STAFF REPORT

Date: **April 26, 2023**

To: **Mayor and City Council**

Thru: **Doug Thornley, City Manager**

Subject: **Staff Report (For Possible Action): Presentation, discussion, and possible acceptance of the Micromobility Pilot Project Final Report**

From: **Catie Harrison, Engineering Manager**

Department: **Public Works**

Summary:
The City of Reno is paving the road for a more vibrant, safe, and strong downtown Reno by building on the work of the Downtown Reno Action Plan. The City is focused on improved walking, biking, and transit connectivity to make it safer and easier for the public to take advantage of more sustainable ways to visit downtown, the Truckee River, The University of Nevada, Reno, and surrounding local businesses while enhancing road safety for all users. The Micromobility Pilot Project implemented in Downtown Reno by the City and Regional Transportation Commission (RTC) focused on transportation improvements for small, low-speed, human or electric powered transportation devices such as bicycles, scooters, and e-bikes, collectively referred to as "micromodes". This project is one part of meeting the strategic goals outlined in adopted plans and addressing converging needs in transportation management, public health, and climate.

Using features such as buffered micromode lanes, protected intersections, bike boxes, bike signals, and more, the pilot project connected Vine Street to Evans Avenue via Fifth Street and Downtown to Midtown via Virginia Street. Through this pilot project, the City introduced different micromode specific infrastructure elements to the community, solicited feedback, and collected data to inform the City and RTC in applying micromode specific infrastructure in our community in the future.

Adding these micromode specific features increased the volume of bicycles and scooters on Fifth Street by approximately 40 percent and more than doubled them on Virginia Street. Installing these features also reduced the conflict rate between vehicles and all other roadway users. The City received over 1,000 survey responses with this project. Overall, more than half of respondents felt positive or neutral about the project.

The primary goal of this project is to inform future permanent installations. As a next step, City staff will support RTC in taking concept designs for downtown connectivity out for public input in May 2023. RTC will present recommended projects to City Council in August 2023.

Staff recommends Council accept the Micromobility Pilot Project final report.

Alignment with Strategic Plan:
Infrastructure, Climate Change, and Environmental Sustainability
Public Safety
Economic and Community Development

Previous Council Action:
July 20, 2022 – Council approved the Interlocal Cooperative Agreement for Reimbursement with the Regional Transportation Commission (RTC) to construct the Micromobility Pilot Project on Fifth Street between Vine Street and Evans Avenue and Virginia Street between Fifth Street and Liberty Street, in an amount not to exceed $400,000 (Street Fund).

Background:
The Micromobility Pilot Project is an advancement towards strategic local and regional goals identified in the 2050 Regional Transportation Plan, the 2020-2025 City of Reno Strategic Plan, City of Reno Downtown Action Plan, and City of Reno Sustainability and Climate Action Plan. The 2050 Regional Transportation Plan identifies vehicle trip reduction as a critical step to address roadway congestion and improve air quality in the region. This pilot project also addresses three goals of the City of Reno Strategic Plan. The public safety goal identifies a key strategy of increasing attention and efforts on traffic and pedestrian safety. The economic and community development goal identifies several strategies that the pilot project sought to address with features that implement a quality-built environment including supporting integration of the University community into the downtown area; identifying infrastructure needs to promote infill development, focusing on opportunities within the McCarran loop; and implementing the Downtown Action Plan. Finally, the pilot project sought to address strategies in the infrastructure, climate change, and environmental sustainability goal including collaborating regionally with entities in support of Reno's transportation infrastructure.

Micromobility refers to a range of small, lightweight vehicles such as bicycles or scooters that typically operate at speeds less than 20 mph and are driven by the user. The City has limited space within the urban core, and it is extremely expensive to acquire additional right of way. Facilitating a mode shift from single occupant vehicles to micromodes can free up roadway space, which benefits all users. Recent numbers from RTC show there are over a half million daily vehicle trips under five miles within the McCarran loop, which provides a significant

opportunity to promote micromobility in our region. Micromodes have seen a significant increase in the last decade. In addition to being space-efficient, these modes offer a sustainable, healthy, and cost-efficient way to travel. The modes, especially in conjunction with shared services, can promote equity within our transportation network. They enhance transportation options and can increase access to public transportation.

