LOCATION:

WASHOE COUNTY COMMISSION CHAMBERS
1001 E. 9th Street, Bldg. A, Reno

DATE April 29, 2022
TIME 10:00 a.m.

REGIONAL TRANSPORTATION COMMISSION OF WASHOE COUNTY
SPECIAL BOARD MEETING AGENDA

I. The Washoe County Commission Chamber is accessible to individuals with disabilities. Requests for auxiliary aids to assist individuals with disabilities should be made with as much advance notice as possible. For those requiring hearing or speech assistance, contact Relay Nevada at 1-800-326-6868 (TTY, VCO or HCO). Requests for supporting documents and all other requests should be directed to Denise Thompson at 775-348-0400 and you will receive a response within five business days. Supporting documents may also be found on the RTC website: www.rtcwashoe.com.

II. This meeting will be televised live and replayed on RTC's YouTube channel at: bit/ly/RTCWashoeYouTube, and on the Washoe Channel at: www.washoecounty.us/mgrsoff/Communications/wctv-live.php

III. Members of the public in attendance at the meeting may provide public comment (limited to three minutes) after filling out a request to speak form at the meeting. Members of the public may also provide public comment by one of the following methods: (1) submitting comments via online Public Comment Form (www.rtcwashoe.com/about/contact/contact-form/); (2) emailing comments to: rtcpubliccomments@rtcwashoe.com; or (3) leaving a voicemail (limited to three minutes) at (775) 335-0018. Comments received prior to 4:00 p.m. on the day preceding the meeting will be entered into the record.

IV. The Commission may combine two or more agenda items for consideration and/or may remove an item from the agenda or delay discussion relating to an item on the agenda at any time.

V. The supporting materials for the meeting will be available at www.rtcwashoe.com/meetings/. In addition, a member of the public may request supporting materials electronically from Denise Thompson at the following email address: dthompson@rtcwashoe.com.

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1. CALL TO ORDER

1.1 Roll Call

1.2 Pledge of Allegiance

2. PUBLIC COMMENT

Public comment taken under this item may pertain to matters both on and off the agenda. The Chair may take public comment on a particular item on the agenda at the time it is discussed. Comments are to be made to the Board as a whole and not to individual commissioners.

3. APPROVAL OF AGENDA (*For Possible Action*)

4. CONSENT ITEMS (*For Possible Action*)

Minutes

4.1 Approve Minutes of the March 18, 2022, meeting *(For Possible Action)*

Reports

4.2 Acknowledge receipt of the monthly Planning Activity Report *(For Possible Action)*

4.3 Acknowledge receipt of the monthly Engineering Activity Report *(For Possible Action)*

4.4 Acknowledge receipt of the monthly Public Transportation/Operations Activity Report *(For Possible Action)*

4.5 Acknowledge receipt of the monthly Procurement Activity Report *(For Possible Action)*

4.6 Acknowledge receipt of the monthly Summary Report for the Technical, Citizens Multimodal, and Regional Road Impact Fee Advisory Committees *(For Possible Action)*

Planning Department

4.7 Approve the Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan *(For Possible Action)*

4.8 Acknowledge receipt of the 2021 Bicycle & Pedestrian Data Collection Annual Report *(For Possible Action)*

Public Transportation/Operations Department

4.9 Approve Change Order #1 in the amount of $129,000 for price increases related to the purchase of fifteen (15) compressed natural gas (CNG) fueled paratransit vehicles utilizing the State of Nevada Fleet Vehicles procurement contract number 99SWC-S490 *(For Possible Action)*

4.10 Approve a Zero Emissions Transition Plan (ZETP) to satisfy the federal requirement that any application to the Federal Transit Administration (FTA) for grants for projects related to zero-emissions vehicles include a ZETP *(For Possible Action)*

Engineering Department

4.11 Authorize the Executive Director to negotiate a Reimbursement Agreement with the City of Reno for its micro-mode pilot project in Downtown Reno, in and amount not-to-exceed $400,000 *(For Possible Action)*

Executive, Administrative and Finance Departments

4.12 Approve modifications to RTC Management Policy P-31, Transit Passenger and Visitor Conduct *(For Possible Action)*

4.13 Approve modifications to RTC Personnel Rule 2.3 (Unclassified Service) and 5.7 (Salary Adjustments and Pay-for-Performance) *(For Possible Action)*

5. DISCUSSION ITEMS AND PRESENTATIONS

5.1 Review and evaluate Executive Director Bill Thomas' performance, and adjust compensation accordingly, as it pertains to (1) the proper duties of the position and accomplishments of Fiscal Year (FY) 2021 goals, with the effective date of any salary increase and/or bonus to be effective retroactively to July 1, 2021, and (2) the proper duties of the position and accomplishments of Fiscal Year (FY) 2022 goals, with the effective date of any salary increase and/or bonus to be effective July 1, 2022 *(For Possible Action)*

5.2 Acknowledge receipt of an update on the FY 2023-2027 Transit Optimization Plan Strategies and provide input and direction regarding the plan *(For Possible Action)*

6. REPORTS *(Informational Only)*

6.1 Executive Director Report

6.2 Federal Report

6.3 NDOT Report

7. COMMISSIONER ANNOUNCEMENTS AND UPDATES

Announcements and updates to include requests for information or topics for future agendas. No deliberation or action will take place on this item.

8. PUBLIC COMMENT

Public comment taken under this item may pertain to matters both on and off the agenda. The Chair may take public comment on a particular item on the agenda at the time it is discussed. Comments are to be made to the Board as a whole and not to individual commissioners.

9. ADJOURNMENT (*For Possible Action*)

Posting locations: RTC principal office: 1105 Terminal Way, Reno, NV, RTC website: www.rtcwashoe.com, State website: https://notice.nv.gov/

AGENDA ITEM 4.1

REGIONAL TRANSPORTATION COMMISSION
WASHOE COUNTY, NEVADA

FRIDAY **9:03 A.M.** **March 18, 2022**

PRESENT:

Neoma Jardon, Reno City Council Member, Chair
Ed Lawson, Mayor of Sparks, Vice Chair
Vaughn Hartung, Washoe County Commissioner
Bob Lucey, Washoe County Commissioner

Bill Thomas, RTC Executive Director
Adam Spear, Legal Counsel
Darin Tedford, Deputy Director of NDOT (Alternate)

NOT PRESENT:

Oscar Delgado, Reno City Council Member
Kristina Swallow, Director of NDOT

The regular monthly meeting, held in the Chambers of the Washoe County Commission, 1001 E. 9th Street, Reno, Nevada, was called to order by Chair Jardon. Following the roll call and the Pledge of Allegiance to the Flag of our country, the Board conducted the following business:

Items 1.3 thru 1.4 SPECIAL RECOGNITIONS

1.4 Remembrance of Michael Moreno – *taken out of order*

Michael Moreno was with the RTC for many, many years and after battling an illness for a time, his life was taken from this world January 25th. In honor of his memory and the many wonderful ways he impacted everyone, both personally and in business, the City of Reno made a proclamation declaring January 25, 2022, as Michael Moreno Day. Chair Jardon read the proclamation and gave it to Michael's family, who was in attendance. Additionally, the City of Reno gave the family a street sign reading Moreno Way.

The City of Sparks also made a proclamation declaring March 18, 2022, as Michael Moreno Day and it was then presented to the family.

Michael's personal friend and business associate, Anja Graves, requested that Senator Catherine Cortez Masto have a flag flown over the United States Capital in Washington, DC in Michael's honor. The flag was flown February 2nd and was then sent to Reno and given to Michael's family during this remembrance.

Members of the audience were then invited to say a few words if they chose to, and several people from the community told stories and spoke about their fond memories of Michael.

1.3 Driver Recognition – *taken out of order*

Executive Director (E.D.) Bill Thomas announced that this day was National Driver Appreciation Day and said that both of the RTC's contractors, Keolis and MTM, had planned events throughout the day to celebrate their drivers.

He then introduced Yolanda Cobb, an RTC ACCESS driver with MTM and said Yolanda was hired in 1988 and is considered a "pioneer" in ADA transit in our community. Many things have changed since then, with the exception of Yolanda's safe driving record of 34 years, and her love and passion for RTC ACCESS clients.

Among her numerous awards, former Senator Harry Reid bestowed Yolanda with a service award for her outstanding work in the community on her 20th anniversary. Yolanda was also named the national *Katherine McClary Operator of the Year* award winner. This award was established to honor the memory of Katherine McClary, who was tragically killed in a bus crash in 2004. The award recognizes the safest transit operators.

E.D. Thomas then thanked Yolanda for the incredible work she does for this community.

Next, E.D. Thomas introduced Jeff Ramociotti, an RTC RIDE coach operator with Keolis N.A. Jeff is a Reno native who has served the Washoe County community by providing transportation for more than 13 years. His transportation career began in 2009, transporting students safely to and from school for the Washoe County School District. He then accepted a position with Keolis in 2020.

Jeff exudes contagious enthusiasm and has deep insight into transportation. The customers he transports on RTC RIDE are always cared for with skill and compassion. He is a pillar of the community and takes pride in working for Keolis and has aspirations to become a supervisor. He is a dedicated driver and valued person. His coworkers and supervisors say he is a pleasure to work with and a great asset to Keolis and our community.

E.D. Thomas then thanked Jeff for his great work.

Item 2 PUBLIC INPUT

Chair Jardon opened the meeting to public input and called on anyone wishing to speak on topics relevant to the Regional Transportation Commission (RTC) that are not included in the current agenda.

Ms. Amanda Nelson, Keolis coach operator, reminded the Board of a discussion that took place about a panel of drivers meeting with members of the Board on occasion and thinks it would still be beneficial to hold those discussions.

Mr. Jeff Church, local resident, requested that the next board item pertaining to the gas tax be worded in such a manner that the Board can ask the County Commission to cap the tax. He would also like the RTC to invest their time and work with UNR to look into using light rail in the region.

Mr. Chris Fuqua, Vice President of Teamsters, Local 533, addressed the Board to thank them for the increased payment of $6.76 per service hour for Keolis coach operators. He then mentioned that the union contract with the paratransit contractor MTM is up June 30, 2022. He is hopeful the drivers will be provided with a livable wage and better health benefits, etc.

Mr. Gary Watson, President of Teamsters, Local 533, addressed the Board to say that if the RTC truly appreciates the transit employees, they should invest in them. He believes the drivers deserve better than what they have received and that there were 40 labor violations settled with Keolis. He would like E.D. Thomas and the agency to denounce Keolis.

Mr. Carlos Elizondo, local resident, has a concern about the changes in the Virginia line because the buses are running bumper to bumper and he doesn't see the point of that. Additionally, many of the buses you see downtown say Out of Service.

There being no one else wishing to speak, the Chair closed public input.

Item 3 APPROVAL OF AGENDA

On motion of Commissioner Hartung, seconded by Vice Chair Lawson, which motion unanimously carried, Chair Jardon ordered that the agenda for this meeting be approved.

Items 4.1 thru 4.20 CONSENT ITEMS

Minutes

4.1 Approve Minutes of the February 18, 2022 meeting *(For Possible Action)*

4.2 Approve Minutes of the January 21, 2022 meeting and workshop *(For Possible Action)*

4.3 Approve Minutes of the January 14, 2022 special meeting *(For Possible Action)*

Reports

4.4 Acknowledge receipt of the monthly Planning Activity Report *(For Possible Action)*

4.5 Acknowledge receipt of the monthly Engineering Activity Report *(For Possible Action)*

4.6 Acknowledge receipt of the monthly Public Transportation/Operations Activity Report *(For Possible Action)*

4.7 Acknowledge receipt of the monthly Procurement Activity Report *(For Possible Action)*

4.8 Acknowledge receipt of the monthly Summary Report for the Technical, Citizens Multimodal, and Regional Road Impact Fee Advisory Committees *(For Possible Action)*

Engineering Department

4.9 Approve a contract with Nichols Consulting Engineers, CHTD, to provide design services and optional engineering during construction for the First Street Rehabilitation project from Sierra Street to Virginia Street in an amount not-to-exceed $197,302 ***(For Possible Action)***

4.10 Approve a contract with Jacobs Engineering Group, Inc., to provide engineering and survey services for the Oddie/Wells Corridor Project in an amount not-to-exceed $298,270 ***(For Possible Action)***

4.11 Approve Amendment No. 2 to the contract with Nichols Consulting Engineers, CHTD, for design and engineering during construction services for the Reno Consolidated 20-01 - Mayberry Drive, California Avenue and First Street project in the amount of $61,159, for a new total not-to-exceed amount of $1,134,054 ***(For Possible Action)***

4.12 Approve Amendment No. 3 to the contract with Atkins North America, Inc., to perform additional design services and engineering during construction services for the Sky Vista Parkway Rehabilitation and Widening project in the amount of $515,714, for a new total not-to-exceed amount of $2,460,173 ***(For Possible Action)***

4.13 Approve the qualified list of consultants to provide civil engineering, design, and construction management services for the Traffic Engineering Program and the Intelligent Transportation Systems (ITS) Program ***(For Possible Action)***

4.14 Approve an Interlocal Cooperative Agreement (ICA) with the Nevada Department of Transportation (NDOT) to outline responsibilities for both NDOT and RTC to coordinate and manage tasks during construction of the roundabout on 4th Street (SR 647) defined as TE Spot 10 – South Project ***(For Possible Action)***

4.15 Approve an Interlocal Cooperative Agreement (ICA) with Washoe County for RTC to fund the design and installation of culvert grates at the equalization culvert along Veteran's Parkway north of Clean Water Way, within City of Sparks limits, in an amount not-to-exceed $30,000 ***(For Possible Action)***

Public Transportation/Operations Department

4.16 Approve a contract with Krueger Transport, LLC, to provide a consultant study for the Hydrogen Fuel Cell Electric Bus and Infrastructure Deployment project in an amount not-to-exceed $180,000 ***(For Possible Action)***

Executive, Administrative and Finance Departments

4.17 Approve a contract with Thompson Coburn, LLP, for specialized legal services ***(For Possible Action)***

4.18 Authorize the Executive Director to explore options to dispose of six (6) parcels acquired as part of a planned US 395/Clear Acre/Sutro Interchange Improvement Project by sale, exchange or lease to a public agency for a reasonable public use related to affordable housing ***(For Possible Action)***

4.19 Approve modifications to Regional Transportation Commission (RTC) Management Policy P-21, Travel Policy ***(For Possible Action)***

4.20 Approve modifications to Regional Transportation Commission (RTC) Management Policy P-62, Business Expenses *(For Possible Action)*

On motion of Commissioner Hartung, seconded by Commissioner Lucey, which motion carried unanimously, Chair Jardon ordered that Consent Items 4.1 through 4.20 be approved.

Item 5 .1 thru 5.4 DISCUSSION ITEMS AND PRESENTATIONS

5.1 Acknowledge receipt of a report regarding the Lemmon Drive Segment 2 Roadway Alternatives Analysis Report *(For Possible Action)*

Mr. Dale Keller, RTC Engineering Project Manager, gave a presentation showing the final 3 alignments, out of 12, for the project, along with the pros and cons for each. Alignment 6, the Natural Berm Alignment, was ultimately identified as the preferred alignment.

Commissioner Hartung asked if the existing Lemmon Valley Drive will remain.

Mr. Keller responded that the vision is that the existing roadway would be removed and in final design, a decision would be made on the best way to reconstruct that area.

Commissioner Lucey asked when the project will be shovel ready.

Mr. Keller said it is planned for 2025, which is within the first five-years.

Commissioner Lucey said that is too far out and he would like to see if there is any way to speed that up.

On motion of Commissioner Hartung, seconded by Commissioner Lucey, which motion carried unanimously, Chair Jardon ordered that Consent Items 4.1 through 4.20 be approved.

5.2 Acknowledge receipt of a report regarding a Micro-Mode Regional Traffic Management Strategy *(For Possible Action)*

E.D. Thomas said there are two goals to address with this project, one is to define RTC's role in the e-bike world and the second goal is to look into the bike/ped and multimodal projects as a whole to provide more clarity.

Ms. Sara Going, RTC Project Manager, gave a presentation showing an alternative manner of looking at different modes of transportation and how to strategically move forward. One of the main themes is to look at the traffic stress (higher traffic volumes) on a given roadway and to then find parallel alternatives with lower traffic stress to place multimodal pathways.

Vice Chair Lawson said that in Sparks, the bicycling lane options are few and not safe, specifically if you'd like to get to the river path or ride to Reno. He would like to see more connectivity to different parts of the region for Sparks.

Commissioner Hartung asked about the bike path on Veterans Memorial Parkway and what the number of recreational bicyclists vs commuter bicyclists is on that roadway, because the bike/ped path is highly used.

Ms. Going said that she would have to bring that information back to a future meeting.

Chair Jardon asked if it's fair to say that RTC has tried to be "all things on roadways to all modes of transportation requested" and now the focus is moving to alternative roads instead of using the commuter high-speed roadways.

Ms. Going said that on the commuter roads, a higher level of separation is required which also comes at a high price.

On motion of Commissioner Lucey, seconded by Vice Chair Lawson, which motion carried unanimously, Chair Jardon ordered that receipt of the report be acknowledged.

5.3 Receive an update on planned efforts to rebuild public transportation through the FY 2023-2027 Transit Optimization Plan Strategies process based on input received at the Board's workshop in January 2022, and provide input and direction regarding next steps *(For Possible Action)*

Taken together with -

5.4 Receive an update on planned efforts to examine RTC's role in transportation decision-making, development, and the future of our community based on input received at the Board's workshop in January 2022, and provide input and direction regarding next steps *(For Possible Action)*

E.D. Thomas said that Items 5.3 and 5.4 came from direction given at the Board Retreat in January 2022 and then handed the conversation to Erica Olsen, consultant from OnStrategy.

Chair Jardon then asked Legal Counsel Adam Spear if it would be okay to take the two items together with one motion.

Mr. Spear said it is at the discretion of the Board.

Ms. Olsen began with Item 5.3 and presented via telephone, saying that the purpose of these two items are to recap the conversation held at the Retreat and more specifically, the item on moving forward with rebuilding public transportation and RTC's regional role in road projects and processes, and engaging the local entities. Today, staff would like to know that they are on the right path.

Ms. Olsen continued with her presentation, saying the specific direction with regard to transit was to:

1. **Evaluate ongoing ridership and workforce trends** to guide the development of new transit services,

2. Review the **provision of RTC RIDE services to ensure that the vehicle size and vehicle type match the demand for the service,**
3. Support the creation of **additional microtransit services** including areas of poorly performing fixed routes or suburban areas where no transit service exists,
4. **Leverage technology** to improve operational efficiency and effectiveness which improving the customer experience by having a single application for both trip planning and payment,

E.D. Thomas said that RTC had hired a consultant to help put together the Transit Optimization Plan Strategies (TOPS) plan and will bring back a couple of options for the Board to consider. Right now, the focus is on the customer experience and how best to meet the needs of the service and equitability of resources. Staff would also like to establish objective metrics for the outcomes.

Commissioner Lucey said he believes staff is moving in the right direction, but wants to make sure that when we say customers it should be a consideration of all the citizens in the region who may potentially be future customers. It also needs to be as functional and cost effective as possible.

Vice Chair Lawson said it is important to know how many riders we have today and how they use the service in order to make changes.

Commissioner Hartung would like to see an audit of ridership by route to determine where to place future transit and the type of transit to provide.

Chair Jardon thinks that the analysis on ridership trends will provide more options on what the needs are in the region.

Ms. Olsen then continued with Item 5.4 on RTC's role in the development and the future of the community. The direction given by the Board was not as defined as with the previous item:

Address development impacts on transportation differently. Today's approach & tools do not seem adequate.

Outcome: Evaluate the landscape of transportation decision making across our region & look at how to realign this to better to serve the needs of the community.

1. **New and Expanded Roads:** How can we take a more regional view to development? Can we collaborate better? And can RTC play a bigger role to help proactively think about transportation impacts?

2. **Current System**: Who owns what and who needs to maintain what?

E.D. Thomas said that these two areas are new and expanded roads and local roads. This is a complex problem that cannot be solved on our own, so the recommendation is to work with NDOT and the three local governments and figure out how to be facilitative and problem solvers so that the local governments retain the decision making on the development of the region. There are some ideas in the works, but it is too soon to discuss them.

Local roads are owned by the three government entities and NDOT, the RTC does not own the roads. A decision needs to be made on who actually owns the roads going forward and to figure out which entity or agency would be the best to lead in this effort.

Chair Jardon asked, as an example, that Verdi's project allocations are out and then they are done, they are capped with no additional development. Is it then up to the city or the developers to create the infrastructure for these new developments?

E.D. Thomas responded, saying that when considering the example of Verdi, it would be an intentional conversation with the City of Reno, NDOT, RTC and Washoe County to determine who will do what in the long-term.

Commissioner Hartung asked what the triggers are for those conversations. There may be multiple developers with different sized projects, and we don't look at the cumulative effect of those projects.

Chair Jardon said this is where SADs may play a role and an aggressive discussion needs to be held on their use.

On motion of Commissioner Lucey, seconded by Commissioner Hartung, which motion carried unanimously, Chair Jardon ordered that receipt of the updates for Items 5.2 and 5.3 be accepted with the direction provided.

Items 6.1 thru 6.3 REPORTS

6.1 RTC Executive Director Report

Executive Director Thomas spoke about the following matters:

1. He congratulated the following employees for their milestone service anniversaries:
    - Jenna Boga, Paratransit Eligibility and Mobility Specialist with 5 years of service on February 13.
    - Brian Stewart, Director of Engineering, with 5 years of service on April 10.
    - Nicole Coots, Graphic Designer, with 5 years of service on April 24.
2. Today is National Transit Driver Appreciation Day! The RTC recognizes and appreciates the work our contracted transit drivers do for our community. To honor these hardworking employees, the RTC sponsored donuts, coffee and juice this morning. Both Keolis and MTM are also planned recognition events throughout the day. He personally took the opportunity to say "thank you" to these drivers who do such important work for the people in our neighborhoods.
3. Thursday marked the RTC's nineteenth annual St. Patrick's Day FREE Safe RIDE event to provide free transit on all RTC services from 4 p.m. – 2 a.m. This important annual event helps people in our community get around safely while out celebrating this holiday. This event also supports the Vision Zero Truckee Meadow goal of zero pedestrian fatalities in our region by 2030.

4. Washoe County Health District will be providing a "Pop-Up" COVID vaccination clinic at 4th Street Station on Thursday, March 24, from 11:00 AM to 1:00 PM. The clinic will provide free COVID vaccines to people who choose to receive them.

5. At the CDC's recommendation, TSA will extend the security directive for mask use on public transportation and transportation hubs for one month, through April 18th.

   During that time, CDC will work with government agencies to help inform a revised policy framework for when, and under what circumstances, masks should be required in the public transportation corridor. This revised framework will be based on the COVID-19 community levels, risk of new variants, national data, and the latest science. RTC will communicate any updates publicly if and/or when they change.

6.2 RTC Federal Report

Executive Director Thomas mentioned that a written report was provided in the meeting materials and added that

6.3 NDOT Director Report

NDOT Deputy Director Darin Tedford gave the monthly NDOT report containing information on the most recent safety statistics, broken out statewide and Washoe County alone, an update on the most recent AWG meeting activities, an update on the status and purposes for changing the Advanced Signal Warning System (ASWS), and lastly, an update on the Spaghetti Bowl Express project.

Commissioner Hartung read some of his constituent complaints about the change to the flashing yellow lights on Pyramid Hwy. and said they believe the change makes the road less safe, not more safe. Additionally, the speed limit was increased in some areas with no discussion being held with partner agencies. There have also been no capacity improvements on the Pyramid Highway and growth continues.

Chair Jardon talked about a continuously flashing light at a crosswalk in downtown Reno and it was found that those who drove that road on a regular basis tended to eventually ignore the light and it became more dangerous, so the light was removed.

Commissioner Lucey mentioned the same issues on Mount Rose Highways, and the studies, which he calls paralysis through analysis with no solutions. He said that if NDOT is not going to be assertive about making these safety improvements, they should let RTC take care of them.

Chair Jardon said that since she's been on the City Council in 2012, there have been continuous studies on the North McCarran safety issues, but nothing happened and now more studies need to occur. It's very frustrating.

Item 7 COMMISSIONER ANNOUNCEMENTS AND UPDATES

Commissioner Lucey would like to see some forward progression on the roundabouts on Mt. Rose Highway and he would like staff to begin looking into potential alignments to bring Butch Cassidy up to Thomas Creek Road in conjunction with Washoe County's safety improvement efforts.

He would also like to see sidewalk improvements at Crystal Bay and would like to work with NDOT on that.

Commissioner Hartung said he continues to get requests for more FlexRIDE further out into Spanish Springs, many of them are for 55+ communities.

Chair Jardon would like RTC to facilitate discussions between the Board and some of the coach operators.

Commissioner Hartung would also like Mr. Spear to bring back information on the legalities of capping the indexed fuel tax and what any limitations may be. It was voter approved and he is concerned that it must be capped by a vote of the people as well.

Item 10 PUBLIC INPUT

Chair Jardon opened the meeting to public input and called on anyone wishing to speak on topics relevant to the Regional Transportation Commission (RTC) that are not included in the current agenda.

There being no one wishing to speak, the Chair closed public input.

Item 11 ADJOURNMENT

There being no further business to come before the Board, the meeting adjourned at 11:25 a.m.

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NEOMA JARDON, Chair
Regional Transportation Commission

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.2**

From: Daniel Doenges, PTP, RSP, Director of Planning

RECOMMENDED ACTION

Acknowledge receipt of the monthly Planning Activity Report.

BACKGROUND AND DISCUSSION

PLANNING STUDIES

McCarran Boulevard Corridor Study	
Dan Doenges, Project Manager	https://www.rtcwashoe.com/mpo-corridor-plan/mccarran-boulevard-corridor-study/
Status: Virtual outreach event and survey underway. Anticipate preliminary results in May.	

RTC Public Participation Plan Update	
Rebecca Kapuler, Project Manager	https://www.rtcwashoe.com/mpo-projects/public-participation-plan/
Status: Draft plan has been posted for the 45-day public comment period, which runs April 5, 2022 – May 19, 2022. The final Plan will go to the Board May 20, 2022.	

Verdi Area Multimodal Transportation Study	
Xuan Wang, Project Manager	https://www.rtcwashoe.com/mpo-reports/verdi-area-multimodal-transportation-study/
Status: Developing an initial analysis of existing conditions in the study area. A project team meeting with all participating agencies will be held in April.	

ONGOING PROGRAMS

Bicycle and Pedestrian Planning	
RTC Planning Staff	https://www.rtcwashoe.com/metropolitan-planning/

Status: The Project team is developing and contacting members of The RTC is collaborating with other partner agencies on several initiatives to improve bicycle and pedestrian safety & facilities:

- *The data collection counts for active transportation modes occur biannually and the project is on schedule with the Annual Report on the agenda for the RTC Board meeting in April.*
- *Transportation Alternatives (TA) Set-Aside Project Quarterly meeting with the jurisdictions was held on April 8th.*

Development Review	
Rebecca Kapuler, Project Manager	Website N/A
Status: RTC staff routinely review development proposals from the local jurisdictions of Washoe County and the Cities of Reno and Sparks. Staff from Planning, Engineering and Public Transportation have reviewed and commented on the following number of development proposals from each of the jurisdictions since the last Board meeting: • *Washoe County – 1* • *City of Reno – 7* • *City of Sparks – 4* *This does not include proposals that were reviewed on which staff did not have any comments.*	

Vision Zero Truckee Meadows	
Rebecca Kapuler, Project Manager	https://visionzerotruckeemeadows.com/
Status: The next meeting is scheduled for April 18, 2022	

COMMUNITY AND MEDIA OUTREACH ACTIVITIES

Outreach Activities	
Lauren Ball, Project Manager	
Status: RTC staff conducted the following outreach activities from March 13 – April 15: *March 13* *Oddie Wells Project Outreach - free donut event at Sparks Methodist Church* *March 17* *RTC St. Patrick's Day FREE Safe RIDE Free Transit Event* *March 18* *Transit Driver Appreciation Day - RTC-sponsored breakfast* *March 22* *Reno Access Advisory Committee Presentation - RTC's 2022 Projects* *April 6* *RTC Technical Advisory Committee (TAC) Meeting* *April 6* *Reno Police Department Badge On Bus event* *April 7* *RTC Citizens Multimodal Advisory Committee (CMAC) Meeting*	

Media Relations & Social Media
RTC Communications Team
Status: The RTC issued 12 news releases and received six media inquiries regarding construction on phase two of the Kings Row Rehabilitation Project, the roadway reconstruction project planned for Sky Mountain Drive and Sky Valley Drive, the RTC VANPOOL program, free transportation on St. Patrick's Day, the Arlington Avenue Bridges Project, Beckwourth Drive closure, the Oddie Wells Project update and road construction information, the Lemmon Drive Project and the Diverging Diamond Interchange and associated road closures, transit options for seniors, roadway construction beginning on California Avenue and Mayberry Avenue, a new traffic signal

installation at Golden Valley Road and Beckwourth Drive, and more.

Social media was used to promote and provide information about the RTC Board Meeting, construction on phase two of the Kings Row Rehabilitation Project, the roadway reconstruction project planned for Sky Mountain Drive and Sky Valley Drive, the RTC VANPOOL program, free transportation on St. Patrick's Day, the Arlington Avenue Bridges Project, Beckwourth Drive closure, the Oddie Wells Project update and road construction information, the Lemmon Drive Project and the Diverging Diamond Interchange and associated road closures, transit options for seniors, roadway construction beginning on California Avenue and Mayberry Avenue, a new traffic signal installation at Golden Valley Road and Beckwourth Drive,, and more.

Social media metrics for the month of March: 61,890 impressions on Facebook, Twitter, YouTube, and Instagram.

Informational Materials and Video Production

RTC Communications Team

Status: Four topics were broadcast on KOLO-TV for The Road Ahead with RTC. Segments included information about the MTM cost-per-service hour increase, the Public Participation Plan, the California Ave./Mayberry Dr. Project, and encouraging people to take transit to save money on their commutes with gas prices increasing.

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.3**

From: Brian Stewart, P.E., Director of Engineering

RECOMMENDED ACTION

Acknowledge receipt of the monthly Engineering Activity Report.

BACKGROUND AND DISCUSSION

BICYCLE AND PEDESTRIAN IMPROVEMENTS

Bus Stop Improvement and Connectivity Program	
Sara Going, Project Manager	https://www.rtcwashoe.com/engineering-project/bus-stop-improvement-connectivity-program/
Status: Construction will continue on Phase 3 of the project through June 2022.	

Center Street Multimodal Improvements	
Maria Paz Fernandez, Project Manager	https://www.rtcwashoe.com/engineering-project/center-street-multimodal-improvements-project/
Status: Thirty percent (30%) design plans are produced. Additional traffic analysis of the downtown road network supports the efforts of City of Reno to complete The Downtown PlaceMaking Study. Once the final report is published, final scope and design will be completed.	

Mill Street Complete Street - Terminal Way to McCarran Boulevard	
Scott Gibson, Project Manager	https://www.rtcwashoe.com/engineering-project/mill-street-complete-street/
Status: Construction began earlier this year and is expected to be complete before July 2022.	

CAPACITY/CONGESTION RELIEF PROJECTS

Golden Valley Road / Beckwourth Drive Traffic Signal	
Blaine Petersen, Project Manager	https://www.rtcwashoe.com/engineering-project/golden-valley-beckwourth-traffic-signal/
Status: Underground signal construction is complete. Signal activation will be in by the end of April 2022.	

Sparks Boulevard	
Jeff Wilbrecht, Project Manager	SparksBLVDproject.com.
Status: The South Phase (widening from 4 to 6 lanes from Greg Street to Lincoln Way) is currently in the bidding phase with construction anticipated to begin this spring and be complete this fall. Work activities for the South Phase also included advancement of the acquisition of easements necessary for constructing this phase. Work during the last reporting period also included finalizing technical reports and documents associated with Environmental Assessment for the north segment (Phase 2) of the project.	

Steamboat Parkway Improvement	
Andrew Jayankura, Project Manager	https://www.rtcwashoe.com/engineering-project/steamboat-pkwy-improvement/
Status: The project team is developing 90% design plans. Construction is anticipated to start by the fall of 2022.	

Traffic Signal Timing 6	
Andrew Jayankura, Project Manager	https://www.rtcwashoe.com/engineering-project/traffic-signal-timing-6-project/
Status: Traffic signal optimization and new timing on SE McCarran Boulevard and Longley Lane are ongoing. Signal timing on Damonte Ranch Parkway is anticipated to be implemented in late April 2022.	

Traffic Engineering (TE) Spot 10 – Fuel Tax	
Sara Going, Project Manager	https://www.rtcwashoe.com/engineering-project/traffic-engineering-spot-10-fuel-tax/
Status: The contractor is completing electrical and striping work at the improved pedestrian crossings.	

Traffic Engineering (TE) Spot 10 – North	
Andrew Jayankura, Project Manager	https://www.rtcwashoe.com/engineering-project/traffic-engineering-spot-10-north-2/
Status: Project to restart and be completed in early May following roadway slurry sealing and permanent striping.	

Traffic Engineering (TE) Spot 10 – South	
Blaine Petersen, Project Manager	https://www.rtcwashoe.com/engineering-project/traffic-engineering-spot-10-south-2/
Status: The project advertised on March 30, 2022. The bid opening is scheduled for May 3, 2022.	

Traffic Management – ITS Phase 4	
Blaine Petersen, Project Manager	https://www.rtcwashoe.com/engineering-project/its-traffic-management-phase-4/
Status: Bids opened on March 22, 2022, with Titan Electrical as the apparent low bidder.	

Traffic Signal Installations 22-01	
Blaine Petersen, Project Manager	https://www.rtcwashoe.com/engineering-project/traffic-signal-installations-22-01/
Status: The design is complete and the project is in the bidding phase. The bid opening is scheduled for April 14, 2022.	

Traffic Signal Modifications 22-01	
Sara Going, Project Manager	https://www.rtcwashoe.com/engineering-project/traffic-signal-modifications-22-01/
Status: Preliminary design is underway.	

CORRIDOR IMPROVEMENT PROJECTS

Arlington Avenue Bridges	
Judy Tortelli, Project Manager	https://www.rtcwashoe.com/engineering-project/arlington-avenue-bridges-project/
Status: The third Aesthetic Stakeholder Working Group Meeting was held and aesthetic elements are being refined into three concepts. These concepts will be presented at the second public informational meeting. Design Review Committee Meetings continue, environmental impact identification, and 30% design plan preparation is underway. Coordination with NDOT and FHWA to finalize funding agreements for the project continues. Results from the first public informational meeting survey are being compiled so community feedback can be incorporated as the design progresses.	

Lemmon Drive	
Judy Tortelli, Segment 1 Project Manager Dale Keller, Segment 2 Project Manager	Segment 1 - https://www.rtcwashoe.com/engineering-project/lemmon-dr-segment-1/ Segment 2 - https://www.rtcwashoe.com/engineering-project/lemmon-drive-segment-2/
Status: Segment 1 - Q&D Construction (Q&D) has finished all work within Segment 1 except for replacement of remaining concrete panels in the intersection at Buck Drive/Sky Vista Parkway. Education outreach available through the project website on "How to Drive a DDI" continues. Traffic through the interchange at Lemmon/US395 is moving more smoothly with closures in place. Timing adjustments were made and the temporary traffic signal at the Golden Valley/US395 interchange is operating more efficiently. The existing traffic signal poles at the Lemmon interchange were provided to the Golden Valley/Beckwourth intersection project. That	

signalization project will be completed well ahead of schedule since signal pole procurement is no longer an issue. *The improvements at the Lemmon/US395 interchange continue to progress quickly. Rock has been placed on the slopes, retaining walls are complete, barrier rail and curb and gutter along the median island are in place, underground storm drain improvements are complete, the east side of Lemmon Drive under US395 is paved, and the southbound off-ramp is paved.* *Segment 2 - The project team is finalizing the Level 2 screening alternatives analysis where the Project Technical Advisory Committee (TAC) is identifying an Agency Endorsed Alternative.*

Mill Street Widening (Kietzke Lane to Terminal Way)	
Roy Flores, Project Manager	https://www.rtcwashoe.com/engineering-project/mill-st-widening-kietzke-to-terminal/
Status: A Final Design kick-off meeting was held at the end of March 2022.	

Oddie Boulevard / Wells Avenue Improvement	
Maria Paz Fernandez, Project Manager	http://oddiewellsproject.com/
Status: Construction started at the end of November 2021. During the first quarter of 2022, construction includes underground utility work, excavating/forming/building retaining walls, and placement of privacy walls within the limits of Phase 1 (Pyramid Way to Sullivan Lane in Sparks). Overall construction, including the remaining phases, is anticipated to occur over three (3) construction seasons and be complete by the third quarter of 2024. Pavement reconstruction on El Rancho Drive between Oddie Boulevard and Greenbrae Drive is complete. Roadwork and paving operations on Oddie Boulevard (Phase 1 section) is underway.	

Sky Vista Parkway Widening Rehabilitation	
Blaine Petersen, Project Manager	https://www.rtcwashoe.com/engineering-project/sky-vista-widening-rehabilitation-project/
Status: Right of way activities continue for necessary construction easements. Advertisement for construction bids was scheduled to occur earlier this month.	

Truckee River Shared Use Path	
Jeff Wilbrecht, Project Manager	https://www.rtcwashoe.com/engineering-project/truckee-river-shared-use-path-project/
Status: Coordination efforts with NDOT continued this month associated with their advancement of the final design of the project and preparation for construction activities this summer. Coordination also occurred with the Reno Sparks Indian Colony pertaining to acquisition of necessary right of way.	

PAVEMENT PRESERVATION PROJECTS

4th Street (Sparks) Reconstruction	
Judy Tortelli, Project Manager	https://www.rtcwashoe.com/engineering-project/lemmon-dr-segment-1/
Status: Comments from the 50% design submittal are being addressed. The pavement design and geotechnical investigation report are being reviewed. Coordination with the Washoe County School District to discuss construction impacts has begun. Right of way activities continue.	

Arrowcreek Parkway Rehabilitation	
Roy Flores, Project Manager	https://www.rtcwashoe.com/engineering-project/arrowcreek-pkwy-rubblestone-to-virginia/
Status: The fifty percent (50%) preliminary plans have been reviewed by RTC and City of Reno. Working towards final design submittal in May 2022.	

Kings Row Rehabilitation – Phase 2	
Jeff Wilbrecht, Project Manager	https://www.rtcwashoe.com/engineering-project/kings-row-rehabilitation-project-phase-2/
Status: The construction work began this reporting period with Sierra Nevada Construction starting concrete curb and gutter removals along the upper segment of Kings Row between McCarran Boulevard and Wyoming Avenue.	

Peckham Lane Rehabilitation	
Andrew Jayankura, Project Manager	https://www.rtcwashoe.com/engineering-project/peckham-lane/
Status: Sierra Nevada Construction (SNC) has been awarded the construction contract. Construction is scheduled to start in August and be complete this fall.	

Reno Consolidated 20-01 – Mayberry Drive, California Avenue, and First Street	
Judy Tortelli, Project Manager	https://www.rtcwashoe.com/engineering-project/reno-consolidated-20-01-mayberry-drive-california-avenue-first-street/
Status: Granite Construction Company continues working on the project and added additional crews to get the TMWA water line improvements completed. Placement of curb, gutter, sidewalk, and retaining walls is ongoing in preparation for roadway paving. Storm drainage improvements are almost complete. Traffic impacts are minimal and people within the project limits are excited to see construction moving forward. *Nichols Consulting Engineers (NCE) continues to provide construction management and inspection. Review of utility conflicts and design adjustments are being completed in a timely manner. The focus is for the team to stay ahead of the contractor, identify issues early, and*	

provide recommendation prior to construction schedule impacts.

Reno Consolidated 22-01 – Sky Valley Drive and Sky Mountain Drive	
Roy Flores, Project Manager	https://www.rtcwashoe.com/engineering-project/reno-consolidated-22-01-sky-valley-sky-mountain/
Status: Construction to begin in April 2022 and will be complete (weather permitting) at the end of July 2022.	

Reno Consolidated 23-01 – Sutro Street and Enterprise Road	
Maria Paz Fernandez, Project Manager	https://www.rtcwashoe.com/engineering-project/reno-consolidated-23-01-sutro-enterprise/
Status: Preliminary design is on-going. Construction is tentatively scheduled for spring 2023.	

OTHER PROJECTS

4th Street Station Expansion	
Jeff Wilbrecht, Project Manager	https://www.rtcwashoe.com/engineering-project/4th-street-station-expansion/
Status: A kick off meeting with the design consultant, Wood Rodgers, Inc., occurred during this reporting period. Preliminary investigations and design activities are underway.	

Peppermill BRT Station	
Jeff Wilbrecht, Project Manager	
Status: The design consultant, Kimley-Horn Associates, Inc., is advancing towards final design. Temporary construction easements are necessary for the project. The acquisition of right of way is underway.	

REPORT ON NEGOTIATED SETTLEMENT AGREEMENTS FOR THE ACQUISITION OF PROPERTY

Project	Property Owner	Purchase Amount	Amount Over Appraisal
Peckham Lane Rehabilitation Project	E. Ferrell & Son, LLC	$1,000	$0
Sky Vista Parkway Widening/Rehabilitation Project	VP Reno LLC	$4,090	$0

CONTRACTS UP TO $100,000

There were none.

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.4**

From: Mark Maloney, Director of Public Transportation and Operations

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RECOMMENDED ACTION

Acknowledge receipt of the monthly Public Transportation and Operations Report.

BACKGROUND AND DISCUSSION

Highlights

National Transit Driver Appreciation Day – On March 18, both Keolis and MTM celebrated their staff in recognition of National Transit Driver Appreciation Day. Festivities began in the early morning with donuts and coffee at the transit centers and the facilities compliments of RTC.

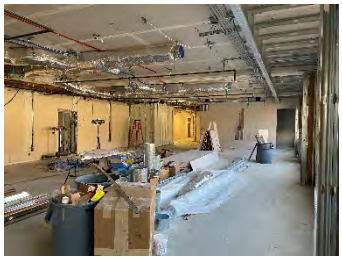
Keolis celebrated its employees by treating them to a wonderful continental breakfast and a sack lunch served in a Keolis Cooler and Lunch Sack. The team also enjoyed Safety inspired dessert bags. There was a lot of fun with games, music and a raffle. RTC staff, David Carr joined the festivities by drawing the raffle winners.

The MTM Transit team celebrated their Operators with donuts, muffins, juices, and a visit from RTC employee Susi Trinidad to show her appreciation for the staff.

Keolis and MTM wish to extend a "big **Thank You**" to RTC for hosting the wonderful breakfast and helping celebrate the day!

Beginning in 2018, RTC's Transit Planner began regularly meeting with contractor staff at 4TH STREET STATION and Villanova Maintenance Facility, Operator Breakrooms, to allow RTC RIDE Operators and Supervisors an opportunity to comment on and ask questions about RTC transit planning process, RIDE operation, vehicle schedules, and almost anything related to vehicle operations where all comments, ideas, concerns, and even snarks are accepted. When the COVID-19 pandemic hit and social gatherings were being curtailed, this process was put on hold. As of February 2022, this process has now been reinstated with two meetings in February (2 and 8), then again in March (28 and 30). One meeting is currently on the calendar for April (18) and will include an appearance by RTC Commission Chair Jardon. A second opportunity will also be arranged. After each meeting, a summary will be written and provided to Keolis for distribution to the operators and supervisors.

Milestone reached for 1st Floor Terminal Remodel – All rough inspections were passed on Thursday, March 24. All of the major HVAC, plumbing, and electrical work has been completed, and the contractor will start closing up the walls. Drywall work began on March 25. The elevator project is proceeding slower than expected due to continued supply chain issues, and may not be completed until late July.



RTC RIDE Key Highlights – March

- Keolis employees had the opportunity to meet with CEO Aline Frantzen during a visit in February. They were invited to a "*Coffee with the CEO*" town hall type event held at both Villanova and 4TH STREET STATION.
- On March 2, Keolis participated in a RPD SWAT Training event. Two of Keolis' operators were happy to stand in as hostages in several simulated bus training and rescue exercises.
- Keolis was an active participant in the March 22 through March 24, Washoe County Health District Radiological Mass Casualty Exercise event.
- A service increase of 80 additional hours per day was added on March 26.
- Teresa Corbi, Keolis' new HR Manager, started this month. She was able to train in Keolis' Las Vegas facility for one week conducting bus inspections, working in dispatch and learning Keolis' recruiting procedures. Ms. Corbi has been actively meeting with all Reno Keolis employees at both Villanova and 4TH STREET STATION.
- Jim Gaba, Keolis' new IT/Data Manager, started on March 28.
- Keolis' Maintenance department completed 40 hours of New Flyer hybrid training.
- Twelve new New Flyer coaches will be in service by the end of March.
- March Safety Meeting Topics included:
    - Avoiding Pass-Bys
    - Conflict and De-Escalation training
    - Seatbelts
    - LLLC coaching and an update of current accident and incident patterns.

