

# Transportation Innovation Zones September 2020 Stakeholder Workshops

## Report - Part 2 of 4

# Results Summary



[toronto.ca/tiz](https://toronto.ca/tiz)

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This report is part two of four files summarizing the TIZ Stakeholder Workshops:

1. Process & Participants
2. Results Summary
3. Results Raw Data
4. Presentation Materials

## Contents

Workshop Process Overview.....	3
Results Executive Summary.....	4
Reviewing the Responses.....	4
1. What kind of innovative transportation technologies/approaches could be tested in the Zones? ..	5
2. What would you like to see in the application process? ..	6
Process for broad collaboration ..	6
Developing challenges.....	6
Selection criteria ..	6
Open vs. challenge-based ..	7
Application process/interface ..	7
Other design considerations ..	7
Process for selecting advisors/partners ..	8
3. What criteria should we use to monitor and evaluate the trials?.....	8
Potential impacts and benefits ..	8
Data collection, privacy and cybersecurity ..	8
Approach to evaluation ..	9
Performance measurement and other ..	9
Appendix – Top Questions Asked by Participants.....	10

## Workshop Process Overview

The City of Toronto hosted four online workshops in mid-September 2020 to gather feedback and recommendations from stakeholders on a proposed Transportation Innovation Zone program.

The workshops had a total of 93 participants representing a wide range of organization types and interests (see charts at the right).

The workshops were hosted on the City's Webex Meetings web conferencing platform, and made use of the GroupMap.com online tool for collaborative idea rating on participant questions, suggestions and comments.

In total the workshops received 471 participant-generated questions and ideas, and 3408 ratings on those contributions. Analysis of the results recognized over two dozen points of consensus recommendations and many other insights to inform the TIZ program design and planning.

Workshop evaluations completed by participants recorded consistent high satisfaction with the process.

Chart of Participants by Organization Type and by Interest

Organization Type	Count
Academic Institution	11
Business	15
Government	17
Interest / Advocacy Group	14
Technology Industry	10
Other	12
<i>[no response]</i>	14
<b>Grand Total</b>	<b>93</b>

Interest	Count
Accessibility	3
City-Building	7
Data Privacy/Cybersecurity	3
Digital Infrastructure	3
Economic Development	7
Environment	6
Mobility/Transit	17
Research	10
ALL THE ABOVE	15
Other	7
<i>[no response]</i>	15
<b>Grand Total</b>	<b>93</b>

For more details on how the workshop was carried out and who participated, please see **Report Part 1 – Process and Participants** available at [toronto.ca/tiz](https://toronto.ca/tiz).

## Results Executive Summary

Key findings from the participant feedback were:

- Participants are interested in seeing a wide range of technology tested in the TIZ. The most mentioned technology categories were electrification/GHG reduction, integrated mobility, and technologies that assist municipal services/operations. The technologies with the highest level of agreement from participant ratings were vulnerable road user protection and accessibility.
- Participants would like to see the TIZ program encourage broad collaboration among stakeholders, industry, academics, and others across the region.
- Participants are strongly interested in having TIZ testing be linked to solving real-world challenges of relevance to the City of Toronto and Torontonians.
- When faced with the pros and cons of open calls versus more narrow, challenge-based calls for application, many participants suggest striking a balance, and some suggest offering both formats.
- Participants would like to see an application interface and process that is streamlined, fast, predictable, and accessible.
- When considering the evaluation process for trials, many participants would like to see the trials be measured against the ability of the technology to meet the City's existing goals, for example, evaluating technologies for whether they:
  - Provide a benefit to the social fabric of the city for any group
  - Increase social mobility and equity
  - Assist in shifting people away from single occupant vehicles
  - Increase the public good and benefit the end user
  - Contribute to reducing GHG emissions and the environment
- Participants would like to see the program be transparent, and some suggested that consistent key performance indicators be used across all trials in order to be able to effectively monitor and evaluate.
- Participants would like to see stakeholders, particularly people with disabilities and other marginalized groups, be involved in the program – particularly in the evaluation of trials.

## Reviewing the Responses

Participants in the workshops had the opportunity to ask questions to the project manager, and then to respond to, and rank others' responses to, three questions:

1. What kind of innovative **transportation technologies/approaches** could be tested in the Zones?
2. What would you like to see in the **application process**?
3. What **criteria** should we use to **monitor and evaluate** the trials?

This process was conducted online in text using GroupMap (GroupMap.com) – see details in the Report Part 1 – Process and Participants.