National surveys indicate safety and comfort as the biggest obstacles to transitioning to a bicycle or scooter for daily transportation. These surveys have identified four major categories of cyclist based on their current level of interest in cycling including no way no how, interested but concerned, somewhat confident, and highly confident/strong and fearless. The largest portion of riders, 51 percent to 56 percent, fall into the "interested but concerned" category. To realize the greatest potential for mode shift, agencies need to target infrastructure for the stress tolerances of this large group. Stress imposed on a rider by the traffic environment can be mitigated by reducing the amount of interaction riders must have with vehicle traffic. One way achieving this is by increasing the level of separation between different modes as adjacent traffic volumes and speeds increase (e.g., high vehicle volumes and speeds require greater separation from micromodes than low vehicle volumes and speeds). This provides a scalable approach for the implementation of micromode specific infrastructure based on the context of the traffic environment.

Discussion:
The pilot project had three main goals: to introduce micromode-specific infrastructure features to the community; solicit community feedback on micromobility infrastructure; and perform technical data collection on the volumes of users, use of space within the roadway and sidewalk, and conflict rates between modes. These goals all serve to inform future permanent installations.

Five primary micromode-specific infrastructure features were introduced on the project including two segment treatments and three intersection treatments. The segment treatments were one-way buffered micromobility lanes and a two-way micromobility track. The intersection treatments included a protected intersection, bicycle boxes, and bicycle signal heads and phases.

The temporary infrastructure features were implemented on Fifth Street from Vine Street to Evans Avenue and Virginia Street from Liberty Street to Fifth Street. The map below shows the limits of the pilot project.

