.

Competition Timeline

June 1	Virtual Launch event, 5:30-6:30 pm (register here)
June 15	End of Phase I, teams submit proposals
June 22	Start of Phase II, 5 short-listed teams announced
June 29	Phase II, teams match with mentors
August 17	End of Phase II, teams submit final reports
August 29	Submit presentations
September 13	Presentations dry run
September 14	Presentation and awards event



Competition Startup

The Virtual Launch event will happen on June 1st, where the UTTAN Student competition will be introduced, along with this year's research topics and timelines. Attendance at the Virtual Launch is optional, however students are encouraged to join the event to listen in, ask questions and discuss the transportation challenges related to equity. At the end of the launch event, students will be provided a [link](#) to the registration file where they can specify their discipline, research interest, and if they are looking for a team, or are a part of a formed team.

The teams must consist of 3 members and at least two disciplines need to be represented within the group. There is no particular deadline to form a team, as long as each team is able to submit their proposal in time by the end of Phase I.

Research Methods and Ethics

The research methods used in each team's comprehensive project may include the following:

- Industry or public agency outreach. **This is a mandatory component of this project.** During Phase II, our mentors may be able to help teams by introducing them to relevant interviewees. Teams should be mindful of the time allocated when conducting outreach to ensure ample response time is given to interviewees. **Please note, the surveying of private citizens will not be allowed in this competition.**
- Best practice review - What are other cities/jurisdictions doing at this time? How have we prepared elsewhere? Have any innovative ideas about moving essential workers been successful? What kind of Transportation Demand Management strategies may be useful?
- Data/route analysis or gaps analysis - ridership, modelling, essential trip characteristic review, demographics, transit operations, network redundancy
 - TTS, GTFS, and Census data may be useful
 - Transit data such as GO Transit [Open API](#), Metrolinx [Open Data Portal](#), and TTC
 - City of Toronto Open Data (e.g. [Vision Zero datasets](#) including collision records, traffic volumes, etc.)
- Scenario evaluation - How does your policy or proposal fare in a variety of different futures?
- Policy, program, or intervention proposal. This could be a pilot, a short-term fix that is deployment-ready during crises, or a long-term change to the transportation system

Due to research ethics protocols, the appropriate research methods are:

- Focus groups with stakeholders/industry professionals
- Semi-structured interviews with stakeholders/industry professionals

When referencing information in the proposal, final report and presentation, each team should follow the APA citation style. All figures should be sourced, including those used in the final presentation in Phase II.



Phase I – Proposal

As part of Phase I, teams will prepare and submit a proposal. The proposal should include a two-page, double-spaced application, excluding figures, written in Arial font, size 11. For referencing requirements, please see the Research Methods and Ethics section above. The proposal should describe:

1. The question/challenge to be addressed
2. The proposed approach, including a mandatory section describing potential avenues for industry or public agency outreach, to one aspect of the transportation equity challenges currently facing the Greater Toronto and Hamilton Area. The proposal can relate to:
 - Reducing spatial inequalities in access to social and economic opportunity
 - Developing and overseeing emerging mobility technologies to ensure more evenly distributed benefits
 - Solving broader societal transportation challenges, such as the sector’s contribution to the climate crisis, in a way that addresses distributional impacts
 - Equity across modes: walking, bicycling, transit, driving, etc.
3. A description of the team composition, including a 1-page CV for each of the team members
4. A signed waiver (attached in Appendix A) stating that each team member agrees to their research materials becoming a part of public record upon completion of the competition. This permits UTTRI to share the research findings and use it as sample submissions for future years.

Each team must submit a single pdf document by email to uttri@utoronto.ca by June 15, 11:59 PM. All team members should be cc-d on the email, and the email heading should read “2021 UTTAN Student Competition Proposal”.

The research proposals will be reviewed by UTTAN, after which the 5 teams proceeding to Phase II will be selected. All teams who have submitted a proposal will be contacted one week after the submission and notified if they have been shortlisted or not for the next stage of the competition. The following criteria will be used to determine which teams will proceed to the next phase:

1. Innovation and questions asked (40%)
2. Proposed approach (40%)
3. Diversity of the team (20%)



Phase II – Final Report and Presentation

In Phase II, mentorship is a key component for teams to compose the final research report. Each team will have two assigned mentors who will support the team by providing their expertise over the course of the competition. It is the team's responsibility to reach out to their assigned mentors and set up touch bases throughout Phase II. Teams are encouraged to meet with their mentor at least three times.

