

ITE Micromobility Sandbox Design Competition

Designing for Las Vegas, NV, USA

“On behalf of the City of Las Vegas, I would like to thank ITE for the opportunity to partner with them on this competition and all of the participants for taking the time to share their innovative ideas. It was clear from the start that much thought and effort went into each of these submittals, and the city feels very fortunate to have been on the receiving end of so many promising ideas that we can consider for our future projects.

More often than not, Las Vegas’s bright neon lights drown out our topnotch transportation infrastructure. However, the city has invested \$315 million in transportation infrastructure throughout our downtown core just over the past six years, so the integration of Complete Street concepts and new mobility options are certainly on the forefront of our minds as we plan and design for the future.”

— **Joey Paskey, P.E., PTOE (M), Deputy Director/Transportation Manager, City of Las Vegas**

Held in conjunction with the 2020 Virtual ITE Annual Meeting and Exhibition, the goal of the ITE Micromobility Sandbox Design Competition was to identify innovative solutions where current and future micromobility can co-exist with both faster and slower moving options.

Cities are being challenged by a growing number of micromobility options that are changing the way we need to look at mobility within our downtowns. Demand on curb space is increasing. Traditional uses such as parking, package delivery, and pick-up/drop-off compete with the desire to incorporate bike lanes, shared bike and e-scooter storage, as well as non-transportation uses as sidewalks cafes, rain gardens, and parklets. Moreover, new micromobility options such as e-scooters, e-bikes, and other devices are bringing a new set of challenges. Due to the limited right-of-way, cities must grapple with the challenge of accommodating all users.

The challenge for teams was to develop innovative design solutions that can best accommodate the range of users of urban rights-of-way, including current and future micromobility options. The competition focused on a three-block section in Las Vegas, NV, USA on Bridger Avenue from Casino Center Boulevard to Las Vegas Boulevard. As part of the challenge, teams were also asked to apply this solution to another community of their choosing.

Projects were scored in three categories: innovation, impacts, and applicability. After thoughtful deliberation, the panel of judges chose four finalists to present their solutions at a program at the Annual Meeting on Tuesday, August 4, who provided a great display of diversity and innovation in their solutions. In addition, three Honorable Mentions were awarded in the Professional category. The winners were announced at the Power Plenary on August 6, 2020 by ITE International Immediate Past President Bruce Belmore, who also chaired the judging panel.

The following article includes highlights from the competition, comments from the judges, snapshots from the projects, and a Q&A with ITE Immediate Past President Bruce Belmore on the inspiration behind the competition.



Student Competition

Winner: Ryerson University – Toronto, Ontario, Canada

Team Members: Maya Higeli, Joseph Magnoli, Neha Patel (S), Odin Ahlers, Mathias Sawicki, Marwa Al-Saqqar, Sujan Kisiju, and Sarah Matti

The winning design from the student competition from Ryerson University reduces vehicular dependency and makes an inviting environment for other modes of transportation, all while maintaining traffic flow.

- Two-meter lane width allows riders to pass others if required
- Reduces vehicle lane width, forcing motorists to slow down and monitor their surroundings
- A left-turn bike box to allow micromobility devices to easily navigate the environment

Through **landscaping**, the proposal revitalized Bridger Avenue while focusing on micromobility amenities

- Uses native vegetation as a buffer between pedestrians and the micro-mobility lane, uses banners to enhance placemaking
- Focused on amenities that facilitate micromobility use – benches, parklets, micromobility parking
- Municipal bike zones with seating that offer bike repair stations

Three traffic phases for the intersections to reduce the cases for vehicles, pedestrians, and micromobility users to share the right-of-way.

Design Implications: Safety

- Intersection design reduces pedestrian/cyclist conflict with motorists
- Additional buffer space between vehicle and cyclist right of way provides cyclists with additional clearance
- Accessibility is key. Curb ramps are placed from the mm lanes to sidewalks to access bike stops
- Tactile surface indicators are used at intersections and cycle lane crossings

Case Study Location:

Front Street W., Toronto, Ontario, Canada

WHAT THE JUDGES SAID

“Thought about the conflict points at intersections between the various users.”