- Keolis Staffing update:
  - 7 Coach Operator trainees released to operations for revenue service
  - 2 Operator terminations
  - 1 Driver promoted to dispatcher
  - 2 Managers on Duty hired
- New Coach Operator Classes held:
  - March 21, 2022, with 6 attendees (2 are no longer employed)
  - March 28, 2022, with 3 attendees
- Keolis has 156 drivers in revenue service, working towards goal of 175 drivers

Headcount as of March 31, 2022:

Position	**Total Employed**	**#Needed**
Coach Operator Trainees	13	Ongoing
Coach Operators	156	19
Dispatchers	5	0
Road Supervisors	5	1
Mechanic A	5	1
Mechanic B	3	1
Mechanic C	4	1
EV Technician	0	1
Electronics Tech	2	0
Body Technician	1	0

RTC ACCESS Key Highlights – March

March Safety Blitz & Safety Meeting – Pedestrian and cycle safety with a St. Patrick's Day Theme. Safety Meeting topics included LLLC; Reminder not to ride the lift; No Show Procedures; and iDrive Trends.

Safety
Accidents: 0
Injuries: 1
YTD Preventable Accident Count: 3
YTD Injury Count: 1
30 Days preventable collision free

Operations– Due to the assistance of Taxi's/Uber, MTM was able to increase their on-time performance from 80.1% (January) to 84.8% (February).

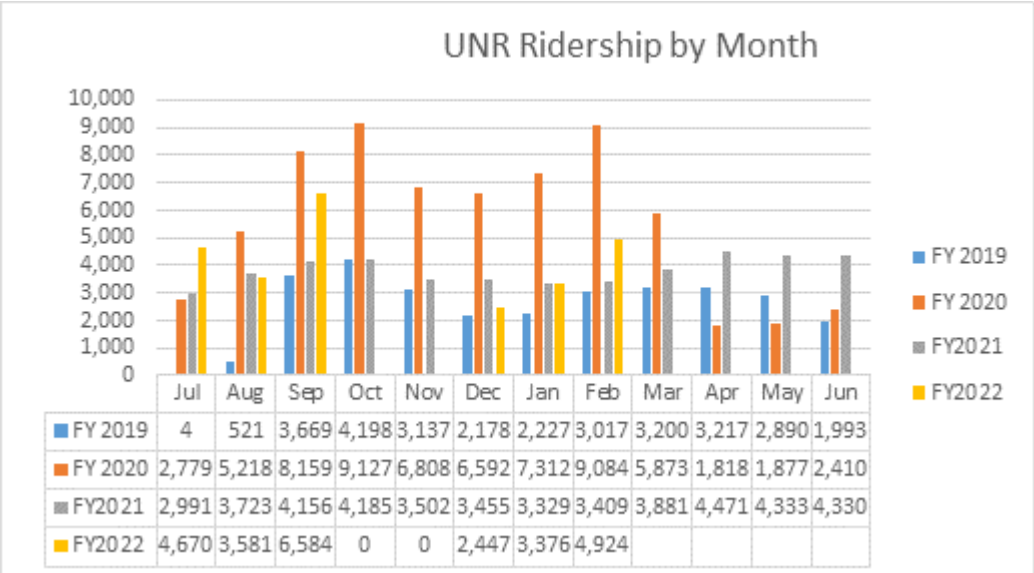
Recruitment/Staffing Update
March 7 - 1 class held/1 driver
March 21 – 1 rehire in class (pending physical to continue training)

Headcount as of March 31, 2022:

Position	Total Employed	#Needed
Drivers	40 FT – 6 PT	16 FT – 0 PT
Dispatchers	4 FT	1 PT
Reservationists	4 FTE's	.5 PT
Mechanic A	4 FT	0
Utility Worker	0	1 FT

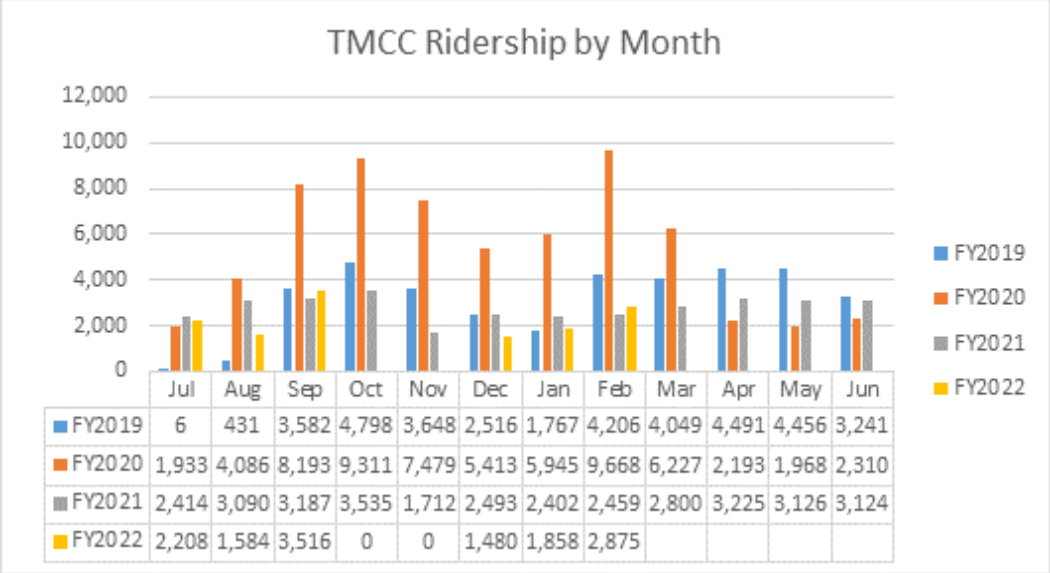
***TRANSIT DEMAND MANAGEMENT (TDM) Update* –**

- Vanpools increased from 300 to 309.
- Staff did an interview about vanpools with KOLO Channel 8 that aired on March 29.
- Staff met with the contractor for the 2050 Market Street project. City of Reno is requiring the project to provide a bus pass subsidy program.
- Held second meeting for Earth Day that will be at Idlewild Park on April 24. The Reno Court House parking lot will be used as a park-n-ride with a route 16 *Special* picking up every 15 minutes during the event. The event will run from 11am to 5pm.
- The Northern Nevada Transportation Management Association (TMA) has been finalized and staff set up a meeting on April 20 with the participating agencies and private companies to create the by-laws.
- The Jay Group is our newest Bus Pass Subsidy partner and is using Token Transit to distribute the passes.
- Ridership numbers from the ED Pass Program through the month of February:



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY 2019	4	521	3,669	4,198	3,137	2,178	2,227	3,017	3,200	3,217	2,890	1,993
FY 2020	2,779	5,218	8,159	9,127	6,808	6,592	7,312	9,084	5,873	1,818	1,877	2,410
FY2021	2,991	3,723	4,156	4,185	3,502	3,455	3,329	3,409	3,881	4,471	4,333	4,330
FY2022	4,670	3,581	6,584	0	0	2,447	3,376	4,924				

Due to driver strike, data was not collected as all rides were being offered free of charge.

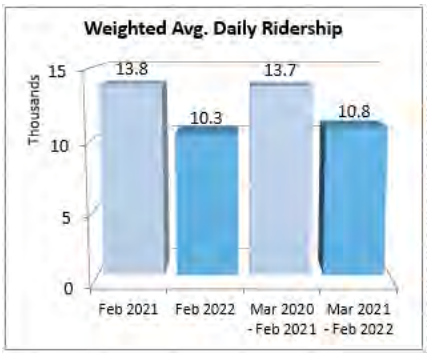


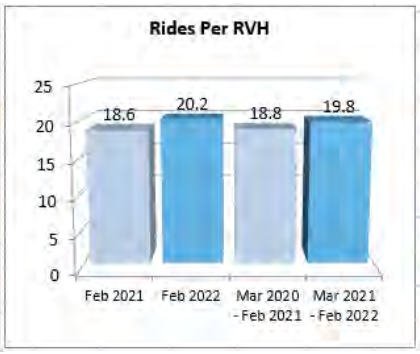
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY2019	6	431	3,582	4,798	3,648	2,516	1,767	4,206	4,049	4,491	4,456	3,241
FY2020	1,933	4,086	8,193	9,311	7,479	5,413	5,945	9,668	6,227	2,193	1,968	2,310
FY2021	2,414	3,090	3,187	3,535	1,712	2,493	2,402	2,459	2,800	3,225	3,126	3,124
FY2022	2,208	1,584	3,516	0	0	1,480	1,858	2,875				

Due to driver strike, data was not collected as all rides were being offered free of charge.

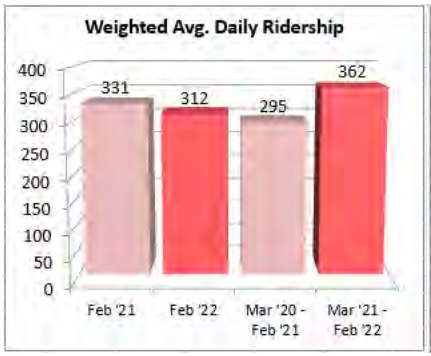
FEBRUARY 2022 TRANSIT PERFORMANCE

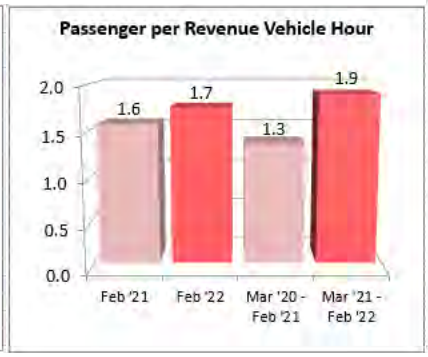
RTC RIDE





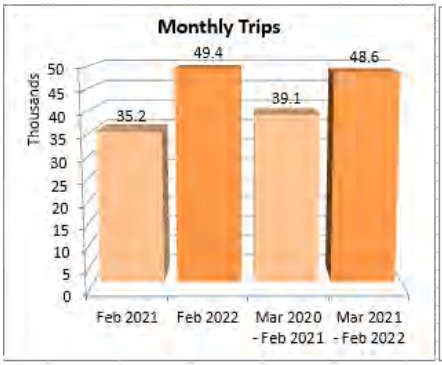
RTC ACCESS

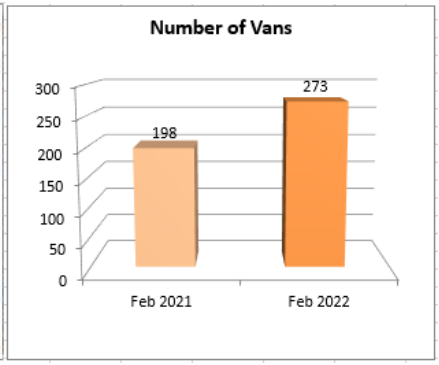




TART

RTC VANPOOL





REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
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MEETING DATE: April 29, 2022 **AGENDA ITEM 4.5**

From: Stephanie Haddock, Finance Director/CFO

RECOMMENDATION

Acknowledge receipt of the monthly Procurement Activity Report.

PROJECTS CURRENTLY ADVERTISED

Invitations for Bids (IFB)	
Project	**Due Date**
Sparks Boulevard – South Phase Early Action	April 13, 2022
Traffic Engineering Spot 10 - South Package A	May 3, 2022

Request for Proposals (RFP)	
Project	**Due Date**
South Virginia Bus Only Lane and BRT Project	April 26, 2022

REPORT ON INVITATION FOR BID (IFB) AWARDS

Per NRS 332, NRS 338 and RTC's Management Policy P-13 "Purchasing," the Executive Director has authority to negotiate and execute a contract with the lowest responsive and responsible bidder on an Invitation for Bid (IFB) without Commission approval.

Project	Contractor	Award Date	Contract Amount
ITS Phase 4 Project	Titan Electrical Contracting	3/31/2022	$1,708,810
Peckham Lane Rehabilitation	Sierra Nevada Construction	3/31/2022	$2,134,007

PROFESSIONAL SERVICES/CONSULTING AGREEMENTS

Per RTC's Management Policy P-13 Executive Director has authority to approve contracts greater than $25,000 and less than (or equal to) $100,000.

Project	Contractor	Contract Amount
Legislative Services	Thompson Coburn	$75,000

CHANGE ORDERS AND CONTRACT AMENDMENTS WITHIN EXECUTIVE DIRECTOR'S RTC's P-13 PURCHASING POLICY AUTHORITY

Project	Contractor	Approval Date	CO / Amend. Number	CO / Amend. Amount	Revised Total Contract Amount
OnBase Integration	SPV Associates, Inc., dba OnIndus	3/23/2022	Amend.1	$11,250	$99,750
Snow and Ice Removal	Dynamic Nevada Construction LLC	3/28/2022	Amend. 2	$30,000	$82,980

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.6**

From: Dan Doenges, PTP, RSP
Director of Planning

Mark Maloney
Director of Public Transportation

Brian Stewart, P.E.
Engineering Director

Through: Bill Thomas, AICP
Executive Director

RECOMMENDED ACTION

Acknowledge receipt of the Summary Report for the Technical, Citizens Multimodal, and Regional Road Impact Fee Advisory Committees.

BACKGROUND AND DISCUSSION

The RTC has three advisory committees that provide input on a wide range of policy and planning issues as well as key planning documents and the RTC Budget. The committees include:

- The Citizens Multimodal Advisory Committee (CMAC), which includes three individuals who use RTC RIDE, two individuals who use RTC ACCESS, five individuals who represent bicyclists/pedestrians, and five individuals who represent general multimodal transportation. The RTC Board approves appointments to this advisory committee.
- The Technical Advisory Committee (TAC), which includes local public works directors, community development directors, and staff from other key agencies.
- The Regional Road Impact Fee Technical Advisory Committee (RRIF TAC), which was created to oversee and advise the local governments regarding land use classification assumptions and the Capital Improvements Plan (CIP) used in the impact fee program. The RRIF TAC consists of three representatives from each local entity, two RTC representatives and four private sector members who are appointed by the RTC Board.

The agenda and minutes of each advisory committee are provided to the RTC Board.

This staff report summarizes comments along with any action taken by the RTC advisory committees.

Citizens Multimodal Advisory Committee (CMAC)

The CMAC met on April 6, 2022, and received an informational report on the Fiscal Year 2023 Increase in the Indexed Fuel Taxes in Washoe County that will become effective on July 1, 2022, and recommended approval of the Public Participation Plan Update

Technical Advisory Committee (TAC)

The TAC met on April 7, 2022, and received an informational report on the Fiscal Year 2023 Increase in the Indexed Fuel Taxes in Washoe County that will become effective on July 1, 2022, and recommended approval of the Public Participation Plan Update.

Regional Road Impact Fee Technical Advisory Committee (RRIF TAC)

The RRIF TAC did not meet in March.

FISCAL IMPACT

There is no fiscal impact associated with this agenda item.

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.7**

From: Dan Doenges, PTP, RSP, Director of Planning

RECOMMENDED ACTION

Approve the Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan.

BACKGROUND AND DISCUSSION

The RTC has finalized a draft report of the Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan. The purpose of this plan is to address existing electric and alternative fuel vehicle infrastructure needs in the Reno-Sparks region as well as to best prepare for continued advances in mobility technology.

Advancements in transportation technologies such as alternative fuels, connected and automated vehicles, and roadside infrastructure stand to change transportation networks worldwide. The RTC developed this plan to better prepare for continued growth in the alternative fuel and advanced mobility sectors. This plan investigates advanced mobility solutions that can be implemented in Washoe County to create a more convenient, connected, equitable, and sustainable transportation network. In addition, the plan:

- identifies existing policies and initiatives regarding advanced mobility and describes the current state of electric and alternative fuel vehicle infrastructure, connected vehicles, and mobility services across Washoe County;
- evaluates the impacts of alternative fuel and advanced mobility technologies on safety, air quality, equity, and the commercial fleet industry;
- discusses how to incorporate emerging technologies in travel demand modeling to inform transportation network planning; and
- provides guidance for the RTC in implementing the recommendations identified in this plan.

The final draft of the plan is currently available for review at https://www.rtcwashoe.com/mpo-projects/advanced-mobility-plan/.

FISCAL IMPACT

Funding for the Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan was included in the FY 2020 – FY 2022 Unified Planning Work Program (UPWP) and carried over to the FY 2022 – FY 2023 UPWP.

PREVIOUS BOARD ACTION

April 16, 2021	Approved the FY 2022 – FY 2023 UPWP
September 18, 2020	Approved the Professional Services Agreement (PSA) for the Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan
May 20, 2019	Approved the FY 2020 – FY 2021 UPWP

ADVISORY COMMITTEE(S) RECOMMENDATION

The Citizens Multimodal Advisory Committee met on November 3, 2021, and the Technical Advisory Committee met on November 4, 2021, and both committees received a presentation on the Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan.

ATTACHMENT(S)

A. Electric Vehicle and Alternative Fuel Infrastructure and Advance Mobility Plan

ATTACHMENT A

Regional Transportation Commission
of Washoe County

April 2022

Electric Vehicle and Alternative Fuel
Infrastructure and Advanced Mobility Plan

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1 Introduction

Advancements in transportation technologies such as alternative fuels, connected and automated vehicles, and roadside infrastructure stand to change transportation networks worldwide. To best prepare for continued growth in the alternative fuel and advanced mobility sectors, the Regional Transportation Commission of Washoe County (RTC) developed this *Electric Vehicle and Alternative Fuel Infrastructure and Advanced Mobility Plan*.

This plan investigates advanced mobility solutions that can be implemented in Washoe County to create a more convenient, connected, equitable and sustainable transportation network. It is divided into the following chapters:

- **Chapter 1** introduces this plan and its purpose.
- **Chapter 2** identifies the vision, mission, and goals of this plan.
- **Chapter 3** describes the outreach activities carried out during the development of this plan, including meetings with regional stakeholders and members of the public.
- **Chapter 4** identifies existing policies and initiatives regarding advanced mobility and describes the current state of electric and alternative fuel vehicle infrastructure, connected vehicles, and mobility services across Washoe County.
- **Chapter 5** evaluates the impacts of alternative fuel and advanced mobility technologies on safety, air quality, equity, and the commercial fleet industry.
- **Chapter 6** discusses how to incorporate emerging technologies in travel demand modeling to inform transportation network planning.
- **Chapter 7** identifies opportunities and recommendations that the RTC can implement as it works toward achieving its vision for the future of the regional transportation network.
- **Chapter 8** provides guidance for the RTC in implementing the recommendations identified in this plan.

This plan will guide the RTC to integrate emerging technologies and advanced mobility solutions into the regional transportation framework. Some of the recommendations identified in this plan were developed to be primarily under the control of and led by the RTC. Other elements would be led by various partner entities. Support from jurisdictional and agency stakeholders and the public will be an essential component of the RTC's success. This plan should be used by the RTC to encourage those partner groups to participate in preparing Washoe County for the future of transportation in Nevada and across the United States (U.S.).

2 Vision, Mission, and Goals

The plan vision, mission, and goals identify the needs of Washoe County and opportunities to best address them. They were developed in coordination with a stakeholder working group and reflect the needs of the Washoe County community at large.

2.1 Vision

The vision describes the future state of the transportation network that the RTC hopes to achieve. It aims to answer the question, "How will the region benefit from this plan?" Incorporating stakeholder input, the vision of this plan is to:

> *"Enhance transportation safety, efficiency, sustainability, and equity in Washoe County through the effective application of emerging innovative technology and mobility solutions."*

2.2 Mission

The mission describes the plan's purpose. It aims to answer, "What are we working towards?" The mission of this plan is to:

> *"Outline the steps necessary to design and integrate emerging innovative mobility solutions in Washoe County within the planned and existing transportation network."*

2.3 Goals

Goals are broad, qualitative statements regarding what the RTC aims to achieve. The strategies presented in this plan were developed to help the RTC reach its goals in support of its vision and mission.

1. **Support** electric and alternative fuel vehicle adoption by making charging and alternative fueling sites as accessible and convenient as gasoline fueling stations.
2. **Promote** advanced mobility solutions that benefit the broad range of Washoe County residents, visitors, and workers.
3. **Prioritize** equity when planning for the future of transportation in Washoe County.
4. **Improve** awareness of electric, alternative fuel, connected, and autonomous vehicles among individuals and businesses in Washoe County.
5. **Address** financial and other barriers to adopting emerging technologies for residents, visitors, and workers in Washoe County.
6. **Provide** an industry-leading transportation network that integrates emerging technologies to promote safe and efficient travel in and across Washoe County.
7. **Promote** the success of regional freight corridors in and through Washoe County by supporting and incorporating emerging technologies in the trucking industry.
8. **Identify** the impacts of advanced mobility solutions on travel behavior and understand how to integrate them into the planning process.

3 Outreach Activities

Community involvement and support was essential to RTC's development of this plan. To this end, a stakeholder working group was established to review progress and offer input into the opportunities and challenges associated with emerging technologies. The public was also offered the chance to review and comment on the plan during its development.

3.1 Stakeholder Working Group

The first stakeholder working group meeting was held on Tuesday, February 9, 2021. After receiving an overview of the plan's development, attendees were asked to join "breakout" groups to discuss the biggest mobility challenges in Washoe County and the barriers to implementing solutions. The groups noted that communications infrastructure may form a barrier to connected technologies, and that a data management plan should be developed to determine how to route and process incoming data efficiently and effectively. The cost of this infrastructure and data management was identified as a barrier to implementation, particularly because infrastructure would need to cover the rural areas that form much of Washoe County. Therefore, micromobility may be hard to implement outside urban areas, with the most success likely occurring in the Reno/Sparks downtown cores.

A second meeting was held with the stakeholder working group on Wednesday, May 5, 2021. Attendees were presented a summary of existing conditions related to advanced mobility and the impacts of advanced mobility on the future of travel in Washoe County. The working group was given the opportunity to comment on a set of preliminary goals, offering input on the language to best reflect both what Washoe County desires and what it can realistically accomplish. Other discussed topics included a new joint pilot project to automatically report infrastructure issues by using camera-equipped buses, building codes in relation to charging equipment installations, equity in access to emerging technologies, and the mobility needs and limitations of senior groups. Connectivity in rural and backcountry areas was identified as a concern, as was the importance of cultural sensitivity and accommodating Nevada's large Hispanic population. Opportunities identified by the working group include electric vehicle (EV) charging at gas stations; carsharing on academic campuses; inclusion of smaller groups that provide transit, such as faith-based groups; and technical training for seniors adapting to new technologies.

A third stakeholder working group meeting was held on Thursday, August 24, 2021, to discuss the preliminary recommendations for the plan. The working group asked questions and provided input on the recommendations. Much of the input was related to how the implementation of the recommendations can be a coordinated effort between the RTC and its partner agencies. This input was incorporated into the recommendations and an action plan to support their strategic implementation.

3.2 Public Review

A draft of this plan was available online for public review from December 30, 2021, to January 5, 2022. No comments were received; the plan was finalized following this review period.

4 Existing Conditions

To develop recommendations for the RTC for promoting and utilizing emerging technologies, it is important to understand current policies and initiatives at the local, state, and federal levels. It is also important to know the current state of electric and alternative fuel vehicle infrastructure, connected vehicles, and mobility services in Washoe County.

4.1 Policies and Initiatives

As new technologies emerge to solve today's transportation issues, governments and agencies must keep up by enacting legislation and initiatives to support and promote their adoption. Existing policies and initiatives in place relevant to Washoe County include:

Nevada Clean Diesel Program[1]

In 2008, the Nevada Department of Environmental Protection (NDEP) launched the Clean Diesel Program to help reduce emissions from the State fleet of publicly and privately owned diesel-powered equipment. The Clean Diesel Program has three fundamental goals:

- **Deliver** significant reductions in diesel emissions in terms of tons of pollution produced and diesel emissions exposure from vehicles, engines, and equipment operating in areas designated as poor air quality areas.
- **Reduce** the exposure of sensitive populations to the harmful components of exhaust emissions from diesel-powered vehicles.
- **Reduce** diesel emissions to help improve and maintain air quality in communities across Nevada.

The NDEP recently partnered with the Clark County School District and the City of Reno to support the early retirement and replacement of 11 program-eligible diesel-powered school buses and five program-eligible diesel-powered municipal service vehicles.

Electric School Bus Incentives[2]

The Electric School Bus Incentives program was designed to assist school districts in the Nevada Energy (NVE) service area to replace diesel engine school buses with battery electric school buses and to install supporting charging infrastructure. Compared to diesel, electric school buses have lower maintenance costs and avoid an average of 54,000 pounds of CO2 emissions per year. Inside air quality is also improved by a factor of six compared to diesel engine school buses. This program provides incentives that can cover up to 75 percent of the total cost to buy a new battery electric school bus and related charging infrastructure.

Since the start of 2020, NVE has collaborated with the NDEP to inform school districts about funding available through the Nevada Clean Diesel Program and Volkswagen Clean Air Act Civil Settlement fund. Washoe County School District (WCSD) is participating in the program and has applied for funding of two electric school buses and two fast-charging stations.

Volkswagen Settlement Funding[3]

The State of Nevada is receiving $24.8 million through the 2017 Volkswagen Clean Air Act Civil Settlement to fund projects that will offset the excess pollution emitted by Volkswagen vehicles across the state. The NDEP has allocated the maximum amount allowed under the Volkswagen Environmental Mitigation settlement (15 percent of the funds) to electric vehicle supply equipment (EVSE). Other potential actions identified by the NDEP include:

- **Facilitating** transformative change by prioritizing EV and EVSE projects rather than diesel replacements.
- **Prioritizing** Phase 2 allocations to electric models.
- **Maintaining** the maximum investment of 15 percent in EVSE.
- **Evaluating** the Beneficiary Mitigation Plan (BMP) funding priorities annually to account for increased EV availability.

Electric Vehicle Infrastructure Demonstration Program[4]

In 2019, Senate Bill 299 created the Electric Vehicle Infrastructure Demonstration (EVID) program that requires public utilities to submit an annual plan to the Public Utilities Commission of Nevada that identifies how they will carry out the program in their service area. The utility's plan is authorized to include measures that promote or incentivize the deployment of EV infrastructure, including, without limitation, the payment of an incentive to a customer of the utility that installs or provides the infrastructure.

The EVID program helps make residential EV charging more accessible, particularly for low-income residents and those living in apartments and condos, with new incentives offered by NVE. The developers of new low-income multifamily dwellings will receive the lesser of $10,000 per Level 2 charging port or 100 percent of the total project cost for two to four ports, with a maximum incentive per project of $40,000. The program had a total budget of $150,000 for 2020. In addition, the EVID program allocated funds for the Nevada Electric Highway program along US 95 between Las Vegas and Reno, with a maximum of $500,000 available per charging site.

Electrification Coalition Roadmap[5]

In 2020, the Electrification Coalition launched the State EV Policy Accelerator initiative to engage five states (Michigan, Nevada, North Carolina, Pennsylvania, Virginia) to develop a replicable model advancing EV adoption through policy and fleet-scale development. The effort would involve stakeholder convenings between state and local government officials with the intention of outlining a path forward to navigate roadblocks and address challenges.

The Electrification Coalition conducted the Nevada EV Policy Bootcamp on December 9, 2020, during which nearly 100 EV policymakers, industry experts, and advocates joined for a collaborative day-long session about how to accelerate adoption of EVs in Nevada. The bootcamp focused on national and industry trends for EVs, including national transportation electrification needs; local opportunities; the impacts of EVs on air quality and public health; and equity concerns. The discussion of local opportunities included the vision for EVs in Nevada, utilities involvement, and near-term policy actions.

Executive Order 2019-22 – Advancing Nevada's Climate Goals[6]

On March 12, 2019, the State of Nevada joined the U.S. Climate Alliance and committed to supporting the United Nations' climate goals established at the 2015 Paris Climate Change Conference. Executive Order 2019-22 set a primary goal to reduce greenhouse gas (GHG) emissions to 28 percent below 2005 levels by 2025 and to 45 percent below 2005 levels by 2030. It also called for a statement of policy options needed to reach the emission reduction goals. As part of the U.S. Climate Alliance, Nevada would implement policies to reduce GHG emissions, track and report progress on its efforts to achieve GHG emission reduction goals, and accelerate policies to reduce carbon pollution and promote clean energy deployment.

Clean Cars Nevada[7]

In June 2020, the NDEP announced the start of a rulemaking process to evaluate adoption of low- and zero-emission light-duty vehicle (LDV) standards. Nevada adopted the California Code of Regulations, which mandate that, beginning with the 2025 model year, all original equipment manufacturers (OEM) of passenger cars, LDVs, and medium-duty vehicles (MDV) produced and delivered for sale in the State of Nevada shall not exceed the fleet average GHG emission standards set forth in the Code of Regulations.

As part of the Nevada Climate Initiative, the Clean Cars Nevada program will help advance the State's climate change and sustainability goals. Two new programs are being proposed: A Low-Emission Vehicle (LEV) program and a Zero-Emission Vehicle (ZEV) program. The LEV program would require new (as of model year 2025) passenger cars, light-duty trucks, and MDVs sold in Nevada to meet certain emissions requirements that reduce emissions of GHG emissions and criteria pollutants, including carbon monoxide (CO), nitrogen oxide (NOx), volatile organic compounds (VOC), and hazardous air pollutants (HAP). The ZEV program would include three major initiatives: A ZEV credit requirement based on average annual sales; generation of ZEV credits by OEMs; and introduction of clean vehicle technologies, such as battery electric, hydrogen fuel cell (HFC), and plug-in hybrid electric vehicles (PHEV) by OEMs. The programs are currently going through a review of the draft regulation.

Federal Tax Credit[8]

The Qualified Plug-In Electric-Drive Motor Vehicle tax credit is available to taxpayers in Nevada for PHEV and ZEV purchases until OEMs meet a specified threshold of 200,000 vehicle sales per manufacturer. It provides a tax credit of $2,500 to $7,500 for new vehicle purchases, with the amount determined by vehicle size and battery capacity.

EV-Readiness in Building and Development Codes

Some efforts have begun to incorporate EV readiness in local agency codes in Washoe County. In 2020, the City of Reno proposed a Sustainability article be included in an update to the City Land Development Code. Though this article was not adopted in 2020, the City of Reno is expected to adopt it by April 2023. Other areas in Nevada, such as Clark County, have proposed code amendments to require EV readiness but have not yet adopted them.

4.2 Vehicle Sales

According to the Nevada Auto Outlook 2019, total LDV sales in Nevada declined by 4.7 percent through 2019, consistent with national trends[9]. Light-duty truck sales continued to gain an increasing share of the market, growing from 43.2 percent in 2012 to 67.8 percent in 2019. Sales of new hybrid and EVs represented 6.5 percent of the Nevada market share in 2019. Total sales were up 25 percent for low- and zero-emission vehicles through the beginning 2019 but dropped off rapidly later in the year.

The onset of COVID-19 in early 2020 and the consequent economic slowdown drove new vehicle registrations in Nevada down by 12.7 percent from January to July compared to the same period in 2019. In the first half of 2020, the share of hybrids, battery electric vehicles (BEV), and PHEVs declined slightly—by 0.5 percent or less—relative to the same time in 2019; however, sales continued to grow. Based on the increasing sales of light-duty ZEVs, there will be increasing demand for charging infrastructure. The RTC should work to accommodate future demand by planning for and siting new public charging stations across Washoe County.

4.3 Ownership Costs

Though the up-front cost of buying an EV can be higher, lower ownership costs often fully (or even more than) offset the difference. A Consumer Reports study found that ZEVs generally cost $6,000-10,000 more than their ICE counterparts at the point of purchase, but lifetime savings can add up to $7,000-17,000. Those savings come from reduced maintenance needs, the lower cost of charging versus fueling, and less depreciation in value.

Regarding maintenance, ZEV do not require oil changes, spark plugs, or timing belts, which reduces the chance of expensive fixes being needed over time. There are also significantly fewer moving parts in a ZEV, so less ongoing preventative maintenance is required. Brake pads typically last longer on ZEVs than on ICE vehicles, and all ZEV manufacturers offer at least eight-year warranties on the batteries, if not longer.

The U.S. Department of Energy (U.S. DOE) estimates that, based on current local fuel and electricity costs, ZEV owners in Nevada pay up to 78 percent less to charge than ICE owners do to fuel.[10] Additionally, although it is often assumed home charging will increase electricity costs, average savings over gasoline use are estimated at almost $800 per year.[11] In this way, removing barriers—particularly financial—to ZEV ownership can lead to lifetime savings.

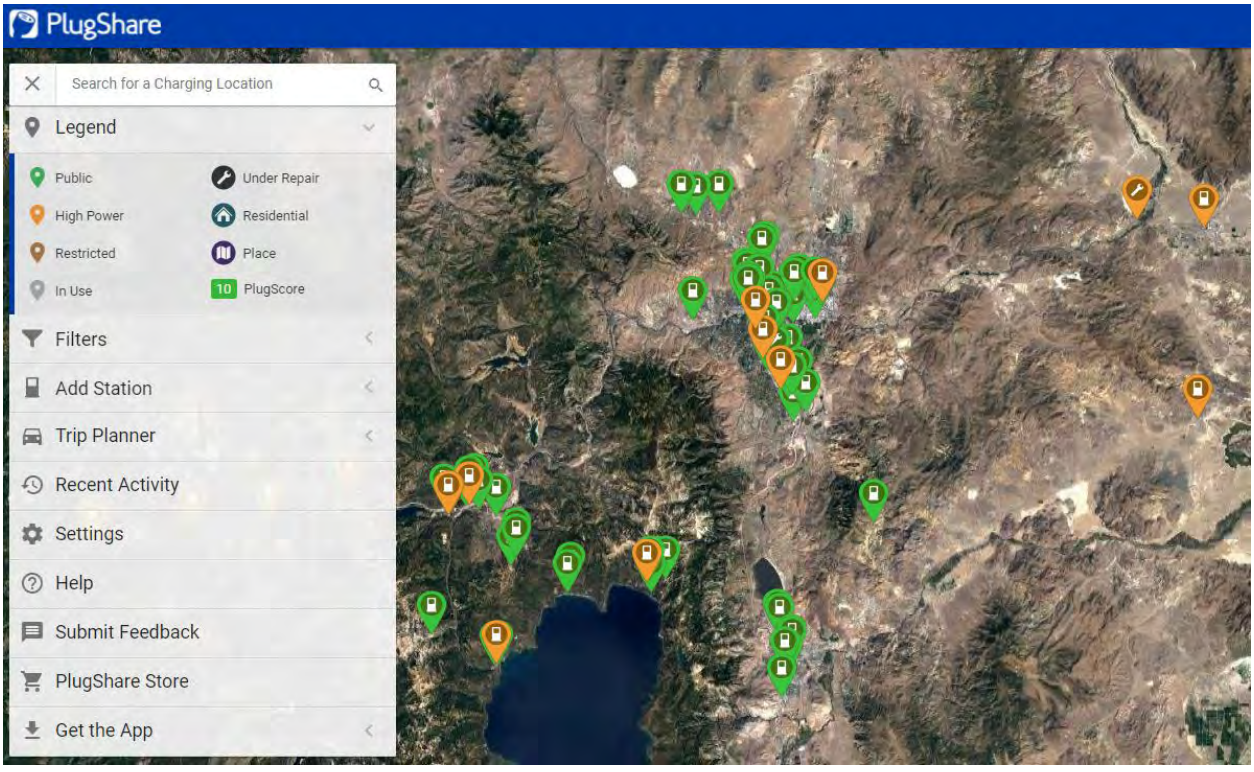
4.4 Charging Infrastructure

According to the U.S.DOE database as of February 15, 2020, there are 404 public alternative fuel stations in the State of Nevada, 94 of which are in Washoe County.[12] A breakdown of these stations by type is provided in **Table 1; Figure 1** shows the stations on a regional map.

Table 1: Washoe County Charging Infrastructure Inventory

Alternative Fuel Type	Number of Stations in Nevada	Number of Stations in Washoe County
Electric Vehicle Supply Equipment (EVSE)	380 (1,117 outlets)	90 (348 outlets)
Level 2	*316 (839 outlets)*	*82 (308 outlets)*
Direct Current Fast Charge (DCFC)	*72 (278 outlets)*	*8 (40 outlets)*
Hydrogen Fuel Cell (HFC)	0	0
Compressed Natural Gas (CNG)	3	1
Ethanol (E85)	10	0
Biodiesel (B20 and Above)	0	0
Liquefied Natural Gas (LNG)	0	0
Propane (LPG)	11	3

Figure 1: Washoe County Charging Infrastructure Map



Source: PlugShare

The State of Nevada plans to expand EV adoption across the state, not just in densely populated areas. The State and NV Energy have partnered to implement the Nevada Electric Highway (NEH) joint initiative to increase access to charging infrastructure between major urban centers.[13] The NEH represents the next phase in expanding charging infrastructure in Nevada to support EV owners. Completion of the NEH initiative is expected to help mitigate the range anxiety that EV owners often

feel with battery ranges that typically fall below the fuel range of an ICE vehicle. The NEH initiative was to be completed in 2020, but its status since the start of the COVID-19 pandemic is unknown. When it is done, the NEH will provide charging stations at the locations indicated in **Table 2**.

Table 2: Nevada Electric Highway Charging Station Locations

I-15	I-80	US 50	US 93	US 95
Primm	Fernley	Silver Springs	Coyote Springs	Shurz
US 93 Jct.	US 95 Jct.	Middlegate	Alamo.	Luning
Moapa	Lovelock	Cold Springs	Sunnyside	Mina
Mesquite	Mill City/Imlay	Austin	US 93A Jct.	Coaldale
	Winnemucca	Rest Area	Jackpot	Goldfield
	Battle Mountain	Eureka		SR 267 Jct.
	Carlin	NDOT ROW		Amargosa Valley
	Elko	Ely		Indian Springs
	Wells	US 93 Jct.		
	Oasis	Baker		
	West Wendover			

Once completed, the NEH will give BEV and PHEV drivers the freedom to travel the 450-mile route from Reno to Las Vegas, with charging stops along the US 95 corridor. As part of the NEH initiative, Nevada has also received acceptance from the U.S. Federal Highway Administration (FHWA) on designation of four strategic corridors as Alternative Fuel Corridors, including I-80, I-15, and US 50 in Washoe County.

Currently, there are no hydrogen refueling stations in Nevada. In contrast, in the State of California there were more than 40 retail liquid hydrogen stations as of 2019, and this number is expected to grow following the new 2035 zero-emissions mandate. The ongoing development of a regional freight route on I-80 connecting California, Nevada, and Utah through the Reno/Sparks area, combined with an expected shift in the freight industry to HFC, indicates an opportunity for the RTC to promote hydrogen to close a gap in the planned network.

In 2020, Air Liquide outlined its $200 million investment to build a new renewable liquid hydrogen plant and related logistics infrastructure in North Las Vegas.[14] With a capacity of nearly 30 tons of liquid hydrogen per day—an amount that can fuel 42,000 hydrogen fuel cell electric vehicles (HFCEV)—Air Liquide's hydrogen plant is expected to provide a reliable solution to the large-scale deployment of hydrogen mobility on the west coast. The plant will serve the complete range of ZEVs, from cars and buses to forklifts and heavy-duty freight trucks. When complete, the plan stands to offer significant support to the RTC in promoting hydrogen as an alternative fuel source in Washoe County.

Nevada has the largest lithium prospects in the U.S. and the only active lithium mine in North America, at Silver Peak.[15] Increasing global demand for battery production has prompted the mining industry to pursue an extraction enterprise at Thacker Pass, the largest known lithium resource in the country. Several entities are considering investments or have already secured rights to a lithium

claim in Nevada. According to the Lithium Americas 2018 annual report, Phase 1 of the Thacker Pass project is projected to have an annual production capacity 30,000 metric tons lithium carbonate equivalent (LCE) by 2022. Phase 2 (2026) is projected to have a capacity of 60,000 metric tons LCE per year.

4.5 Connected Vehicles

Advancements in connected vehicle (CV) technology have allowed vehicles to communicate with each other (vehicle-to-vehicle [V2V]) and roadside infrastructure (vehicle-to-infrastructure [V2I]) to improve operations and user safety by preventing dangerous situations. Automated vehicles (AV) use internal sensors to gather information about the vehicle's surroundings and operate in isolation. Connected automated vehicles (CAV) use a combination of on-board sensors and vehicle connectivity.[16]

V2V technology allows vehicles to transfer data within an ad-hoc "mesh network," or a network where a vehicle can "hop" between other vehicles to obtain data farther ahead than the range typically would allow.[17] V2V is expected to be more effective than today's systems, which rely on the functionality of on-board hardware.

V2I technology enables communications between vehicles and roadside infrastructure, such as radio frequency identification (RFID) readers, traffic lights, cameras, lane markers, lighting, signage, and parking meters. V2I is a wireless, two-way system that transfers information via Dedicated Short-Range Communication (DSRC) units. Using V2I technology, vehicles receive information on road conditions, crashes, construction zones, congestion, and parking spaces. Traffic management systems can use data originating from the vehicles to set variable speed limits and adjust signal phasing and timings to facilitate traffic flow.

V2V safety applications and the crash types they can address include:[18]

- Forward Collision Warning and Electronic Emergency Brake Light, for rear-end crashes
- Do Not Pass Warning and Left Turn Assist, for opposite direction crashes
- Intersection Movement Assist, for intersection crashes
- Blind Spot Warning/Lane Change Warning, for lane change crashes

Table 3: shows additional applications of CVs that can improve operations and safety.[19]

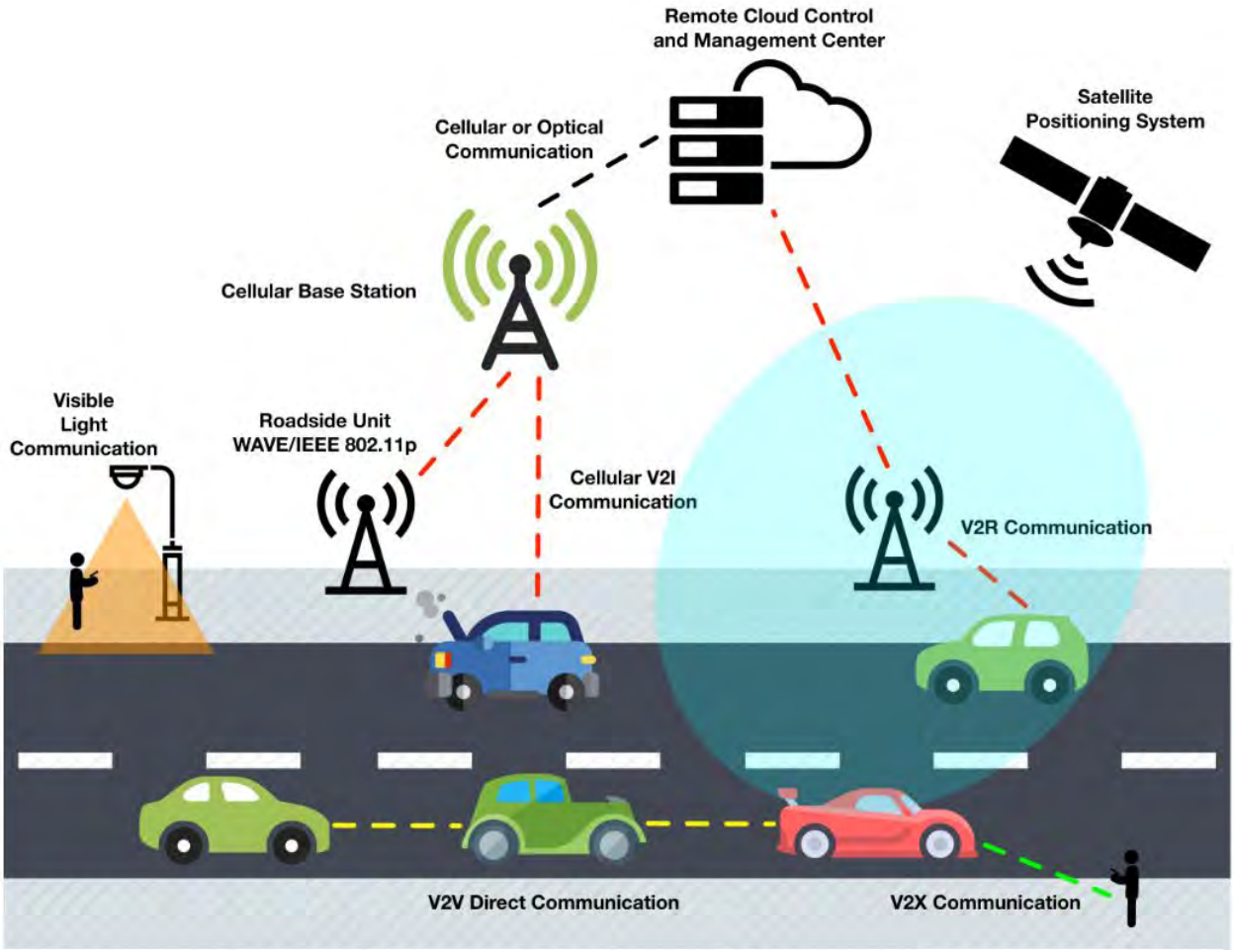
V2V Safety	Agency Data/ Enviornment	Smart Roadside/Mobility
Emergency Electric Brake Lights (EEBL)	Probe-based Pavement Maintenance	Wireless Inspection
Forward Collision Warning (FCW)	Probe-enables Traffic Monitoring	Smart Truck Parking
Intersection Movement Assist (IMA)	Vehicle Classification-based Traffic Studies	Intelligent Traffic Signal System (I-SIG)
Left Turn Assist (LTA)	CV-enabled Turning Movement & Intersection Analysis	Signal Priority (transit, freight)
Blind Spot / Lane Change Warning	CV-enabled Origin-Destination Studies	Cooperative Adaptive Cruise Control (CACC)
Curve Speed Warning	Work Zone Traveler Information	Guidance for Emergency
Do Not Pass Warning (DNPW)	Dynamic Eco-Routing (light, vehicle, transit, freight)	Emergency Communications and Evacuation (EVAC)
Vehicle Turning Right in Front of	Low Emissions Zone Managment	Connection Protection (T-CONNECT)
Buss Warning (transit)	Eco-ICM Decision Support System	Freight-Specific Dynamic Travel
Queue Warning (Q-WARN)	Eco-Smart Parking	Emergency Vehicle Preemption (PRE-EMPT)

Source: Kore University, 2019

The Institute of Electrical and Electronics Engineers (IEEE) 802.11p Standard was explicitly introduced to support Wireless Access in Vehicular Environments (WAVE) and is intended to facilitate V2V and V2I communications. Data rates can range from 6 to 27 Megabits per second (Mbps) with a short transmission range of approximately 1,000 feet. Cellular technologies have also been evaluated, specifically Long-Term Evolution (LTE) which offers download rates of 300 Mbps, upload rates of 75 Mbps, and a transmission range of around 60 miles. Other current protocols include Bluetooth and IEEE 802.15.4/ZigBee.