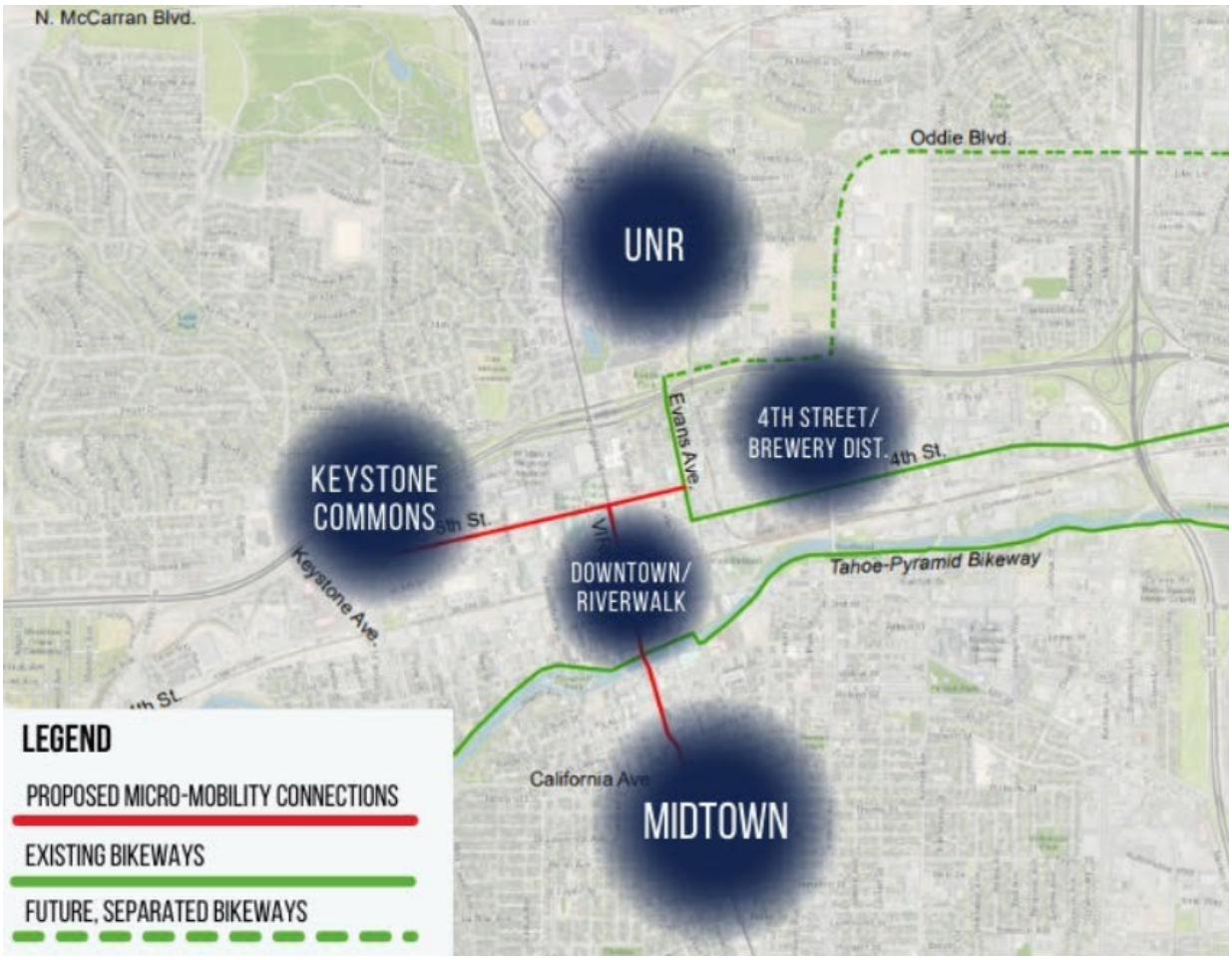


Figure 1– Project Limits

One-way buffered lanes were implemented on Fifth Street from Vine to Evans and on Virginia Street from Second Street to Liberty Street. Compared to a standard bike lane, buffered lanes provide an increased level of separation from vehicle traffic. Three styles of buffers were tested including a painted buffer, a raised alignment barrier, and a parking protected buffer. Figures two and three show these buffer styles.

Figure 2 - (Left) Delineated buffered micromobility lane, (Right) Artistic bike rail.

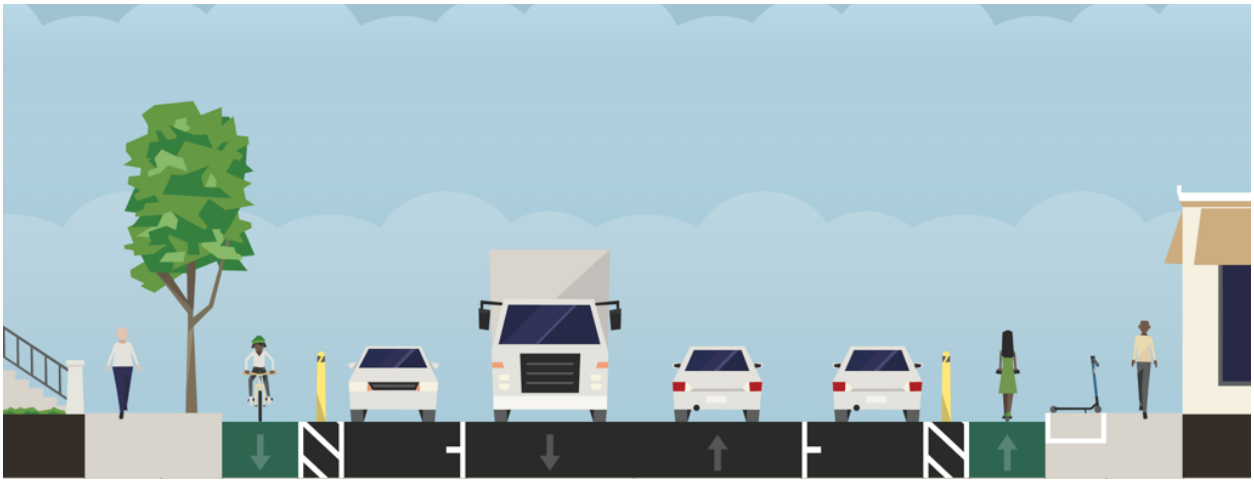


Figure 3 - Cross-section showing micromobility lane with parking buffer.

A two-way micromobility track was implemented on Virginia Street from Fifth Street to Second Street. The two-way track allows both directions of movements on one side of the street. This configuration is shown below.