The final report should be a double-spaced, 5,000-word document, excluding appendices and references, written in Arial font, size 11. For referencing requirements, please see the Research Methods and Ethics section above. At minimum, the research report should include:

1. Executive Summary
2. Problem Definition and Relevance to the GTHA
3. Research Methodology
4. Analysis and Findings
5. Proposed Recommendation(s)

Previous year's final reports have been provided on the [UTTRI's website](#) for general reference, however, please note that the competition requirements pertaining page count, formatting, and referencing have changed over the last year.

Each team must submit a pdf document of the final report by email to uttri@utoronto.ca by August 17, 11:59 PM. All team members should be cc-d on the email, and the email heading should read "2021 UTTAN Student Competition Final Report".

Each team will also prepare a 12-minute PowerPoint presentation summarizing their research findings. The presentations should be submitted by email to uttri@utoronto.ca by August 29, 11:59 PM. All team members should be cc-d on the email, and the email heading should read "2021 UTTAN Student Competition Presentation". Teams will present their findings in random order on August 31.

The final report will make up 60% of the score and the presentation will make up 40% of the score. The final reports will be reviewed by a panel of industry judges prior to the Student Competition Symposium based on the criteria detailed in Appendix B. The evaluation rubric also includes the scoring criteria for the presentations. The presentation score will be determined during the Symposium on August 31 and added to the final report score. At the end of the Symposium, the competition winners will be announced.



NEW FRONTIERS IN TRANSPORTATION STUDENT COMPETITION 2021

Prizes

The top 3 ranking teams will be awarded monetary prizes. The 1st ranked team will receive \$650/student. The 2nd ranked team will receive \$475/student and the 3rd ranked team \$375/student. The prizes will be awarded through UofT and are considered a taxable income. Students receiving the prizes must be eligible to receive income in Canada.

All teams will be provided with a participation certificate, with winner's certificates recognizing their awarded place. Further, each team will receive their evaluation rubric and each team's work will be highlighted on UTTAN's social media channels and UTTRI's website during the first weeks of the fall semester.

Competition Sponsors

**Dr. Mazen I.S.
Hassounah**



About UTTRI

The University of Toronto Transportation Research Institute was established in 2013 with the purpose of harnessing the expertise and knowledge of UofT transportation researchers drawn from all disciplines and across all campuses is connected to many of the problems. The complex and multifaceted transportation and mobility challenges faced by people in our region and around the world require the combined expertise of people with diverse perspectives and expertise. Collaborations of UTTRI researchers are addressing those challenges.



**Transportation Alumni
Network**



Appendix A
Research Waiver



Research Use Waiver

In the UTTAN “New Frontiers in Transportation” competition, it is expected by participants to contribute thorough research related to the topics outlined in the project guidelines.

By signing below, we give permission to make the research performed by our team in this competition, including proposals, reports, presentations, and the video recording of the Student Symposium, public with the appropriate credits provided.

Signature of Participant

Date

Signature of Participant

Date

Signature of Participant

Date



Appendix B
Phase II Evaluation Rubric



Scoring Rubric

Part 1: Written Submission	
Idea and Use Case	
Creativity <i>Ambition of problem statement and complexity of problem being solved</i>	8%
Applicability <i>Understanding of and applicability to a regional transportation challenge</i>	10%
Research Methods	
Appropriateness <i>How appropriate were the chosen methods for the research question?</i>	5%
Execution <i>How well was the research conducted?</i> <i>Were all mandatory research requirements met (stakeholder interviews)?</i>	13%
Written Submission Quality	
Organization <i>How clearly written was the submission?</i>	13%
Completeness <i>How complete was the submission?</i>	13%
Subtotal Part 1	60%
Part 2: Presentation	
Organization <i>How clearly were the ideas presented?</i>	10%
Quality of Research <i>How well was the research conducted?</i>	10%
Persuasiveness <i>Was the presentation convincing and enthusiastic? Did the research advance our knowledge of the issue? Was it relevant?</i>	10%
Question Responses <i>How well did the team respond to the questions?</i>	10%
Subtotal Part 2	40%
Total Score	100%