Vehicle-to-everything (V2X) technology encompasses V2I and V2V, as well as vehicle-to-pedestrian and vehicle-to-grid communications (**Figure 2**). Many technologies exist, but each has its limitations. Current limitations can be overcome with a Bluetooth Low Energy (BLE)-based approach and utilizing the emerging U.S. 5G network. Implementation of V2X will require partnerships between vehicle manufacturers and local and state transportation agencies to fund initiatives and infrastructure, as well as joint innovation and cross-industry collaboration. New Intelligent Transportation System (ITS) technologies will need to be integrated effectively with mobile networks and will need to be applied on less frequented roads, like those in rural areas, to cover entire states. This will be important in Nevada, which, outside of its urban areas, is largely rural and not densely populated. Examples of ITS applications in rural areas include intersection, animal, and oncoming vehicle warning systems. All these examples require a combination of sensors and active signage and, if CVs are included, the ability to transmit large amounts of data at rapid speeds.

Figure 2: Vehicle-to-Everything (V2X) Technologies



Source: Kore University, 2019

Connected vehicles create up to 25 gigabytes of data per hour, which cannot be supported by current rural networks. As of 2018, nearly 40 percent of the 60 million Americans living in rural areas lacked access to the minimum broadband standard set by the Federal Communications Commission (FCC).[20] Broadband and 5G service will need to be expanded to the less densely populated areas of Nevada to support statewide access to the benefits of CAV technologies. Agencies may consider requiring installation of fiber and/or other network-related infrastructure during roadway construction and rehabilitation projects to support more rapid expansion.

Daimler is expected to begin production of mostly autonomous (Level 4) AVs in 2025 to be used by transportation network companies (TNC), taxi services, and delivery services, but only in limited, defined areas ("geofencing").[21] As of 2020, it was estimated there is only a 50 percent chance that fully automated (Level 5) AVs are market-ready by 2040. During this long transition period, it will be necessary to track the impacts of AVs on road operations and safety, particularly at lower adoption levels. It is possible that these aspects are negatively impacted at first, then positively impacted as the prevalence of AVs grows.

Green Light Optimized Speed Advisory (GLOSA) systems provide timely information to drivers about traffic signal timings and locations so they can adjust their speed to stop less often at traffic signals.

The goal is to provide more uniform travel by optimizing and smoothing traffic flows on arterial streets, improving travel time consistency, and reducing vehicle emissions. If signal timings are fixed and known, a reduction in stopped delay of more than 50 percent could be achieved.[22] With fixed timings, a GLOSA system could offer a 27 percent reduction in overall delay and a 46 percent reduction in the number of stops. However, implementing GLOSA along an actuated-coordinated signal system could result in anywhere from just a 3 percent reduction to a 13 percent increase in stopped delay. Fuel consumption savings begin to increase at approximately 30 percent adoption and when speed advisory data is transmitted at least every five seconds.

The benefits of GLOSA systems are primarily achieved at low traffic densities where fuel savings and emissions reductions are estimated at up to 12 percent, waiting times at 17 percent, and stops at 6 percent.[23] The benefits increase linearly with the number of equipped signals and vehicles but decrease at higher densities when more unequipped drivers are present and block signals, which forces equipped vehicles to stop.

4.6 Mobility Services

The RTC currently offers eight transportation programs to promote mobility for Washoe County residents, visitors, and workers. The RTC RIDE service is the public transit system of the greater Reno/Sparks area with 24 fixed bus routes. The remaining seven programs offer service in areas where the RTC RIDE service is not immediately available.

- **RTC ACCESS—**A paratransit service providing prescheduled, door-to-door transportation for people meeting the ADA eligibility criteria. Service is provided so long as the trip origin and destination are within 3/4-mile of a "regular" fixed-route RTC RIDE service. RTC ACCESS does not operate where or when RTC RIDE does not operate.
- **RTC FlexRIDE—**A curbside-to-curbside public transit service for some areas ("zones") outside the RTC RIDE coverage area. As of October 2020, service was available in parts of the North Valleys, the Sparks/Spanish Springs area, and Somersett/Verdi.
- **RTC Smart Trips—**A free service to support local businesses in encouraging employees to use alternative modes of transportation like public transit, bicycling, walking, car and vanpooling, and telecommuting. Businesses may be eligible for federal tax deductions and employees get a tax-free benefit. The Bus Pass Subsidy Program matches an employer's contribution toward monthly bus passes up to 20 percent.
- **RTC Trip Match—**A free, web-based trip matching program for the Truckee Meadows area. Users can enter travel preferences and receive help with carpools, biking, walking, and finding "bus buddies." The program is run under RTC Smart Trips in partnership with Greenride.
- **RTC Vanpool—**A subsidized program that promotes ridesharing. A commuter van is driven by one member of a group, who picks up and drops off passengers at agreed upon locations and times. Riders share expenses and up to $3.60 per person per day is subsidized by RTC. The program is run under RTC Smart Trips and is available in the Truckee Meadows area.
- **Washoe Senior Ride—**A subsidized taxi program for residents over 60 years old, any RTC ACCESS client, and veterans. The program is funded by 1/4-percent of the County sales tax allocated for public transportation. Each month, up to $60 in fares can be bought for $15.

- **Uber Rides Pilot Program—**A subsidized pilot program for residents over 60 years old, RTC ACCESS clients, and veterans. In August 2020, RTC entered into an agreement with Uber for a one-year pilot program modeled after the Washoe Senior Ride program. RTC subsidizes 75 percent of fares up to $9 for Uber trips starting and ending in the Reno/Sparks area, up to 5 trips per month. Service is available 24/7/365.

4.7 Pilot Programs and Studies

The Nevada Department of Transportation (NDOT) and the RTC have worked with numerous partner groups to initiate pilot programs and studies for the future of transportation in Washoe County. These include electric buses and autonomous buses, communications-equipped fleet vehicles, and roadway and roadside connected infrastructure.

RTC Electrification and Connected Technologies

The RTC was one of the first transit agencies in the country to place electric buses into revenue service. In 2010, the FTA awarded the RTC a grant for $4,650,523 to support its Electric Bus Initiative through the Transit Investment for Greenhouse Gas and Energy Reduction (TIGGER) II program.[i] The RTC introduced its first four Proterra electric buses in April 2014 and saw a diesel fuel savings of nearly 52,800 gallons in the first two years of operation. With all 15 pilot buses in operation, a total fuel savings of over 2,136,700 gallons was estimated, equating to nearly $5.1 million in cost savings. An additional savings of $4.2 million was estimated due to the reduced maintenance needs of electric buses. This project has also enabled a reduction in utility demand charges associated with charging electric buses, further reducing costs for the RTC. The total savings attributed to the 15 pilot electric buses are expected to reach $10.4 million.

In December 2020, the RTC received a $131,661 research grant from the U.S. Federal Transit Administration (FTA) to demonstrate real-time transit infrastructure monitoring in the City of Reno.[ii] The funding is being used in collaboration with University of Nevada Reno (UNR) to install a monitoring system that uses 3D imaging, cameras, and light detection and ranging (LiDAR) equipment to assist the RTC in maintaining its transit system in a "state of good repair." The RTC and UNR are implementing a digital model of the RTC's transit assets citywide, including bus stations and other infrastructure. Sensors are being used on assets and RTC buses to track, identify, and address maintenance issues quickly.

Northern Nevada Intelligent Mobility Living Lab

NDOT is coordinating with the Northern Nevada Intelligent Mobility Living Lab to learn how to use big data in new technologies, and the UNR has worked with the RTC to use state-of-the-art electric buses that are instrumented with several systems to gather and integrate roadway data.[26] The Nevada Intelligent Mobility Project has used Virginia Street in Downtown Reno as a living lab to test vehicle communications using the RTC's electric buses from Proterra.[27] The project aims to determine what sensors and communication tools are needed to enable full automation in cities. The buses have been outfitted with sensors and cameras, and streetlights have been equipped with radios monitoring conditions at intersections ahead. The data will be used to develop perception algorithms that paint a picture of the travel environment around a vehicle.

The RTC has coordinated with UNR to install 360-degree LiDAR equipment along Virginia Street in Downtown Reno.[28] While conventional systems like loop and video detectors and Bluetooth sensors provide macro traffic data, do not measure vehicle trajectory, and can only provide averaged data, LiDAR sensors can detect objects with high accuracy and frequency in a range of lighting conditions.

This project used Velodyne's 360-degree "Ultra Puck" LiDAR sensors, which are cost-efficient and commercially available on the market. One or two sensors were installed on the existing traffic signal poles at eight intersections on Virginia Street and at one along McCarran Boulevard.

UNR reported the most significant achievement of the project was implementation of LiDAR-based automated Rectangular Rapid Flashing Beacons (RRFB) along Green Valley Parkway near Henderson, Nevada. Benefits of these are the collection of 24/7 traffic trajectory data and controlling the RRFB flashing. The sensors can perform traffic data collection, assist in adaptive network control, detect and record jaywalking events, and broadcast information and safety messages to CAVs. UNR found that vehicle accuracy was over 95 percent, and pedestrian accuracy was 99.5 percent. UNR is looking to provide data services to agencies, including 24/7 volume classifications, vehicle speeds, and time-space diagrams for signal efficiency improvements. This is an opportunity for the RTC to collaborate further with UNR to improve operations and safety along Washoe County roadways.

NDOT Integrating Mobile Observations Pilot Program

NDOT's launched the Integrating Mobile Observations (IMO) pilot program in 2011 that aimed to improve road safety, reliability, and mobility during winter weather events. Phase I utilized an Enhanced Digital Access Communication System (EDACS) radio system for communications. Phase II added cellular capabilities which often replaced EDACS. In Phase III, NDOT added DSRC devices to vehicles. Each vehicle equipped with multiple technologies can switch to the most effective one based on location. Challenges and their solutions identified in the case study are shown in **Table 4**. The study concludes that hybrid communications can reduce cost, leverage existing connections, and improve data access for Road Operations Centers (ROC). DSRC can be used as a cost-effective solution to augment existing communications capabilities.

Table 4: Washoe County Charging Infrastructure Inventory

Challenge	Challenge Description	Solutions
Customization	Custom software and hardware are difficult to develop, test, and maintain.	Use well-tested, commercially available software/hardware.
Infrastructure	Component configuration, addressing, and firewalls during initial setup.	Involve IT personnel with networking expertise, especially in initial setup.
Security	Vehicle network protection requires firewall, encryption, etc.	Back-end firewall, two-factor authentication, and encrypted communication.
Protocol	Newer IPv6 protocol is needed for DSRC but not all components support it.	Possible to circumvent using WAVE short message protocol or current IPv4.
Costs and Coverage	Cellular data plan costs and coverage, especially in rural areas.	Choose plans that share data usage across many devices.
Costs of Wear and Tear	Uses like snowplows are demanding on equipment.	Use rugged, not consumer-grade, components when needed.
Rural Coverage	Range of each DSRC leads to delays when transmitting long distances.	Evaluate cellular providers/plans with coverage in rural areas.

Source: Nevada Department of Transportation

Snowplow Hybrid Communications Platform Pilot Program

The U.S. Department of Transportation (USDOT), NDOT, UNR, and the National Center for Atmospheric Research (NCAR) tested a variety of communications methods between snowplows in the Tahoe/Reno/Carson City area. A Hybrid Communications Platform allowed vehicles to communicate with each other and with roadside DSRC units. The plows collected information from Road Weather Information System (RWIS) field units and shared this information with motorists through Dynamic Message Signs (DMS), traffic-focused mobile applications, and vehicle displays.

Las Vegas Autonomous Vehicle Testing

Since 2018, the joint venture Motional has tested AVs along the Las Vegas Strip, providing over 100,000 rides to date through its partnership with Lyft. Vehicles were accompanied by a safety driver who could take control if needed; however, as part of the next phase of the program, the Nevada Department of Motor Vehicles endorsed Motional to expand its geographic spread and operate its vehicles without a safety driver in November 2020.[29] The inaugural testing of the driverless vehicles began in February 2021. The RTC should consider adapting this approach to introducing AVs along Washoe County roads by beginning to develop partnerships, identify potential pilot corridors, and increase public comfort with AV technology.

Nexar Vehicle-to-Vehicle Mobile Application

Nevada is the first statewide launch of Nexar's V2V system through use of its mobile application. The system provides real-time alerts to help prevent crashes by recording video outside the vehicle and measuring vehicle dynamics. Warnings from adjacent vehicles can be communicated to other drivers through the application.[30]

5 Impacts of Advanced Mobility and Alternative Fuels

Technological advancements, such as alternative fuels and CAVs, stand to dramatically change the transportation framework in Washoe County, in Nevada, and across the U.S.. Impacts to safety, air quality, and equity must be considered as the RTC prepares for the future. With important regional freight corridors passing through Nevada, such as I-80 through the Reno/Sparks metropolitan area, it is also important to consider the impacts that changing vehicle technologies will have to the freight industry.

5.1 Safety

According to the USDOT, connected vehicles will change the way Americans travel "through the creation of a safe, interoperable wireless communications network—a system that includes cars, buses, trucks, trains, traffic signals, smartphones, and other devices."[32] They estimate that connected vehicle safety applications, such as Red Light Violation Warning and Pedestrian in Signalized Crosswalk Warning CV features, could address more than 250,000 crashes and 2,000 fatalities per year, and that the Curve Speed Warning feature could address more than 169,000 crashes and 5,000 fatalities per year. The National Highway Traffic Safety Administration (NHTSA) evaluated a scenario where 100 percent of vehicles were equipped with Left Turn Assist and Intersection Movement Assist and found that at full adoption the two technologies combined could prevent nearly 600,000 crashes and save over 1,000 lives per year.[33] Intersection Movement Assist specifically accounts for approximately 90 percent of the reductions. NHTSA estimates that the total cost passed on to each consumer for V2V-enabled vehicles would be around $350 (2014), decreasing over time to around $220 by 2058.

AV technologies are also gaining prevalence; when combined with V2V/V2I applications, even more significant safety benefits can be achieved. Each CAV safety application can generally be tied to the crash type(s) it aims to address (**Table 5**).[34] A study from the University of Texas at Austin found that 90 percent deployment of the full suite of AV measures may reduce crash costs in the U.S.by $126 billion per year and save nearly 2 million functional life-years.[35] (Functional life-years are those which are healthy and productive. Savings are a combination both severe/debilitating injuries and fatalities avoided.) The greatest potential was found in the combination of Forward Collision Warning and Cooperative Adaptive Cruise Control, which together could result in an annual economic savings of over $53 billion and almost 500,000 life-years saved per year. This suggests that the two technologies may merit priority deployment; agencies should work with OEMs to develop incentives and policies to promote adoption of these features. Cooperative Intersection Collision Avoidance Systems were also found to have significant benefits, with the potential to offer an annual economic savings of over $22 billion and nearly 1.24 million life-years saved per year.

Table 5: Crash Types and Related CAV Applications

Crash Type/Cause	CAV Safety Application
Rear-End	Forward Collision Warning Automatic Emergency Braking Cooperative Adaptive Cruise Control
Non-Compliance	Cooperative Intersection Collision Avoidance (combination of Intersection Movement Assist, Red Light/Stop Sign Violation Warning)
Same Direction	Blind Spot/Lane Change Warning
Opposite Direction	Do Not Pass Warning
Roadway Departure	Road Departure Crash Warning (combination of Lateral Drift Warning and Curve Speed Warning) Lane Keeping Assist
Roadway Obstruction	Electronic Stability Control
Reversing	Backup Collision Intervention
Bicycle/Pedestrian	Pedestrian in Signalized Crosswalk Warning V2Pedestrian/V2Pedalcyclist

Source: University of Texas at Austin, 2018

5.2 Air Quality

Today's transportation sector accounts for 23 percent of worldwide GHG emissions and 28.5 percent of U.S. GHG emissions.[36] In 2016, transportation-related CO2 emissions surpassed those from the electricity production sector for the first time; this rapidly increasing trend is the fastest of any GHG-emitting sector. Annual transportation-sector emissions are projected to double by 2050 without any mitigation. To offset this, tailpipe emissions must be a key focus of mitigation efforts.

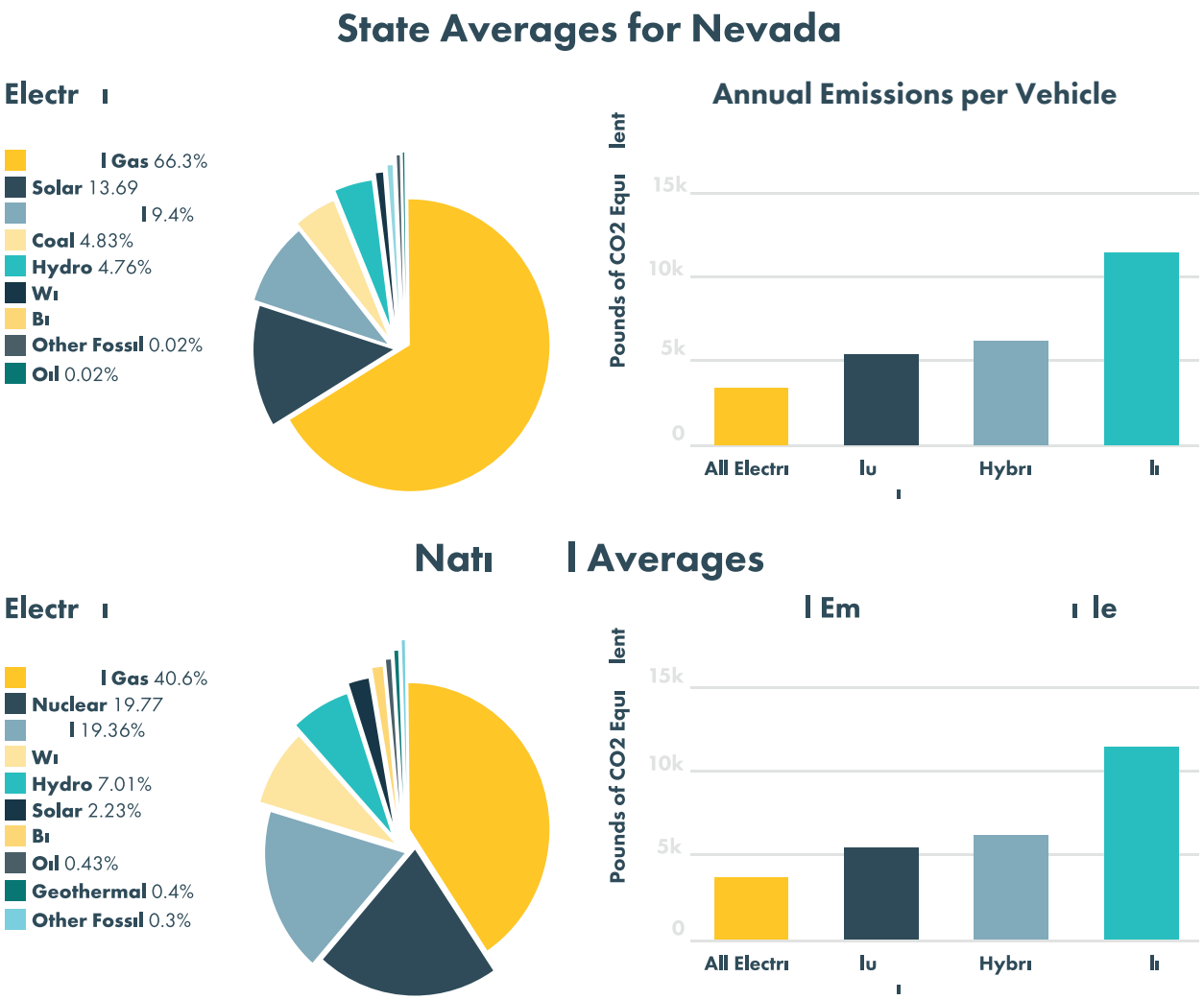
Emerging technologies, such as electric, alternative fuel, and CVs are expected to reduce fuel consumption, in turn reducing harmful vehicle emissions. Vehicle emissions can be air pollutants, which contribute to smog, haze, and health problems, and GHG emissions. Traditional vehicles produce emissions directly from the tailpipe and through evaporation from the fuel system and during fueling. EVs on the other hand produce zero direct emissions. PHEVs produce no direct emissions when in all-electric mode, but still produce evaporative emissions.

According to the U.S. DOE, using compressed natural gas (CNG) to power vehicles can reduce lifecycle GHG emissions by 15 percent, or up to 84 percent if renewable natural gas (RNG) is used.[37] EV and HFCEV lifecycle GHG emissions are mostly derived from the energy production process; depending on the energy source used lifecycle emissions they can be anywhere from significantly lower than to nearly the same as gasoline-powered vehicles. Hydrogen production, for example, can reduce GHG emissions to zero or it can increase them by 20 to 60 percent relative to ICE vehicles if typical U.S. energy production mixes are used.

The U.S. DOE website provides a calculator showing annual emissions by vehicle type per state versus the national average (**Figure 3**). Nevada is generally in line with the average, but EV and

PHEV well-to-wheel emissions are lower than the average by up to 400 pounds of CO2 equivalent. This is due to its minimal reliance on coal (favoring natural gas instead) and high use of solar and geothermal energies.

Figure 3: Emissions per Vehicle by Electricity Source



Source: U.S. Department of Energy, 2021

The Clean Air Act of 1975 (CAA) and Clean Air Act Amendments of 1990 identify air quality standards for each state. The CAA sets increasingly stringent standards over time until each area is redesignated to "attainment." To date, Washoe County's designations for CO2 and PM10 emissions have been updated from "nonattainment" to "maintenance." Under current policies, it is estimated Nevada can reduce its GHG emissions by 24 percent by 2025 and 26 percent by 2030, falling short of statewide GHG emissions reduction goals. The Nevada Climate Initiative aims to increase the pace of these reductions by identifying and planning for new climate policies. In addition, all local jurisdictions have adopted an Ozone Advance Plan that aims to improve air quality and avoid a "nonattainment" designation for the region.

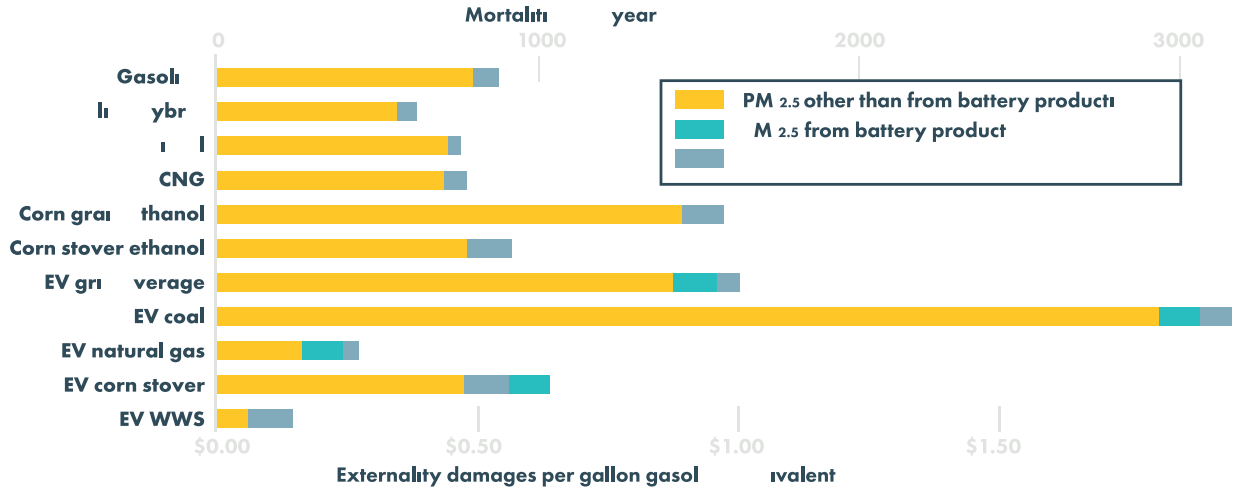
A 2014 study from the University of Minnesota Twin Cities estimated the impacts on air quality if 10

percent of vehicle miles were driven in gasoline-powered, gasoline hybrid, diesel-powered, CNG, ethanol, and electric vehicles.[38] Air quality impacts were measured in well-to-wheel emissions of fine particulate matter (PM2.5) and ground-level ozone (O3). The estimated emissions include tailpipe exhaust, electricity production, natural gas compression, and battery production. EV emissions were measured for multiple scenarios using different energy sources, including the projected 2020 U.S. average generation mix of coal, CNG, corn, and wind/water/solar. The study estimated the increase or decrease in mortalities expected for each scenario compared to a baseline of gasoline-powered vehicles.

As shown in **Figure 4**, the gasoline-powered baseline scenario results in 870 deaths per year. Estimates for the EV scenarios ranged from 230 deaths per year using wind/water/solar to 3,200 per year using coal. The gasoline hybrid, natural gas EV, and wind/water/solar EV scenarios showed decreases in air quality-related health impacts of 30, 50, and 70 percent,

respectively. In contrast, the ethanol, U.S. grid average EV, and coal EV scenarios showed increases of 80, 200, and 350 percent, respectively.

Figure 4: Mortalities per Year by Vehicle Type



Source: University of Minnesota Twin Cities, 2014

A 2018 study from the University of Michigan summarized the key environmental impacts of CAVs at various levels of transportation.[39] At the vehicle level, lower-level automation can result in 20 percent fuel savings and reduced emissions through increased efficiency. Full automation can increase this by an additional 5 to 7 percent, or up to 17 percent for fleet vehicles. Increased CAV penetration will lead to increased fuel savings, lower travel times, and reduced emissions. One study found that even a single CAV on the road can dampen stop-and-go traffic patterns and provide up to a 40 percent reduction in total traffic fuel consumption. Connected heavy-duty trucks, which can platoon at decreased headways, could result in drag reductions of up to 15 percent and consequent fuel and emissions savings. The RTC should continue its evaluation of autonomous buses and their benefits to fuel consumption and vehicle emissions.

At the transportation system level, CAVs could increase roadway capacity by 80 percent and reduce fine particulate matter emissions in urban areas by up to 15 percent. Studies show that using shared autonomous vehicles (SAV) could allow for reductions in fleet sizes because of the efficiencies associated with them. This could result in reduced congestion, increased highway capacity, and

lower emissions. Reduced congestion can generally be linked to a reduction in crashes, particularly those associated with stop-and-go traffic, such as rear-ends. Finally, at the urban system level, CAVs could allow for up to a 30 percent reduction in road lighting (if other safety concerns are not present). For example, streetlights could remain off or dimmed to save power and activate only when a CV is approaching. In tandem with widespread deployment of CAVs, this could yield a savings of $1.65 billion per year. CAVs can also reduce parking needs by an average of 67 percent, providing environmental benefits associated with less pavement and fewer spaces influencing mode choice. The RTC may consider planning for less parking (or shared parking) in the future to take advantage of CAV technology and help influence travel decisions. Parking structures and lots can potentially be transformed through adaptive reuse into residential, office, and/or retail spaces.

5.3 Equity & Inclusion

According to a University of Michigan study, at the society level, CAVs will expand mobility for people with unmet travel needs, such as the disability community and senior groups, offering significant equity benefits.[40] It is estimated that this unmet demand is equal to about 14 percent of the current U.S. vehicle miles traveled (VMT), equating to about 295 billion additional VMT. Agencies and governments should work together to develop pilot programs for CAVs that focus on fostering independence and improving mobility for these groups.

According to the Bureau of Transportation Statistics, 40 percent of disabled persons report difficulty accessing needed transportation. The Ruderman Family Foundation estimates that about 11 million medical appointments are missed every year by people with disabilities due to inadequate transportation.[41] Expanding accessible transportation for this community could enable proactive care, reducing health care expenditures by an estimated $19 billion annually. It would also enable new employment opportunities for two million individuals with disabilities.

The U.S. Department of Commerce estimates that 15.5 million workers work in fields that could be affected negatively by increasing adoption of CAVs. Unemployment has economic and social consequences; one mitigation measure is to help workers transition to sectors that will expand with CAV penetration. Job displacement due to the ongoing growth of alternative fuels can be partially mitigated in a similar fashion.

There is a significant cost barrier for consumers, fleet owners, and agencies looking to enter the EV, AFV, and CAV markets. Financial incentives are key to overcome the affordability barrier for ZEVs and to expand the early market. Equity approaches include increased rebates for low- and moderate-income households, incentives for vehicle replacement, and rebates for used ZEVs.[42] To improve access for low-income households, financial incentives can be provided at the point of sale. Funding should also be dedicated to community-led outreach to build trust between governments and communities like low-income families and non-English speakers. It will be critical to assess how mobility is approached by different populations rather than simply assuming private ZEV ownership for all. Agencies may choose to focus on lower-cost options, such as E-bikes, E-scooters, buses, and carshares.

Charging infrastructure can often be viewed by some groups as a symbol of displacement and gentrification, and acceptance is closely linked with equitable vehicle access. Agencies must consult with communities about barriers and mobility needs, then work backwards. Targeted investment in high-pollution areas can demonstrate benefits and increase community support. EV readiness (e.g., pre-wiring for future private charger installations) is critical to reduce costs, and EV-ready building codes are essential to support equitable investment.

Equity is measured both in access to ZEVs and CV technologies and in access to the benefits they

provide. For example, the air quality benefits related to ZEVs will be seen most significantly in areas where they are most widely adopted because localized emissions will likely decline. However, if ZEVs and charging infrastructure are not accessible to historically

disadvantaged populations (e.g., people of color, immigrant communities, rural communities), those communities will be less likely to experience those lower emissions. As a transit provider, the RTC has an opportunity to focus its initial fleet replacement efforts on buses used on routes serving historically disadvantaged populations.

Inclusive ZEV access will maximize the economic benefits of electrification for all. In Portland, Oregon, the local utility (Portland General Electric [PGE]) has partnered with Forth Mobility to help low-income ride-hail drivers secure fair financing for ZEVs.[43] Combined with standard state and federal rebates and PGE's free public charging program, ride-hail drivers can see large savings when choosing a ZEV over a traditional ICE vehicle. The re-entry community, or those coming out of the criminal justice system, and other marginalized groups are opportunities to meet market and economic growth goals. Workforce development should be prioritized; an example is Portland's Clean Energy Fund, which focuses on low-income communities and communities of color and offers job training in growing markets. Education and outreach will be crucial in promoting ZEV adoption in Nevada's rural areas.

As shared mobility and CAVs reshape the nation's transportation framework, there is an opportunity for agencies to address the inequities of America's long-standing approach to transportation. A 2017 brief from the University of California Davis prioritized four equity concerns related to EVs, CAVs, and shared mobility: cost, access, public health, and employment.[44] The brief identifies strategies governments and agencies may consider in addressing these four priority issues, specifically those that stand to benefit low-income, mobility-challenged, and other historically disadvantaged communities. **Table 6** summarizes the recommended strategies in relation to the issue they aim to address.

Table 6: Strategies Toward Promoting Equity

Issue	Strategy
Disadvantaged communities are not strongly engaged in issues of shared mobility and have difficulty affording or accessing infrastructure related to EVs.	• Engage disadvantaged communities in transportation planning. • Evaluate equity goals and policy impacts using the priority issues above. • Support demonstration projects and spread information. • Create support networks assisting in overcoming shared mobility barriers.
Disadvantaged communities face financial, technological, language and cultural barriers to shared mobility.	• Support demonstration projects, such as automated or electric bus pilots. • Develop accessible platforms for households without bank accounts, credit cards, or online payment systems, such as a membership card or mobile application.
Shared mobility is not always the priority in planning.	• Enforce and/or expand High Occupancy Vehicle (HOV) laws to reduce congestion in shared mobility lanes. • Convert mixed-flow lanes on highways and in urban areas to shared mobility lanes. • Analyze how shared mobility and CAVs can more efficiently use road and parking space and how some can be reallocated to multimodal transportation.
Shared mobility may replace transit in some places without accounting for the resulting barriers to disadvantaged communities.	• Reexamine transit routes and subsidies for low-income riders to serve populations more efficiently

Source: North American Council for Freight Efficiency, 2020

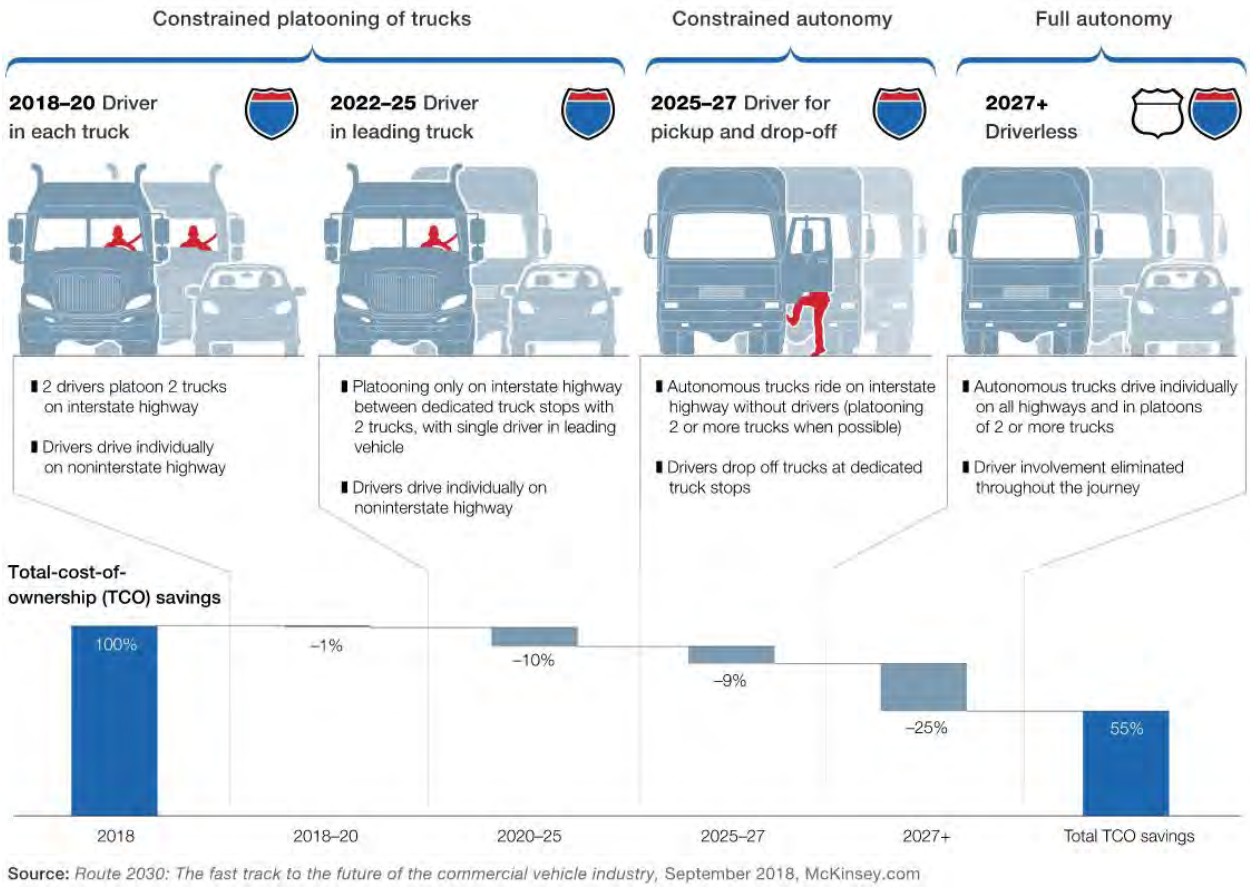
5.4 Freight and Commercial Fleets

Today, 65 percent of America's consumable goods are trucked to market. With full deployment of autonomous trucks (AT), operating costs would decline by about 45 percent, resulting in a savings for the trucking industry of between $85 billion and $125 billion.[45] ATs could also spur consolidation of the national trucking fleet, alleviate the existing capacity crunch, and create opportunities for truck OEMs to enter new markets.

The first two anticipated waves of AT deployment (2018-2025) will introduce "platooning," which allows a convoy of trucks to connect to a lead truck with a driver (**Figure 5**). In the first wave, there will be a driver in each truck; in the second wave, following vehicles will be driverless. Once the vehicles leave the highway, drivers will take control of the truck. Total operating costs per vehicle

will drop by about 10 percent due to fuel and labor cost reductions. In the third wave, "constrained autonomy" will be introduced, where ATs are deployed within "geofenced" areas without platooning. Drivers will take control of the trucks at interstate exits, saving an additional 10 percent of operating costs. In the fourth wave, fully autonomous operations from loading to delivery will begin, resulting in a 45 percent cost reduction.

Figure 5: Phases of Commercial Freight Vehicle Automation



Source: *Route 2030: The fast track to the future of the commercial vehicle industry*, September 2018, McKinsey.com

Source: McKinsey & Company, 2018

In July 2020, 15 states and Washington, D.C. signed a Memorandum of Understanding (MOU) targeting 30 percent of new medium- and heavy-duty truck sales to be ZEVs by 2030 and 100 percent of new sales to be ZEVs by 2050.[46] The State of California has implemented regulations requiring ZEV trucks to account for 5 percent of the trucking market in 2024 and 40 percent in 2032, and an Executive Order states a goal of all medium- and heavy-duty trucks to be ZEVs by 2045. OEMs have accelerated development of medium- and heavy-duty ZEVs, and many will have market-ready vehicles by 2023.

Production costs will need to reduce significantly to make hydrogen economically competitive. However, heavy-duty trucks alone cannot create enough demand to justify scaling up hydrogen (thereby reducing costs). Industrial use of hydrogen must also increase to help create demand before hydrogen fuel prices will decrease—even 30 percent adoption of these technologies in the trucking industry by 2030 would be just 100,000 vehicles per year, compared to 1.8 million freight trailers on U.S. roads today. Current commercial trucks can have lifespans of up to 20 years, so it will likely

take decades to see a meaningful switch to alternative fuels in the industry. The North American Council for Freight Efficiency (NAFCE) notes that hydrogen fuel cell trucks should be considered for duty cycles in cases where:[47]

- Zero emissions at the tailpipe are important.
- Tractor tare weight is critical to maximizing payload.
- Long distance routes over 500 miles are common.
- Winter conditions are significant to operations.
- Green or blue hydrogen is readily available.
- Regions have incentivized hydrogen use.
- Travel is completed in less mountainous regions.

Many of these considerations are applicable to Washoe County, including the presence of long-distance routes (e.g., the I-80 freight corridor) and winter conditions. To support the industry's shift to hydrogen, the RTC should develop partnerships with Washoe County and partner agencies that work to promote the installation of HFC infrastructure.

Finally, the increased potential for autonomous unmanned aerial vehicles (UAV, or drones) to be used in the logistics industry must be considered for potential impacts to the freight industry. A 2019 paper evaluated the feasibility of drone deliveries for last-mile services because UAVs are not likely to be used for long-haul freight but rather individual packages.[48] As such, it is likely that the introduction of drones in logistics would disrupt delivery services like the United Parcel Service (UPS) and mail carriers like the United States Postal Service (USPS) to a larger extent than the nationwide freight industry. This is particularly evident in the scale of deliveries that can be accommodated by each choice because freight vehicles can carry complete loads while drones typically carry one package at a time. With proper planning, UAVs can complement freight activities by providing last-mile services so that freight vehicles can transport larger volumes of goods between their origin and the warehouse.

5.5 Micromobility

Finally, the increasing prevalence of micromobility in urban areas must be accommodated to provide safe travel for all users. Per the International Transport Forum (ITF), micromobility is defined as "personal transportation using devices and vehicles weighing up to 350 kilograms (kg) (770lb) and whose power supply, if any, is gradually reduced and cut off at a given speed limit which is no higher than 45 kilometers per hour (km/h) (28mph)."[49] Type A devices have a maximum mass of 35kg (77 pounds [lb]) and speed not exceeding 25km/h (15.5 miles per hour [mph]). Type B has a higher mass, Type C has a higher speed, and Type D has both a higher mass and higher speed. Type A micromobility, in particular, stands to improve traffic safety by reducing car and motorcycle trips in cities. It can also increase demand for a safe network of bicycle paths and other multimodal infrastructure, in turn spurring those projects. Although E-scooter safety has been noted as a growing concern, it is likely to improve as both users and vehicle drivers become accustomed to micromobility's presence and more safe, supportive infrastructure is installed. The ITF offers the following recommendations to improve the safety of micromobility in cities:

- **Allocate** protected space for micromobility and keep pedestrians safe.

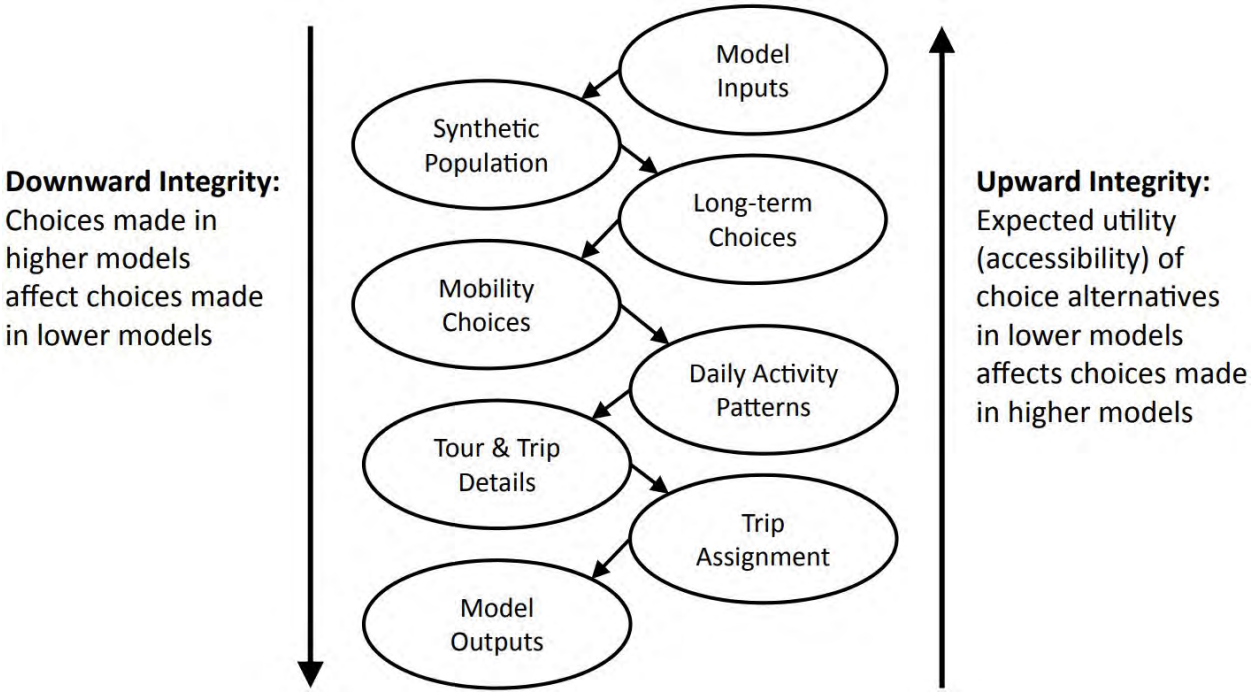
- **Focus** on motor vehicles to increase safety for micromobility users.
- **Regulate** low-speed micro-vehicles as bicycles and higher-speed ones as mopeds.
- **Collect** data on micro-vehicle trips and crashes to fill current gaps in knowledge.
- **Proactively** manage safety performance by prioritizing proactive crash prevention.
- **Include** micromobility in training for car, bus, and truck drivers.
- **Address** impaired driving and speeding for all vehicles by defining and enforcing limits.
- **Eliminate** incentives for micromobility users to speed (e.g., per-minute costs) by reviewing pricing mechanisms.
- **Improve** micro-vehicle design to enhance stability and road grip.
- **Reduce** wider risks associated with micromobility by minimizing van use for rebalancing, using higher-capacity batteries and plug-in docks and allocating on-street "parking."