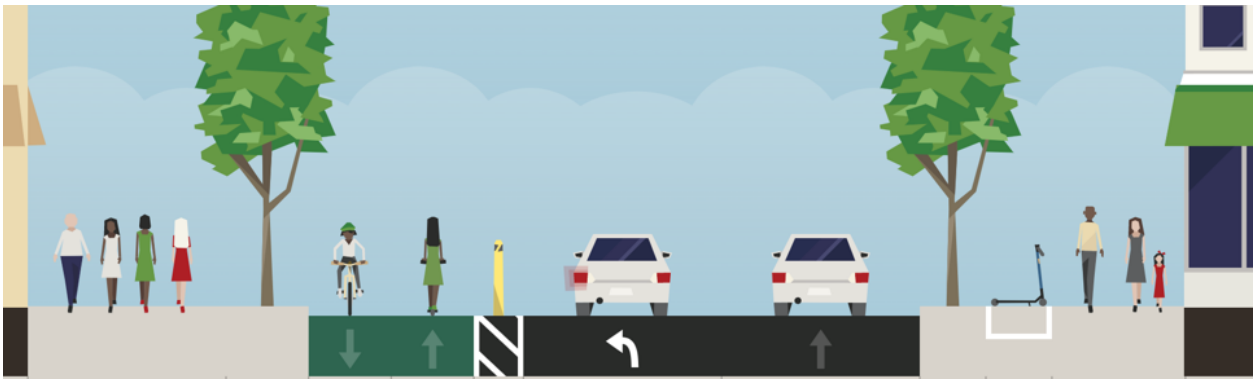


Figure 4 - Cross-section showing two-way micromobility track.

Figure 5 - Two-way track on Virginia Street.

Intersection treatments refer to infrastructure features that are applied to intersections with other roadways. Intersection treatments allow for the level of separation used in a segment to be carried through intersections to reduce conflicts where all modes are making multiple movements. The Pilot Project introduced three different segment treatments: a protected intersection, bicycle boxes, and bicycle signal heads. Figures six through eight show these features.

Figure 6 - Protected Intersection at Fifth Street and Arlington Avenue.

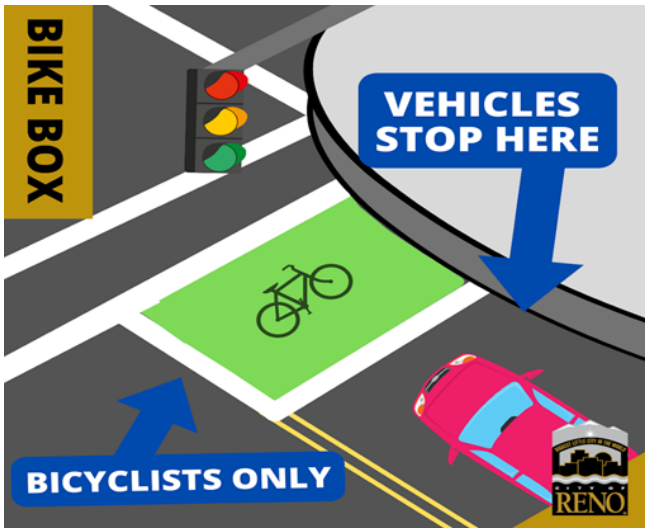


Figure 7 - How to use an intersection bicycle box.

Figure 8- Photos of Bike Signal at Virginia Street and Second Street and Bike Box at Fifth Street.

Below is the Micromobility Pilot Project timeline:
· February 2022 – May 2022 – Micromobility Design and Infrastructure Set-up
· Jun 2022 – October 2022 – Micromobility Pilot Project in Full Use and Gathering Public Surveys and LiDAR Data
· August 2022 – September 2022 – League of American Bicyclists Working Group and Dutch Cycling Embassy Workshop
· March 9, 2023 – Micromobility Pilot Project Draft Report and Presentation to Public
· April 26, 2023 – Final Report to Council

RTC partnered with UNR on a light detection and ranging (LiDAR) assisted study of this project. The data analyzed was able to show vehicle volumes, speeds, conflicts between road users, and where users traveled within the roadway space. Data was collected at nine locations within the project limits.

Throughout the project area, micromode volumes increased after the pilot infrastructure was installed. As shown in Figure nine, on Fifth Street, micromode volumes increased by approximately 40 percent and on Virginia Street they more than doubled.