Raw responses were coded by City staff to sort participants' responses into categories. This helped to summarize trends and areas of disagreement. Both frequency of mentions and average ratings are

used to discuss trends in the summary results below. Ratings are on a scale of 0 to 4.0. However, these quantified findings are for indicative purposes only, as they are not statistically significant.

A summary of the most highly rated questions asked by participants is also included in the Appendix.

All workshop data exported from GroupMap is included the Report Part 3 – Results Raw Data.

## 1. What kind of innovative transportation technologies/approaches could be tested in the Zones?

Workshop attendees recommended a range of transportation technologies and approaches testing in the Transportation Innovation Zones. Of the responses, the technology categories with more than 15 suggestions were electrification/GHG reduction (17 responses), technologies for integrated mobility (19 responses), and those that assisted municipal services/operations (19 responses).

The technology categories with the highest level of agreement (LOA) from participant ratings were vulnerable road user protection and accessibility (with an overall average of agreement of 2.9).

The specific technology that was mentioned the most was EV chargers, with eight participants who provided this response. Six participants mentioned each of connected technologies and mapping/geofencing.

Technologies that performed the best from within each category, with an LOA of over 3.0 and at least 10 raters, are as follows:

- **Municipal services/ operations:** digital monitoring of street infrastructure
- **Electrification/GHG reduction:** zero emission last mile delivery
- **Vulnerable road user protection:** enhanced pedestrian crosswalk technologies such as thermal pedestrian detection/activation and automated illumination of crosswalks; way-finding for pedestrians; bike lane safety innovations
- **Curbside management:** digital curbside management
- **Accessibility:** tech aimed at making signage more accessible, i.e. colour coded routes wayfinding, not just text/signage
- **Other/General/Comments:** dynamic signage; non-motorized options – multimodal, pedestrian or cycle based

Of the categories not mentioned above, some notable technologies/ approaches are as follows (LOA over 2.5, with more than 10 raters):

- **Logistics:** microhubs; e-cargo bikes for deliveries/staff use during festivals instead of golf carts
- **Integrated mobility:** AV interaction with manually driven vehicles, cyclists, pedestrians, etc.
- **Connectivity:** connected infrastructure
- **Flexible urban environment:** retractable bollards for intermittent/controlled/automated pedestrianization zones
- **Stormwater management:** permeable interlocking concrete pavement (PICP); green stormwater management infrastructure; enhanced streetscaping elements to support stormwater management/quality

## 2. What would you like to see in the application process?

Participants' responses to this question were coded under the following broad categories: application process/interface, developing challenges, open vs. challenge-based applications, other design considerations, process for broad collaboration, process for selecting advisors/partners, selection criteria for trials, and other.

Participants provided the highest number of recommendations in the following categories: process for broad collaboration (16), developing challenges (12) and selection criteria (12).

The highest rated recommendations for each category are listed below, with their rating in brackets.

### Process for broad collaboration

Participants made the following suggestions to ensure that the TIZ program encourages greater connections in the broader community:

- Proposals should require collaboration between community groups and innovation companies (3.75)
- Include a stream that encourages partnerships, and can demonstrate how a single technology can work with other solutions (3.67)
- Have an opt-in database with participating organizations to help facilitate collaboration (3.25)
- Have a process/method to connect the technology provider to a potential end user (3.2)
- Identify potential partners with shared goals through the application process (3.0)

Most of the other suggestions within this category recommend the involvement of the broader public, and specifically marginalized groups in the development of challenges, the design of the application, and technology trials.

### Developing challenges

Participants made the following suggestions to guide City staff in choosing challenges:

- Pick topics based on real-world problems trying to be solved (3.8)
- Identify global solutions for issues that Toronto still faces, and develop challenge proposals to test them in the TIZs (3.5)
- Question technology impact, i.e. "If your solution is successful, what is your vision for how it can positively impact participants in the real-world?" (3.4)
- Keep challenge calls focused on the what (outcomes) and not the how (be as non-prescriptive as possible) (3.25)
- Demonstrate local value proposition of the idea (e.g. relevance to GTHA, Canadian companies or partnerships with them, local economic and workforce development) (3.2)

### Selection criteria

Participants made the following suggestions for City staff when screening applications:

- Consider whether the company has a long-term plan for their innovation, and what happens after the pilot/trial (3.5)
- A successful application should include equity considerations (3.0)

There were at least three suggestions around having "novel" trials, but the comments reflected two distinct points of view, each rated above 2.5. One perspective recommends avoiding duplications of trials that have been conducted elsewhere, and to use the selection criteria to select for ideas that have not been tried elsewhere. A different perspective recommends preventing the TIZ from being a showcase for just new technologies, and taking a wider view to technologies already on the market that could work for Toronto.