6 Advanced Mobility in Travel Demand Modeling

While the term "advanced mobility" covers a broad spectrum of travel modes, this section primarily focuses on incorporating CAVs in travel demand modeling because they are expected to have a greater impact on travel behavior than other modes. For example, micromobility (e.g., E- scooters and E-bikes) or rideshare options provided by TNCs are most appropriately addressed in mode choice as another option available to consumers.

The RTC completed the development of an "activity-based" (AB) travel demand model in 2020. Compared with "trip-based" models, AB models have much more detailed input data and generate more detailed output information. AB models are developed as a "disaggregate" as they simulate the travel of each individual person in a household. **Figure 6** shows the main steps and data flow of an AB model system.

Figure 6: Activity-Based Travel Demand Model Data Flow



Source: SHRP 2, Activity Based Travel Demand Models - A Primer

The main components of AB models include synthetic population, where detailed characteristics of every person in a household are created based on observed data from the U.S. Census (e.g., Public Use Microdata Sample files), and long-term choices and daily activity patterns where the models predict activity purposes, locations, timing, and mode. In the RTC's AB model, long-term choice is referred to as "mandatory location choice." This step determines, for example, where a person works or goes to school.

Modeling CAVs explicitly in an AB model will require modifications to the RTC's existing AB model structure. Since there is no observed data for model calibration, changes would be made to the

model framework based on current research about which models would be affected by widespread AV/CV adoption and the extent of those effects. Once observed data are available,

they could be used to calibrate the model parameters that have been incorporated to account for CAVs. Potential changes to the AB model system to incorporate CAVs are illustrated in **Table 7**.

Table 7: Model Changes to Incorporate Connected and Autonomous Vehicles

Model Component	Disaggregate AB Model Improvements
Sociodemographic	
Population Synthesizer	• Control for age and income • Add smartphone ownership and income level
Built Environment	
Urban Form	• Set place type by area type and development type
Mobility	
Vehicle Ownership	• Add CAVs as an option for households to own • Add purchase cost, incentive policies, parking cost, or accessibility variables to distinguish vehicle type
Mobility as a Service	• Add carsharing, ride-hailing, bike sharing memberships
Activity Generation and Scheduling	
Activity Generation	• Lift age restriction for CAVs, add constraint for person with disabilities and seniors using conventional vehicles • Adjust value of time (VOT) and review induced demand • Add representation of empty car trips
Destination/Location Choice	
Work/School Locations	• Integrate with land use model to provide sensitivity
Mode Choice	
Mode Choice	• Add new modes (CAVs, TNCs, shared modes, micro-transit) • Adjust VOT for CAVs • Add dynamic pricing for new modes, adjust parking cost for CAVs • Adjust age and disability requirements for CAVs
Access/Egress	• Add access/egress modes (TNC, shared modes, micro-transit)
Parking Choice	• Add parking choice model to include off-site parking
Pricing	
Cost Model	• Determine cost per mode for each new mode by time period
Parking Costs	• Adjust parking cost as demand shifts away from high-cost areas

Source: NCRHP, Report 896, Guidance 2018

Making structural changes to the AB models to account for AVs and CVs is not a trivial task. While some of the above changes could be accomplished by staff with extensive experience in AB model development, most Metropolitan Planning Organizations (MPO) will require the assistance of consultants to make them. However, until some of the structural changes can be made to the models, there are other approaches to using AB models to account for the impacts of CAVs on travel behavior. These can be characterized primarily as adjustments to model parameters to approximate expected impacts of advanced mobility on the transportation system. For example, two MPOs with AB models conducted scenario planning to evaluate potential impacts of automated vehicles on travel behavior.

Childress et al. tested four adoption scenarios involving partial or full automation:[50]

- **In the first scenario,** they consider expected improvements in traffic operations resulting from automation. They tested a capacity increase of 30 percent on all freeways and major arterials in the travel demand model.
- **In Scenario 2,** they cite existing research that indicates higher-income households are generally the early adopters of technology because of high initial costs. In the travel demand models, they reduced the weighting of auto travel time to 0.65 for high value of time (VOT) trips. In traffic assignment, trip-based VOT was reduced by 65 percent for the highest income households (from $24.00 to $15.60 per hour).
- **In Scenario 3,** they include the above changes but halve parking costs to reflect widespread adoption and full automation. Reduced parking costs reflect the assumption that AVs specifically would self-park in cheaper locations or better utilize existing spaces. It should be noted that this approach would not capture the additional VMT associated with vehicles searching for cheaper parking locations.
- **The final scenario** serves as a counterpoint and assumes that AVs are commonplace and shared AV systems so effective that vehicle ownership is not necessary. Thus, mobility is treated like a public utility and all trips are provided by a taxi-like system at a set rate. Vehicle and road prices are determined by the industry and government to cover operation and maintenance costs. Modeled auto operating costs are increased to $1.65 per mile.

Kim et al. evaluated potential impacts of AVs using the Atlanta Regional Council's AB model.[51] Their methodology involved adjustments to some of the same model parameters as done by the Puget Sound Regional Council (PSRC), which serves the Seattle, Washington, metropolitan area. They reduced the in-vehicle time coefficient for automobiles by 50 percent, increased fuel efficiency in operating costs (a 71 percent reduction in vehicle operating costs), set parking costs at primary destinations to zero, changed generalized costs in highway assignment, and increased roadway capacity by 50 percent.

7 Challenges to Expansion

The challenges faced by any agency in promoting advanced mobility and alternative fuel adoption are unique based on geography, demographics, public opinion, and stakeholder input, among other aspects. As a regional transit operator, the RTC faces unique challenges to incorporating advanced mobility solutions and alternative fuel vehicles in its own fleet, which in turn benefits the broad range of Washoe County residents, visitors, and workers who would have access to those emerging technologies. The specific challenges facing the RTC—and the region as a whole—in relation to achieving identified goals are outlined in Table 8.

Table 8: Challenges to Expansion of Advanced Mobility Solutions and Alternative Fuels

Goal	Challenge
Support electric and alternative fuel vehicle adoption by making charging and alternative fueling sites as accessible and convenient as gasoline fueling stations.	Cost of Installation
	Charging Time
	Access to Chargers/Fueling Sites
	Electrical System Constraints
Promote advanced mobility solutions that benefit the broad range of Washoe County residents, visitors, and workers.	Lack of Policies/Programs
	Access to Vehicles/Services
	Job Displacement
Prioritize equity when planning for the future of transportation in Washoe County.	Equitable Access/Affordability
	Universal Connectivity
	Cultural Sensitivity
Improve awareness of electric, alternative fuel, connected, and autonomous vehicles among individuals and businesses in Washoe County.	Lack of Knowledge/Information
	Resistance to New Technologies
	High Ownership Cost - Real or Perceived
Remove financial and other barriers to adopting emerging technologies for residents, visitors, and workers in Washoe County.	Affordability of Vehicles/Services
	Lack of Knowledge/Information
	Local Sales/Service Network
Provide an industry-leading transportation network that integrates emerging technologies to promote safe and efficient travel in and across Washoe County.	Cost of Infrastructure
	Lack of Industry Standards
	Data Management/Security
Promote the success of regional freight corridors in and through Washoe County by supporting and incorporating emerging technologies in the trucking industry.	Lack of Fueling Infrastructure
	Implementation Cost
	Hydrogen Availability
	Safety Concerns
Identify the impacts of advanced mobility solutions on travel behavior and understand how to integrate them into the planning process.	Lack of Available Data
	Modeling Difficulty

8 Recommendations

The recommendations that will guide the RTC in promoting advanced mobility and alternative fuel adoption should be actionable such that they can be undertaken by the RTC either independently or in coordination with its partner agencies. The following recommendations were developed to satisfy the vision, mission, and goals of this plan, outlined in Chapter 2, and address the challenges identified in Chapter 7.

GOAL 1

Support electric and alternative fuel vehicle adoption by making charging and alternative fueling sites as accessible and convenient as gasoline fueling stations.

Challenge: Cost of Installation

- Identify, maintain, and share information regarding Federal, State and utility rebate and grant opportunities for public EVSE installations.
- Work with member agencies to remove financial "disincentives" to private EVSE installations; for example, by waiving permitting fees and streamlining the permitting process.
- Work with member agencies to develop local incentives for private investment in chargers at workplaces and businesses.

Challenge: Charging Time

- Support efforts to prioritize locations near main travel corridors and at key short stay local destinations for DCFC installations.
- Work with member agencies to identify fast-charging corridors.
- Work with member agencies to incentivize mixed-level charging near residential areas, particularly those with affordable or multi-family housing units, to support overnight and fast charging options.

Challenge: Access to Chargers/Fueling Sites

- Support local efforts to develop a roadmap for EVSE deployment that identifies and prioritizes charging sites.
- Support local efforts to develop an inventory of existing alternative fuel sites (e.g., CNG) for conversion to HFC.
- Support local efforts to develop a plan for conversion to HFC at sites that identifies adoption level triggers for investment to support fleet transitions and interstate commerce.
- Encourage opportunities for shared infrastructure with the public or between fleets or private groups offering mobility services, such as faith-based groups and school districts.
- Encourage EVSE deployment at high-traffic destinations such as parks, airports, community centers, libraries, and ski resorts.

- Install Level 2 EVSE at all RTC park-and-ride facilities.
- Work with local jurisdictions to encourage gas station chains to install DCFC at existing and planned fueling stations through the development approval process or incentives.
- Work with local jurisdictions to encourage truck stops to install HFC charging infrastructure at existing and planned locations.

Challenge: Electrical System Constraints

- Work with the local utility to identify existing locations with three-phase power to support DCFC installation.
- Work with the local utility to promote off-peak charging.
- Identify power requirements for hydrogen production.

GOAL 2

Promote advanced mobility solutions that benefit the broad range of Washoe County residents, visitors, and workers.

Challenge: Lack of Policies/Programs

- Establish a policy that all future RTC fleet vehicle purchases consider ZEVs first.
- Encourage private fleet operators to develop ZEV-first policies for fleet vehicle replacements.
- Establish a ZEV parking minimum of two spaces at all RTC park-and-ride facilities, while considering site-specific criteria (e.g., total number of spaces) and needs for additional ZEV parking.
- Identify opportunities to renovate or replace RTC fleet vehicles to incorporate connected and/or automated technologies consistent with current and future industry best practices.
- Incorporate ZEVs in community and transportation network planning efforts.
- Coordinate with local jurisdictions and local law enforcement to establish and enforce ZEV parking criteria.
- Work with member agencies to develop minimum ZEV parking standards at public parking facilities.
- Work with member agencies to support a code amendment that requires EV-ready infrastructure (e.g., prewiring) in all new construction.

Challenge: Access to Vehicles/Services

- Develop documentation to inform local fleet owners (e.g., faith-based groups, school districts) of the benefits, costs, and financial incentives related to operating ZEV.
- Encourage local educational campuses to establish ZEV carsharing programs for students.
- Implement a single point of purchase system for transit tickets and passes that enables broader and easier access to transit and advanced mobility technologies.
- Collaborate with local agencies to identify "priority zones" where micromobility may be considered as a valid first-/last-mile solution.

Challenge: Job Displacement

- Support local economic development efforts to help workers transition to expanding market sectors related to ZEVs/CAVs.
- Support local vocational schools and community colleges in developing educational materials to support new training courses for ZEV servicing.

GOAL 3

Prioritize equity when planning for the future of transportation in Washoe County.

Challenge: Equitable Access/Affordability

- Identify and share information regarding rebates and programs for low-income ride-hail drivers to secure fair financing for ZEV purchases.
- Equitably distribute advancements in fleet vehicle technologies among the various RTC mobility services.
- Use ZEV and/or connected/automated RTC buses for demonstration programs to introduce communities to new technologies.
- Pursue opportunities to work with key industry members to introduce automated mobility services, particularly for key populations such as senior groups and the disability community.
- Reexamine transit routes as shared mobility grows to apply RTC resources and serve populations more efficiently.
- Encourage member agencies to establish and support workforce development programs that focus on disadvantaged communities to offer job training in growing markets, enable transitions, and grow the local job market.

Challenge: Universal Connectivity

- Work with agency partners to define needs and opportunities for prioritized investment in less densely populated areas to reduce transportation sector impacts related to sprawling growth.
- Develop an inventory of and identify gaps and priorities in fiber communications infrastructure across Washoe County.
- Identify specific advanced mobility applications that would require enhanced communications to inform the gap analysis.
- Identify ownership of existing fiber and develop agreements for shared use.
- Work with partner agencies to develop an interoperable region-wide communications system for shared information.
- Develop a strategic plan for siting EVSE at park-and-rides and commercial businesses with large parking lots in less densely populated areas.

Challenge: Cultural Sensitivity

- Tailor educational materials to meet the needs of the specific populations to be engaged.
- Define 'equity' to guide planning activities and promote fair distribution of the benefits of emerging vehicle technologies.
- Consult with disadvantaged communities about mobility needs and barriers.
- Develop a strategy to work with to community-led outreach organizations to build trust and introduce communities to new technologies.

GOAL 4

Improve awareness of electric, alternative fuel, connected, and autonomous vehicles among individuals and businesses in Washoe County.

Challenge: Lack of Knowledge/Information

- Develop documentation to inform business, education, health, and property management groups on the benefits of private investment in advanced mobility.
- Work with the local utility, advocacy groups, educational centers, and business associates to distribute information to the public.
- Identify and remain up to date on national and other published standards for CAVs.
- Maintain a transit fleet and supporting infrastructure that aligns with current, and scales with future, automation levels.
- Host ZEV/CAV-related information on the RTC website, including links to additional resources.

Challenge: Resistance to New Technologies

- Develop documentation to inform the public on the safety and performance of ZEVs in various environments (e.g., heat, snow).
- Utilize existing industry materials and publications to provide information to the public on the safety of alternative fuels, in particular hydrogen.
- Utilize existing industry materials and publications to provide information to the public on the benefits of micromobility as a first-/last-mile solution.
- Work with non-profit organizations to establish a community-led outreach program focused on the benefits and safety of CAVs.
- Consider cultural sensitivity in all actions promoting unfamiliar technologies.
- Develop a targeted outreach strategy that introduces communities to changes to the driving environment related to advanced mobility technologies, the timeline for changes, and data privacy related to emerging technologies.

Challenge: High Ownership Cost - Real or Perceived

- Utilize existing industry materials and publications to inform the public on the relative low ownership cost of ZEVs.
- Develop documentation to inform the public on home EVSE installation and the relative low cost of home charging.

GOAL 5

Remove financial and other barriers to adopting emerging technologies for residents, visitors, and workers in Washoe County.

Challenge: Affordability of Vehicles/Services

- Identify and share existing educational materials regarding the low life-cycle costs of ZEV ownership.
- Identify and share information regarding Federal, State, and utility rebate opportunities for ZEV purchases.
- Identify and pursue funding opportunities for replacement of RTC fleet vehicles with ZEVs.
- Identify and pursue grant opportunities for purchasing RTC fleet vehicles with connected/automated features.
- Identify and pursue grant opportunities for installing roadside infrastructure to support vehicle connectivity.

Challenge: Lack of Knowledge/Information

- Identify and share information regarding Federal and state tax credits and financial incentives for ZEV purchases.
- Identify and share information regarding local utility rebate opportunities for ZEV purchases.
- Work with member agencies to consider a subsidy program for ZEV purchases by ride-hail drivers.
- Collaborate with local agencies to enable micromobility as a valid first-/last-mile solution in urbanized areas.

Challenge: Local Sales/Service Network

- Develop documentation to inform local service providers of opportunities to enter the ZEV market and the benefits, costs, and financial incentives related to servicing ZEVs.
- Service RTC fleet vehicles locally to encourage and support service providers entering the ZEV market.
- Work with member agencies to consider incentives to support local service providers investing in ZEV training and tools.

GOAL 6

Provide an industry-leading transportation network that integrates emerging technologies to promote safe and efficient travel in and across Washoe County.

Challenge: Cost of Infrastructure

- Identify and apply for Federal and State funding opportunities for purchasing and installing connected vehicle infrastructure.
- Develop industry partnerships to implement cost-shared pilot programs using connected/automated technologies.
- Work with the local utility to identify and apply for EVSE grant opportunities.
- Encourage local jurisdictions to engage property management groups, homeowners' associations, and commercial local businesses to develop and promote financial incentives based on EVSE installation.

Challenge: Lack of Industry Standards

- Identify desired connected vehicle technology applications.
- Identify and prioritize opportunities to install roadside infrastructure to support desired connected vehicle technology applications.
- Prioritize infrastructure in locations and along corridors that best connect communities to each other and to popular destinations.
- Incorporate local government plans and planned development activities in the prioritization process for infrastructure investment.
- Expand successful V2V/V2I/V2X pilot programs to new corridors.
- Utilize incoming connected vehicle and roadway data to evaluate multimodal safety.

Challenge: Data Management/Security

- Define data management processes to account for the data transfer needs of connected vehicles.
- Define security protocols for incoming and outgoing data.

GOAL 7

Promote the success of regional freight corridors in and through Washoe County by supporting and incorporating emerging technologies in the trucking industry.

Challenge: Lack of Fueling Infrastructure

- Work with agency partners to develop a roadmap for HFC deployment that identifies and prioritizes fueling sites.
- Work with agency partners to develop an inventory of existing alternative fuel sites (e.g., CNG) for conversion to HFC.
- Work with agency partners to develop a plan for conversion to HFC at sites that will support fleet transitions and interstate commerce.
- Work with agency partners to prioritize publicly accessible HFC fueling stations along major commercial corridors (e.g., I-80) and near major commercial destinations.

Challenge: Implementation Cost

- Identify and maintain up-to-date lists of grant opportunities for hydrogen fueling station installation.
- Collaborate with freight industry stakeholders to identify an implementation strategy for HFC infrastructure that enables and supports fleet transitions and interstate commerce.
- Conduct a pilot program using HFC RTC buses to measure and prove the efficacy and safety of hydrogen and stimulate HFC use in Washoe County.

Challenge: Hydrogen Availability

- Develop partnerships to obtain an initial hydrogen supply supporting RTC pilot programs.
- Investigate and develop a plan that identifies the RTC's hydrogen demand and storage needs and evaluates opportunities for commercializing excess supply.
- Leverage the future Air Liquide renewable liquid hydrogen plant in Nevada to obtain hydrogen at cheaper rates than outsourcing.

Challenge: Safety Concerns

- Identify and remain up to date on national codes and standards related to the transfer, storage, and use of hydrogen.
- Research, recognize, and define measures to mitigate potential hazards.
- Utilize existing industry materials and work with outside groups as necessary to develop and provide technical training for workers interacting with alternative fuels, such as hydrogen.

GOAL 8

Identify the impacts of advanced mobility solutions on travel behavior and understand how to integrate them into the planning process.

Challenge: Lack of Available Data

- Base updates to the RTC activity-based model on current research on the impacts of CAV adoption in travel demand modeling.
- Incorporate carsharing, bikesharing, ride-hailing, and micromobility in the RTC activity-based model.
- Update the activity-based model as needed to reflect increasing CAV adoption.
- Calibrate the activity-based model as observed data becomes available.
- Coordinate and share modeling best practices related to advanced mobility with local and regional planning organizations to enable a consistent, region-wide approach and bridge knowledge gaps.

Challenge: Modeling Difficulty

- Incorporate available industry guidance as highlighted in Chapter 6, Table 7 of this plan.
- Enlist a consultant to update the activity-based model as needed.

9 Action Plan

This action plan will guide the RTC in successfully implementing the recommendations identified in the previous section. For each recommendation, it identifies:

- **Implementation Lead:** The agency or group leading the implementation effort.
- **Implementation Support:** The agencies and groups supporting the lead.
- **When to Start:** The timeframe during which the RTC should begin implementation—30, 90, 180, or 360 days, or Beyond.
- **Expected Duration:** How long the implementation effort is expected to take—Short, Medium, Long, or Ongoing.
- **Relative Priority:** The relative importance of each recommendation in effecting visible change or preparing for and supporting future efforts—Low, Medium, or High.

The RTC will serve as the lead for each recommendation with support from many agencies and groups to realize the vision and mission of this plan. The partners identified in this action plan are:

The RTC

The RTC should identify a "champion" responsible for tracking and promoting implementation of each identified recommendation. The champion will be an RTC employee with a passion for realizing the vision and mission of this plan by expanding advanced mobility and alternative fuel services in Washoe County. The champion will lead coordination efforts with the local partners in support roles, such as other local transportation agencies, utility providers, fleet operators, and private business owners. Other RTC staff, such as planners and transportation engineers, will support the RTC Champion in promoting advanced mobility and alternative fuel solutions. This staff will identify, maintain, and share information related to these solutions with the public and other stakeholders. They will assist local agencies in implementation efforts, such as identifying communications gaps and needs and prioritizing locations for supporting infrastructure.

Local Agencies

Local transportation agencies will serve in support roles for implementing many of the identified recommendations. For example, the RTC will work with these agencies to support local efforts to prioritize roadside infrastructure, develop plans for HFC conversion, encourage businesses to install EVSE, and consider financial incentives for ZEV purchases. These agencies will also serve as key partners in collecting and distributing information to the public. Coordination between the RTC and these agencies will also promote consistency in implementation of the identified recommendations.

Utility Provider

Nevada Energy is the local utility provider for Washoe County. It will serve a support role in incentivizing EVSE installation, applying for grant opportunities, supporting building code amendments, and completing targeted outreach. It will also assist the RTC in developing documentation and distributing information to the public related to the cost of home installation of EVSE and the low costs associated with home charging.

Industry Businesses

Industry businesses include, but are not limited to, auto dealerships, local service centers, and technical groups. The RTC and these businesses will work together to support local economic and workforce development efforts. The RTC will support these groups by sharing information regarding ZEV/CAV offerings and incentives with dealerships and servicing its alternative fuel and connected fleet vehicles locally.

General Businesses

General businesses include local employers and other groups that can promote and support ZEV/CAV adoption in their businesses. The RTC will support these businesses in installing private EVSE and will provide information that can be distributed to employees to promote adoption within each business's workforce.

Private Operators

Private operators include school districts, businesses, and faith-based groups, among others. Increasing awareness and use of ZEVs and CAVs and other advanced mobility solutions will require all private operator fleets in Washoe County to evaluate and establish plans for fleet vehicle replacements and conversions. The RTC will encourage these transitions and can pursue opportunities for shared infrastructure with these groups to reduce up-front costs and increase utilization.

Local Groups

Many more groups than the ones listed above will be partners in achieving the vision and mission of this plan. Successful implementation of the identified recommendations will require support from educational campuses, outreach groups, law enforcement agencies, property management groups, homeowners' associations, micromobility providers, health groups, and TNCs, among many others.

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Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/ 180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
1 Support electric and alternative fuel vehicle adoption by making charging and alternative fueling sites as accessible and convenient as gasoline fueling stations.	Cost of Installation	Identify, maintain, and share information regarding Federal, State and utility rebate and grant opportunities for public EVSE installations.	L/S							30	Ongoing	High
		Work with member agencies to remove financial "disincentives" to private EVSE installations; for example, by waiving permitting fees and streamlining the permitting process.	L	S						30	Short	High
		Work with member agencies to develop local incentives for private investment in chargers at workplaces and businesses.	L	S			S			90	Medium	Medium
	Charging Time	Support efforts to prioritize locations near main travel corridors and at key short stay local destinations for DCFC installations.	L	S		S	S			30	Ongoing	High
		Work with member agencies to identify fast-charging corridors.	L	S						30	Short	High
		Work with member agencies to incentivize mixed-level charging near residential areas, particularly those with affordable or multi-family housing units, to support overnight and fast charging options.	L	S	S				S	90	Medium	Low
	Access to Chargers/ Fueling Sites	Support local efforts to develop a roadmap for EVSE deployment that identifies and prioritizes charging sites.	L	S						30	Medium	High
		Support local efforts to develop an inventory of existing alternative fuel sites (e.g., CNG) for conversion to HFC.	L	S						30	Short	High
		Support local efforts to develop a plan for conversion to HFC at sites that identifies adoption level triggers for investment to support fleet transitions and interstate commerce.	L	S			S			90	Medium	High
		Encourage opportunities for shared infrastructure with the public or between fleets or private groups offering mobility services, such as faith-based groups and school districts.	L	S	S		S	S	S	90	Long	Medium
		Encourage EVSE deployment at high-traffic destinations such as parks, airports, community centers, libraries, and ski resorts.	L	S	S					30	Ongoing	High
		Install Level 2 EVSE at all RTC park-and-ride facilities.	L		S					180	Medium	Medium
		Work with local jurisdictions to encourage gas station chains to install DCFC at existing and planned fueling stations through the development approval process or incentives.	L	S			S			180	Medium	Low
		Work with local jurisdictions to encourage truck stops to install HFC charging infrastructure at existing and planned locations.	L	S			S			360	Long	Low
	Electrical System Constraints	Work with the local utility to identify existing locations with three-phase power to support DCFC installation.	L		S					30	Short	High
		Work with the local utility to promote off-peak charging.	L		S					30	Short	Medium
		Identify power requirements for hydrogen production.	L		S					30	Short	High

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Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
2 Promote advanced mobility solutions that benefit the broad range of Washoe County residents, visitors, and workers.	Lack of Policies/Programs	Establish a policy that all future RTC fleet vehicle purchases consider ZEVs first.	L/S							Now	Short	High
		Encourage private fleet operators to develop ZEV-first policies for fleet vehicle replacements.	L	S				S		90	Medium	Medium
		Establish a ZEV parking minimum of two spaces at all RTC park-and-ride facilities while considering site-specific criteria (e.g., total number of spaces) and needs for additional ZEV parking.	L/S							30	Short	Medium
		Identify opportunities to renovate or replace RTC fleet vehicles to incorporate connected and/or automated technologies consistent with current and future industry best practices.	L/S							90	Ongoing	High
		Incorporate ZEVs in community and transportation network planning efforts.	L	S						Now	Ongoing	High
		Coordinate with local jurisdictions and local law enforcement to establish and enforce ZEV parking criteria.	L	S					S	90	Short	Medium
		Work with member agencies to develop minimum ZEV parking standards at public parking facilities.	L	S						90	Short	Low
		Work with member agencies to support a code amendment that requires EV-ready infrastructure (e.g., prewiring) in all new construction.	L	S	S					Now	Medium	High
	Access to Vehicles/Services	Develop documentation to inform local fleet owners (e.g., faith-based groups, school districts) of the benefits, costs, and financial incentives related to operating ZEV.	L/S							30	Short	Medium
		Encourage local educational campuses to establish ZEV carsharing programs for students.	L						S	360	Short	Low
		Implement a single point of purchase system for transit tickets and passes that enables broader and easier access to transit and advanced mobility technologies.	L/S							30	Long	High
		Collaborate with local agencies to identify "priority zones" where micromobility may be considered as a valid first-/last-mile solution.	L	S						180	Short	Low
	Job Displacement	Support local economic development efforts to help workers transition to expanding market sectors related to ZEVs/CAVs.	L			S			S	90	Short	Medium
		Support local vocational schools and community colleges in developing educational materials to support new training courses for ZEV servicing.	L			S			S	360	Medium	Low

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Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/ 180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
3 Prioritize equity when planning for the future of transportation in Washoe County.	Equitable Access/Affordability	Identify and share information regarding rebates and programs for low-income ride-hail drivers to secure fair financing for ZEV purchases.	L			S			S	90	Short	Low
		Equitably distribute advancements in fleet vehicle technologies among the various RTC mobility services.	L/S							Now	Ongoing	High
		Use ZEV and/or connected/automated RTC buses for demonstration programs to introduce communities to new technologies.	L	S					S	Now	Ongoing	Medium
		Pursue opportunities to work with key industry members to introduce automated mobility services, particularly for key populations such as senior groups and the disability community.	L	S					S	180	Long	High
		Reexamine transit routes as shared mobility grows to apply RTC resources and serve populations more efficiently.	L					S		Now	Ongoing	High
		Encourage member agencies to establish and support workforce development programs that focus on disadvantaged communities to offer job training in growing markets, enable transitions, and grow the local job market.	L	S		S			S	360	Long	Low
	Universal Connectivity	Work with agency partners to define needs and opportunities for prioritized investment in less densely populated areas to reduce transportation sector impacts related to sprawling growth.	L	S						30	Short	High
		Develop an inventory of and identify gaps and priorities in fiber communications infrastructure across Washoe County.	L	S						30	Short	High
		Identify specific advanced mobility applications that would require enhanced communications to inform the gap analysis.	L/S							30	Short	High
		Identify ownership of existing fiber and develop agreements for shared use.	L	S						30	Short	Medium
		Work with partner agencies to develop an interoperable region-wide communications system for shared information.	L	S						90	Long	High
		Develop a strategic plan for siting EVSE at park-and-rides and commercial businesses with large parking lots in less densely populated areas.	L				S			90	Medium	Medium
	Cultural Sensitivity	Tailor educational materials to meet the needs of the specific populations to be engaged.	L						S	Now	Ongoing	High
		Define 'equity' to guide planning activities and promote fair distribution of the benefits of emerging vehicle technologies.	L						S	Now	Short	High
		Consult with disadvantaged communities about mobility needs and barriers.	L						S	Now	Ongoing	High
		Develop a strategy to work with to community-led outreach organizations to build trust and introduce communities to new technologies.	L						S	30	Medium	Medium

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Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
4 Improve awareness of electric, alternative fuel, connected, and autonomous vehicles among individuals and businesses in Washoe County.	Lack of Knowledge/ Information	Develop documentation to inform business, education, health, and property management groups on the benefits of private investment in advanced mobility.	L						S	30	Short	Medium
		Work with the local utility, advocacy groups, educational centers, and business associates to distribute information to the public.	L		S		S		S	90	Ongoing	High
		Identify and remain up to date on national and other published standards for CAVs.	L/S							30	Ongoing	High
		Maintain a transit fleet and supporting infrastructure that aligns with current, and scales with future, automation levels.	L	S						Now	Ongoing	High
		Host ZEV/CAV-related information on the RTC website, including links to additional resources.	L/S							Now	Short	Medium
	Resistance to New Technologies	Develop a pro forma to inform the public on the safety and performance of ZEVs in various environments (e.g., heat, snow).	L/S							90	Short	Low
		Utilize existing industry materials and publications to provide information to the public on the safety of alternative fuels, in particular hydrogen.	L				S			90	Short	Medium
		Utilize existing industry materials and publications to provide information to the public on the benefits of personal investment in micromobility as a first-/last-mile solution.	L	S						180	Short	Low
		Work with non-profit organizations to establish a community-led outreach program focused on the benefits and safety of CAVs.	L						S	180	Medium	Low
		Consider cultural sensitivity in all actions promoting unfamiliar technologies.	L						S	Now	Ongoing	High
		Develop a targeted outreach strategy that introduces communities to changes to the driving environment related to advanced mobility technologies, the timeline for changes, and data privacy related to emerging technologies.	L		S				S	90	Medium	High
	High Ownership Cost - Real or Perceived	Utilize existing industry materials and publications to inform the public on the relative low ownership cost of ZEVs.	L/S							30	Short	Medium
		Develop documentation to inform the public on home EVSE installation and the relative low cost of home charging.	L		S					30	Short	Medium

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Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/ 180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
5 Remove financial and other barriers to adopting emerging technologies for residents, visitors, and workers in Washoe County.	Affordability of Vehicles/Services	Identify and share existing educational materials regarding the low life-cycle costs of ZEV ownership.	L/S							30	Short	Medium
		Identify and share information regarding Federal, State, and utility rebate opportunities for ZEV purchases.	L/S							30	Short	High
		Identify and pursue funding opportunities for replacement of RTC fleet vehicles with ZEVs.	L/S							30	Ongoing	High
		Identify and pursue grant opportunities for purchasing RTC fleet vehicles with connected/automated features.	L/S							30	Ongoing	High
		Identify and pursue grant opportunities for installing roadside infrastructure to support vehicle connectivity.	L/S							90	Long	High
	Lack of Knowledge/ Information	Identify and share information regarding Federal and state tax credits and financial incentives for ZEV purchases.	L/S							30	Short	High
		Identify and share information regarding local utility rebate opportunities for ZEV purchases.	L	S	S					30	Short	High
		Work with member agencies to consider a subsidy program for ZEV purchases by ride-hail drivers.	L	S				S		180	Medium	Low
		Collaborate with local agencies to enable micromobility as a valid first-/last-mile solution in urbanized areas.	L	S						180	Medium	Low
	Local Sales/Service Network	Develop documentation to inform local service providers of opportunities to enter the ZEV market and the benefits, costs, and financial incentives related to servicing ZEVs.	L			S				90	Short	Medium
		Service RTC fleet vehicles locally to encourage and support service providers entering the ZEV market.	L			S				Now	Ongoing	High
		Work with member agencies to consider incentives to support local service providers investing in ZEV training and tools.	L	S						90	Medium	Medium

WASHOE RTC ACTION PLAN

Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/ 180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
6 Provide an industry-leading transportation network that integrates emerging technologies to promote safe and efficient travel in and across Washoe County.	Cost of Infrastructure	Identify and apply for Federal and State funding opportunities for purchasing and installing connected vehicle infrastructure.	L/S							30	Short	High
		Develop industry partnerships to implement cost-shared pilot programs using connected/automated technologies.	L/S							180	Long	Low
		Work with the local utility to identify and apply for EVSE grant opportunities.	L		S					30	Short	High
		Encourage local jurisdictions to engage property management groups, homeowners' associations, and commercial local businesses to develop and promote financial incentives based on EVSE installation.	L				S		S	90	Medium	Medium
	Lack of Industry Standards	Identify desired connected vehicle technology applications.	L/S							Now	Short	High
		Identify and prioritize opportunities to install roadside infrastructure to support desired connected vehicle technology applications.	L	S						30	Medium	High
		Prioritize infrastructure in locations and along corridors that best connect communities to each other and to popular destinations.	L	S						30	Medium	High
		Incorporate local government plans and planned development activities in the prioritization process for infrastructure investment.	L	S						30	Ongoing	High
		Expand successful V2V/V2I/V2X pilot programs to new corridors.	L/S							180	Long	Medium
		Utilize incoming connected vehicle and roadway data to evaluate multimodal safety.	L/S							Now	Ongoing	Low
	Data Management /Security	Define data management processes to account for the data transfer needs of connected vehicles.	L/S							180	Short	Medium
		Define security protocols for incoming and outgoing data.	L/S							180	Short	Medium

WASHOE RTC ACTION PLAN

Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/ 180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
7 Promote the success of regional freight corridors in and through Washoe County by supporting and incoporating emerging technologies in the trucking industry.	Lack of Fueling Infrastructure	Work with agency partners to develop a roadmap for HFC deployment that identifies and prioritizes fueling sites.	L	S						90	Medium	High
		Work with agency partners to develop an inventory of existing alternative fuel sites (e.g., CNG) for conversion to HFC.	L	S						30	Short	High
		Work with agency partners to develop a plan for conversion to HFC at sites that will support fleet transitions and interstate commerce.	L	S			S			90	Medium	Medium
		Work with agency partners to prioritize publicly accessible HFC fueling stations along major commercial corridors (e.g., I-80) and near major commercial destinations.	L	S			S			90	Long	High
	Implementation Cost	Identify and maintain up-to-date lists of grant opportunities for hydrogen fueling station installation.	L/S							30	Ongoing	High
		Collaborate with freight industry stakeholders to identify an implementation strategy for HFC infrastructure that enables and supports fleet transitions and interstate commerce.	L					S		360	Long	Medium
		Conduct a pilot program using HFC RTC buses to measure and prove the efficacy and safety of hydrogen and stimulate HFC use in Washoe County.	L	S						180	Medium	Medium
	Hydrogen Availability	Develop partnerships to obtain an initial hydrogen supply supporting RTC pilot programs.	L/S							Now	Medium	High
		Investigate and develop a plan that identifies the RTC's hydrogen demand and storage needs and evaluates opportunities for commercializing excess supply.	L/S							Now	Medium	High
		Leverage the future Air Liquide renewable liquid hydrogen plant in Nevada to obtain hydrogen at cheaper rates than outsourcing.	L	S						Beyond	Long	Low
	Safety Concerns	Identify and remain up to date on national codes and standards related to the transfer, storage, and use of hydrogen.	L/S							30	Ongoing	High
		Research, recognize, and define measures to mitigate potential hazards.	L/S							90	Medium	High
		Utilize existing industry materials and work with industry groups as necessary to develop and provide technical training for workers interacting with alternative fuels, such as hydrogen.	L			S				180	Medium	Medium

WASHOE RTC ACTION PLAN

Goal	Challenge	Recommendation	Implementation Lead (L) and Support (S)							Start (Now, 30/90/ 180/360 days or Beyond)	Duration (Short, Medium, Long, Ongoing)	Priority (Low, Medium, High)
			RTC	Agencies	Utility	Industry Bus.	General Bus.	Private Operators	Local Groups			
8 Identify the impacts of advanced mobility solutions on travel behavior and understand how to integrate them into the planning process.	Lack of Available Data	Base updates to the RTC activity-based model on current research on the impacts of CAV adoption in travel demand modeling.	L	S						180	Medium	Medium
		Incorporate carsharing, bikesharing, ride-hailing, and micromobility in the RTC activity-based model.	L	S						90	Medium	High
		Update the activity-based model as needed to reflect increasing CAV adoption.	L	S						Beyond	Ongoing	Medium
		Calibrate the activity-based model as observed data becomes available.	L	S						Beyond	Ongoing	Medium
		Coordinate and share modeling best practices related to advanced mobility with local and regional planning organizations to enable a consistent, region-wide approach and bridge knowledge gaps.	L	S						90	Long	Medium
	Modeling Difficulty	Incorporate available industry guidance as highlighted in Chapter 6, Table 7 of this plan.	L/S							90	Medium	High
		Enlist a consultant to update the activity-based model as needed.	L/S							90	Ongoing	Low

Acronyms and Abbreviations

AB	activity-based
AT	autonomous truck
AV	automated vehicle
BEB	battery electric bus
BEV	battery electric vehicle
BMP	Beneficiary Mitigation Plan
CAA	Clean Air Act of 1975
CAV	connected automated vehicle
CNG	compressed natural gas
CO	carbon monoxide
CV	connected vehicle
DCFC	Direct Current Fast Charge
DGE	diesel gallon equivalent
DOE	United States Department of Energy
DSRC	Dedicated Short-Range Communication
EDACS	Enhanced Digital Access Communication System
EV	electric vehicle
EVID	Electric Vehicle Infrastructure Demonstration
EVSE	electric vehicle supply equipment
FCC	Federal Communications Commission
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GLOSA	Green Light Optimized Speed Advisory
HEV	hybrid electric vehicle
HFC	hydrogen fuel cell
HFCEV	hydrogen fuel cell electric vehicle
ICE	internal combustion engine
ITS	Intelligent Transportation System
kg	kilogram
km/h	kilometers per hour
lb	pound
LDV	light-duty vehicle
LEV	low-emission vehicle

LiDAR	light detection and ranging
LNG	liquefied natural gas
LPG	propane
MDV	medium-duty vehicle
mph	miles per hour
MPO	Metropolitan Planning Organizations
NAFCE	North American Council for Freight Efficiency
NCAR	National Center for Atmospheric Research
NDEP	Nevada Department of Environmental Protection
NDOT	Nevada Department of Transportation
NEH	Nevada Electric Highway
NHTSA	National Highway Traffic Safety Administration
NOx	nitrogen oxide
NVE	Nevada Energy
O3	ground-level ozone
OEM	Original Equipment Manufacturer
PHEV	plug-in hybrid electric vehicle
PM2.5	fine particulate matter
RFID	radio frequency identification
RNG	renewable natural gas
ROC	Road Operations Center
RRFB	Rectangular Rapid Flashing Beacon
RTC	Regional Transportation Commission
RWIS	Road Weather Information System
SAV	shared autonomous vehicle
TIGGER	Transit Investment for Greenhouse Gas and Energy Reduction
TNC	transportation network company
U.S.	United States
UNR	University of Nevada Reno
USDOT	U.S. Department of Transportation
V2I	vehicle-to-infrastructure
V2V	vehicle-to-vehicle
V2X	vehicle-to-everything
VMT	vehicle miles traveled
WCSD	Washoe County School District
ZEV	zero-emission vehicle

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REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.8**

From: Dan Doenges, PTP, RSP, Director of Planning

RECOMMENDED ACTION

Acknowledge receipt of the 2021 Bicycle & Pedestrian Data Collection Annual Report.

BACKGROUND AND DISCUSSION

The objective of the Regional Bicycle and Pedestrian Data Collection Program is to identify trends for active transportation users on regional roads. The program has been in effect since September 2013 and documents the proportion of trips that are made using alternative modes and changes in alternative mode use over time. This data is used in the ongoing analysis of the performance measures identified in the 2050 Regional Transportation Plan (RTP). This report is a summary of data collected in May 2021 and September 2021. The draft 2021 Bicycle, Pedestrian, and Wheelchair Data Collection Program Annual Report is attached.

Items of interest in the annual report include:

- Total hours of data collection – 180
- Total counted bicycles – 1,133
- Total counted pedestrians – 4,946
- Total counted wheelchairs – 58
- Highest bicycle volume observed – Veterans Parkway and Mira Loma Drive - 242
- Highest pedestrian volume observed – 4th Street at Evans Avenue (near the RTC 4th STREET STATION) -1,479

Key findings include:

- Counts were conducted in May and September 2021 at 15 different locations.
    - Similar pedestrian and wheelchair volumes were observed in the May 2021 and September 2021 count cycles.
        - May: 2,455 pedestrians and 26 wheelchairs
        - September: 2,491 pedestrians and 32 wheelchairs

- The top five locations with the highest pedestrian activity across the 2021 annual cycle were 1) 4th Street at Evans Avenue, 2) Virginia Street at Martin Street, 3) Virginia Street at 17th Street, 4) 5th Street at Virginia Street, and 5) 4th Street at Sutro Street

- Bicycle volume was significantly less in September 2021 compared to May 2021.
        - May: 736 bicycles
        - September :397 bicycles

- The top five locations with the highest bicycle activity across the 2021 annual cycle were 1) Veterans Parkway and Mira Loma Drive, 2) 4th Street at Evans Avenue, 3) 4th Street at Mayberry Drive, 4) 4th Street at Sutro Street, and 5) Virginia Street at Martin Street

- The 4th Street and Evans Avenue location continues to have significantly higher wheelchair volumes compared to other locations.

- The top five locations with the highest wheelchair activity across the 2021 annual cycle were: 1) 4th Street at Evans Avenue, 2) 4th Street at Sutro Street (tie), 3) Prater Way at 15th Street (tie), 4) 5th Street at Virginia Street, and 5) Vine Street at 4th Street

- A 2021 Mode Share of travel at the 15 count program locations
    - Pedestrian volumes represented 2.44% of all regional trips.
    - Bicycling volumes represented 0.62% of all regional trips.
    - Wheelchair user activity was 0.03% of all regional trips.
    - Transit ridership accounted for 8.88% of all travel.
    - Vehicle traffic accounted for 88.03% of all travel

- Seven complete annual cycles of bicycle, pedestrian and wheelchair user data have been conducted in the Reno-Sparks region since the program's inception with the following noteworthy trends:
    - Pedestrian volumes were relatively consistent between 2015 and 2019. However, the 2021 count cycle recorded significantly less pedestrians compared to the prior count cycles. It is assumed that this trend was a result of the pandemic.
    - Bicycle volumes have had a significant decrease since 2017 but have been relatively consistent from 2018 to present.
    - Active mode usage is generally higher on roadways with lower speed limits.
    - COVID-19 restrictions and impacts were still prevalent in 2021. The absence of many special events and low transit ridership negatively impacted the overall alternative mode share.