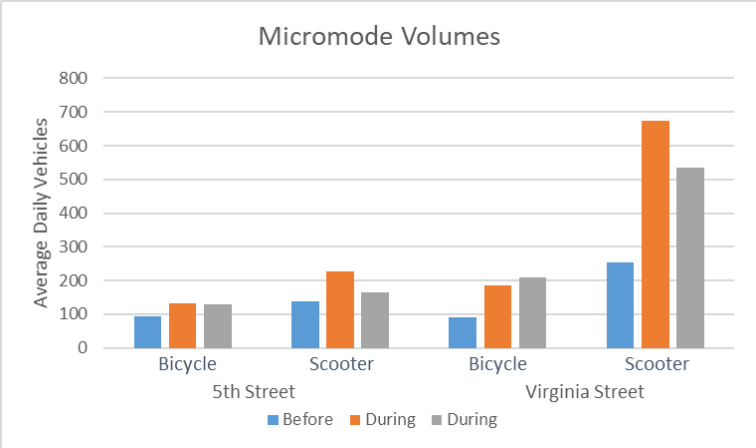


Figure 9 – Daily micromode volumes

As shown in Figure 10, on Fifth Street, vehicle volumes increased even with the reduction in travel lanes. This indicates the road has excess capacity and is able to effectively move traffic even with fewer lanes. On Virginia Street, the reduction in vehicle volumes was the result of removing the north-bound traffic.

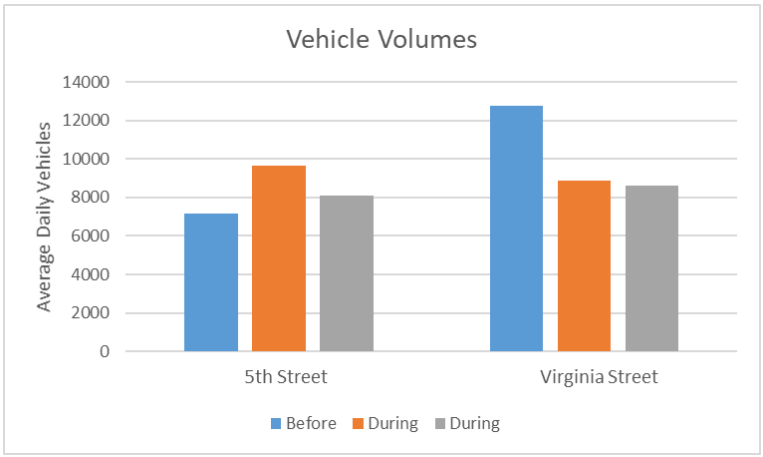


Figure 10 – Daily vehicle volumes

The LiDAR Study also assessed whether micromode users were riding in the roadway, on the sidewalk, or within micromobility lanes. During round one data collection, prior to the Pilot Project infrastructure being implemented, micromode users primarily used the roadway, with some users on the sidewalk. After the pilot infrastructure was implemented, 50-70 percent of riders utilized the micromobility lanes. The greatest reduction was seen in micromode users using the vehicle lanes. The number of scooters using the sidewalk on Virginia Street was also reduced by more than half.