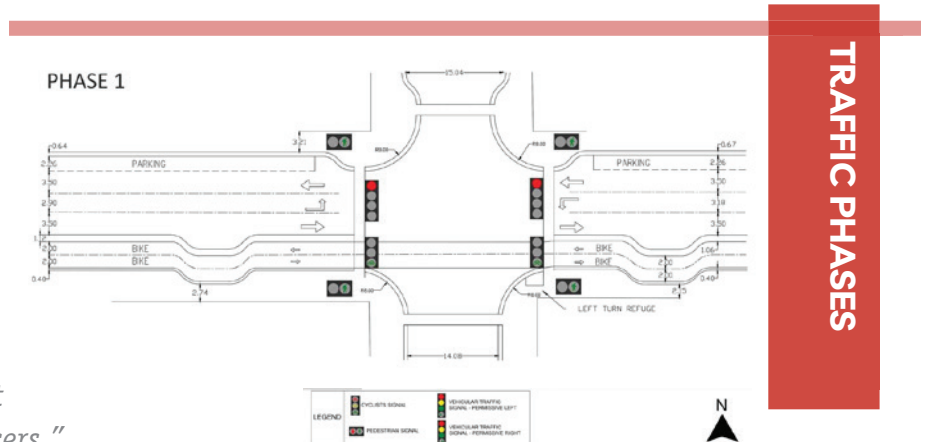
WHAT THE JUDGES SAID

“Showed transferability to a city that gets snow.”



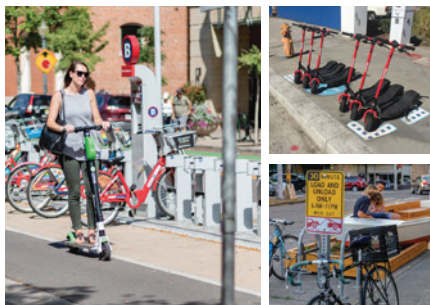
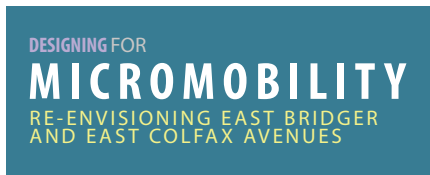
WHAT THE JUDGES SAID

“Great graphics to articulate ideas!”



WHAT THE JUDGES SAID

“Obviously did their research on the city. Felt personal.”



ITE MICROMOBILITY SANDBOX DESIGN CHALLENGE | APRIL 2020



WHAT THE JUDGES SAID

“Offers opportunities for people to get involved in the design.”

WHAT THE JUDGES SAID

“Liked the scaled delivery and versatility.”

Professional Competition

Winner: Toole Design Group

Team Members: Ella Ryan (M), Carly Haithcock (M), Gwen Shaw (M), Perrin Falkner, and Thomas Hillman

The Micromobility Design Toolkit presents design solutions that cities and communities across the United States can apply to address safety and economic vitality, and to bring comfort, joy, and life back to their streets—proactively accommodating and realize the benefits of micromobility.

Rapid Implementation Project

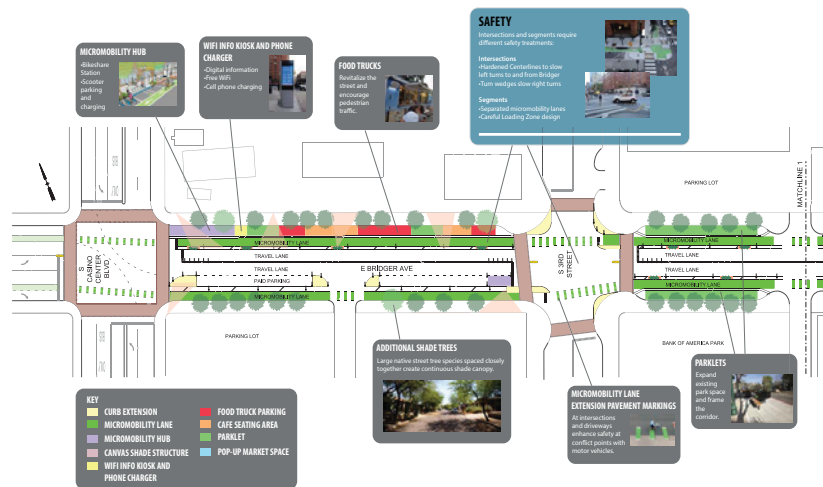
Delivery – The recommended project delivery approach is to rapidly implement temporary design solutions allowing for performance and outcome testing, public and agency feedback, and adjustments—all before significant funds are invested.

The East Bridger Corridor, Las Vegas Toolkit Application

envisions an oasis in downtown Las Vegas with shade, public space, and thriving local businesses. East Bridger Avenue is transformed into a multimodal street that safely accommodates micromobility devices now and in the future.

East Bridger Avenue Corridor Reimagined

– The redesigned corridor optimizes safety, operations, and economic development along the corridor, with an emphasis on micromobility.



Micromobility Lane Extension Pavement

Markings at intersections and driveways enhance safety at conflict points with motor vehicles.