FISCAL IMPACT

Funding for this program is funded through the Unified Planning Work Program (UPWP).

PREVIOUS BOARD ACTION

April 16, 2021	Approved the FY 2022 – FY 2023 UPWP
May 20, 2019	Approved the FY 2020 – FY 2021 UPWP
July 19, 2019	Approved the Professional Services Agreement (PSA) with Headway for the Bicycle & Pedestrian Count Program

ADVISORY COMMITTEE(S) RECOMMENDATION

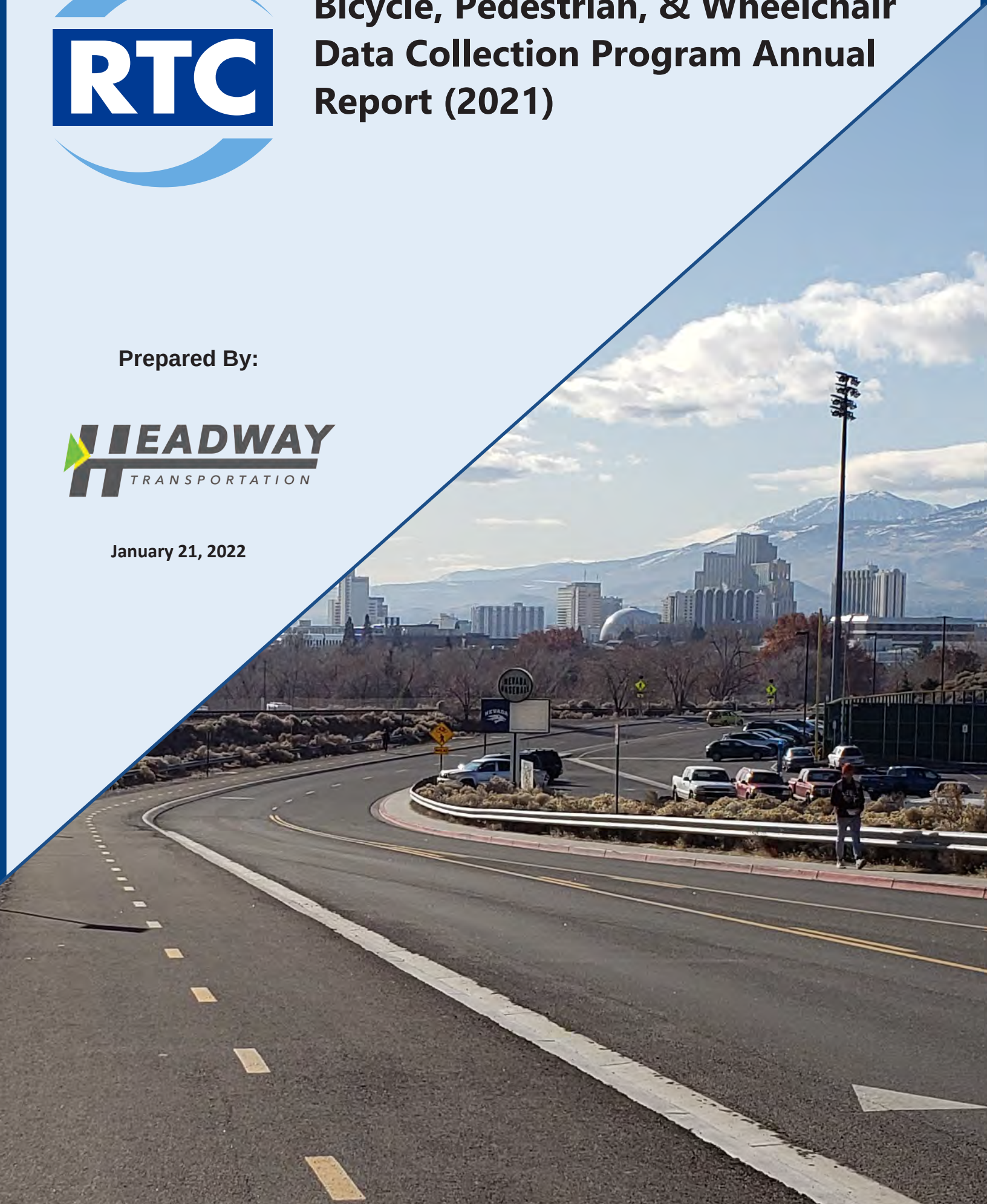
The Citizens Multimodal Advisory Committee met March 3, 2022, and the Technical Advisory Committee met on March 4, 2022, and both committees received a presentation on the Draft Report; both committees recommended approval of the report.

ATTACHMENT(S)

A. 2021 Bicycle & Pedestrian Data Collection Annual Report

ATTACHMENT A

Bicycle, Pedestrian, & Wheelchair Data Collection Program Annual Report (2021)



Prepared By:

HEADWAY TRANSPORTATION

January 21, 2022

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Executive Summary

Introduction

This 2021 Annual Report for the RTC Bicycle, Pedestrian, and Wheelchair Data Collection Program ("Program") provides a detailed review of bicycling, walking, and wheelchair use at key locations throughout Reno, Sparks, and Washoe County. This ongoing collection of active transportation data supplements motorized traffic and transit ridership data to develop a more complete picture of overall travel behavior in our community. The data collection methodology, collection times, and analysis factors follow the National Bicycle and Pedestrian Documentation Project (NBPDP).

It is important to note that data collection efforts were paused during 2020 due to COVID-19 restrictions and disruptions. Comparisons using 2021 data will only be made with data collected in 2019 and prior years.

Purpose

The primary purpose of the Program is to document year-to-year trends in the number of people walking, using wheelchairs or mobility scooters, or riding bicycles on regional roads, as well as the share of each active transportation mode at the comparison locations. The collected data assists transportation planners in evaluating performance measures and the return on active transportation and "complete streets" infrastructure investment and helps identify and prioritize active transportation connectivity and safety improvements.

Program Revision

This is the first data collection cycle following a major Program revision which reduced the total number of count locations from forty (40) to fifteen (15). The fifteen locations include six carry-over locations that have been counted since September 2014. The other nine locations are new to the program and are included to help the RTC gain better insights into the benefits from recent or upcoming bicycle and pedestrian projects throughout the Truckee Meadows and continue to track Regional Transportation Plan (RTP) performance metrics. In future cycles of the Program, locations may be revised based on current projects and need. The location ID numbers were not reassigned so these locations can be revisited with future data collection efforts if desired. Carry over locations include the following:

- 4th Street @ Evans Avenue
- Prater Way @ 15th Street
- Virginia Street @ 17th Street
- Virginia Street @ Martin Street
- 4th Street @ Sutro Street
- Sun Valley Boulevard @ 7th Street

A map of the current count locations is provided in **Figure 1**.

ID Number	Location
1	4th St. @ Evans Ave.
2	Prater Way @ 15th St.
4	Virginia St. @ 17th St.
9	Virginia St. @ Martin St.
20	4th St. @ Sutro St.
42	Sun Valley Blvd. @ 7th St.
44	4th St. @ Mayberry Dr.
45	5th St. @ Virginia St.
46	Evans Ave. @ Enterprise Rd.
47	Oddie Blvd. @ Sutro St.
49	Vine St. @ 4th St.
50	Mill St. @ Rock Blvd.
51	Mt. Rose Hwy. @ Wedge Pkwy
52	Veterans Pkwy. (Path) @ Mira Loma Dr.
54	California Ave. @ Keystone Ave.

Figure 1. 2021 Count Program Locations

2021 Count Data Overview

The following is a summary of total annual data collected in the 2021 data collection cycle (May 2021 and September 2021):

180
Total hours of data collection

34.1
Pedestrians, Bicyclists, and Wheelchair Users per count hour (average)

1,133 - Total Counted Bicyclists

4,946 - Total Counted Pedestrians

58 - Total Counted Wheelchairs

242
Total bicyclists observed on Veterans Parkway at Mira Loma Drive, the highest total bicycle volume of the 15 Program locations

1,479
Total pedestrians observed on 4th Street at Evans Avenue, the highest total pedestrian volume of the 15 Program locations

September 2021– Fewer Pedestrians, Bicyclists and Wheelchairs

The September 2021 count was the eighth September cycle and completed the seventh full year of data collection. 1,842 pedestrians, 181 bicyclists, and 26 wheelchair users were observed at the six comparison count locations in September 2021. From the six comparable September cycles, September 2021 had the lowest recorded pedestrian, bicycle, and wheelchair volume totals. September 2021 had a total of 2,049 bicycle, pedestrians, and wheelchair users at the comparable locations. The previous lowest recorded volume totals of the six comparable location was in 2017 with a total of 2,675 bicycles, pedestrians, and wheelchairs. The 4th Street @ Evans Avenue intersection which has historically been the most active location, had about half of the pedestrian, bicycle, and wheelchair volumes of previous September count cycles which heavily affects the decline in overall volumes. The other five comparable locations had 2021 volumes that were similar to previous data collection cycles.

Veterans Parkway @ Mira Loma Drive Attracting Bicyclists

2021 was the first yearly count cycle to include the Veterans Parkway @ Mira Loma Drive count location. This location primarily observes activity on the separated multi-use path and had the highest bicycle volume of any location in both May 2021 and September 2021. The total volume counted at the location was 242 bicycles. The second highest bicycle volume location for the 2021 count cycle was the 4th Street @ Evans Avenue location with a total of 212 bikes.

RTP Performance Measures

The alternative mode performance goals established in the 2050 Regional Transportation Plan (RTP), are the following:

1. Reach 15% alternative mode share within the Transit Service Area (most of the 15 count locations fall within the transit service area) by 2040. The 2021 alternative mode share was 11.97%.
2. Reach 40% alternative mode share at locations along the Virginia Street and 4th Street/Prater Way transit-oriented development (TOD) corridors. The 2021 alternative mode share was 12.3% on the Virginia Street corridor and 31.12% on the 4th Street/Prater Way corridor.

Introduction

This Report presents the results of manual (video) counts conducted in May 2021 and September 2021 at 15 locations throughout Reno, Sparks, and Washoe County. These counts represent the seventh full year of data collection in a continuing effort by the RTC to better understand pedestrian, bicyclist, and wheelchair user activity and trends throughout the region.

Objective

The primary objective of the Program is to document year-to-year trends in the number of people walking, using wheelchairs or mobility scooters, riding bicycles on regional roads, as well as the share of overall transportation modes at the comparison locations. The collected data will assist transportation planners with evaluating performance measures and the return on active transportation and "complete streets" infrastructure investment and help identify and prioritize active transportation connectivity and safety improvements. The locations consist of regional roadways with and without pedestrian and bicycle facilities. Conducting a regular count program with consistent pedestrian, bicycle, and wheelchair data is important for many reasons, including:

- Baseline Data – Establishing and continuing a consistent count program following nationally standardized guidelines over multiple years allows for accurate trend analysis on regional roadways.
- Performance Metrics – The 2050 Regional Transportation Plan (RTP) includes performance measures for increasing the share of trips made by alternative modes. Availability of data is essential in determining achievement of the performance measures outlined in the RTP.
- Facility Usage/Improvement Planning – Many factors contribute to pedestrian and bicycle usage, however, counts help assess the benefits of bicycle and pedestrian capital improvement projects. The collected data can also increase awareness and help prioritize the need for future roadway corridor improvements and complete streets programs.
- Safety – A better understanding of pedestrian and bicycle collision rates can be gained with accurate volumes.

Methodology

Data Collection Methodology

Data was collected at each of the 15 locations for two hours during one weekday morning (10:00 AM to Noon), one weekday afternoon (5:00 PM to 7:00 PM), and one weekend mid-day period (Saturday, Noon to 2:00PM) for a total of six hours of observation time. Weekday refers to either a Tuesday, Wednesday, or Thursday.

All locations were recorded using portable video recording units and the video was broken down for the desired time frames detailed above. At each location, contextual information, such as date, time, and

presence of bike and pedestrian facilities were documented and the number of cyclists, pedestrians and wheelchair users were recorded. These counts were tabulated in a data reporting spreadsheet and supplied to the RTC for inclusion in the interactive count data GIS based webpage.

Manual Count Extrapolation Methodology

Estimations of daily, weekly, and annual values in this report are extrapolations based upon the manual counts collected and on temporal (climate) adjustment factors suggested by the NBPDP. The NBPDP extrapolation methodology is based on patterns of use by climate region. These patterns effect how much weight any given count will have depending on the hour, day, and month the count was collected. For more information regarding this methodology refer to the **NBPDP Count Adjustment Factors Document** in the Appendix.

Data Collection Locations

Throughout the Program's history, multiple locations have been added and/or removed for observation. The location ID numbers were not reassigned so these locations can be revisited with future data collection efforts if desired. The count location comparison in this report compares only the six comparison count locations at which data has continually been collected (September 2015 – Present).

Data collection locations were selected based on meeting the following criteria:

- Recently constructed projects
- Planned alternative mode improvement projects
- Stakeholder recommendations
- Presence of transit routes
- Existing bicycle facilities
- Mix of land uses
- Historical count location

Count Data

Alternative Modes Volume Totals

The following section documents the total 2021 annual volumes of each alternative mode for each data collection location. The total of 180 hours of observed activity recorded 1,133 bicyclists, 4,946 pedestrians, and 58 wheelchair users. **Table 1** shows the overall count summary for the 2021 annual count period.

Table 1. 2021 Count Summary by Location

ID No.	Location	May 2021					September 2021					2021 Total				
		Bike	Ped	Wheelchair	Total	Rank	Bike	Ped	Wheelchair	Total	Rank	Bike	Ped	Wheelchair	Total	Rank
1	4th St. @ Evans Ave.	134	800	13	947	1	78	679	9	766	1	212	1479	22	1713	1
2	Prater Way @ 15th St.	17	57	0	74	9	19	68	10	97	7	36	125	10	171	9
4	Virginia St. @ 17th St.	10	481	0	491	2	3	314	0	317	3	13	795	0	808	3
9	Virginia St. @ Martin St.	55	370	1	426	3	43	506	2	551	2	98	876	3	977	2
20	4th St. @ Sutro St.	83	261	6	350	4	38	260	4	302	5	121	521	10	652	4
42	Sun Valley Blvd. @ 7th St.	4	41	0	45	12	0	15	1	16	13	4	56	1	61	13
44	4th St. @ Mayberry Dr.	128	5	0	133	7	64	0	0	64	10	192	5	0	197	8
45	5th St. @ Virginia St.	17	298	5	320	5	11	291	3	305	4	28	589	8	625	5
46	Evans Ave. @ Enterprise Rd.	11	50	0	61	10	4	234	0	238	6	15	284	0	299	6
47	Oddie Blvd. @ Sutro St.	5	16	0	21	14	14	42	0	56	11	19	58	0	77	12
49	Vine St. @ 4th St.	35	47	1	83	8	20	56	3	79	9	55	103	4	162	10
50	Mill St. @ Rock Blvd.	9	7	0	16	15	2	1	0	3	15	11	8	0	19	15
51	Mt. Rose Hwy. @ Wedge Pkwy.	29	4	0	33	13	5	6	0	11	14	34	10	0	44	14
52	Veterans Pkwy. @ Mira Loma Dr.	159	3	0	162	6	83	5	0	88	8	242	8	0	250	7
54	California Ave. @ Keystone Ave.	40	15	0	55	11	13	14	0	27	12	53	29	0	82	11
	Total By Mode :	**736**	**2,455**	**26**	**3,217**		**397**	**2,491**	**32**	**2,920**		**1,133**	**4,946**	**58**	**6,137**	

Top Five Bicycle Count Locations

Top Five Pedestrian Count Locations

Top Five Wheelchair Count Locations

As shown in the table, similar pedestrian and wheelchair volumes were observed in the May 2021 and September 2021 count cycles. However, bicycle volume was significantly less in September 2021 compared to May 2021.

Bicyclist Count Data

A total of 1,133 bicyclists were counted over the two data collection periods. May 2021 had nearly twice the bicycle volume of September 2021. The locations with the five highest bicycle activity in each individual cycle and across the 2021 annual cycle are shown to the right. A significantly higher number of bicyclists were observed at the following three locations:

- Veterans Parkway @ Mira Loma Drive
- 4th Street @ Evans Avenue
- 4th Street @ Mayberry Drive

The May 2021 count cycle recorded a total of 736 bicyclist at the 15 count locations. At the six comparison locations, there were 303 bicyclists observed, ranking as the third highest May bicycle volume counted since 2015. The September 2021 count cycle recorded a significantly lower number of bicyclists (397). September 2021 had the lowest volume of bicycles observed at the comparable locations since 2015. **Figure 2** shows bicycle totals for the 2021 count cycle by location.

Locations with Highest Bicycle Activity

May 2021
1. Veterans Pkwy. @ Mira Loma Dr.
2. 4th St. @ Evans Ave.
3. 4th St. @ Mayberry Dr.
4. 4th St. @ Sutro St.
5. Virginia St. @ Martin St.

September 2021
1. Veterans Pkwy. @ Mira Loma Dr.
2. 4th St. @ Evans Ave
3. 4th St. @ Mayberry Dr.
4. Virginia St. @ Martin St.
5. 4th St. @ Sutro St.

2021 Annual Cycle
1. Veterans Pkwy. @ Mira Loma Dr.
2. 4th St. @ Evans Ave
3. 4th St. @ Mayberry Dr.
4. 4th St. @ Sutro St.
5. Virginia St. @ Martin St.

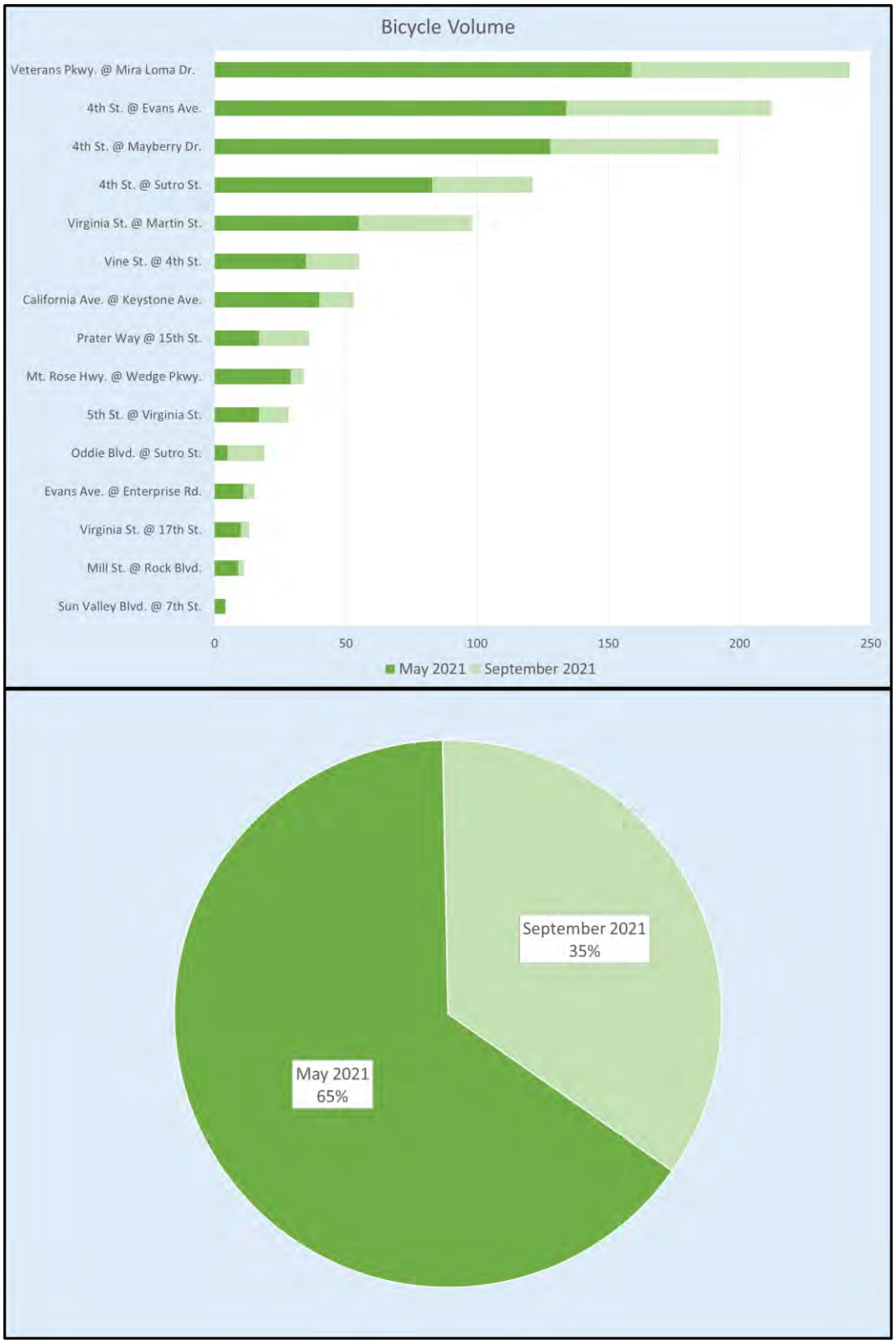


Figure 2. 2021 Total Bicyclist Volumes by Location

Pedestrian Count Data

During the 2021 annual count cycle, 4,946 pedestrians were observed across all 15 locations. May 2021 and September 2021 had similar total pedestrian volumes observed. The Evans Avenue @ Enterprise Road location had a significant pedestrian activity increase in September 2021 compared to May 2021. This location is in close proximity to the university and is the route used by many college students between campus and the nearby student housing complexes. The increase is likely due to the University of Nevada, Reno holding mainly remote classes in May, but then returning to in-person classes in September. The 4th Street @ Evans Avenue, Virginia Street @ 17th Street and Virginia Street @ Martin St. locations were the top three pedestrian activity locations for the 2021 cycle. There were 3,852 pedestrians counted at the six comparison locations. The comparable locations for 2021 had the lowest recorded pedestrian volumes since 2015. The 4th Street @ Evans Avenue location continues to be the most active pedestrian location, although, volumes for this location were approximately 50% lower compared to prior counts. The five highest pedestrian volume locations for May 2021, September 2021, and the 2021 annual cycle are shown to the right. **Figure 3** shows the observed pedestrian volumes for the 2021 annual period.

Locations with Highest Pedestrian Activity

May 2021
1. 4th St. @ Evans Ave.
2. Virginia St. @ 17th St.
3. Virginia St. @ Martin St.
4. 5th St. @ Virginia St.
5. 4th St. @ Sutro St.

September 2021
1. 4th St. @ Evans Ave.
2. Virginia St. @ Martin St.
3. Virginia St. @ 17th St.
4. 5th St. @ Virginia St.
5. 4th St. @ Sutro St.

2021 Annual Cycle
1. 4th St. @ Evans Ave.
2. Virginia St. @ Martin St.
3. Virginia St. @ 17th St.
4. 5th St. @ Virginia St.
5. 4th St. @ Sutro St.

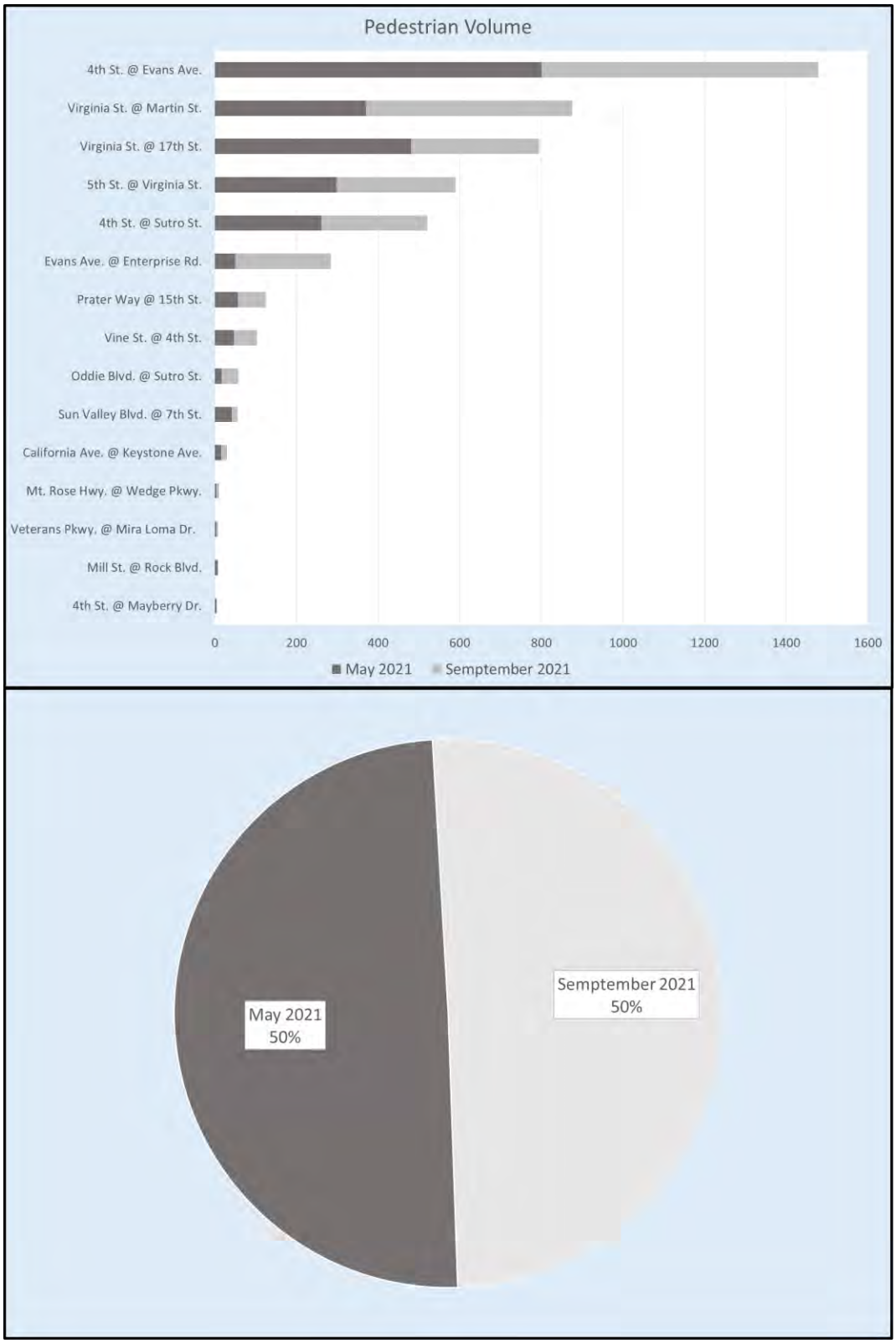


Figure 3. 2021 Total Pedestrian Volumes by Location

Wheelchair Count Data

The 2021 annual count cycle observed 58 wheelchair users at the 15 count locations and 46 wheelchair users at the six comparison count locations. At the 15 locations counted in 2021, September had slightly more wheelchair traffic than May. At the comparable count locations, May 2021 was the second lowest May wheelchair volume since May 2015 and September 2021 was the second lowest wheelchair since September 2015. The 2021 wheelchair total was the lowest recorded yearly cycle since 2016. The second lowest annual total was a tie between 2015 with a total of 15 wheelchair users at the comparable locations. The 4th Street @ Evans Avenue location continues to have significantly higher wheelchair volumes compared to other locations. **Figure 3** shows the observed wheelchair volumes for the 2021 annual period.

Locations with Highest Wheelchair Activity

May 2021
1. 4th St. @ Evans Ave.
2. 4th St. @ Sutro St.
3. 5th St. @ Virginia St.
4. Vine St. @ 4th St. (Tie)
4. Virginia St. @ Martin St. (Tie)

September 2021
1. Prater Way @ 15th St.
2. 4th St. @ Evans Ave.
3. 4th St. @ Sutro St.
4. Vine St. @ 4th St. (Tie)
4. Virginia St. @ Martin St. (Tie)

2021 Annual Cycle
1. 4th St. @ Evans Ave.
2. 4th St. @ Sutro St. (Tie)
2. Prater Way @ 15th St. (Tie)
3. 5th St @ Virginia St.
4. Vine St. @ 4th St.

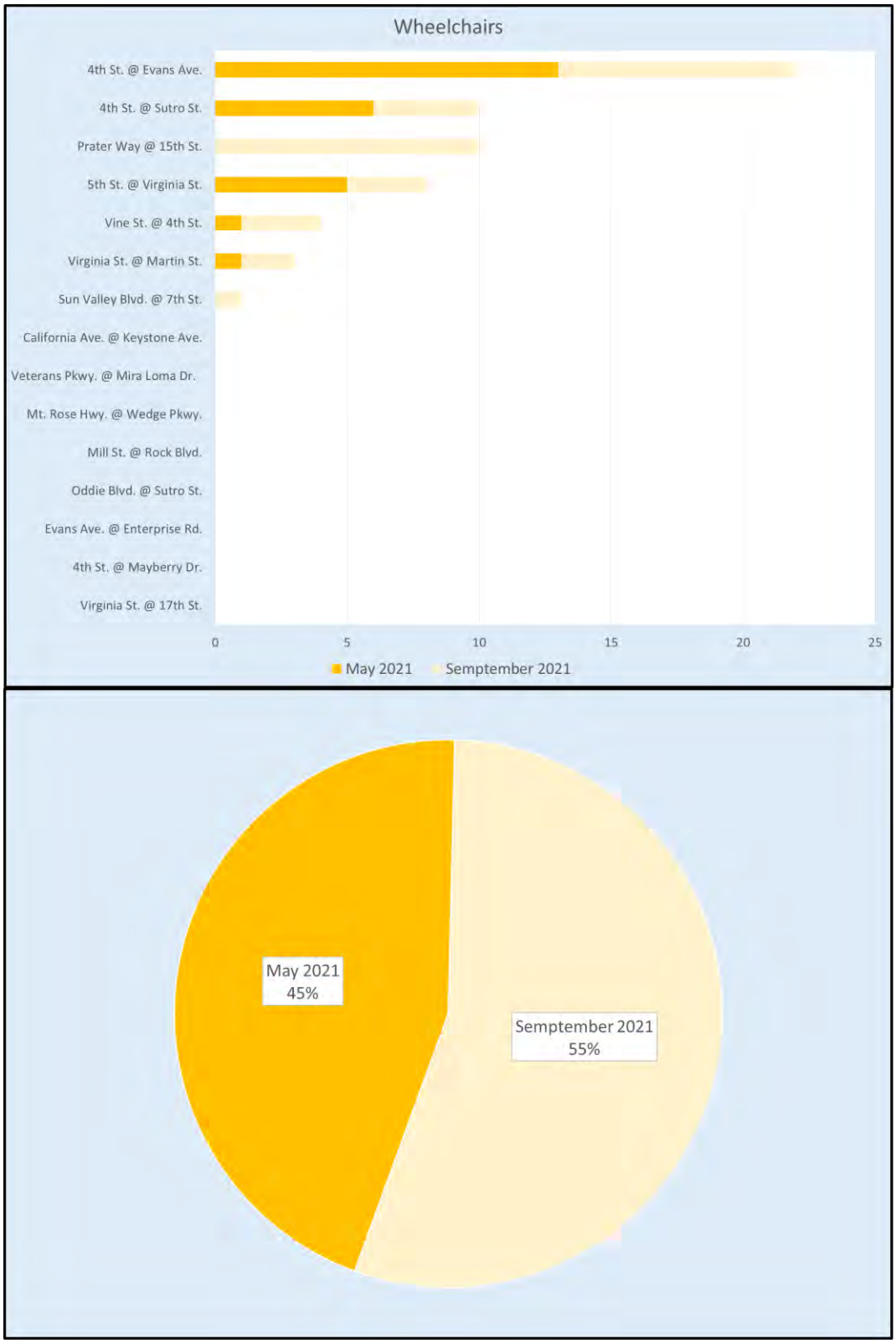


Figure 4. 2021 Total Wheelchair Volumes by Location

Volumes by Location

Figure 5 shows the recorded 2021 bicycle, pedestrian, and wheelchair user volumes at the 15 Program count locations. The scale of the bar graphs is proportionate to the total volumes of bicycles, pedestrians, and wheelchairs users observed at each location over the annual count cycle.

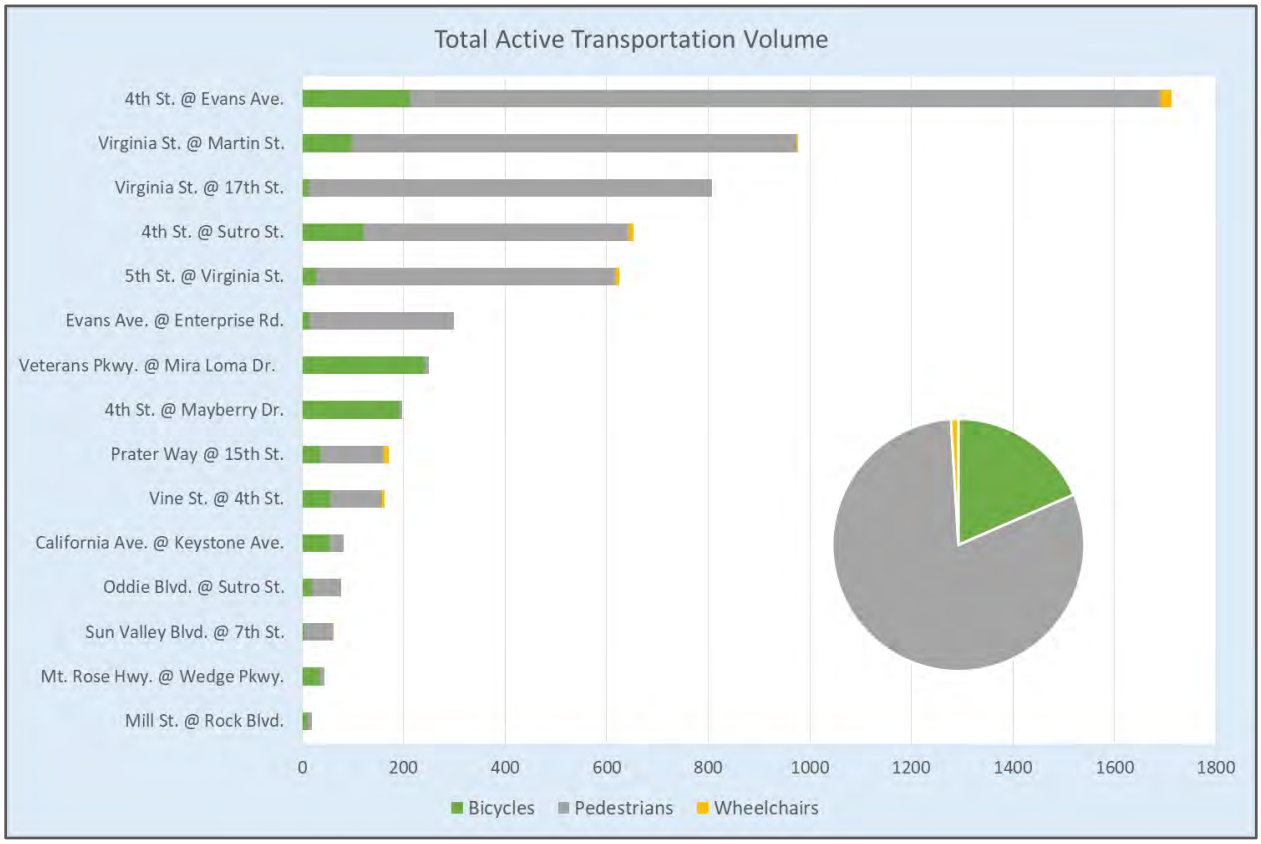


Figure 5. 2021 Relative Volumes

Pedestrian & Bicycle Crash Data

At the time of this report, the Nevada Department of Transportation was unable to provide pedestrian and bicycle crash data for 2020 or 2021.

Wrong-Way Riding

Wrong-way riding is a major safety concern because incidents involving wrong-way riding are typically severe and often fatal for bicyclists when an automobile is involved. **Figure 6** shows the total volume of bicycles by location and the number of wrong way riders during the 2021 count cycle.

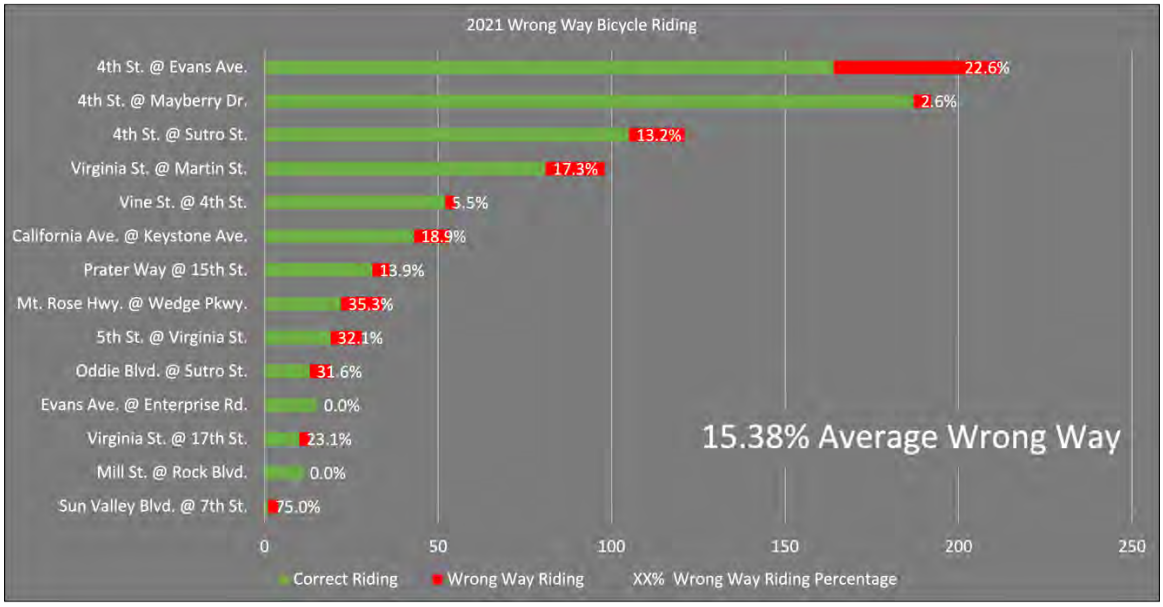


Figure 6. 2021 Wrong Way Riding

Relatively low percentages of wrong way bicycle riding were observed at the 15 count locations. The average wrong way percentage across the study was 15.4%. Veterans Parkway @ Mira Loma Drive was omitted from wrong way percentages as the data collected focuses on the multi-use path which provides two-way cycling. Detailed wrong way bicycle riding at each count location is shown below in **Table 2**.

Table 2. 2021 Wrong Way Riding Percentages

ID No.	Location	Wrong way	Total Bicyclists	Percentage
1	4th St. @ Evans Ave.	48	212	22.64%
2	Prater Way @ 15th St.	5	36	13.89%
4	Virginia St. @ 17th St.	3	13	23.08%
9	Virginia St. @ Martin St.	17	98	17.35%
20	4th St. @ Sutro St.	16	121	13.22%
42	Sun Valley Blvd. @ 7th St.	3	4	75.00%
44	4th St. @ Mayberry Dr.	5	192	2.60%
45	5th St. @ Virginia St.	9	28	32.14%
46	Evans Ave. @ Enterprise Rd.	0	15	0.00%
47	Oddie Blvd. @ Sutro St.	6	19	31.58%
49	Vine St. @ 4th St.	3	55	5.45%
50	Mill St. @ Rock Blvd.	0	11	0.00%
51	Mt. Rose Hwy. @ Wedge Pkwy.	12	34	35.29%
54	California Ave. @ Keystone Ave.	10	53	18.87%
Total		**137**	**891**	**15.38%**

2021 Mode Share

Mode share refers to the percentage of a type or "mode" of transportation traveling on a given roadway or within a defined area. This section provides information about the overall regional mode share based on alternative modes data from all 15 Program locations, as well as the mode share of active transportation at the individual count locations.

Mode shares at each location were calculated by comparing the Average Annual Daily Traffic (AADT), the transit Annual Daily Ridership Average (AADR), and the estimated average annual daily bicycle, pedestrian, and wheelchair traffic extrapolated from the collected counts. AADT at each roadway segment was retrieved from the Traffic Records Information Access (TRINA) database published by the Nevada Department of Transportation (NDOT). At the time of this annual report, NDOT has not released data for 2021, but did release data for 2020 and 2019. The higher volume of the two years was used since 2020 was severely impacted by COVID-19. 2021 is anticipated to have higher vehicle volumes than 2020. Annual Daily Ridership Average (AADR) was obtained from the most recent RTC transit ridership data based on individual roadway segments. RTC ridership volume for 2021 is significantly lower than previous years due to factors such as COVID-19 restrictions and multiple labor strikes that disrupted transit service. At the six comparable locations, 2021 transit volumes were down approximately 44% from 2019.

Figure 7 shows the average calculated modal split for all locations using the most recent AADT and AADR. data for May and September 2021.

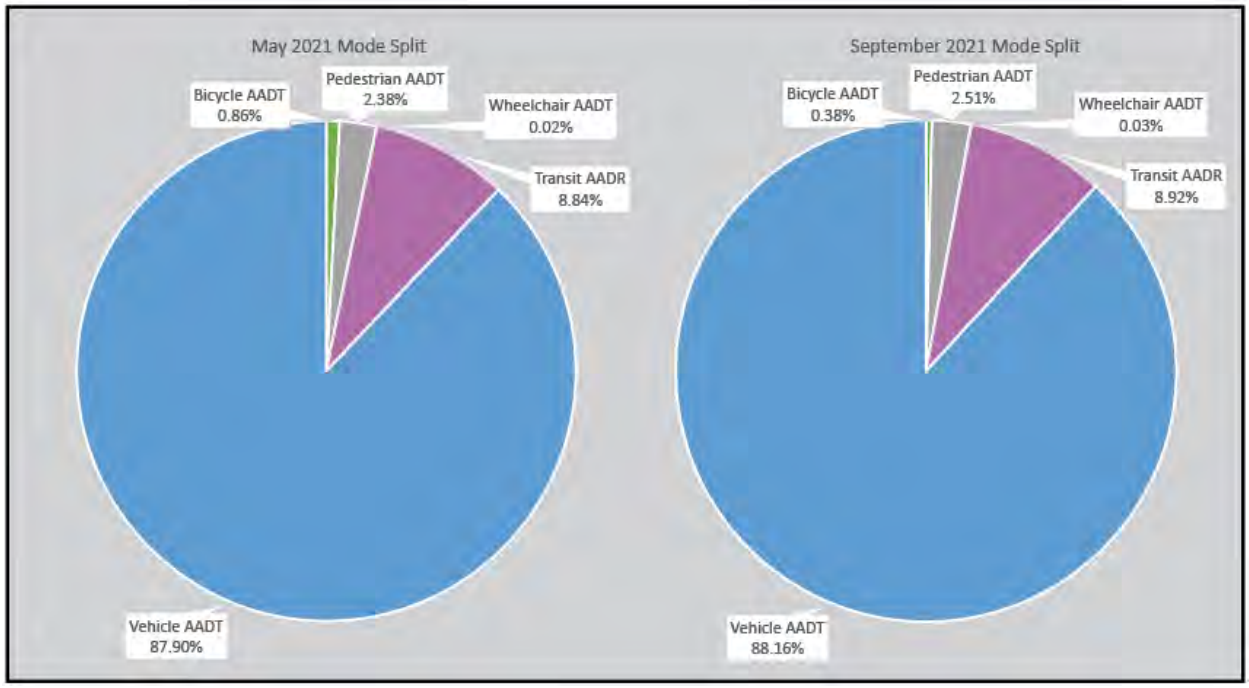


Figure 7. 2021 Transportation Regional Mode Share

In the 2021 yearly count cycle, pedestrian volumes represented 2.44%, bicycling volumes represented 0.62%, and wheelchair user activity represented 0.03% of all regional trips. Transit ridership accounted for 8.88% percent and vehicle traffic accounted for 88.03% of all travel at the 15 count program locations.

The Vine Street @ 4th Street location had the highest bicycle percentage (1.96%) of the 15 locations. The location with the highest pedestrian percentage was 5th Street @ Virginia Street (6.78%). The location with the highest transit percentage was the 4th Street @ Evans Avenue location (49.4%) which is due to the proximity of the RTC 4th Street Station.

Table 3 contains a complete breakdown of the modal split by location in the 2021 count cycle.