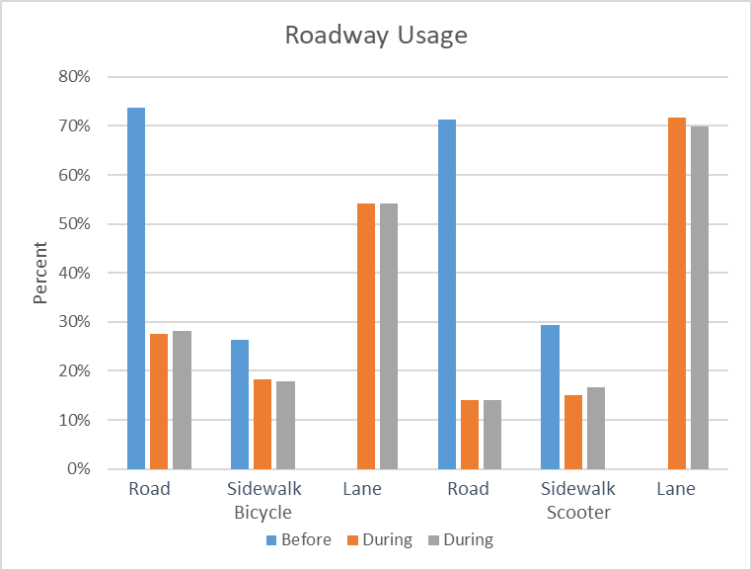
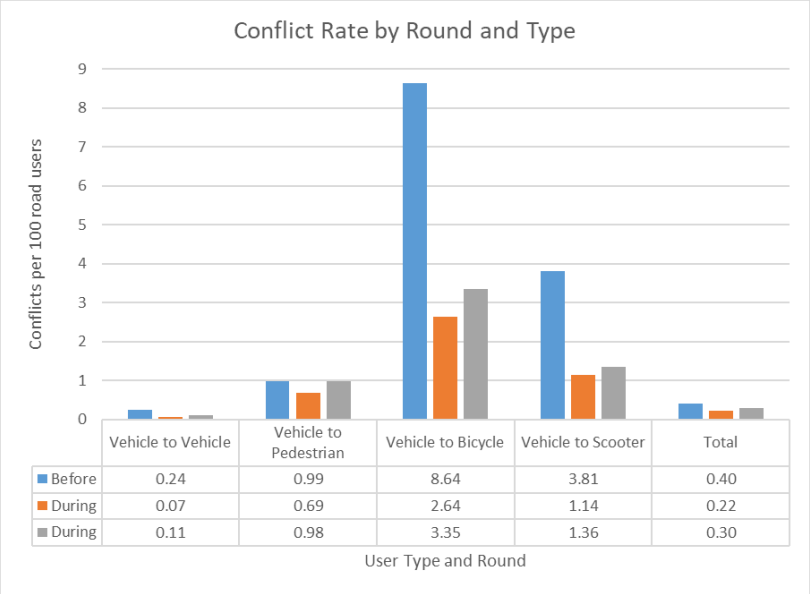


Figure 11 – Micromode users in the roadway, on the sidewalk, and in micromobility lane

The study also observed conflicts, or users passing the same point within two seconds of each other. This data is summarized in Figure twelve. Conflict rates between vehicles and all other road users were reduced with implementation of the Pilot infrastructure.



	Vehicle to Vehicle	Vehicle to Pedestrian	Vehicle to Bicycle	Vehicle to Scooter	Total
Before	0.24	0.99	8.64	3.81	0.40
During	0.07	0.69	2.64	1.14	0.22
During	0.11	0.98	3.35	1.36	0.30

Figure 12 – Observed conflict rates between modes

Over 1,000 surveys were submitted between June and September 2022. Overall, more than half of the respondents felt positive or neutral about the project. Among micromode users, 85 percent of respondents felt positive or neutral about the project. These respondents generally commented that the infrastructure provided increased feelings of safety and lower stress. The inverse was

true with automobile users, with 70 percent of respondents feeling negatively about the project overall. Auto respondents generally commented that they disliked Virginia becoming a one-way street, feelings of increased congestion, and concerns with micromode users following traffic laws. Overall, buffered micromode lanes had the highest satisfaction rate with roughly 90 percent of micromode users feeling positive or neutral about them and almost half of auto users feeling positive or neutral. Nearly half of respondents stated they were more likely to bike or walk downtown versus using an automobile with these features.

The project findings mirror other North American studies which suggest increased levels of separation between motor vehicle traffic and micromode users can increase user volume, decrease the risk of conflict, and improve level of satisfaction and comfort of micromode users. The project was successful in introducing new infrastructure features to the community, but challenges remain with integrating the tools in the existing road context and continuing to educate the community on their use and benefit.

The primary goal of this project is to inform future permanent installations, and network connectivity is essential to the success of future micromobility infrastructure. As a next step, City staff will support RTC in taking concept designs for downtown connectivity out for public input in May 2023. RTC will present recommended projects to Council in August 2023.

Financial Implications:
There are no financial implications with acceptance of this report. As future projects are developed in detail, they will be brought back to Council with funding identified for approval.

Legal Implications:
None

Recommendation:
Staff recommends Council accept the Micromobility Pilot Project Final Report.

Proposed Motion:
I move to approve staff recommendation.

Attachments:

MM Pilot Project – Final Report.pdf