Parklets – Expand existing park space and frame the corridor

Economy – Concentrated placemaking elements spur economic development

Loading Zone – Allows for goods and people loading and unloading at local small business, and deliveries to offices

Pop-Up Market – Space activated for season holiday, or regular farmers’ markets

Curb Radius Reduction/Median Protection

– Curb extensions and median nose protected with gravel paint and flexposts/planters, or more permanent materials

Case Study Location: South Bend, IN, USA

Makings of the Micromobility Competition

ITE International Past President and chair of the judge's panel for the Micromobility Competition **Bruce Belmore, P.Eng., PTOE, VMA (F)** shares his perspective on the value of the competition, how judges were selected, and what the projects presented ultimately say about the diversity and talent that exists within ITE.

ITE Journal: How did ITE go about choosing the topic of micromobility for this design competition?

BELMORE: The idea was inspired during last year's ITE Annual Meeting in Austin, TX, USA, where there is a lot of scooter use downtown. During a Mobility as a Service/Mobility on Demand Plenary Session at the meeting, Karina Ricks from the City of Pittsburgh, PA, USA mentioned they were going to scrap their bicycle network plan—which had taken three years to develop at that point—to instead look at the development of lanes that could accommodate a variety of modes. The intent was to look at a new version of the Complete Streets concept, which was initially about the better integration of transit. The new Complete Street would need to address the growing popularity of micromobility options.

ITEJ: Why was there a separate student and professional competition?

BELMORE: The intent of having a student competition was really two-fold. First, if you do a Google search on micromobility, you will find there is really good work being done at the university level on this topic, and we saw a chance to further engage interest in ITE from student members. Secondly, it was an opportunity for students to gain a broader perspective on transportation. They would need to think about the users of the corridor, and issues like signal timing and traffic safety. Students would have an opportunity to conduct research, learn about something topical, and look at practical application of their knowledge.

ITEJ: What was the process of selecting the judges, and why did you ultimately choose the ones you did?

BELMORE: We saw much of the judging panel made up of representatives of public agencies. They are the infrastructure owners who have to deal with competing need for space in the street cross-section. We also had the private sector represented as those providing workable solutions to the growing attraction to scooters and other micromobility options. We also had the City of Las Vegas represented directly. The competition was focused around a street in Las Vegas, NV, USA so it was good for us to understand what the host city would like out of a micromobility solution, and how that could look different than the bike lane already present along the study corridor. The city graciously provided all the background information needed for our competition.

ITEJ: How do you think the projects reflect the diversity of talent and innovation that exists within ITE?

BELMORE: The judges were extremely excited to see the diversity of submissions received and the innovation that our members brought to the competition, and the results exceeded our expectations. We saw diversity in the submissions, partly because they came from different geographies across the United States, as well as Australia and Canada. While I expected similar themes, each of the submissions proved unique in their own way. Each displayed really good ideas that could successfully be transferred elsewhere. I hope that ITE continues to showcase cutting edge ideas of our members through similar competitions.