Table 3. 2021 Mode Share by Count Location

ID	Location	Existing Facilities			Mode Split				
		Bicycle	Pedestrian	Transit	Bicycles	Pedestrians	Wheelchairs	Transit	Vehicles
1	4th St. @ Evans Ave.				0.83%	6.34%	0.06%	49.40%	43.37%
2	Prater Way @ 15th St.				0.52%	1.44%	0.02%	16.03%	95.03%
4	Virginia St. @ 17th St.				0.03%	3.94%	0.00%	2.42%	93.60%
9	Virginia St. @ Martin St.				0.43%	5.01%	0.02%	12.68%	81.87%
20	4th St. @ Sutro St.				0.87%	4.29%	0.08%	13.49%	81.26%
42	Sun Valley Blvd. @ 7th St.				0.04%	0.50%	0.00%	1.86%	97.61%
44	4th St. @ Mayberry Dr.				1.62%	0.06%	0.00%	0.00%	98.32%
45	5th St. @ Virginia St.				0.39%	6.78%	0.11%	13.47%	79.25%
46	Evans Ave. @ Enterprise Rd.				0.24%	4.18%	0.00%	0.00%	95.58%
47	Oddie Blvd. @ Sutro St.				0.10%	0.40%	0.00%	3.67%	95.83%
49	Vine St. @ 4th St.				1.96%	3.41%	0.12%	14.60%	79.91%
50	Mill St. @ Rock Blvd.				0.22%	0.12%	0.00%	4.88%	94.78%
51	Mt. Rose Hwy. @ Wedge Pkwy				0.20%	0.05%	0.00%	0.00%	99.75%
52	Veterans Pkwy. @ Mira Loma Dr.				1.44%	0.05%	0.00%	0.00%	98.51%
54	California Ave. @ Keystone Ave.				0.44%	0.27%	0.00%	0.69%	98.60%
		Average			**0.62%**	**2.44%**	**0.03%**	**8.88%**	**88.03%**

Performance Measures Monitoring

With the Program data, performance measures can be created and monitored to assess progress towards goals outlined in the 2050 Regional Transportation Plan (RTP) as well as those highlighted in the Bicycle and Pedestrian Master Plan. A stated goal in the 2050 RTP is a 15% alternative mode share within the transit service area by 2040. In 2021, the average total non-motorized user mode share at the 15 Program locations within the RTP Transit Service Area was 11.97%, including transit users.

Two count locations on the Virginia Street corridor and three count locations on the 4th Street/Prater Way corridor help to measure performance against 2050 RTP criteria. A target of 40% alternative mode share for both the Virginia Street and 4th Street/Prater Way TOD corridors was set in the 2050 RTP. **Table 5** shows the 2021 mode share for the count locations on both corridors.

Table 4. 2021 Virginia Street & 4th Street/Prater Way TOD Corridor Mode Share

Location	Bikes	Pedestrians	Wheelchair	Transit	Vehicle
Virginia St. @ 17th St.	0.03%	3.94%	0.00%	2.42%	93.60%
Virginia St. @ Martin St.	0.43%	5.01%	0.02%	12.68%	81.87%

Alternative Modes Average: 12.3%

Location	Bikes	Pedestrians	Wheelchair	Transit	Vehicle
4th St. @ Evans	0.83%	6.34%	0.06%	49.40%	43.37%
4th St. @ Sutro	0.87%	4.29%	0.08%	13.49%	81.26%
Prater Way @ 15th St.	0.52%	1.44%	0.02%	16.03%	95.03%

Alternative Modes Average: 31.12%

The average alternative mode share for the 2021 yearly cycle, including transit, was 12.3% and 31.12% for the Virginia Street and 4th Street/Prater Way TOD corridors, respectively.

Analysis and Trends

Multi-Year Trends

In any given count cycle, special events, inclement weather, and other factors can have a significant effect on observed volumes. A central reason for the existence of this consistent data collection effort is to help planners and the public understand the general multi-year trends in alternative mode usage, and thereby more easily identify any abnormalities in seasonal activity at each location or region-wide. For this reason, a trend line is included in each of the graphs below containing historical total alternative mode volumes.

Bicyclist Activity

Figure 8 shows that, since September 2015, bicycling activity at the six comparison locations has shown a trend towards slightly decreasing volumes in each year-to-year count cycle, most notably since 2017. 2021 is the lowest recorded volume recorded at the count locations, next to 2018. The volumes of bicycles observed over the last 3 count cycles at the comparable locations have been relatively consistent.

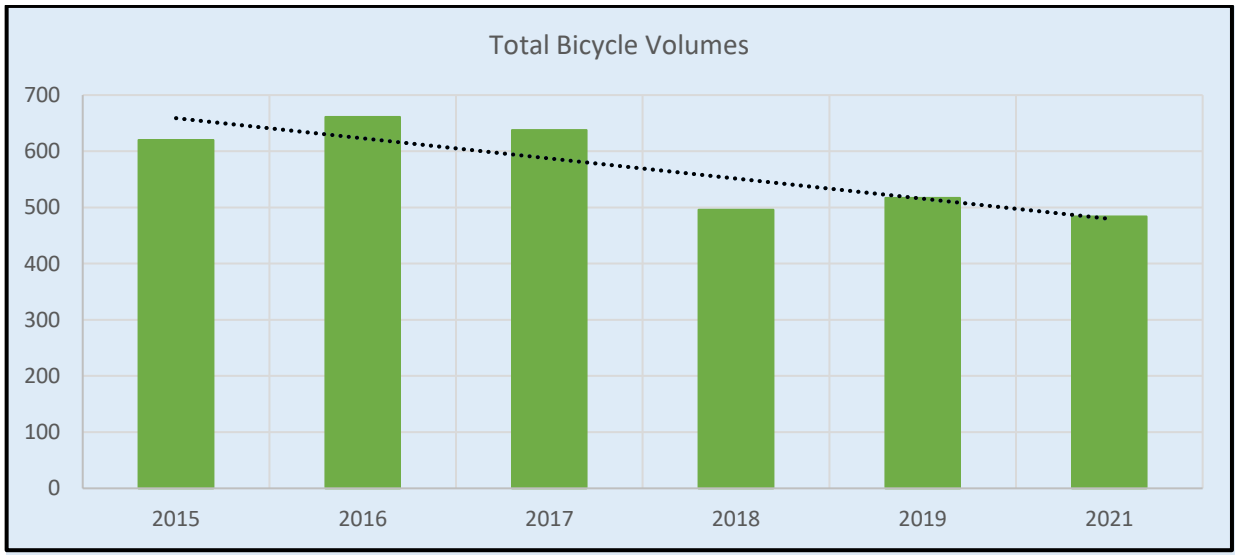


Figure 8. Multi-Year Total Bicycle Volumes

Pedestrian Activity

Figure 9 indicates that overall pedestrian activity at the six comparison count locations was relatively consistent (approximately 5,000 pedestrians) from 2015 to 2019. The recorded 2021 pedestrian volume was significantly lower than prior yearly count cycles. This is mostly due to the low number of pedestrians observed at the 4th Street @ Evans Avenue location in September 2021.

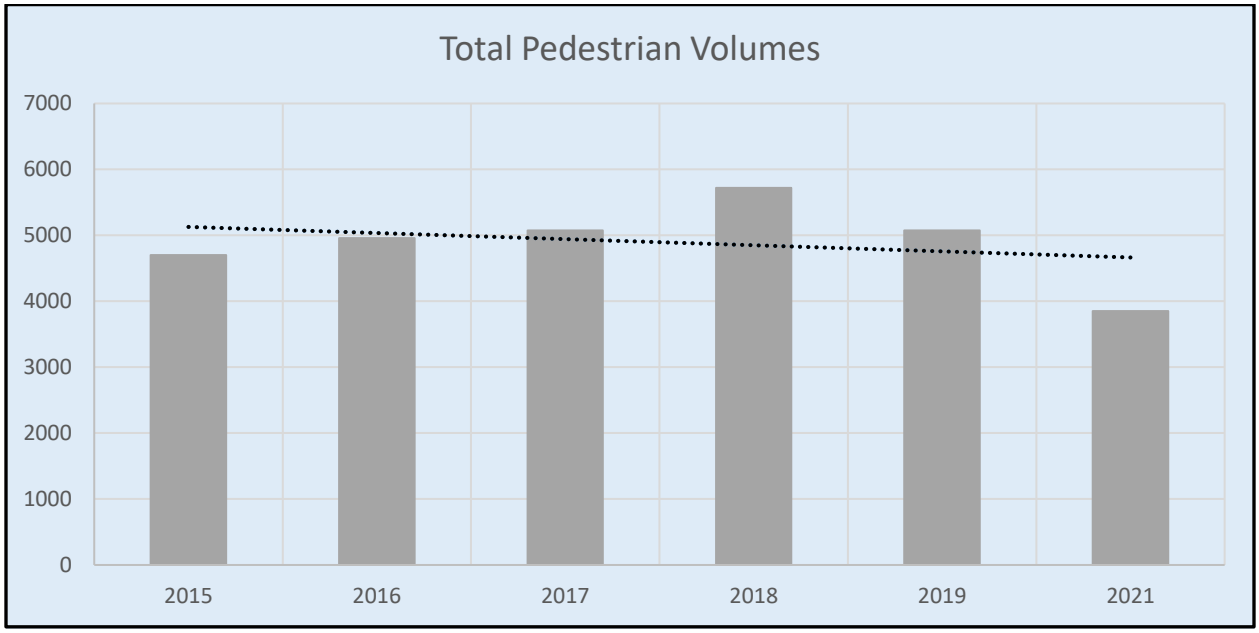


Figure 9. Multi-Year Total Pedestrian Volumes

Wheelchair Activity

Figure 10 indicates that overall wheelchair user activity at the six comparison count locations has been relativity consistent (45 to 75 persons in total).

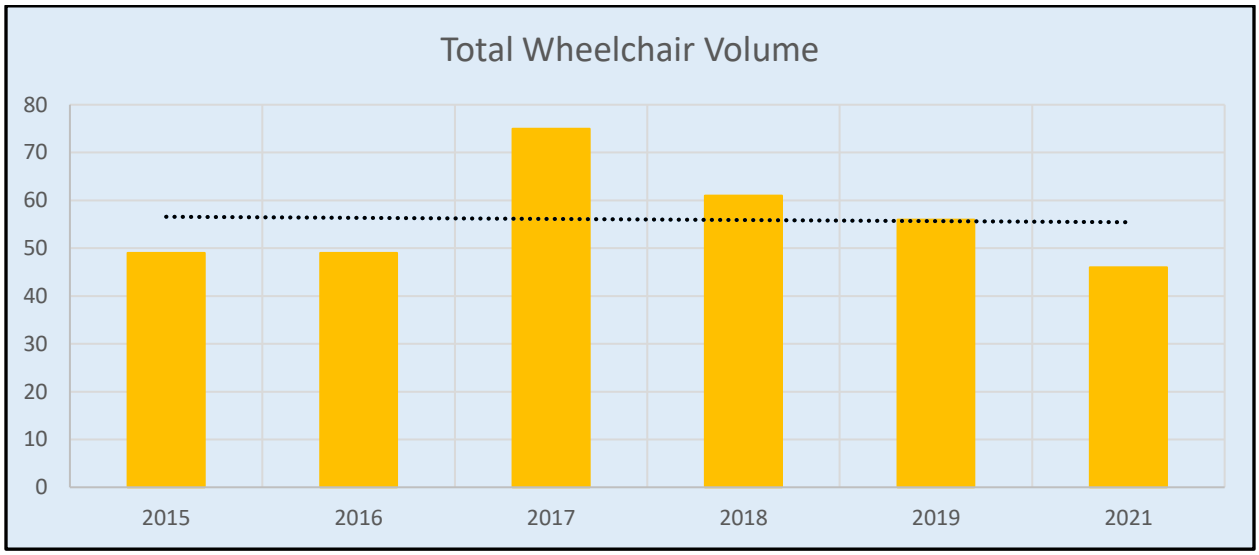


Figure 10. Multi-Year Total Wheelchair Volumes

The seventh full year of data collection for the Bicycle, Pedestrian and Wheelchair Data Collection Program, has helped to identify multi-year trends and factors contributing to the use of alternative modes of transportation in the Reno-Sparks area. A total of 12 data collection cycles are now complete at the six "comparison" count locations.

Posted Speed Limit Impacts

In general, areas with lower posted speed limits had higher percentages of alternate mode usage. Posted speed limits at count locations ranged from 25 MPH to 55 MPH. The highest alternate mode percentage was 7.23% which was at 4th Street @ Evans Avenue. That location has a posted speed limit of 25 MPH. The lowest alternate mode percentage was 0.25% which was recorded at the Mt. Rose Highway @ Wedge Parkway count location. The posted speed limit at that location is 50 MPH. **Figure 11** shows the correlation between posted speed limit and alternate mode usage percentage.

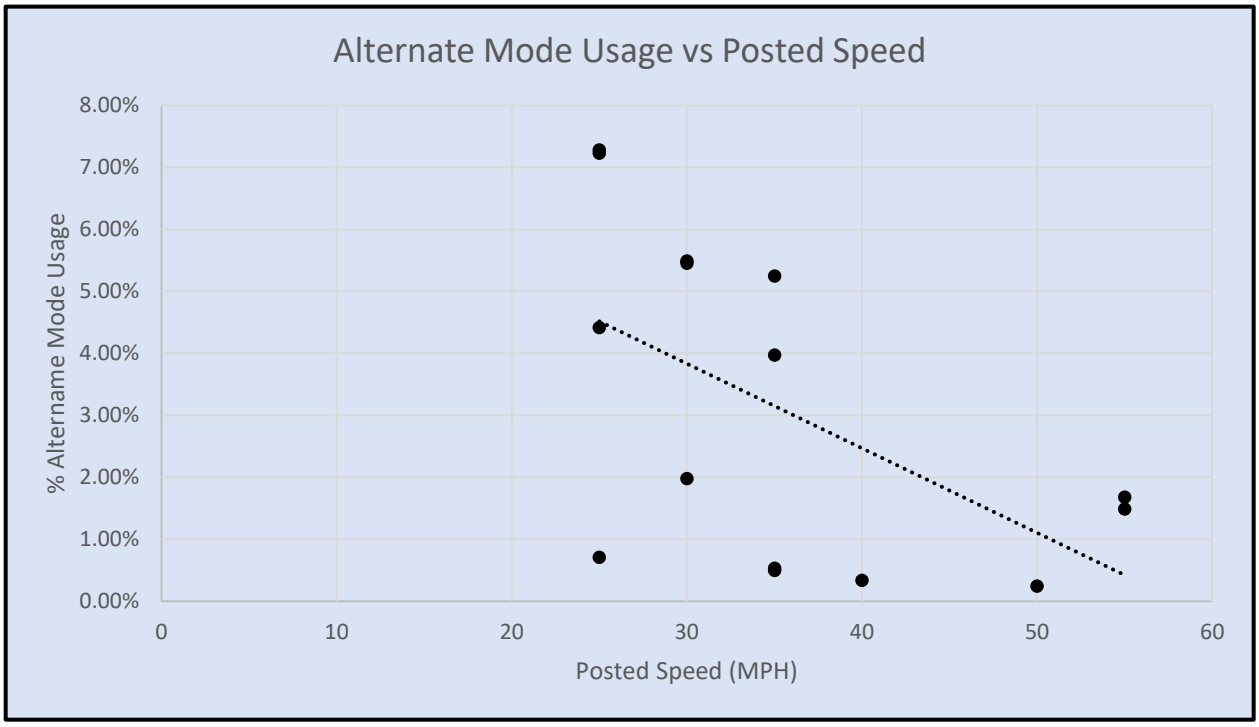


Figure 11. Posted Speed Limit vs. Alternate Mode Usage

Conclusions

Seven complete annual cycles of bicycle, pedestrian and wheelchair user data have been conducted in the Reno-Sparks region since the Programs' inception. In this section, the multi-year trends of each alternative mode are analyzed based on the associated total volumes at the six comparison count locations collected between September 2015 and September 2021.

Alternative Mode Activity Data Trends

- Pedestrian volumes were relatively consistent between 2015 and 2019. However, the 2021 count cycle recorded significantly less pedestrians compared to the prior count cycles.
- Bicycle volumes have had a significant decrease since 2017 but have been relatively consistent from 2018 to present.
- Active mode usage is generally higher on roadways with lower speed limits.
- COVID-19 restrictions and impacts were still prevalent in 2021. The absence of many special events and low transit ridership negatively impacted the overall alternative mode share.

Considerations for Future Data Collection Efforts / Program

The following suggestions to improve future data collection and analysis include modifications or additions to what and how data is being collected and analyzed for the Bicycle, Pedestrian, and Wheelchair Data Collection Program. The list represents ideas brought forth by the Program consultant. It is assumed that their implementation depends on their relative suitability and feasibility as determined by RTC staff and Program stakeholders.

- Obtain and map crash location data from NDOT and other sources, if available, to identify and characterize high-crash locations.
- Analyze post COVID-19 data trends (how fast will transit and other active transportation volumes return to normal levels)
- Monitor specific locations with upcoming "compete street" improvements before and after construction to measure the effectiveness of new infrastructure and roadway treatments that are intended to improve the use of alternative transportation.
- Consider longer term data collection efforts to create better hourly to daily volume conversion factors.

Appendix

NATIONAL BICYCLE & PEDESTRIAN DOCUMENTATION PROJECT

Count Adjustment Factors March 2009

While more year-long automatic count data is needed from different parts of the county, especially for pedestrians and on-street bicyclists, enough data now exists to allow us to adjust counts done almost any period on multi-use paths and pedestrian districts to an annual figure.

All percentages in the following tables represent the percentage of the total period (day, week, or month).

How to Use This Data

The factors in the following tables are designed to extrapolate daily, monthly, and annual users based on counts done during any period of a day, month, or year. The factors currently are designed to be used by (a) multi-use pathways (PATH) and (b) higher density pedestrian and entertainment areas (PED).

How Many Counts Can it Be Based On?

Given the variability of bicycle and pedestrian activity, we strongly encourage that all estimates be based on the average of at least two (2) and preferably three (3) counts during the same time period and week, especially for lower volume areas. For example, counts could be done from 2-4pm on consecutive weekdays (Tuesday – Thursday) during the same week, or, in consecutive weeks. Weekday counts should always be done Tuesday through Thursday, and never on a holiday. Weekend counts can be done on either day.

Bicyclists versus Pedestrians

The factors used in these formulas are for combined bicyclist and pedestrian volumes. Once you have calculated your total daily, monthly, or annual volume, you can simply multiple the total by the percent breakdown between bikes and pedestrians based on your original count information.

Start with the Hour Count

Once you have collected your count information and developed an average weekday and weekend count volume for bicyclists and/or pedestrians, pick any one (1) hour period from either of those days.

<u>Adjustment Factor</u>

Your next step is to multiply those counts by 1.05. Sample #1

Average 1 hour weekday count: 236 bikes/peds x 1.05 = 248
Average 1 hour weekend day count: 540 bikes/peds x 1.05 = 567

This adjustment factor is done to reflect the bicyclists/pedestrians who use the facility between 11pm and 6am, or, about 5% of the average daily total. The count formulas are all based on total counts between 6am and 10pm, since many available counts only cover those periods. If you are certain your facility gets virtually no use between those hours, you can forgo this step.

Calculate Daily Weekday and Weekend Daily Total

Identify the weekday and weekend hour your counts are from in Table 1 below. Be sure to use the PATH column for all multi-use paths, and the PED column for all higher density pedestrian areas with some entertainment uses such as restaurants. Be sure to select the correct time of year (April- September, or, October-March) as well.

Sample #2: done in June on a multiuse path (weekday = 4-5pm, weekend day = 12-1pm): Adjusted weekday hourly count = 248/.07 = 3,542 daily users
Adjusted weekend day hourly count = 567/.1= 5,670 daily users Calculating Average Weekly Volumes
We need to adjust these figures based on the day of the week. See table 2 below. Find the day of the week your counts were done, and factor them by that percent. If you did multiple counts on different days of the week, then take the average of those factors.

Sample #3: counts were done on a Tuesday and a Saturday. Adjusted weekday count = 3,542/.13 = 27,246 average weekly users Adjusted weekend count = 5,670/.18 = 31,500
Add these two figures together, and divide by 2: 27,246+31,500=58,746/2 = 29,373 people The average weekly volumes for that month are 29,373 people.

Convert to Monthly Volumes

To convert from average weekly volumes to an average monthly volume, multiply the average weekly volume by the average number of weeks in a month (4.33 weeks).

Sample #4: 29,373 x 4.33 = 127,282 people.
This is the average monthly volume for the month the counts were conducted. Convert to Annual Totals
To convert from the average monthly volume for the month the counts were taken into an annual total, divide the average monthly figure by the factor from Table 3 for the month the counts were conducted. Use the general climate zones described. Some climate zone types are not included.

Sample #5: counts were done in June in a moderate climate zone. Average monthly volumes = 127,282/.08 = 1,591,037 people.
Based on these sample figures, it is estimated that almost 1.6 million people use the pathway annually.

Average Monthly and Daily Figures

To identify the average monthly and daily figures, simply divide the annual figure by 12 (for month) or by 365 (for daily figures).

Monthly average = 1,591,037/12 = 132,586 people Daily Average = 1,591,037/365 = 4,359 people

Table 1: Hourly adjustment factors for multi-use paths and pedestrian entertainment areas by season.

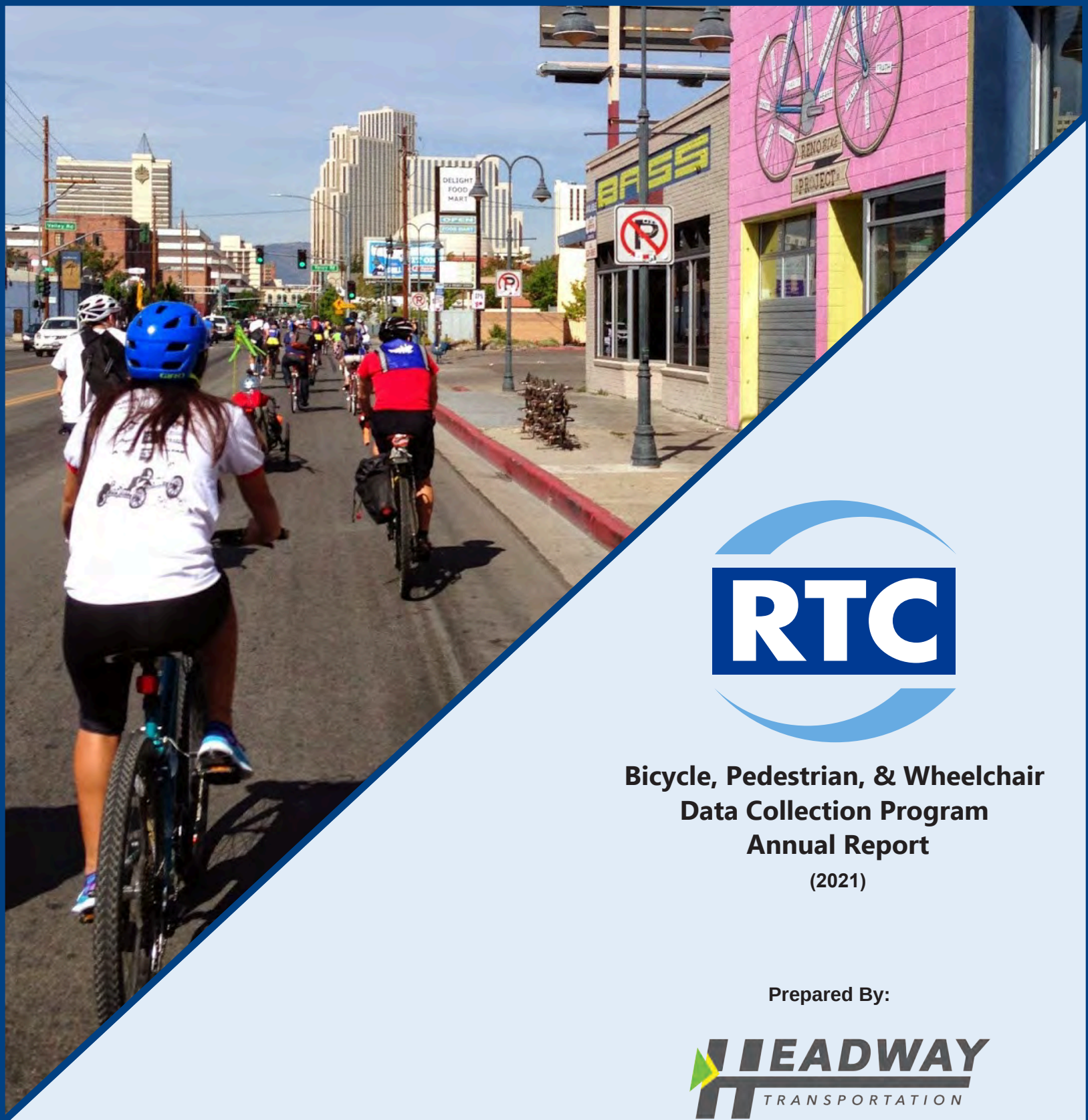
	April - September 6am - 9pm					October - March 6am - 9pm			
	---- PATH------		-----PED-----			---- PATH------		-----PED-----	
	wkdy	wkend	wkdy	wkend		wkdy	wkend	wkdy	wkend
0600	2%	1%	1%	1%	0600	2%	0%	1%	0%
0700	4%	3%	2%	1%	0700	4%	2%	2%	1%
0800	7%	6%	4%	3%	0800	6%	6%	3%	2%
0900	9%	9%	5%	3%	0900	7%	10%	5%	4%
1000	9%	9%	6%	5%	1000	9%	10%	6%	5%
1100	9%	11%	7%	6%	1100	9%	11%	8%	8%
1200	8%	10%	9%	7%	1200	9%	11%	9%	10%
1300	7%	9%	9%	7%	1300	9%	10%	10%	13%
1400	7%	8%	8%	9%	1400	9%	10%	9%	11%
1500	7%	8%	8%	9%	1500	8%	10%	8%	8%
1600	7%	7%	7%	9%	1600	8%	8%	7%	7%
1700	7%	6%	7%	8%	1700	7%	5%	6%	6%
1800	7%	5%	7%	8%	1800	6%	3%	7%	6%
1900	5%	4%	7%	8%	1900	4%	2%	7%	6%
2000	4%	3%	7%	8%	2000	2%	1%	6%	6%
2100	2%	2%	6%	8%	2100	2%	1%	5%	5%

Table 2: Daily adjustment factors. Note: Holidays use weekend rates.

MON	14%
TUES	13%
WED	12%
THURS	12%
FRI	14%
SAT	18%
SUN	18%

Table 3: Monthly Adjustment Factors by Climate Area

	Climate Region		
Month	Long Winter Short summer	Moderate Climate	Very hot summer Mild winter
JAN	3%	7%	10%
FEB	3%	7%	12%
MAR	7%	8%	10%
APR	11%	8%	9%
MAY	11%	8%	8%
JUN	12%	8%	8%
JUL	13%	12%	7%
AUG	14%	16%	7%
SEP	11%	8%	6%
OCT	6%	6%	7%
NOV	6%	6%	8%
DEC	3%	6%	8%



RTC

Bicycle, Pedestrian, & Wheelchair Data Collection Program Annual Report

(2021)

Prepared By:

HEADWAY TRANSPORTATION

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.9**

From: Mark Maloney, Director of Public Transportation and Operations

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RECOMMENDED ACTION

Approve Change Order #1 in the amount of $129,000 for price increases related to the purchase of fifteen (15) compressed natural gas (CNG) fueled paratransit vehicles utilizing the State of Nevada Fleet Vehicles procurement contract number 99SWC-S490.

BACKGROUND AND DISCUSSION

In FY 2022, RTC budgeted for the purchase of fifteen (15) Paratransit vehicles. These will replace current fleet vehicles that are at the end of their useful life. The vehicles will be used in the ACCESS paratransit service and operate on low emission CNG fuel. In December 2021, the Board approved the purchase of these vehicles utilizing the State of Nevada Fleet Vehicles procurement contract number 99SWC-S490 at a purchase price of $2,0002,261. This Change Order will increase the price by 6.5% as a result of unforeseen cost escalations due to original equipment manufacturer (OEM) price increases and other supply chain related price increases.

FISCAL IMPACT

Funding for this agreement is included in the FY 2022 budget.

PREVIOUS BOARD ACTIONS:

Dec. 17, 2021 Approved the purchase of fifteen (15) compressed natural gas (CNG) fueled paratransit vehicles utilizing the State of Nevada Fleet Vehicles procurement contract number 99SWC-S490 in the amount of $2,002,260.75.

ATTACHMENTS

A. Change Order #1

ATTACHMENT A

REGIONAL TRANSPORTATION COMMISSION
Public Transportation • Streets and Highways • Planning

Project No. 2022-15

CONTRACT CHANGE ORDER (C.O.) NO. 1

Change Order Requested By:

Sheet 1 of 11
Date March 21, 2022

To R.O. Bus Sales, Contractor for the ACCESS Paratransit Bus Replacements

Project. You are hereby directed to make the herein described changes from the plans and specifications or do the following described work not included in the plans and specifications in accordance with the Agreement for Construction, signed by the RTC Executive Director on **{INSERT DATE}**. The changes in contract amount for the items of work below are per the attached letter dated **{INSERT DATE OF CHANGE ORDER PROPOSAL}**. The net change order amount includes all labor, equipment and materials necessary to complete the work in accordance with the plans and specifications. {**ADD IF APPLICABLE** - No changes to the contract performance period result from this change order.}

RTC FINANCE APPROVAL, AVAILABILITY OF FUNDS

Finance Manager: _____ Date: _____

Provide description of work, estimate of quantities, prices to be paid and changes in performance period, if any. Define additional work at contract unit price, lump sum amount and/or force account. Explain reimbursable work, if any, subject to a Board approved ICA. Use multiple sheets if necessary.

Change order for original equipment manufacturer extra ordinary price increase due to significant supply chain and market changes caused by COVID and other market factors. Price increase will be split / shared between R.O. Bus sales and RTC. (This price is still less than 2nd highest quote obtained in 2021.)

Original Price	$133,484.05 X 15 = $2,002,260.75
OEM Mfr price increase	$17,638.00
RO Bus Sales Share	$9,438.00
RTC Share	$8,600.00
New Price	$142,084.05 x 15 = $2,131,260.75

Total Price Increase $ 129,000.00

RTC CONTRACT COMPLIANCE APPROVAL

N/A

Date: _____

Original Contract Amount:	$ 2,002,260.75
Previously Approved C.O. Amounts:	$ 0.00
Net Increase from this C.O.:	$ 129,000.00
Total Revised Contract Amount:	$ 2,131,260.75
Total Percent Change all C.O.'s:	6.44 %

Contract time prior to this C.O.:	0
Net increase resulting from this C.O.:	0
New Contract Time with this C.O.:	0

Duration is Working Days unless otherwise noted

Contractor Acceptance:

Accepted Date: 3/24/22

By (Print Name):

Joe Machin

Signature: Joe Machin Digitally signed by Joe Machin DN: cn=Joe Machin, o=RO Bus Sales, ou=RO Bus Sales, email=joe@robussales.com, c=US Date: 2022.03.24 08:15:52 -07'00'

NOTE: This Change Order is not effective until approved by Executive Director, RTC.

RTC Approval:
Recommended by (RTC Project Manager):

David Carr Digitally signed by David Carr Date: 2022.03.28 16:54:32 -07'00' Date: _____

Department Director:

Mark Maloney Digitally signed by Mark Maloney Date: 2022.03.29 07:19:20 -07'00' Date: 3/29/22

Chief Finance Officer:

_____ Date: _____

Executive Director:

_____ Date: _____

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.10**

From: Mark Maloney, Director of Public Transportation and Operations

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RECOMMENDED ACTION

Approve a Zero Emissions Transition Plan (ZETP) to satisfy the federal requirement that any application to the Federal Transit Administration (FTA) for grants for projects related to zero-emissions vehicles include a ZETP.

BACKGROUND AND DISCUSSION

The Infrastructure Investment and Jobs Act (IIJA) of 2021 is the most recent transportation authorization bill and outlines changes in policy, practice and funding levels for federal transportation programs. As part of these changes, the IIJA amended the statutory provisions for FTA grants to include the requirement that any application for projects related to zero-emission vehicles include a Zero-Emission Transition Plan (ZETP). This ZETP must, at a minimum:

1.) Demonstrate a long-term fleet management plan with a strategy for how the applicant intends to use the current request for resources and future acquisitions.
2.) Address the availability of current and future resources to meet costs for the transition and implementation.
3.) Consider policy and legislation impacting relevant technologies.
4.) Include an evaluation of existing and future facilities and their relationship to the technology transition.
5.) Describe the partnership of the applicant with the utility or alternative fuel provider.
6.) Examine the impact of the transition on the applicant's current workforce by identifying skill gaps, training needs, and retraining needs of the existing workers of the applicant to operate and maintain zero-emission vehicles and related infrastructure and avoid displacement of the existing workforce.

This document will serve as the ZETP and will outline our agency's action items to achieve compliance with the provisions of the IIJA.

FISCAL IMPACT

There is no fiscal impact for this agenda item.

PREVIOUS ACTIONS BY BOARD

There has been no previous action on this item.

ATTACHMENT(S)

A. Zero Emissions Transition Plan

REGIONAL TRANSPORTATION COMMISSION
ZERO EMISSION TRANSITION PLAN (ZETP)

The Regional Transportation Commission Washoe County (RTC) is a recognized national leader in the procurement, deployment and operation of alternative fueled and zero emissions transit and paratransit buses. In its 2050 Regional Transportation Plan the RTC describes the overarching vision for improving safety and using transportation as a catalyst for developing economic opportunities that sustains our valued quality of life. This plan identifies the long-range vison for connecting our community. The RTC Zero Emission Transition Plan (ZETP) incorporates these elements of our vison for a zero emissions fleet.

1.) Policy, Legislation

Policy - RTC Sustainability Plan. In 2017 RTC completed its Sustainability Plan which serves as a guideline for conducting operations more efficiently by implementing sustainable practices and continuing to provide sustainable and reliable transportation options. The RTC has a goal of transitioning to a 100% alterative fuels transit fleet by 2035 that includes the purchase of zero emissions vehicles.

Legislation – Nevada State Climate Strategy. Under Governor Sisolak's executive order on climate change, state agencies were directed to a State Climate Strategy establishing a framework to advance Nevada-wide climate action for a heathy, sustainable, resilient future. RTC fully supports addressing the climate crisis through strategic transportation investments including the reduction in greenhouse gases by purchasing zero and low emissions transit vehicles.

2.) Procurement, Fleet Growth Plan

Procurement - RTC will utilize state procurement contracts as authorized under the FAST Act to purchase zero emissions hydrogen fuel cell and electric buses. RTC received an award for the FY 2021 Low or No Emission (LoNo) grant which allows named partners and we will sole source the procurements for the initial hydrogen fuel cell buses and fuel site on this project.

Fleet Growth Plan - Because transit funding sources are limited, the focus is on operating a cost effective system and while no growth is planned for the fixed route system the RTC is continuously looking for innovative ways to adapt new systems (e.g. FlexRIDE) and technologies (e.g. Token Transit) as ways to improve systems operations without expanding the fleet.

3.) Resources

Congestion Mitigation and Air Quality (CMAQ) Improvement - RTC will follow its existing fleet replacement schedule and purchase zero emission buses as the market and technology development allows. RTC has used primarily formula CMAQ funds from recent transportation bills. It is a reasonable assumption that due to continued concerns with air quality in the region that this funding will continue in the foreseeable future.

Grants – RTC has a history of successfully competing for specific grant funds to purchase buses including: TIGGER, Small Starts, Bus and Bus Facilities, and LoNo grants and expects to continue to submit competitive applications in the future.

4.) Facilities

Jerry L. Hall Regional Transit Operations and Maintenance Center at 2050 Villanova Drive - In 2017 RTC modified this maintenance facility and these modifications allowed for the accommodation of taller electric vehicles throughout the facility and added significant charging infrastructure (18 chargers, switch gear and transformers) for its 23 electric buses.

1301 East 6th Street - RTC was recently awarded a 2021 LoNo grant to develop and install a Hydrogen Fuel site in support of a 2 bus demonstration project. This site will be capable of fueling up to 15 buses a day when fully operational.

New Facility – The RTC will need to replace its facility located at 2050 Villanova Drive due to construction needs required by the Nevada Department of Transportation (NDOT) highway project. The existing RTC facility is located under the NDOT freeway and reconstruction of that area will begin in 2034. Therefore, a new facility is being planned and will include fueling systems for electric, hydrogen fuel cell and compressed natural gas (CNG) buses.

5.) Fuel Provider

Electric Vehicles – NV Energy is an investor owned utility and has a monopoly in the State of Nevada. RTC has successfully partnered with NV Energy on energy infrastructure on four electric vehicle infrastructure projects. NV Energy has provided design and engineering assistance, direct infrastructure construction and installation, as well as provided energy rebates, grants and a special rate for electric vehicle charging. NV Energy has filed a Transportation Electrification Plan with the public utility commission that includes future funds for Electric Vehicle Infrastructure Demonstration programs.

Hydrogen Fuel Cell (HFC) Vehicles – A provider for fuel has not been selected for the RTC HFC demonstration as the site has yet to be completed. RTC is located in an area where there are multiple providers of hydrogen in adjacent California and in Southern Nevada. The RTC anticipates a robust hydrogen fuel market in the region when our fuel site is completed in 2024.

6.) Work Force Training

Electric Vehicles - Work Force Training has been emphasized and has been recognized as a critical success factor with the RTC electric bus deployments. Since 2014, RTC has invested in OEM training for its electric bus and compressed natural gas (CNG) technicians and is now investing in training facilities technicians in the maintenance of electric vehicle chargers.

Hydrogen Fuel Cell Vehicles – The demonstration project includes funding for technician training on the vehicles as well as a significant investment in facilities training for the hydrogen fuel site. RTC has been operating a CNG fuel site and CNG paratransit ACCESS buses for nearly 30 years, and recognizes this value and continues to provide extensive training to support compressed gas (CNG or hydrogen) fuel sites.

The RTC has been committed to low emission and zero emission vehicles for nearly 30 years, and has a vision for sustainable and continued growth of its zero emission fleet in order to reduce green house gases and mitigate the impacts on climate change. The RTC is also committed to providing the highest level of cost effective and reliable transit service to the Washoe County region.

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.11**

From: Brian Stewart, P.E., Director of Engineering

RECOMMENDED ACTION

Authorize the Executive Director to negotiate a Reimbursement Agreement with the City of Reno for its micro-mode pilot project in Downtown Reno, in and amount not-to-exceed $400,000.

BACKGROUND AND DISCUSSION

The City of Reno (City) is launching a new pilot project that will soon introduce micromobility-specific infrastructure to Downtown Reno. Micromobility refers to a range of small, lightweight vehicles such as bicycles or scooters that typically operate at speeds of 10-20 mph and are driven by the user.

Using facilities such as bike rails, reduced lane widths, cycle tracks, lane closures, restriping, protected intersections and more, the pilot project will connect Keystone Avenue to Evans Avenue/University of Nevada via 5th Street and Downtown to Midtown via Virginia Street.

The City is requesting the RTC's partnership in developing and implementing this pilot project. A letter reflecting the request is attached as Attachment A. The City is requesting RTC input and support in the design of the project, data collection and interpretation, and cost sharing for materials and contract labor.

At the March 2022 RTC Board Meeting, the Commission received a report on the role of micro-modes within the local transportation network and how strategic implementation of micro-mode targeted infrastructure can ease the vehicle demand on the regional roadway network.

Through this small-scale pilot project, the RTC will be able to 1) collect and analyze data (vehicles, micro-modes, pedestrians), 2) track speed differentials and volumes, 3) test micro-mode design elements, and 4) confirm viability and scalability of region wide micro-mode targeted infrastructure.

If the Board approves this item, the Executive Director would negotiate a reimbursement agreement with the City of Reno not to exceed $400,000.

FISCAL IMPACT

The funding will be provided through a reallocation of the FY 2022 engineering budget.

PREVIOUS BOARD ACTION

March 18, 2022 Acknowledged receipt of a report regarding a Micro-Mode Regional Traffic Management Strategy.

ATTACHMENT(S)

A. Letter from the City of Reno

ATTACHMENT A

Doug Thornley
City Manager

(775) 334-2020
thornleyd@reno.gov
www.reno.gov

"Creating a community that people are proud to call home."

April 13, 2022

Bill Thomas
Executive Director
Regional Transportation Commission of Washoe County
PO Box 30002
Reno, NV 89520

Dear Mr. Thomas,

With the launch of the Virginia Street Placemaking Study and recent discussions with Bird Scooters, the City of Reno is exploring ways to build a more vibrant downtown and take advantage of the rise in micro-mobility options for sustainable transportation. To introduce micro-mode specific infrastructure to the community, the City would like to provide a living preview in the form of a pilot project in the Downtown Core. During this pilot, we would introduce different micro-mode specific infrastructure elements to the community, solicit feedback, and collect data that would help inform the City and the Regional Transportation Commission in applying micro-mode specific infrastructure in our community into the future.

As a partner in providing quality transportation in our community, the City of Reno would like to engage the RTC in the development and implementation of this pilot project. There are several ways in which the RTC's involvement and support in this pilot will make it more effective and create further benefit to our community. We would like to request the RTC's input and support in the design of the pilot, assistance in collecting and interpreting data from the pilot, and backing in sharing the cost of materials and contract labor in implementing the pilot.

We appreciate the RTC's continued partnership in providing quality transportation and look forward to working together to keep our community moving well into the future.

Sincerely,

Doug Thornley
City Manager

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.12**

From: Angela Reich, Director of Administrative Services

RECOMMENDED ACTION

Approve modifications to RTC Management Policy P-31, Transit Passenger and Visitor Conduct.

BACKGROUND AND DISCUSSION

The revisions to RTC Management Policy P-31, Transit Passenger and Visitor Conduct, include clarification and additional detail regarding prohibited conduct, expressive activity, categories of offenses, penalties for violations, administrative decisions, and appeals of suspensions. This policy delegates responsibility to the Executive Director to develop and implement a list of offenses by category of offense to be shared with visitors and passengers, along with suspension appeal procedures.

RTC's Director of Public Transportation and RTC's Administrator of Security/Safety work with RTC staff, transit contractors and security contractors to implement and administer this policy in an effort to ensure the health, safety and welfare of everyone that visits RTC facilities and/or operates or rides RTC vehicles.

FISCAL IMPACT

Funding for this item is included in the FY 2023 budget, and there is no additional cost in connection with this agenda item.

PREVIOUS BOARD ACTION

December 18, 2020 Approval of modification of RTC Management Policy P-31.

ADVISORY COMMITTEE(S) RECOMMENDATION

There are no advisory committee recommendations pertaining to this agenda item.

ATTACHMENT(S)

A. RTC Management Policy P-31, Transit Passenger and Visitor Standard of Conduct

RTC Management Policy P-31
Date Approved: 09/05/1991
Date Revised: 04/27/1995
12/16/2005
07/28/2006
10/20/2006
06/19/2009
12/18/2020
__/__/2022

Approved:_____

MANAGEMENT POLICY

SUBJECT: TRANSIT PASSENGER AND VISITOR CONDUCT

I. PURPOSE

It is the policy of the Regional Transportation Commission (RTC) to provide safe, comfortable, and efficient transit services to the public. This policy will establish standards of conduct for passengers on transit vehicles and visitors to transit facilities to ensure the health, safety, and welfare of transit operators, passengers, and the general public.

II. SCOPE

Public
Board Members
X RTC Officers
X RTC Employees
X Other: Transit passengers and visitors

III. DEFINITIONS

None.

IV. POLICY

A. Standard of Conduct

1. Inappropriate conduct is prohibited on transit vehicles and at transit facilities.

2. Inappropriate conduct includes, but is not limited to, conduct which would:

   a. Constitute a violation of any law or ordinance;

   b. Interfere with the safe, comfortable and efficient operation of the transit system.

3. The fact that an individual is or is not charged with or convicted of a law or ordinance does not preclude a finding that an act constituted inappropriate conduct.

B. Expressive Activity

1. RTC transit stations are a "limited public forum" for the purposes of NRS 293.127565. RTC will provide areas at its transit stations for persons to gather signatures on a petition for initiative and referendum to the extent required by NRS 293.127565. The Executive Director is responsible for developing and implementing procedures with reasonable time, place and manner restrictions on those activities.