Other unique suggestions rated below 2.5 include: looking at both high-tech and low-tech solutions, giving priority to Toronto-based and Canadian businesses, and having applicants meet a certain standard of pre-TIZ testing.

### Open vs. challenge-based

Participants grappled with the benefits and drawbacks of open vs. challenge-based calls for applications, but a preference for offering both open and challenge-based applications emerged:

- A balance between open and challenge-based applications had an overall rating of 3.03 across 34 raters; a preference for open applications had an overall rating of 2.75 over 24 raters; and a preference for challenge-based had a rating of 3.60 across 5 raters
- Looking at frequency of mentions however, of the 11 suggestions provided, five preferred a balance between open and challenge-based applications, five preferred open applications, and only one preferred challenge-based applications

### Application process/interface

Participants made the following suggestions to make the application process accessible and efficient:

- Digital submission – not a fillable pdf (3.5)
- A well-described set of criteria (3.4)
  - o Comment - "A consortium of companies will be great for collaborations and a homemade solution"
- Rolling deadlines (3.4)
- Multiple program application windows or ongoing intake with a service commitment to review applications within a defined timeframe (3.25)
- Have a simple and streamlined intake screen, nothing complex; and have someone follow up with the applicant to flesh out details – this will encourage people to apply (2.56)

### Other design considerations

Participants made the following suggestions to adapt the program for scalability:

- Allow for a phased approach for lower-technology readiness level (TRL) projects (i.e. more proof-of-concept) (3.0)
  - o E.g. allow for projects requiring as little as a week of TIZ time, then if successful, return for more time for higher-order tests with a new application

## Process for selecting advisors/partners

Participants made the following suggestions for an advisory function:

- Create an Executive Review Board of multiple non-commercial partners with the City (3.14)3.

## 3. What criteria should we use to monitor and evaluate the trials?

Participants' responses to this question were coded under the following broad categories: potential impacts/benefits, data collection, privacy and cybersecurity, performance, evaluation, and other.

### Potential impacts and benefits

The category that received the most input was potential impacts and benefits of the TIZs. The highest rated (above 3.0) recommended evaluation criteria for this category are (frequency of mentions in bold, rating in brackets):

- Provide a benefit to the social fabric of the city for any group **x4** (4.0)
- Increase social mobility and equity **x5** (4.0)
- Assist in shifting people away from single occupant vehicles **x2** (3.75)
- Increase the public good and benefit the end user **x2** (3.5)
- Consider the impact on GHG emissions and the environment **x5** (3.44)
- Achieve the City's goals **x4** (3.4)
- Consider the long-term benefit of these technologies (3.33)
- Consider scalability across different zones in the City **x5** (3.25)
- Provide safe interaction with pedestrians in the public realm, and other users **x4** (3.25)
- Safety for vulnerable road users **x3** (3.22)

One participant suggested that City staff look toward existing evaluation criteria used by other organizations for specific technologies; for example, sustainable SITES criteria used for green infrastructure. One participant stated that City staff should "consider applying technologies which can be supported by existing evidence or data (related to safety)." Another suggested investigating: "how do existing by-laws or regulations limit the feasibility of the project outside of the innovation zone?"

### Data collection, privacy and cybersecurity

The category that received the second most input was data collection, privacy and cybersecurity. The highest rated recommended evaluation criteria are as follows (frequency of mentions in bold, rating in brackets):

- Ensure privacy of data collected **x1** (3.33)
- Provide details of data collection and reporting – increased transparency **x1** (3.2)
- Data governance – how is the data being managed for the trial, is the approach responsible, is it compliant with national/ international standards, etc. **x1** (2.8)

For greater transparency, one participant recommended that "if the city is not collecting all raw data, there should be a basic set of data required for all projects that are available for public review." One participant suggested applying open data requirements where appropriate.