Judges

Chair
Bruce Belmore,
P.Eng., PTOE, VMA (F)
WSP

Jen Malzer, M.Sc., P.Eng. (F)
City of Calgary

Jennifer Toole (M)
*Toole Design**

Jennifer Toth, P.E. (M)
Maricopa County

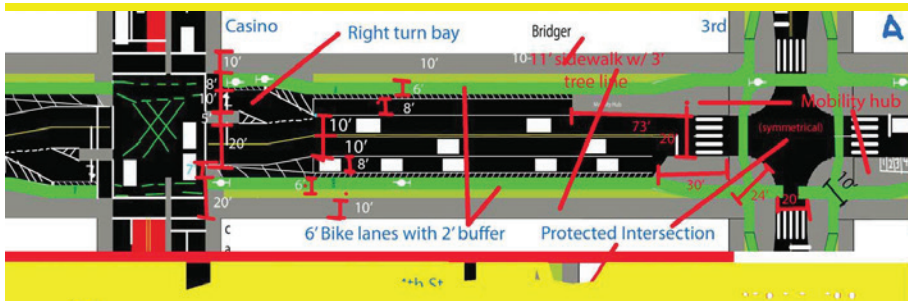
Peter Koonce (M)
City of Portland

Joey Paskey, P.E., PTOE (M)
City of Las Vegas

Johanna Zmud (M)
Texas A&M Transportation Institute

**Due to Toole Design's entry, Jennifer Toole was recused from judging the professional competition.*

Student Competition Finalist University of Southern California

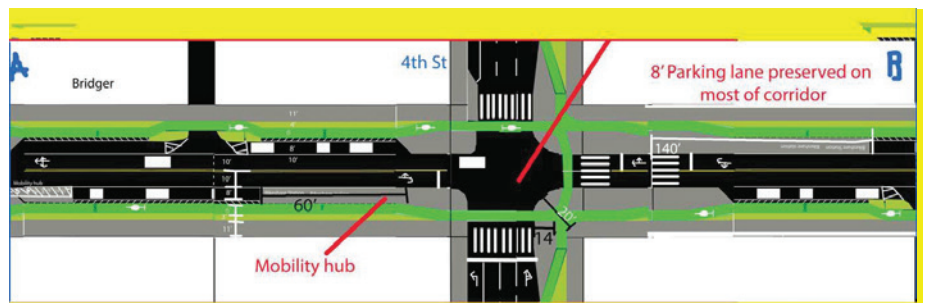


WHAT THE JUDGES SAID

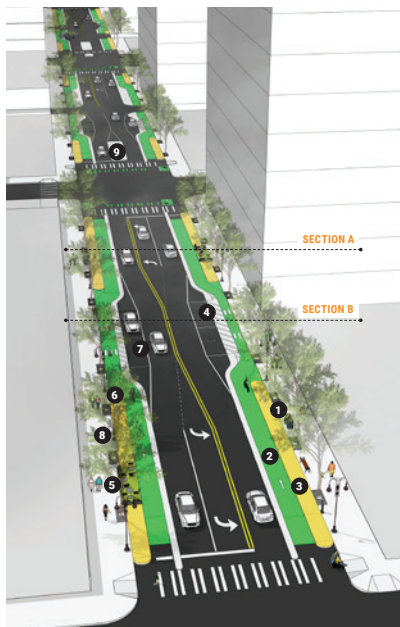
“Design highlights were well done, lot of efforts and well written the research was very well done.”

WHAT THE JUDGES SAID

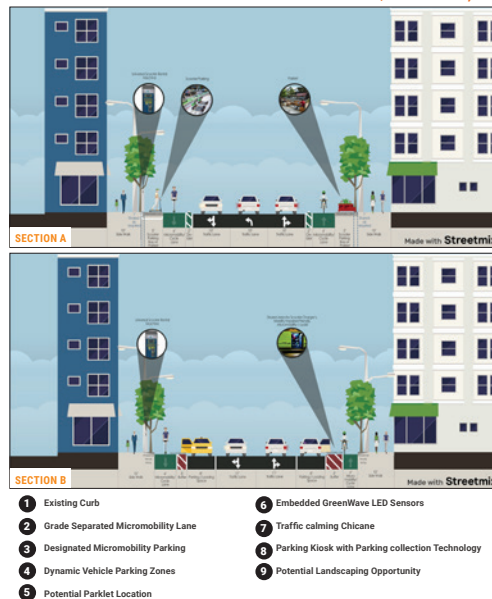
“Good use of data to drive the solutions.”



Professional Competition Finalist Stantec

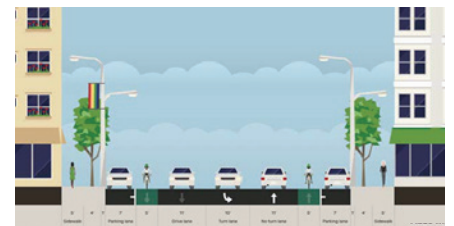


BRIDGER AVENUE | LAS VEGAS, NV



WHAT THE JUDGES SAID

“Loved the timing technology, signal operations.”



WHAT THE JUDGES SAID

“Well done in innovation and impacts and applicability.”

Honorable Mentions were awarded by the judges to the following teams:

Sanderson Stewart "Sanderson Stewart Design Studio Jam Session"

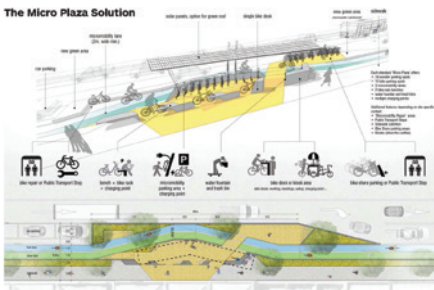


WHAT THE JUDGES SAID

"Made the street a destination and created a user experience."

The team from Sanderson Stewart was the only team in the professional competition to submit the optional video. The judges said it was extremely high quality and well produced. Check it out here: <http://bit.ly/SandersonVideo>.

Ratio Consultants "Team Ratio"



WHAT THE JUDGES SAID

"Liked the fact they thought about faster and slower-moving lanes for micromobility users."

Snyder and Associates "People Movers"



WHAT THE JUDGES SAID

"Highly innovative micromobility engineering coupled with the use of renewable energy and public art for a true interdisciplinary solution."

Participating Teams

Professional Competition

Toole Design Group
Stantec
AECOM
Sanderson Stewart
Walker Consultants
Michael Baker International
Arcadis
Ratio Consultants
Snyder and Associates

Student Competition

Ryerson University
University of Southern California
University of Kansas
Florida International University
University of Central Florida
University of Tennessee
Milwaukee School of Engineering
California Polytechnic State University –
San Luis Obispo **itej**

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**THE DEADLINE TO APPLY FOR
THE FEBRUARY 2021 EXAM
PERIOD IS DECEMBER 3, 2020**