2. The primary purpose of transit vehicles and facilities is to transport passengers, allow the boarding of passengers, allow the transfer of passengers between vehicles, and to engage in other activities to further the safety and security of the public and the efficient and effective operation of the transportation system. To further those purposes, RTC will not permit expressive activity on its transit vehicles or at its transit facilities other than to the extent mandated by NRS 293.127565 or other state or federal legislation.

   a. Expressive activity means the expression, dissemination or communication of opinions, views, messages or ideas by verbal, visual, literary, auditory or other means that are religious, scientific, political, philosophical or ideological in nature, or conduct that is on the whole inextricably intertwined with such opinions, views, messages or ideas; or other conduct that is inherently expressive. Examples include, but are not limited to, meetings, group events or activities, speeches, performances, demonstrations, rallies, vigils, canvassing, solicitation for fundraising, solicitation of signatures, signs, installations and displays, and the distribution of literature, leaflets, flyers or other printed materials.

   b. Expressive activity does not mean the activities of local, state or federal governments that are coordinated in advance or otherwise authorized by law. Examples include, but are not limited to, law enforcement activities, health and human services activities, and census activities.

3. Individuals attempting to engage in expressive activity will be asked to stop. Individuals refusing to stop will be asked to leave the vehicle or facility. Individuals refusing to leave will be warned that they are trespassing.

C. Offenses and Suspensions

1. In the interest of the health, safety, and welfare of everyone, RTC reserves the right to suspend the access privileges of anyone found to have engaged in inappropriate conduct. Offenses and suspensions shall be categorized as shown below. The Executive Director is responsible for developing a list of offenses by category to be shared with visitors and passengers.

2. Category A: Offenses that constitute a violation of rules established for the safe, comfortable and efficient operation of vehicles or facilities.

   a. Individuals will be warned not to engage in the conduct. If the individual engages in the conduct after the warning, the offense may result in an immediate suspension of access privileges for a period of up to three days (72 hours).

   b. Individuals found to have committed multiple Category A offenses over a one-year period from the initial offense shall be deemed to have committed a Category B offense and may have their access privileges suspended for a period of up to three months (90 days).

3. Category B: Offenses that constitute an attempt to damage property, or interfere with the safe, comfortable and efficient operation of vehicles or facilities.

   a. Offenses may result in an immediate suspension of access privileges for up to three months (90 days).

   b. Individuals found to have committed multiple Category B offenses over a two-year period from the initial offense shall be deemed to have committed a Category C offense and shall have their access privileges suspended for a period of not less than six months.

4. Category C: Offenses that damage property, constitute an attempt to use physical force against another person or intentionally placing another person in reasonable apprehension of immediate bodily harm, constitute willful and unlawful use of force or violence upon a person, or interfere with the safe operation of vehicles or facilities.

   a. Offenses shall result in an immediate suspension of access privileges for a period of not less than six months.

b. Individuals found to have committed multiple Category C offenses over a three-year period from the initial offense shall have their access privileges permanently suspended. Individuals that have had their access privileges permanently suspended may submit an application for reinstatement to the Public Transportation Director after one year from the start of the suspension if the individual has fully complied with the terms of the suspension.

5. Trespassing

a. Individuals that have committed an offense or that continue to engage in expressive activity after being asked to stop will be asked to leave the vehicle or facility. Individuals refusing to leave will be warned that they are trespassing.

b. Individuals on a vehicle or facility during a suspension of access privileges are trespassing. Individuals will be notified or reminded of the suspension and will be asked to leave the vehicle or facility. Individuals refusing to leave will be warned that they are trespassing.

c. Individuals found to have been trespassing shall be deemed to have committed a Category B offense and may have their access privileges suspended for a period of up to three months (90 days).

D. Administrative Decisions

1. The Public Transportation Director, or designee, shall review and approve each proposed suspension of access privileges for Category B or Category C offenses. The Public Transportation Director determines if the offense is a Category B or Category C offense, and the length of the suspension.

2. Except in the case of a permanent suspension, the individual that has had their access privileges suspended may submit an application for reinstatement to the Public Transportation Director. The Public Transportation Director may shorten the suspension prior to the completion of the full term to accommodate a demonstrated need for transportation to maintain employment, attend school, or receive necessary medical treatment.

3. In the case of a permanent suspension, the individual that has had their access privileges suspended may submit an application for reinstatement to the Public Transportation Director after one year from the start of the suspension if the individual has fully complied with the terms of the suspension.

E. Notice of Suspension

1. RTC will make reasonable efforts to verbally notify the individual of the suspension, the category of the offense, and the length of the suspension.

2. If the suspension of access privileges is for more than three days (72 hours), RTC will make reasonable efforts to provide written notice of the suspension, the category of the offense, and the length of the suspension. The notice may be delivered by mail or personal service.

F. Appeals

1. Individuals who have had their access privileges suspended for a period of more than three days (72 hours) may appeal the suspension.

2. The Executive Director is responsible for developing and implementing procedures for an appeal process.

- END -

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 4.13**

From: Angela Reich, SPHR Director of Administrative Services

RECOMMENDED ACTION

Approve modifications to RTC Personnel Rule 2.3 (Unclassified Service) and 5.7 (Salary Adjustments and Pay-for-Performance).

BACKGROUND AND DISCUSSION

The recommended modification of Personnel Rule 2.3 (Unclassified Service) designates the Government Affairs Officer and the Principal Analyst to the unclassified service of the RTC. The recommended modification of Personnel Rule 5.7 (Salary Adjustments and Pay-for-Performance) updates language to match the updated employee performance evaluation ratings.

FISCAL IMPACT

There is no fiscal impact with this action.

PREVIOUS BOARD ACTION

February 18, 2022 Approved modification of language to Personnel Rules.

ATTACHMENT(S)

A. Modification of Personnel Rule 2.3 (Unclassified Service) and 5.7 (Salary Adjustments and Pay-for-Performance).

2.3 Unclassified Service

The unclassified service of the RTC shall be comprised of positions held by RTC employees, as follows:

(a) Appointed heads of departments, the Executive Office Administrator, the Human Resources Administrator(s), the Information Technologies Manager, the Financial Manager, the Public Information Officer, the Government Affairs Officer, the Principal Analyst, the Director of Legal Services, Attorneys, the Executive Director and all individuals hired or promoted to supervisor/manager positions after September 30, 2011.

(b) All persons holding temporary appointments.

5.7 Salary Adjustments and Pay-for-Performance

1. Eligible RTC employees, both full-time and part-time, who receive an employee performance evaluation rating of "fully successful" or above, may be eligible for an annual pay-for-performance award. An employee who is rated below a "fully successful" may be ineligible for an annual pay-for-performance award.

6. A probationary employee hired on or after January 1 of the FY is not eligible for an annual pay-for-performance award. A probationary employee hired prior to January 1 and who receives a rating of "fully successful" or above, is eligible to participate in the PFP pool on a prorated basis, based on hire date.

Deleted: meets expectations

Deleted: meets expectations

Deleted: meets expectations

REGIONAL TRANSPORTATION COMMISSION
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MEETING DATE: April 29, 2022 **AGENDA ITEM 5.1**

From: Bill Thomas, AICP Executive Director

RECOMMENDED ACTION

Review and evaluate Executive Director Bill Thomas' performance, and adjust compensation accordingly, as it pertains to (1) the proper duties of the position and accomplishments of Fiscal Year (FY) 2021 goals, with the effective date of any salary increase and/or bonus to be effective retroactively to July 1, 2021, and (2) the proper duties of the position and accomplishments of Fiscal Year (FY) 2022 goals, with the effective date of any salary increase and/or bonus to be effective July 1, 2022.

BACKGROUND AND DISCUSSION

In accordance with the Executive Director's employment agreement, the Commission shall review the Executive Diretor's performance at or near the end of the RTC's fiscal year. Pursuant to the employment agreement, said performance shall be evaluated against the duties and obligations of the position, to include goals and objectives which, to the extent possible, have been reduced to writing and agreed upon between the parties. The Commission approved the Executive Director's FY 2021 goals on August 20, 2020, and FY 2022 goals on September 17, 2021.

The Commission has the sole right to determine performance subject to a standard of reasonableness. A satisfactory or better performance shall make the Executive Director eligible for an annual salary increase. The Commission may also award a performance bonus in the amount of 0 to 5.0 percent of the Executive Director's current base salary, which would not increase his base salary. Said bonus shall be based on the Executive Director's past year's performance of goals and objectives. The effective date of said salary increase and/or bonus would be retroactive to July 1, 2021 for FY 2021 performance and effective July 1, 2022, for FY 2022 performance.

FISCAL IMPACT

Funding for this item is included in the FY 2022 and FY 2023 budget.

PREVIOUS BOARD ACTION

The Commission approved the Executive Director's FY 2021 on August 20, 2020, and FY 2022 goals on September 17, 2021. The Commission approved the Executive Director's employment agreement on March 20, 2020.

ATTACHMENT(S)

A. Summary of Executive Director FY 2021 Goals and Accomplishments
B. Summary of Executive Director FY 2022 Goals and Accomplishments

NAME	STATUS	FY21 GOAL STATUS
Continue succession planning throughout the organization	Complete	A position has been identified to begin recruitment in July 2021 in order to cross train prior to retirement. Employee Career and Development Plan form has been distributed to all staff and interested participants have returned the form.
Create internal technology team to identify and address new technology opportunities to allow the Agency to best meet the community needs with resources available	Complete	Internal technology team created.
Create organizational key performance indicators to track effectiveness of operational strategies	Complete	The Board approved organizational key performance indicators at the November 2020 meeting.
Evaluate and implement grant management strategies to improve the value of grants applied for and received	Complete	The Finance Director attended grants training. As grant opportunities are received, they continue to be vetted thoroughly through management.
Focused review of procurement practices to develop process changes which enhance Agency procurements	Complete	All follow-up actions are complete, including defined roles and responsibilities and updated procurement manual.
Guide Legal Services Efficiency Project through transition	Complete	At the September 2020 Board meeting, the Legal Services Director took on the role of primary provider of legal services to the Board.
Implement a capital project debrief process to identify opportunities for improvement	Complete	A previously informal process has been formalized per request from NDOT and will be implemented upon the completion of various projects.

NAME	STATUS	FY21 GOAL STATUS
Promote stronger regional alignment between TMRPA and the Regional MPO efforts of RTC	Complete	The Administrative Services Department completed a desk audit of the Planning Division, including alignment between RTC and TMRPA tasks. Recommendations will be implemented in FY 22. The Board approved the FY 22 Shared Work Program with TMRPA at their May 2021 meeting.
Publish dashboard with customer- relevant data visualization	Complete	Dashboard with customer-relevant data visualizations have been published.
Review and revise Personnel Rules and all Management Policies to ensure effective and efficient Agency operations	Complete	Personnel Rules and all Management Policies have been reviewed and revised to ensure effective and efficient Agency operations.
Review organization health insurance for alignment with best practices	Complete	The Finance, Legal, and Administrative Services Department, in conjunction Washoe County, identified healthcare insurance alignments for retiree health to the Board at the January 2022 meeting.
Support Federal Priorities as identified by the Board	Complete	Board approved updated federal priorities in January 2021. Approved for Community Project Funding request through Congressman Amodei's office for Arlington Bridges and Hydrogen Fuel Cell Infrastructure.
Strategically adjust goals as needed throughout the year to respond to Board direction in a prompt manner	Ongoing	Adjustment of goals occurs based on Board direction as needed.

NAME	STATUS	FY22 GOAL STATUS
Complete analysis, including operations partner and potential funding, for a single tourist-focused double decker bus	Complete	RTC staff has identified a potential operations partner and funding for a single tourist-focus double decker bus.
Coordinate with Airport Authority to explore solutions addressing long-term parking demand at the airport	Complete	RTC staff has collaborated with Airport Authority staff and have communicated our readiness to move forward.
Create a project close-out stakeholder communication effort	Ongoing	This is included in our ongoing Public Participation Plan effort, which is currently 35% complete. Staff is developing a process to lookback and get feedback on how stakeholders feel about the project process, communication, and public outreach. We anticipate that the Oddie/Wells Corridor Multi-modal Improvements Project will be the pilot project for this process.
Create long-term property acquisition strategy, including replacement of Villanova	Complete	A long-term property acquisition strategy has been developed and includes the replacement of Villanova. Bus Facility Replacement has been added to RTC's Federal Priorities and staff is preparing an application for an available bus and bus facilities grant.
Define RTC role with eBikes and scooters through the Bicycle and Pedestrian Master Plan update	Complete	The Bicycle and Pedestrian Master Plan planning process has begun. It will include the Micro-Mode Regional Traffic Management Strategy presented to the Board at the March 2022 meeting.
Facilitate Board retreat clarifying organization structure to ensure high efficiency in the post COVID-19 landscape	Complete	Board Workshop conducted in January 2022. Follow-up items heard by the Board at the March 2022 meeting. Staff will continue to move these items forward.

NAME	STATUS	FY22 GOAL STATUS
Identify a housing partner for development of Peppermill excess property to transit-oriented housing project	Ongoing	Staff continues to work on identifying a housing partner for development of Peppermill excess property. We hope to have a partner identified by end of FY 23.
Identify planning process for next steps of the eastern extension of La Posada	Complete	RTC staff is collaborating with City of Sparks staff and have communicated our readiness to move forward.
Implement a process of formalized follow-up to requests made by the Board	Complete	A process has been implemented to ensure follow-up occurs on all Board Member requests.
Implement property disposal plans	Complete	Property disposals approved by Board at the December 2021 meeting and additional properties are moving through the process. Six properties disposed of as of March 2022.
Implement streamlined TA Set Aside program	Complete	The Board approved TA Set-Aside funding at the December 2021 following the streamlined process.
Increase strategic digital marketing outreach and effectuate two-way communication on social media	Complete	Staff has developed a plan so that two-way communication on social media is occurring and a monitoring service has been brought in to continue this effort.
Maintain positive RTC role in working with Federal delegation to support RTC funding needs	Complete	Federal delegation relationships have been positively maintained as evidenced by: - Staff and Board meetings with Federal delegation with positive feedback; - Competitive grant funding received for Arlington Avenue Bridges Project, Low & No Emissions, and TOP Planning; and - Retention of project savings for Virginia Street BRT Project.

NAME	STATUS	FY22 GOAL STATUS
Participate in advisory groups created during the 81st session of the NV Legislature by AB54 (Advisory Committee on Traffic Safety) and AB413 (Advisory Working Group to Study Certain Issues Related to Transportation)	Complete	Executive Director is active with both groups and will continue to participate during the life cycle of these interim committees.
Pyramid (Ingenuity to Egyptian) - Identify alternatives for accelerated construction of improvements on Pyramid from Ingenuity to Egyptian - Present alternatives for accelerated construction of improvements on Pyramid from Ingenuity to Egyptian	Complete	Included in the RTIP. - Installation of signal system under design in 2021 and construction 2022. NDOT has awarded a contract for this signal. - Lane addition under design in 2023.
Re-categorize “bike/ped” and “multimodal” project tracking for improved clarity	Complete	The Micro-Mode Regional Traffic Management Strategy presented to the Board at the March 2022 meeting has set our strategy in categorizing projects in the next RTP project list. Additionally, RTC has implemented a revamped count program which will provide data to use when moving forward with these projects.
Review organization employee relations in regard to employee attraction and retention	Ongoing	Staff has identified healthcare improvements to the Board at their January 2022 meeting. Additional deferred compensation improvements are planned to be heard at the Board meeting in May 2022.
Review Wildcreek High School traffic impacts through the McCarran Boulevard Corridor Study	Ongoing	The review of traffic impacts from Hug High School at Wildcreek is part of the ongoing McCarran Boulevard Corridor Study. It is anticipated this study will be finalized by the end of 2022.
Strategically approach contract bid timing process to achieve pricing improvements	Complete	Major projects were bid this year between November 2021 and February 2022. Strategy likely effected by volatile market and pricing.

NAME	STATUS	FY22 GOAL STATUS
Strengthen relationships with local jurisdictions and government entities, including providing clarity on RTC project improvements	Complete	The RTC Culture Statement was revamped and shared with local jurisdictions and government entities to improve collaboration. This effort will continue as part of the follow-up from the Board's 2022 workshop.
Utilize targeted marketing strategies to increase ridership by UNR students and riders living/working along BRT routes	Complete	Targeted marketing strategies to increase ridership by UNR students has been successful with an increase in usage of ED Passes of 44% year-over-year between February 2021 and 2022.
Strategically adjust goals as needed throughout the year to respond to Board direction in a prompt manner	Ongoing	Adjustment of goals occurs based on Board direction as needed.

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

April 14, 2022

Via Personal Delivery

Bill Thomas
Executive Director
Regional Transportation Commission of Washoe County
1105 Terminal Way, Suite 217
Reno, NV 89502

Re: Executive Director Evaluation

Dear Mr. Thomas,

By signing below, please acknowledge personal receipt of this notice that the Regional Transportation Commission, at its Commissioner's Meeting scheduled for April 29, 2022, at 10:00 a.m., will undertake a two-year evaluation of your performance as Executive Director, and in that process, the Commission may consider your professional competence and may take administrative action related to your compensation. This notice is provided to you under NRS 241.033.

Sincerely,

Angela Reich
Director of Administrative Services

Acknowledgement of personal delivery:

Bill Thomas

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 5.2**

From: Mark Maloney, Director of Public Transportation & Operations

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RECOMMENDED ACTION

Acknowledge receipt of an update on the FY 2023-2027 Transit Optimization Plan Strategies and provide input and direction regarding the plan.

BACKGROUND AND DISCUSSION

Development of the FY 2023-2027 Transit Optimization Plans Strategies (TOPS) began on July 14, 2021, and when completed, will serve as the operating and capital business plan to guide transit service delivery over the next five years. Specific items under review by the consultant team include:

- Review of existing public transit services
- Standards for changes in service
- Peer review
- Strategies for retaining and attracting new riders
- Technology review and recommendations
- Customer service review and recommendations
- Potential public-private partnerships

As part of the development of the initial recommendations for the TOPS project, an aggressive public participation process was conducted. This process included a survey that occurred from mid-November 2021 to mid-January 2022. As an incentive, a 7-day weekly pass was offered to participants and 1,021 responses were received, with 93% of these responses coming from current and previous passengers.

Additionally, the RTC Board held a workshop that emphasized the need to review existing public transit services and outlined several issues being used to formulate the final recommendations for TOPS. These issues include:

- Evaluate ongoing ridership and workforce trends to guide the development of new transit services.
- Review the provision of RTC RIDE services to ensure that the vehicle size and vehicle type match the demand for the service.

- Support the creation of additional microtransit services including areas of poorly performing fixed routes or suburban areas where no transit service exists.
- Leverage technology to improve operational efficiency and effectiveness whereby improving the customer experience by having a single application for both trip planning and payment.

The following is a partial list of TOPS recommendations that have been presented to the public this month to acquire input and feedback for the development of final recommendations. The complete list of service recommendations is contained in the attachment.

Investment in additional innovative curb-to-curb service solutions:

- Creation of new Southwest Reno FlexRIDE zone
- Creation of new South Meadows FlexRIDE zone
- Expansion of FlexRIDE to additional major destinations such as Truckee Meadows Community College
- Increase and enrich contractual relationships with other private transportation providers to improve the availability to Uber, Lyft and local taxi companies under the Washoe Senior Ride program

Additional improvements to technology:

- Implementation of a *Mobility As A Service* application to provide multimodal trip planning and planning options to RTC customers
- Implementation of a technology roadmap to ensure future purchases align with RTC's goals of greater efficiency and customer satisfaction

Modifications to existing service to increase opportunities for passengers:

- Directly connect Sun Valley to the new Hug High School
- Extend service further east along the 4th and Prater corridor to reduce transfers and support development of the Neon Line district and future RAPID service
- Create faster routing to Truckee Meadows Community College
- Directly connect RTC CENTENNIAL PLAZA STATION to employment opportunities in Sparks
- Complete redesign of west Reno routes to improve efficiency and reduce transfers of passengers
- Improved crosstown connections
- Create service to Northern Nevada Sierra Medical Center

FISCAL IMPACT

There is no fiscal impact with this board action.

PREVIOUS BOARD ACTIONS:

Mar 18, 2022	Received an update on planned efforts to rebuild public transportation 2023-2027 Transit Optimization Plan Strategies (TOPS) study process based on input received at the Board's workshop in January 2022.
Dec 17, 2021	Received a report on the FY 2022-2026 Transit Optimization Plan Strategies (TOPS) for discussion and possible direction.
May 21, 2021	Approved an agreement with Transportation Management & Design Inc., (TMD) for the Transit Optimization Plan Strategies (TOPS) study in an amount not-to-exceed $239,430.
Nov 20, 2020	Authorized a Request for Proposals (RFP) for the selection of Professional Services for the 2023-2027 Transit Optimization Plan Strategies (TOPS) study.

ATTACHMENT(S)

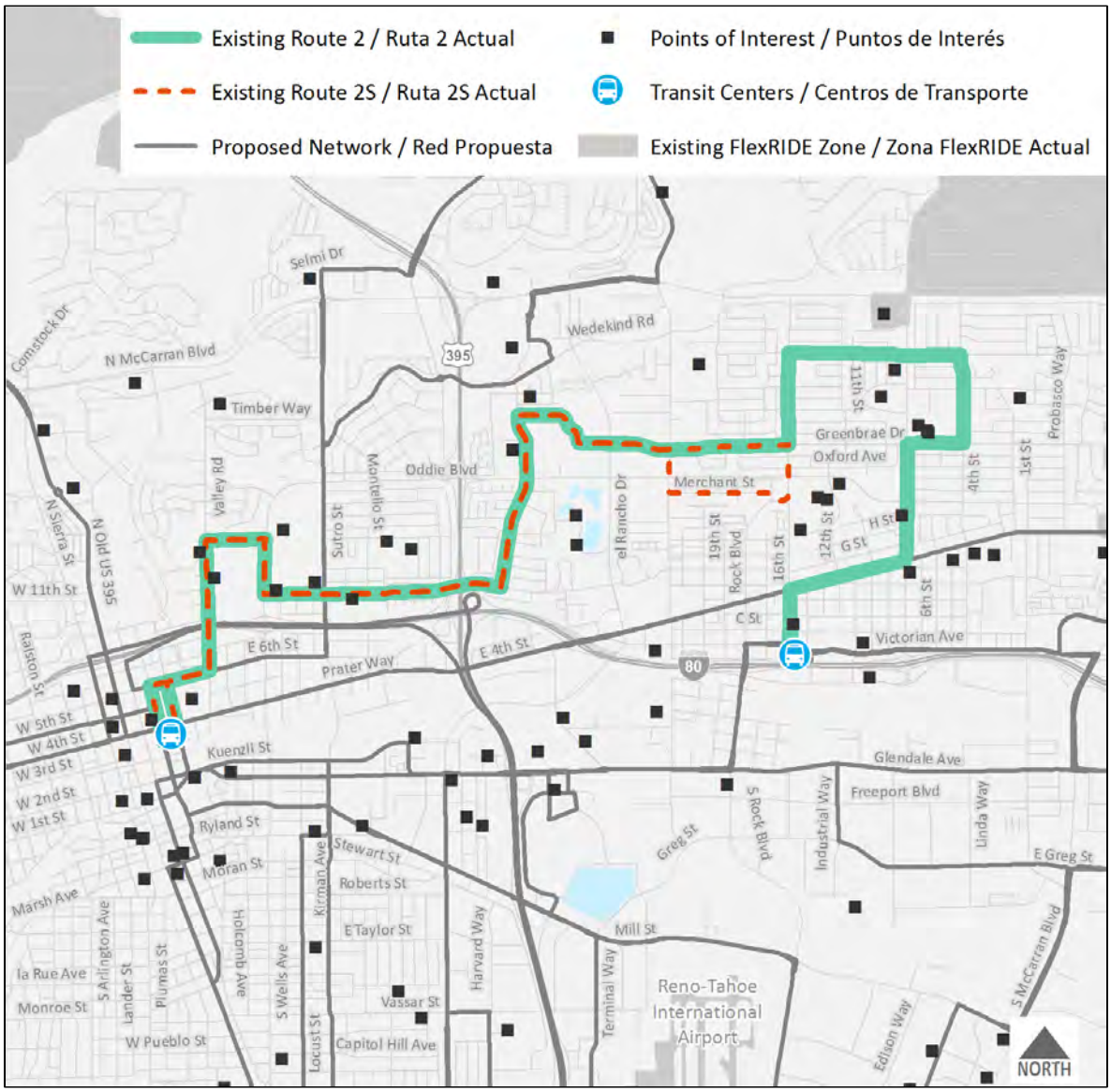
A. Transit service recommendations

TOPS Service Recommendations

The proposed changes by route are as follows:

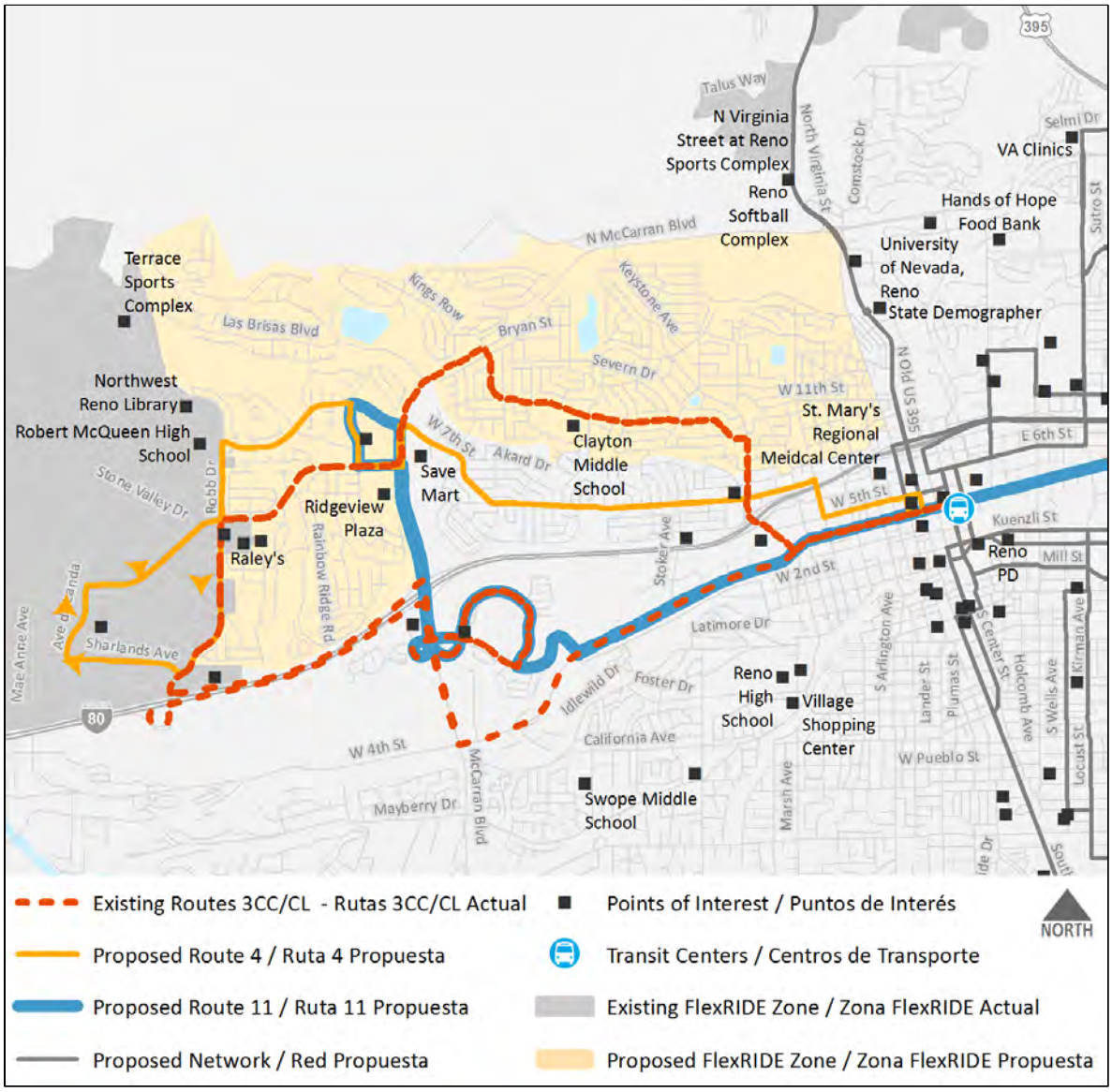
Route 2 / Route 2S

- Continue to operate Route 2 at 30-minute peak service on weekdays.
- Discontinue Route 2S due to low ridership.
- Monitor passenger loads on Route 2 and provide additional trips if needed.



Route 3CC and Route 3CL

- Discontinue Route 3CC and Route 3CL because of one-way loop routing. The one-way loop routing is challenging for new customers to understand and makes the route more difficult to use when making a return trip.
- The service will be partially replaced with changes to Route 4 & Route 11. The extended Route 11 will connect communities west of Downtown to Sparks with a one-seat ride.
- The service will also be replaced by an extension of the Somersett / Verdi FlexRIDE Zone to cover the Kings Row area.

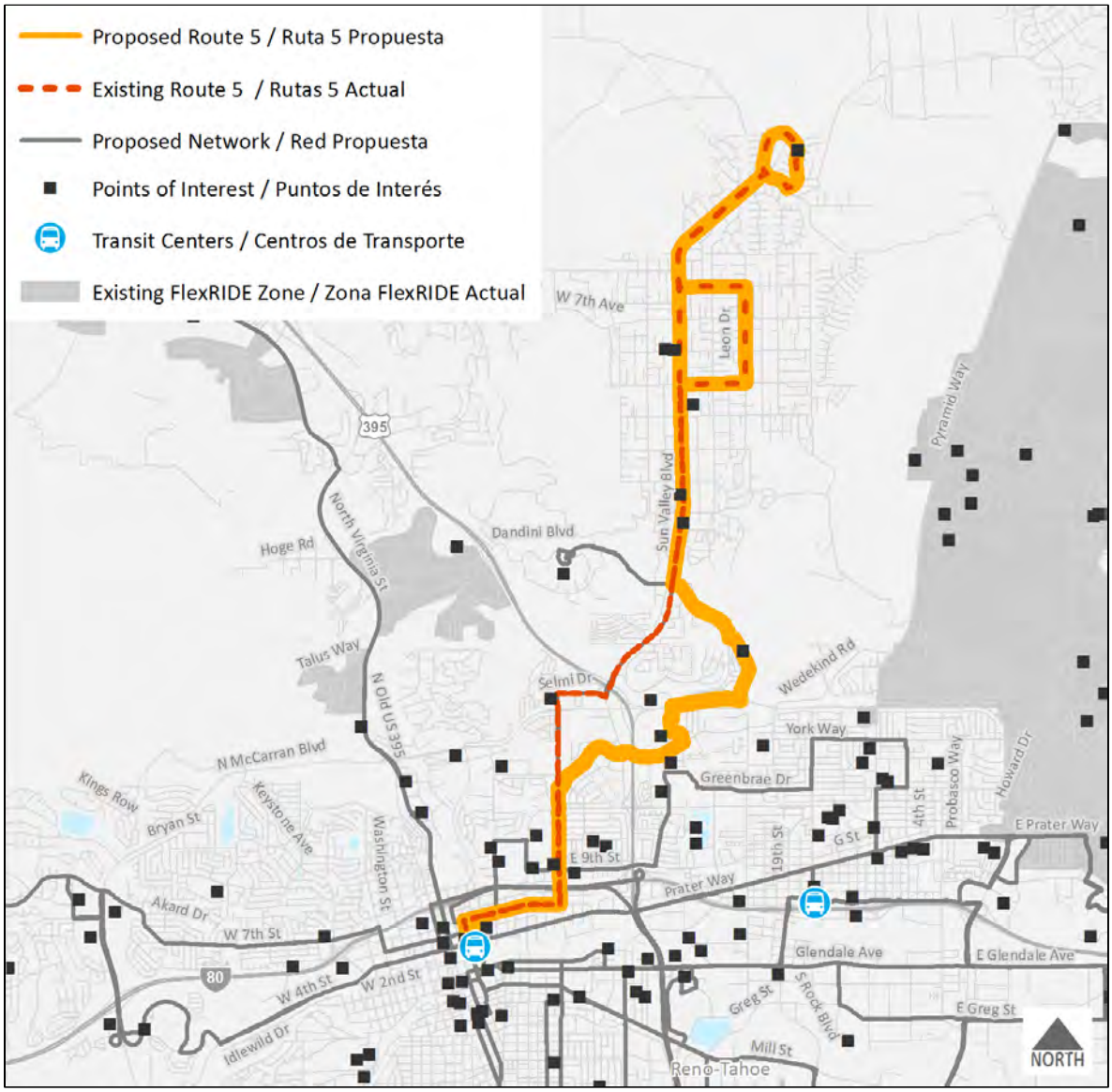


Route 4

- Route 4 will be modified to serve the most productive segments of the existing Route 3 and Route 4 north of I-80.
- Add mid-day service on Sundays.

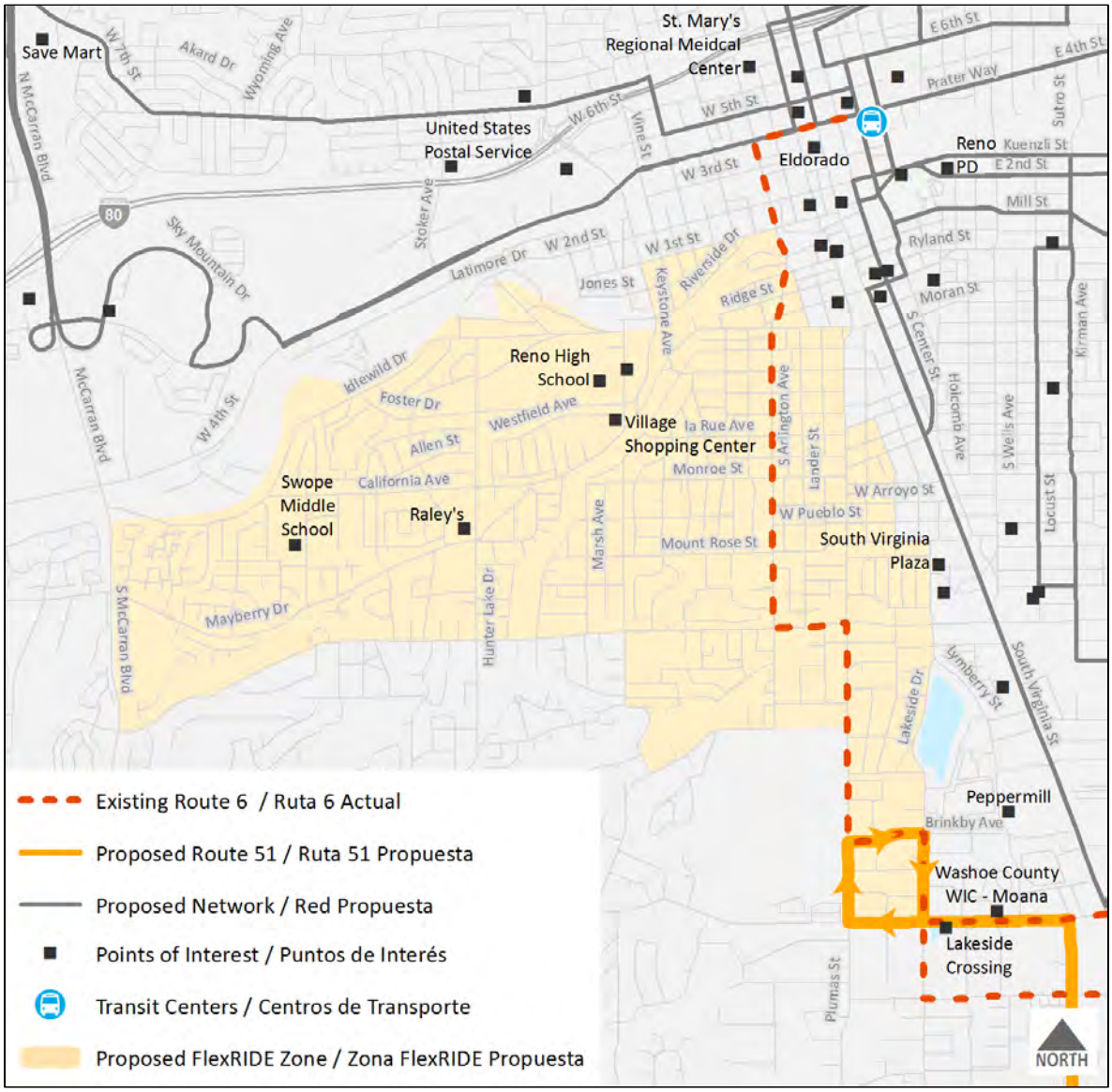
Route 5

- Swap alignments south of Sun Valley Blvd. & El Rancho Dr. with Route 15.
- Serve relocated new Hug High School on Sullivan Ln.
- Create connection between Sun Valley and the new Hug High School which is part of the attendance area. This change will also create a direct connection between Sun Valley and the WinCo shopping area.
- Discontinue service on segment of El Rancho Rd.



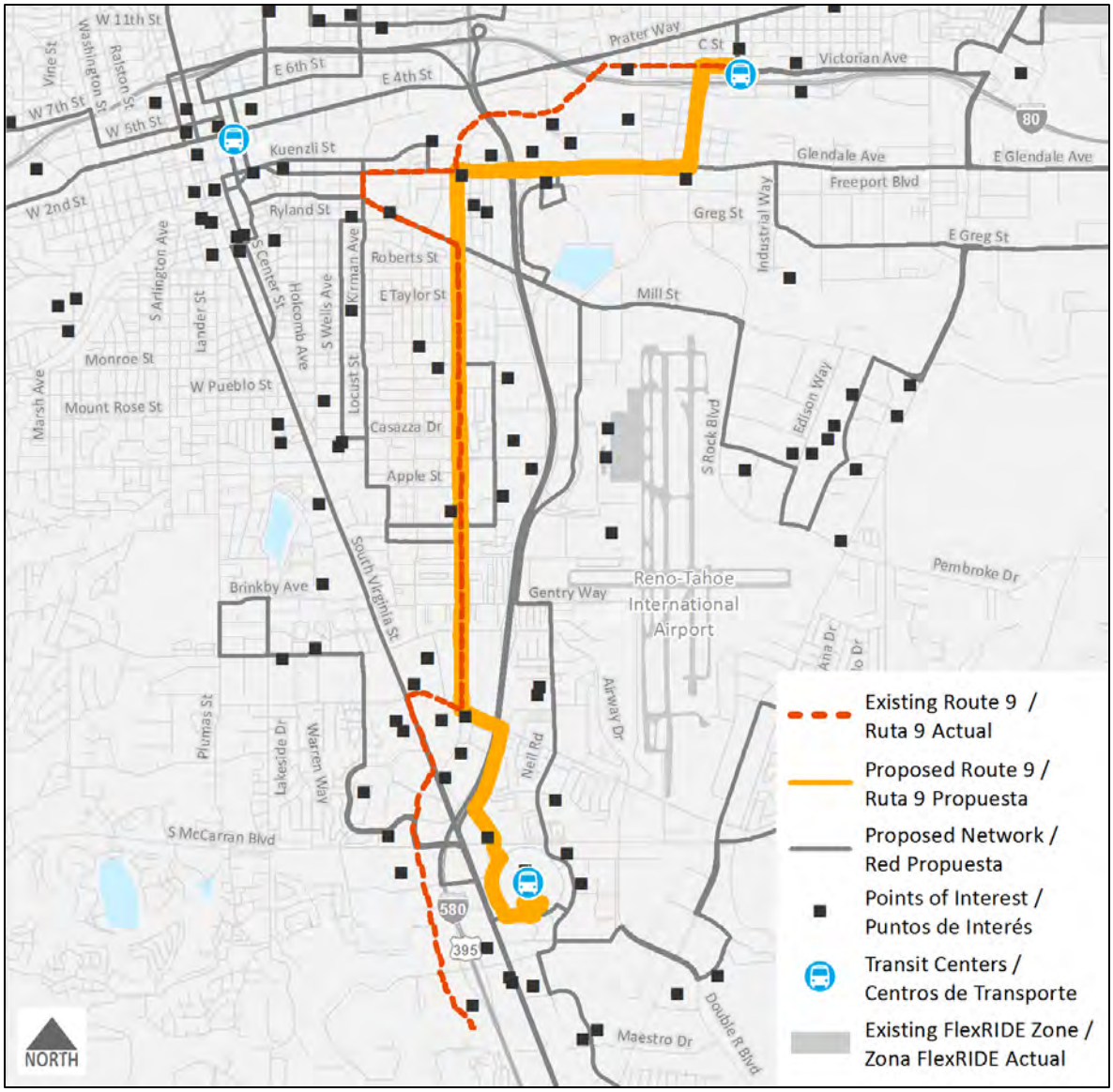
Route 6

- Eliminate route because of low ridership.
- Partially replace with new Southwest Reno FlexRIDE and new Route 51.



Route 9

- More direct routing between RTC CENTENNIAL PLAZA STATION and Meadowood Mall.
- Connection to Meadowood Mall will allow for additional transfers and should increase ridership.
- Connect RTC CENTENNIAL PLAZA STATION to Walmart on 2nd St.
- Provide service along Smithridge Dr.
- Increase frequency to 30 min during weekday peak and midday.



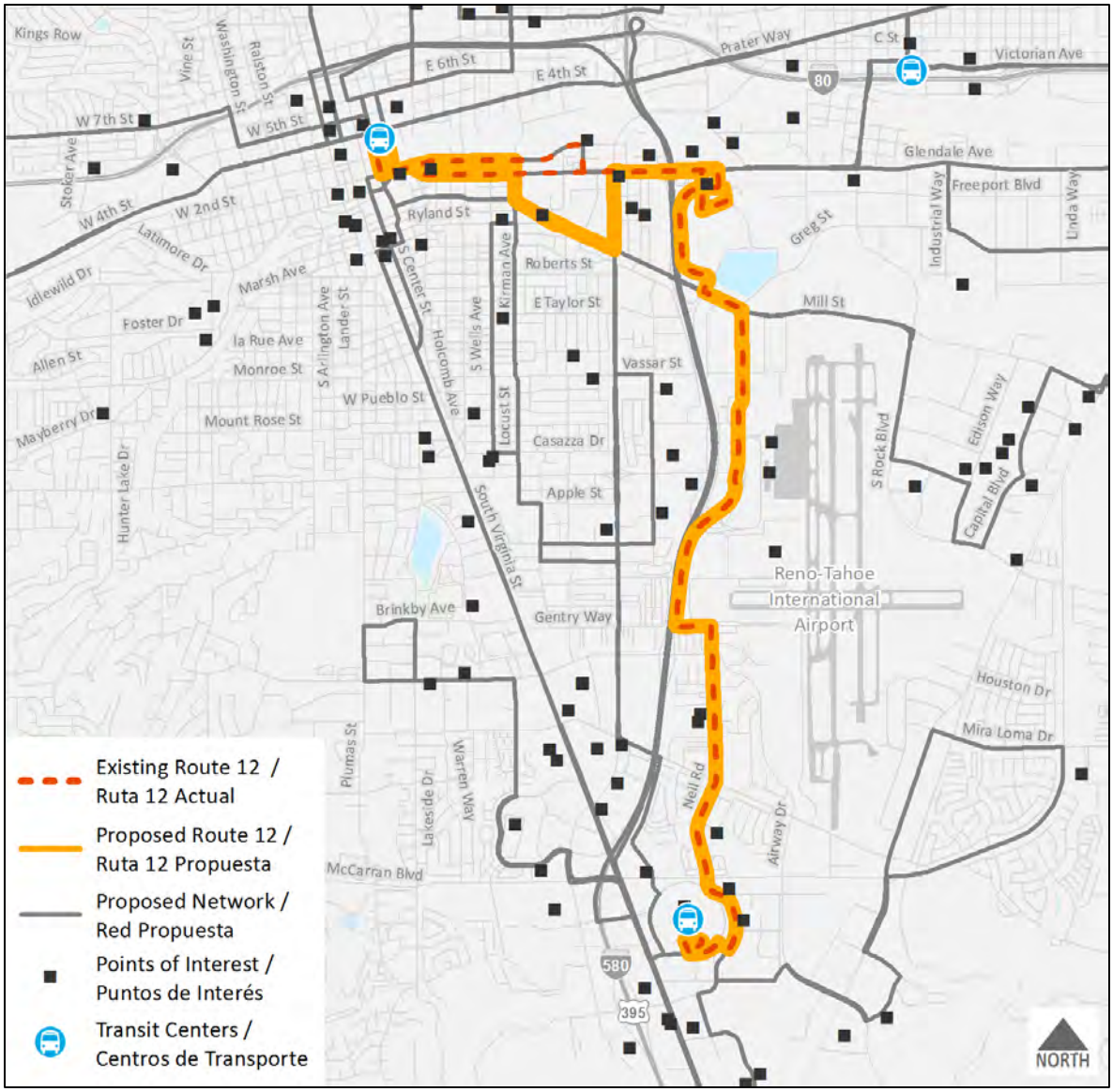
Route 11

- Extend route further east from RTC CENTENNIAL PLAZA STATION and west from RTC 4TH STREET STATION along the 4th Street and Prater corridor to connect to shopping opportunities (e.g., Walmart on W. 7th in Reno, Iron Horse Shopping Center in Sparks) and support the continued development of the Neon Line corridor and potential extension of RAPID – LINCOLN LINE.