### Approach to evaluation

The highest rated comments connected to how the evaluation is conducted are (frequency of mentions in bold, rating in brackets):

- The disability community should be included in the evaluation of all projects, not only those that obviously appear to impact them **x1** (3.83)
- Provide opportunities for feedback from users and those most impacted **x2** (3.25)
- Marginalized and vulnerable people should be involved in monitoring and evaluation from the beginning **x2** (3.2)
- Leverage academic resources in the collection and analysis of data, potentially in collaboration or independent of the companies **x1** (2.86)
- Consider having a common set of KPIs that apply to all trails that align with goals of TIZ (e.g., sustainability, social equity, economic development) **x1** (2.80)

### Performance measurement and other

Under both performance and other comments, the highest rated recommended evaluation criteria are as follows (frequency of mentions in bold, rating in brackets):

- Consider performance under different weather conditions, and during different times of day **x3** (3.5-4)
- When testing after a challenge is issued, conduct simultaneous A/B testing of multiple solutions to see which functions best in the real world **x1** (3.75)
- Be flexible in the criteria: high-innovation ideas may not fit into predetermined categories. Having more "boxes to check off" may exclude non-conventional but innovative projects **x1** (3.0)

Other unique recommendations for these categories include:

- Considering certifications that could result from the trial - often companies require products to be tested before they can be certified. TIZ provides an opportunity to coordinate this. **x1** (2.25)
- Metric should include: # of test days per organization/project, # of closed trials vs. live trials during events **x1** (2.0)

## Appendix – Top Questions Asked by Participants

Below are all the questions asked by participants in GroupMap, which received an average "importance" rating of more than 3 (rated from 0 to 4) as rated by five or more participants (raters).

Workshop #	Question	Importance (average)	# of Raters
w3	How will City ensure equitable access for non-profits, startups vs larger, well capitalized for profit ventures?	3.7	20
w4	What will be the alignment and integration with AVIN initiatives and test sites?	3.6	7
w4	Is there a degree of market readiness expected for technology being tested at the zone?	3.5	10
w4	Is there a framework for intellectual property developed in the TIZ?	3.5	10
w2	Who will be invited to participate in trials of TIZ?	3.4	9
w2	If there is an infrastructure implementation, will the participants pay for that or will City also contribute?	3.4	7
w2	Who decides on the content of the TIZ? What is the approval process?	3.4	7
w2	when the trials phase is supposed to start (implementation of trials) ?	3.4	5
w2	who can participate in the TIZ? Can a private organization with a tech product participate?	3.4	5
w1	Are there specific types of projects that will be sought after in the early phases? Maybe beginning with 5G vs. DSRC?	3.4	8
w1	how will you choose companies and partners	3.4	11
w4	What are your expectations re funding: government supported for economic development, or user-supported, or both?	3.4	11
w2	The process talks about a call for proposals - would this be a time-bound window or will potential innovators have the opportunity to submit applications at any time?	3.3	6
w3	Opportunity to remove barriers to affordable mobility options like cycling, walking, ebikes	3.3	15
w1	What are the metrics of success?	3.3	13
w3	Establish clear vision/goal, linked to broader strategies (economic, environmental, etc)	3.3	10
w3	Will the City be prioritizing pilot projects that contribute to other City goals? In particular, will the City be prioritizing projects that help meet our climate goals?	3.3	15
w1	What are 'evaluation partners' and what is their role? How will they be chosen? Will their evaluations be accessible to the public?	3.3	8
w3	Hoping that the need for heavy truck movement/deliveries in the city will be kept in mind, when discussing transportation innovation	3.3	8
w3	Will technologies or practices being piloted in the TIZ be limited to operating solely within the boundaries of the Exhibition Place?	3.2	13
w2	How will you check for minimum requirements ensure for example safety?	3.2	9
w4	Is there room for projects with a priority for social over economic motivation?	3.2	9
w2	How will trials will be monitored by the City of Toronto ?	3.2	10
w2	How will you measure the performance of the TIZ?	3.2	11
w2	Is curbspace management within scope of the TIZ?	3.2	12
w2	Will the City also have access to the raw data collected by the participants (e.g., a technology company)?	3.2	6

w2	Innovation types seems to be limited to some of the emerging tech we are seeing in trials right now - would a disruptive proposal that doesn't fit the current categories be allowed?	3.1	7
w2	How much \$ funding has been allocated to this project?	3.1	7
w2	What criterias are to be selected for a trial ?	3.1	8
w3	How will the City decide who can experiment in the TIZ (ie what is the criteria)?	3.1	16
w4	Will this program be open to companies globally?	3.1	8
w1	Are there any connections between the TIZ and AVIN RTDS sites?	3.1	9
w1	What sort of publicity/exposure is planned for TIZ technologies?	3.1	9
w1	What will be the process of allowing stakeholders to partake, and how long will the process take?	3.1	9
w4	The suggested approaches all seem to be futuristic and high-tech. Will there be room to explore simple, low-tech solutions?	3.1	9
w4	Would the city be open to partnering on projects or development?	3.1	11
w3	Does the City plan to use the knowledge gained to implement new policies/technologies? Will there be a summary report to Council to enable this?	3.1	14