- This extension would partially replace the proposed discontinuation of Route 3CC, Route 3CL, and Route 26. This extension would also allow single seat travel between the western portion of Reno to the eastern portion of Sparks.

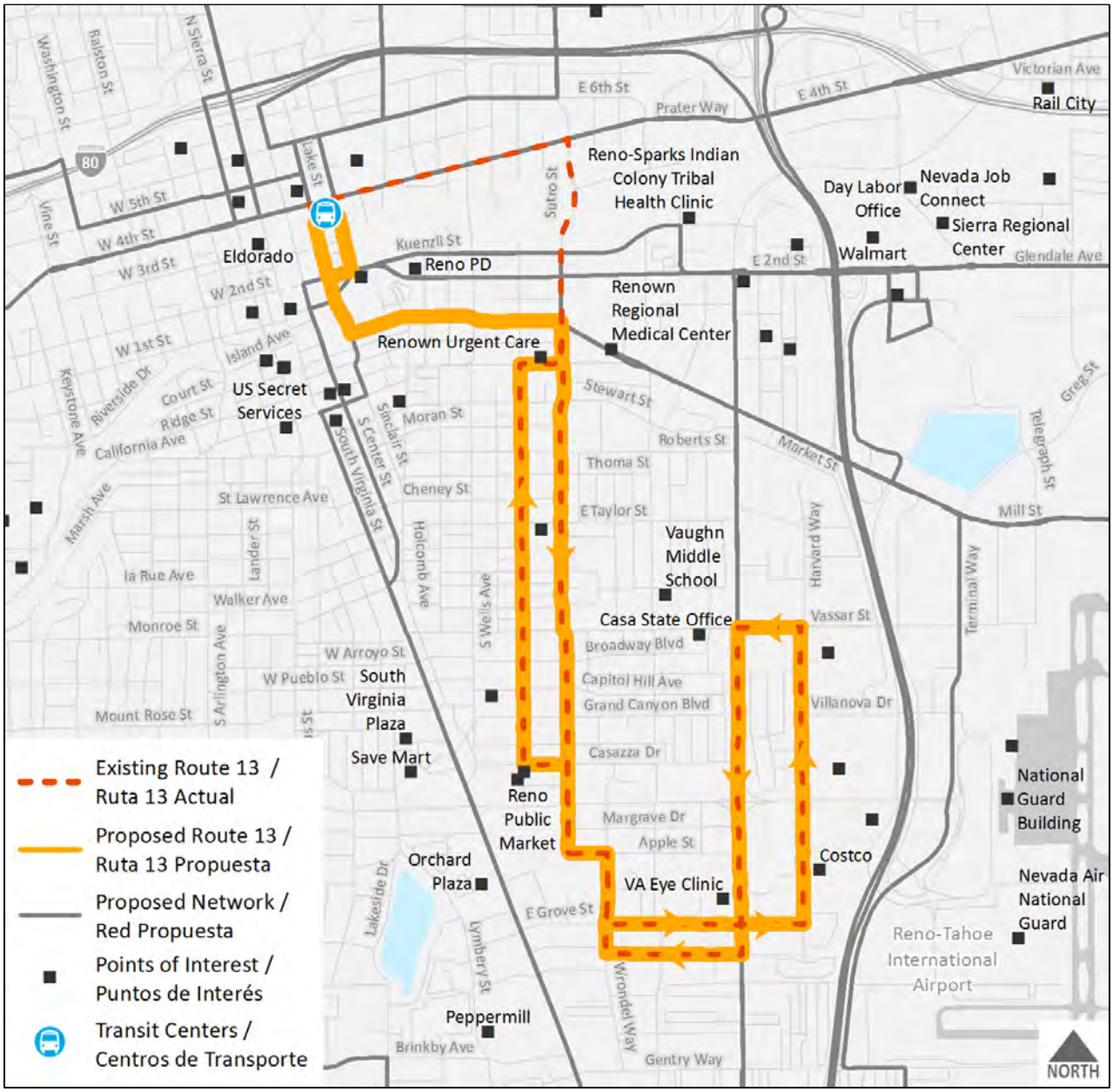
Route 12

- Change routing to serve Renown Regional Medical Center via Kirman Ave, Mills St, and Kietzke Ln.



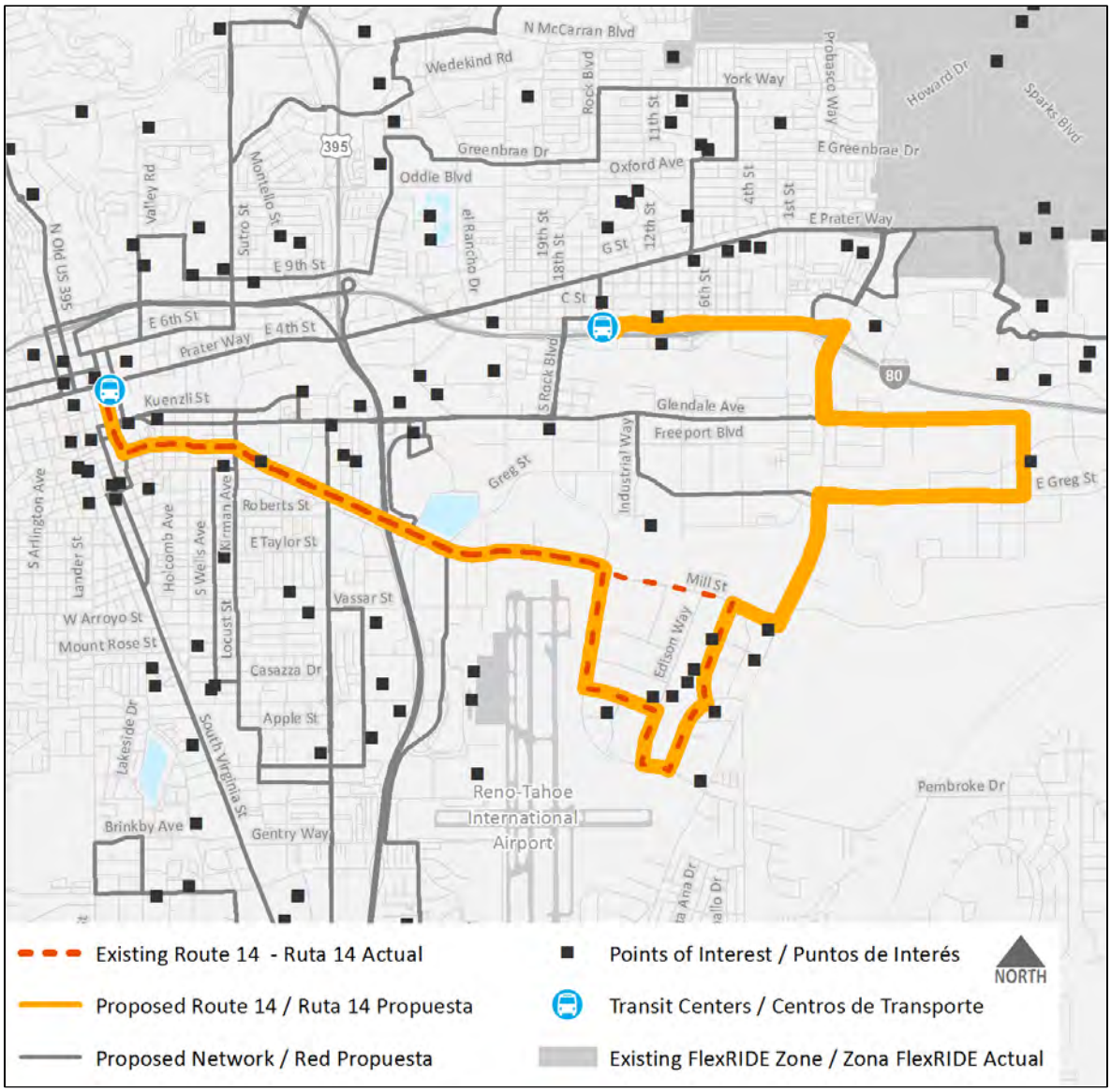
Route 13

- Change alignment near Downtown to Mill Street instead of 4th St.
- Add midday service on Sundays.



Route 14

- Extend route to RTC CENTENNIAL PLAZA STATION via McCarran Blvd, Greg St, Glendale, Ave, and Victorian Ave.
- Replace section of proposed elimination of Route 54.
- Instead of forcing passengers to transfer, this new routing will create a direct connection between RTC CENTENNIAL PLAZA STATION to Sparks Business Park.

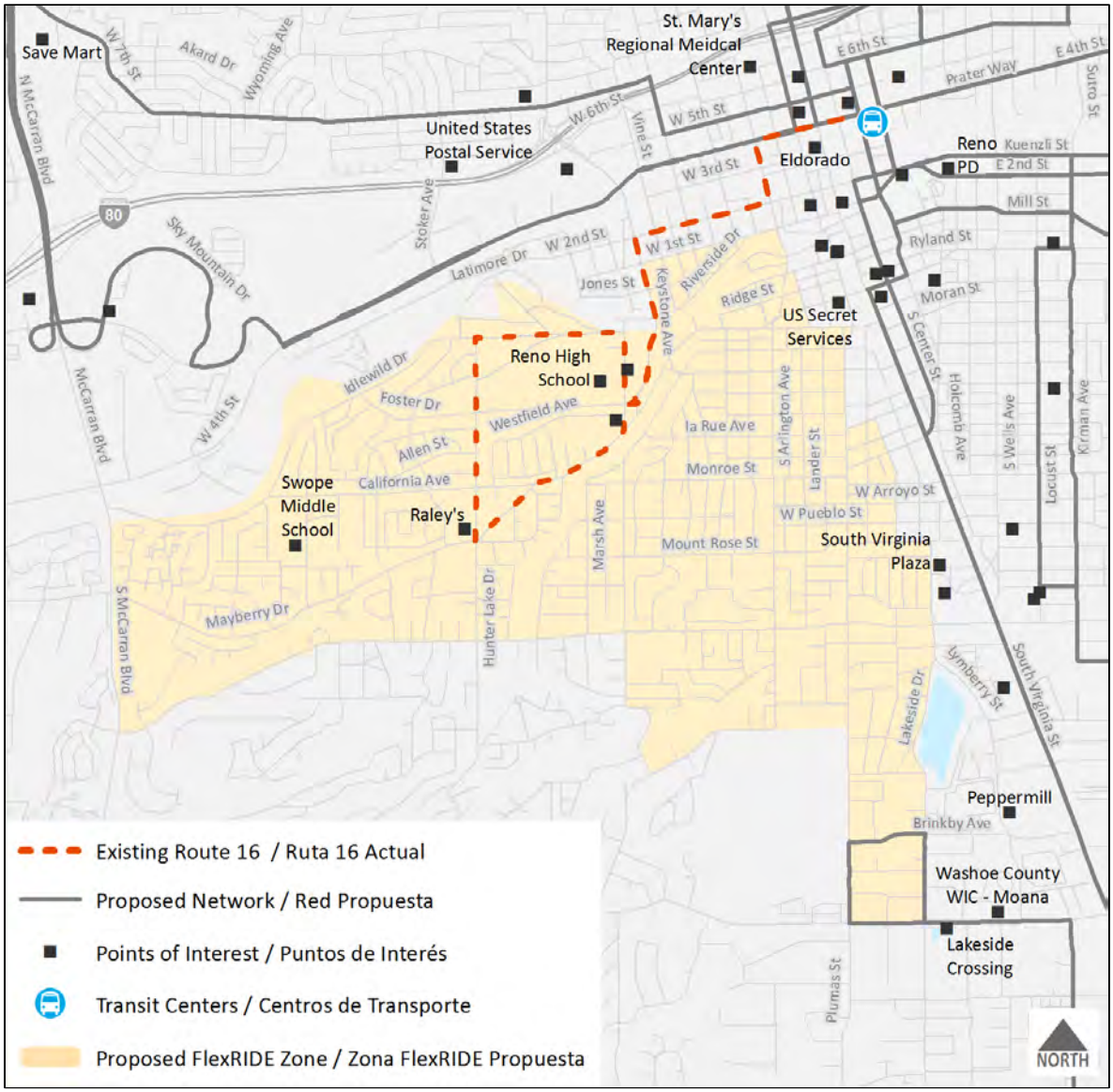


Route 15

- Swap alignments south of Sun Valley Blvd & El Rancho Dr. with Route 5.
- Faster routing to Truckee Meadows Community College.
- Add TMCC as a North Valleys FlexRIDE Point of Interest.

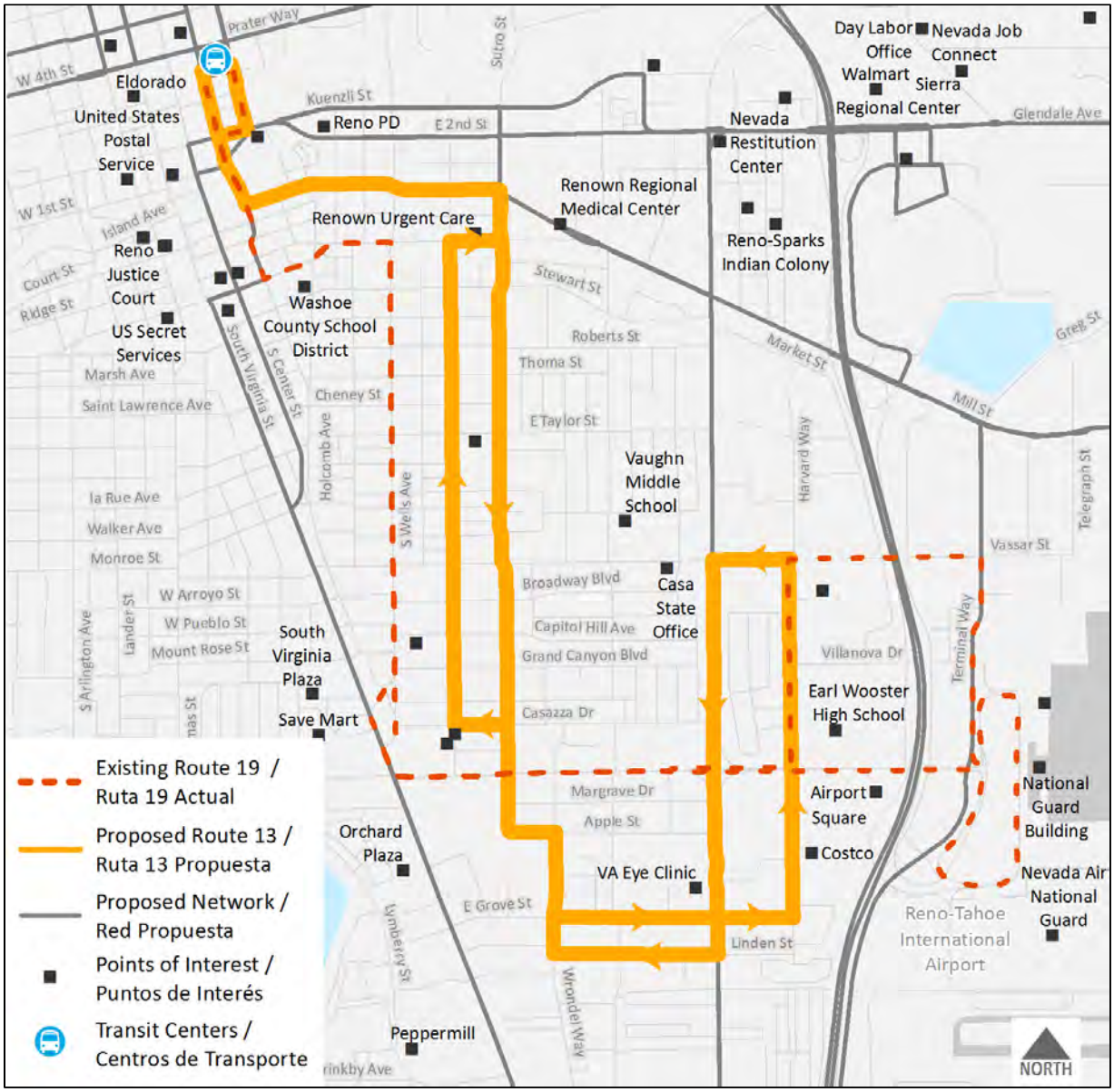
Route 16

- Eliminate route due to low ridership and replace it with the new West Reno FlexRIDE.



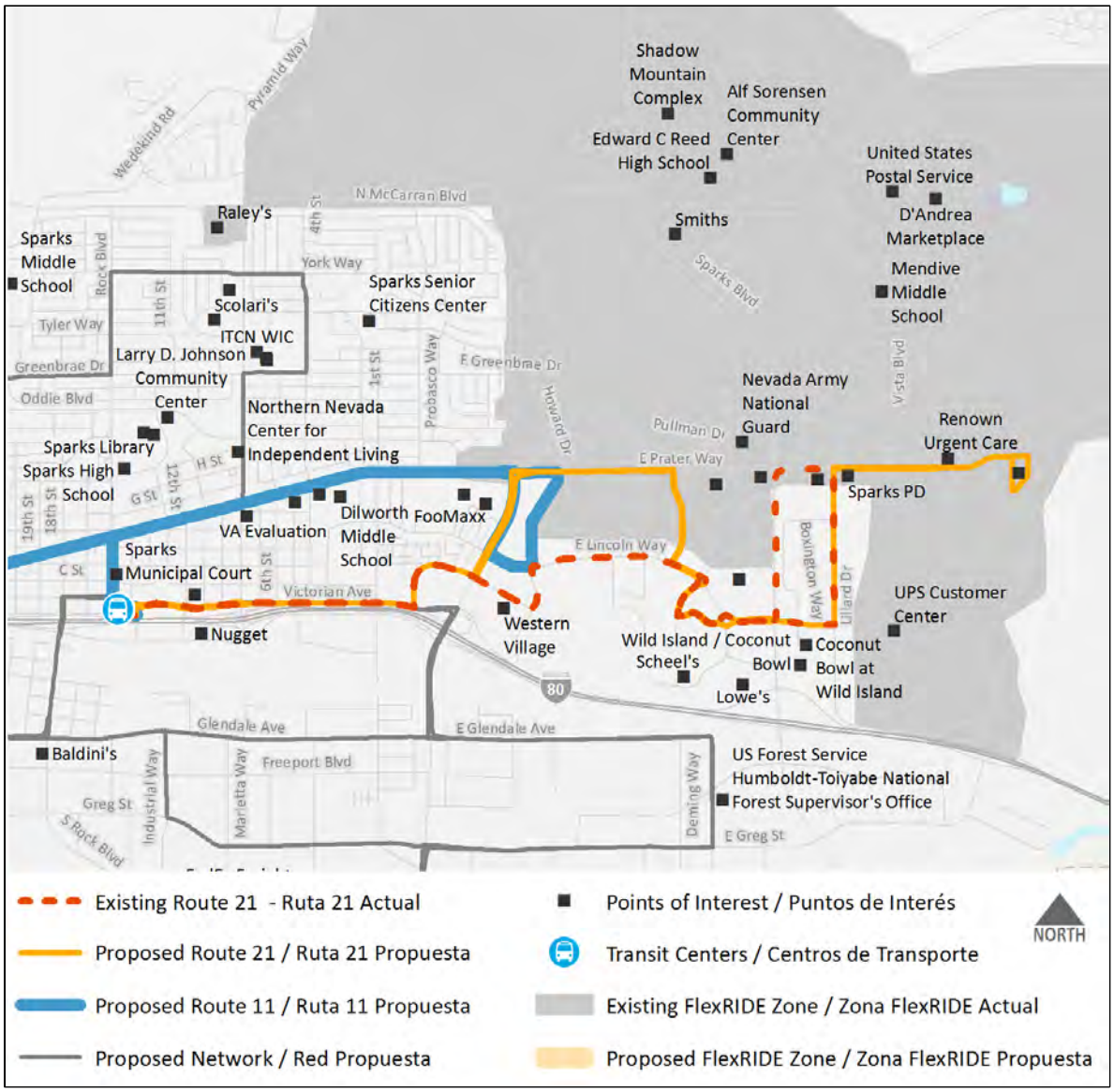
Route 19

- Discontinue route because of low ridership and nearby parallel routes.
- The southern section of route (including the Social Security office) will be covered by the recent extension to Route 13.



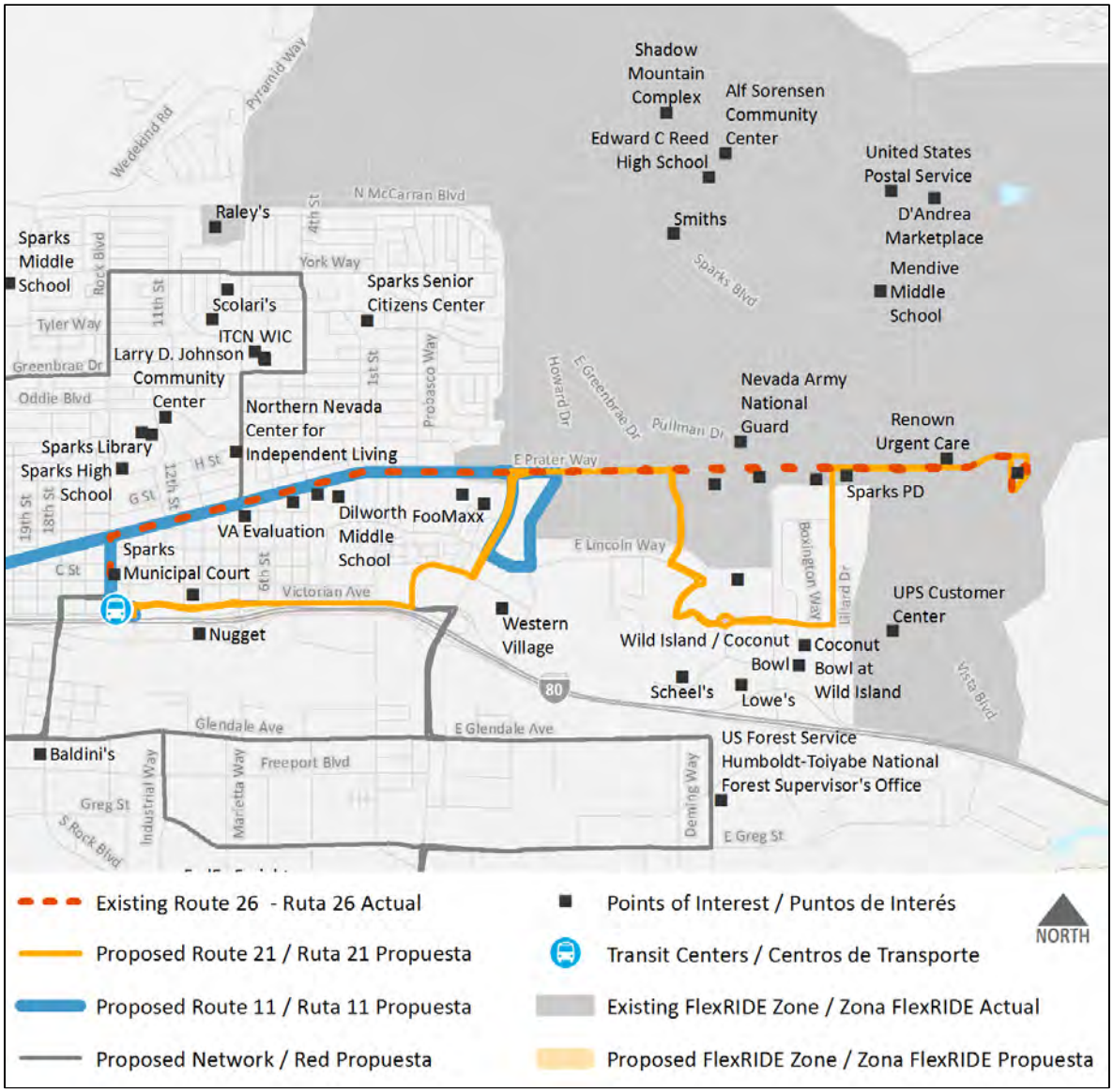
Route 21

- Extend Route 21 to the Northern Nevada Medical Center and also serve Marina Gateway Drive.
- Serve a portion along Prater Way to replace Route 26 which is proposed to be discontinued.
- Improve Saturday midday frequency to every 30 minutes to match the peak frequency.



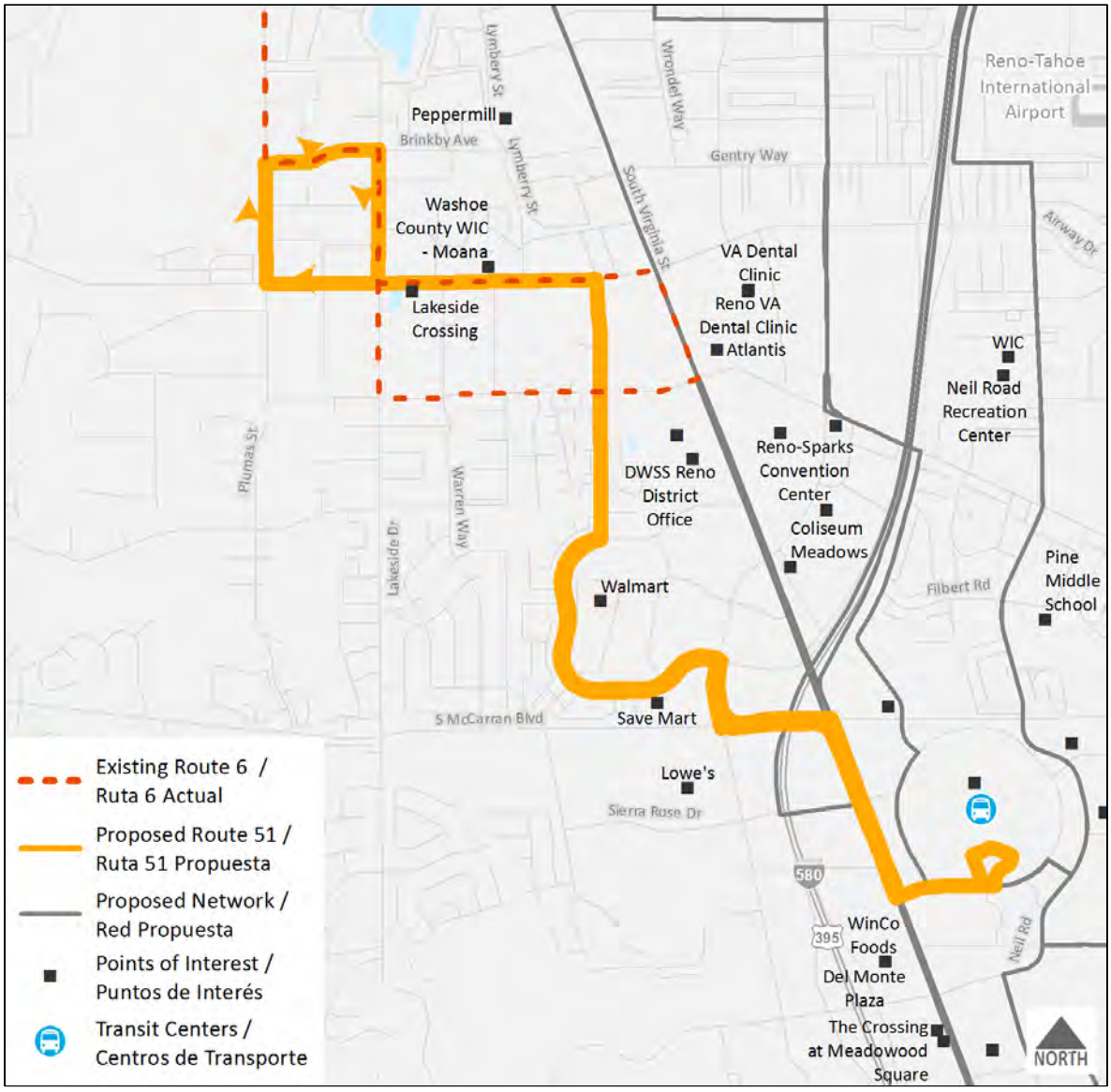
Route 26

- Discontinue Route 26 and partially replace with changes to Route 11 and Route 21.



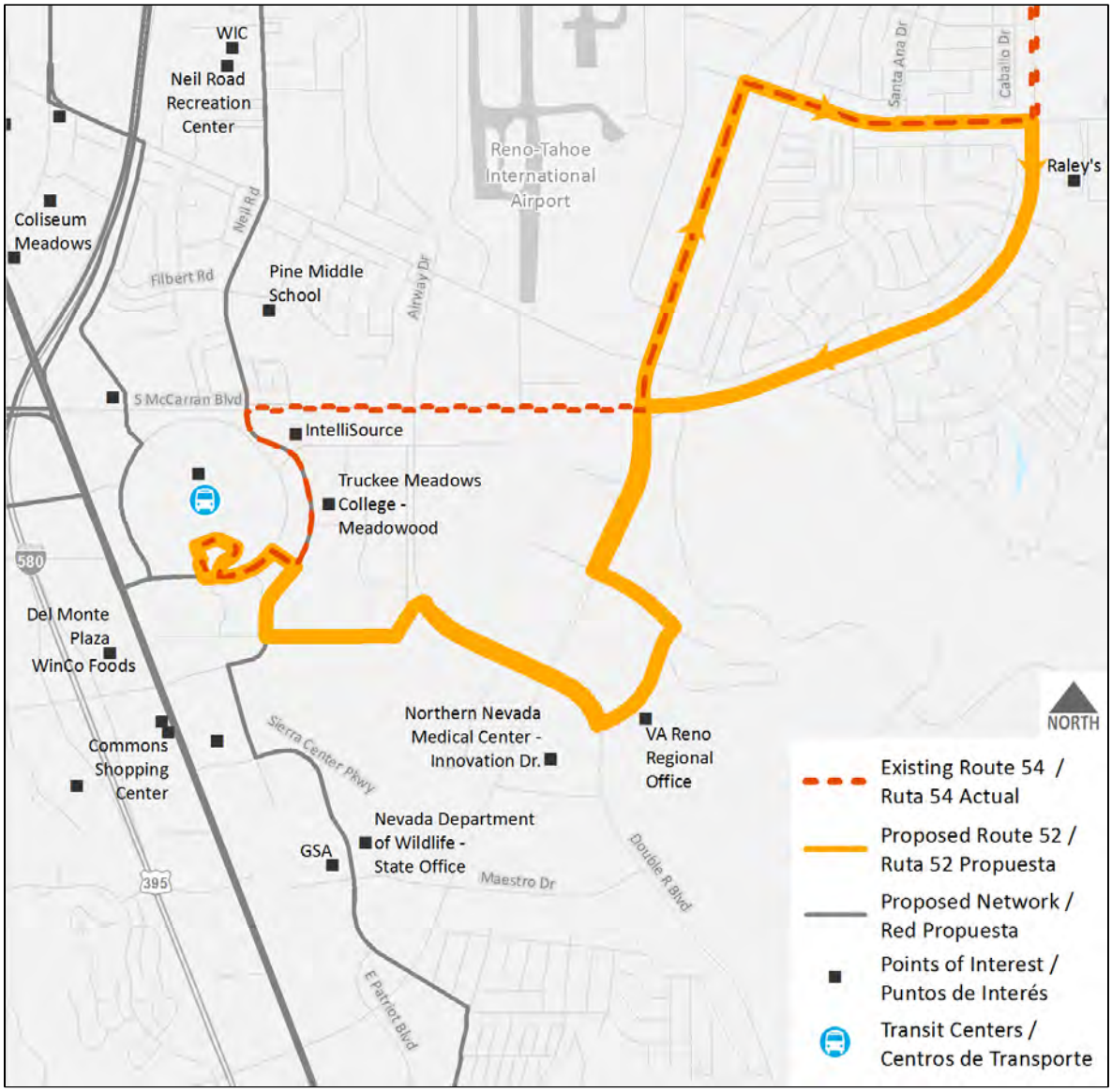
Route 51 (new route)

- Connects Greenfield to Firecreek Crossing Shopping Center and Meadowood Mall.
- Partially replaces southern portion of discontinued Route 6.
- Service would operate every 30 minutes during weekday peak and midday.
- Service would operate every 60 minutes during early morning, evenings, and weekends.



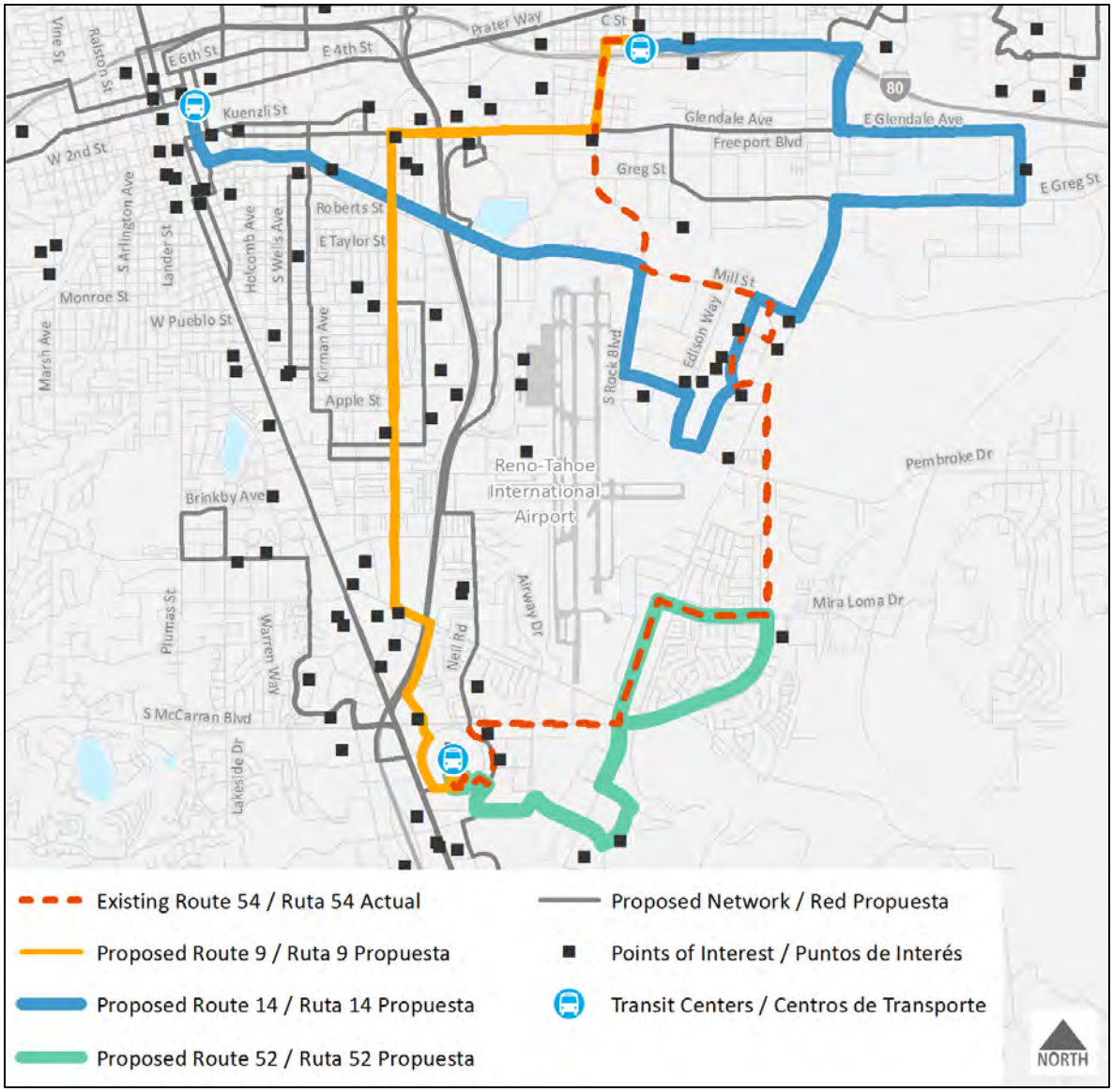
Route 52 (new route)

- New route connecting the Donner Springs area to Meadowood Mall.
- Provides connection to Veterans Affairs offices and the new Northern Nevada Sierra Medical Center.
- Partially replaces southern portion of discontinued Route 54.
- Service would operate every 30 minutes during weekday peak and midday.
- Service would operate every 60 minutes during early morning, evenings, and weekends.



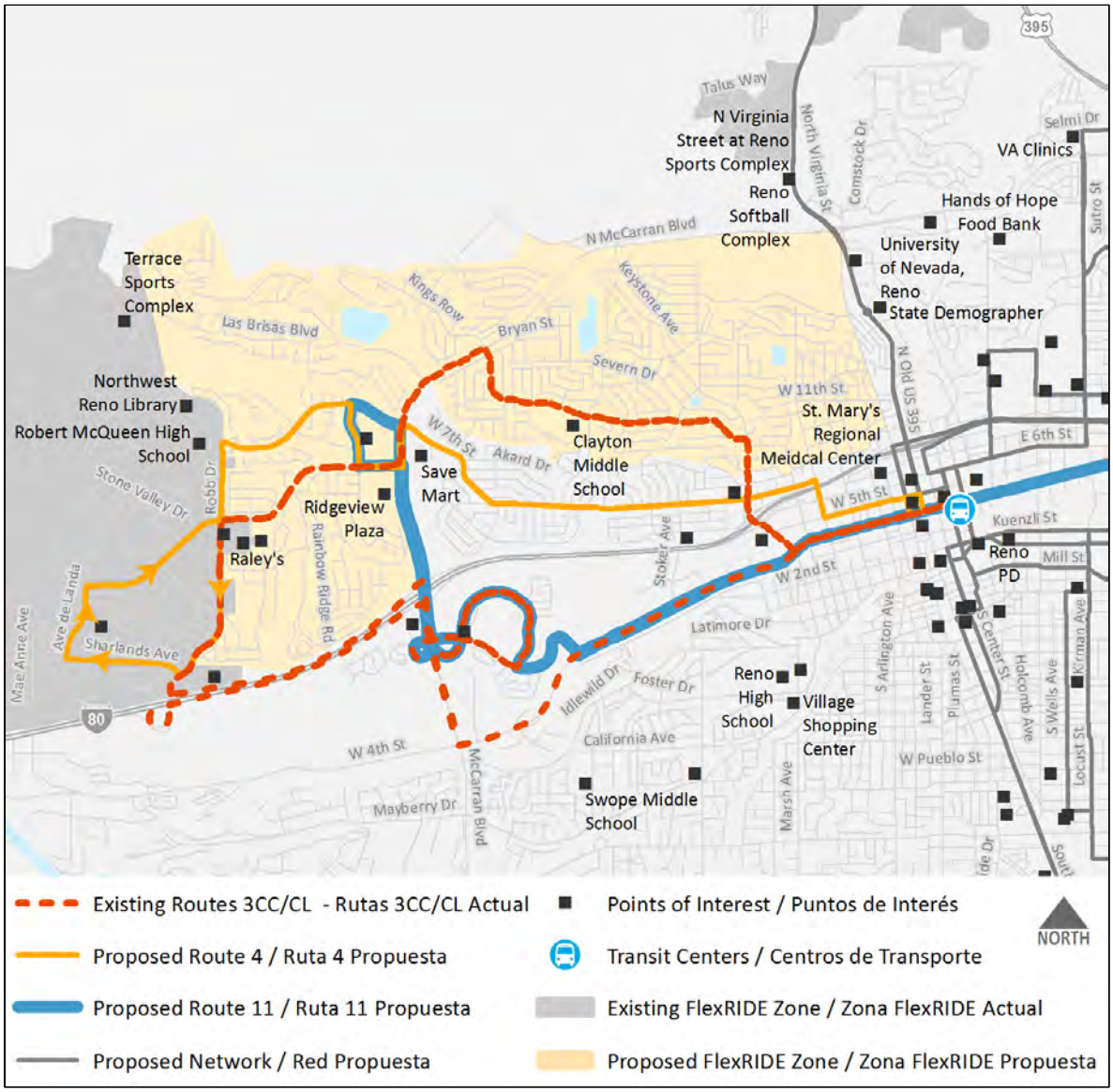
Route 54

- Discontinue Route 54 and partially replace with changes to Route 9, Route 14, and new Route 52.



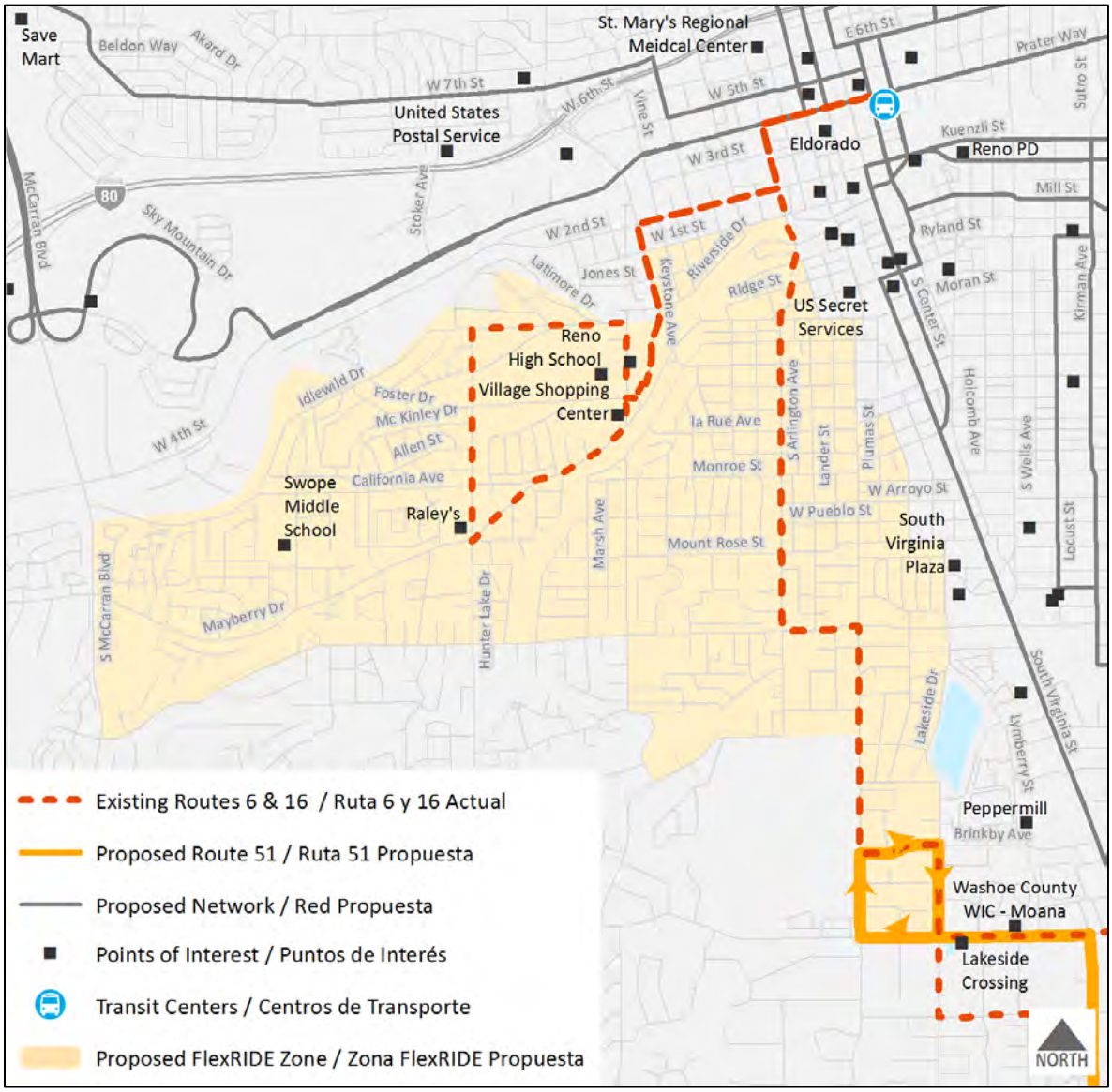
Somersett/Verdi FlexRIDE (expanded zone)

- Provide FlexRIDE in areas along discontinued segments of Routes 3CC, Route 3CL and Route 4.
- Provides connections to Route 4 and Route 11
- Connect to North Valleys FlexRIDE at Reno Sports Complex or Rancho San Rafael Park.



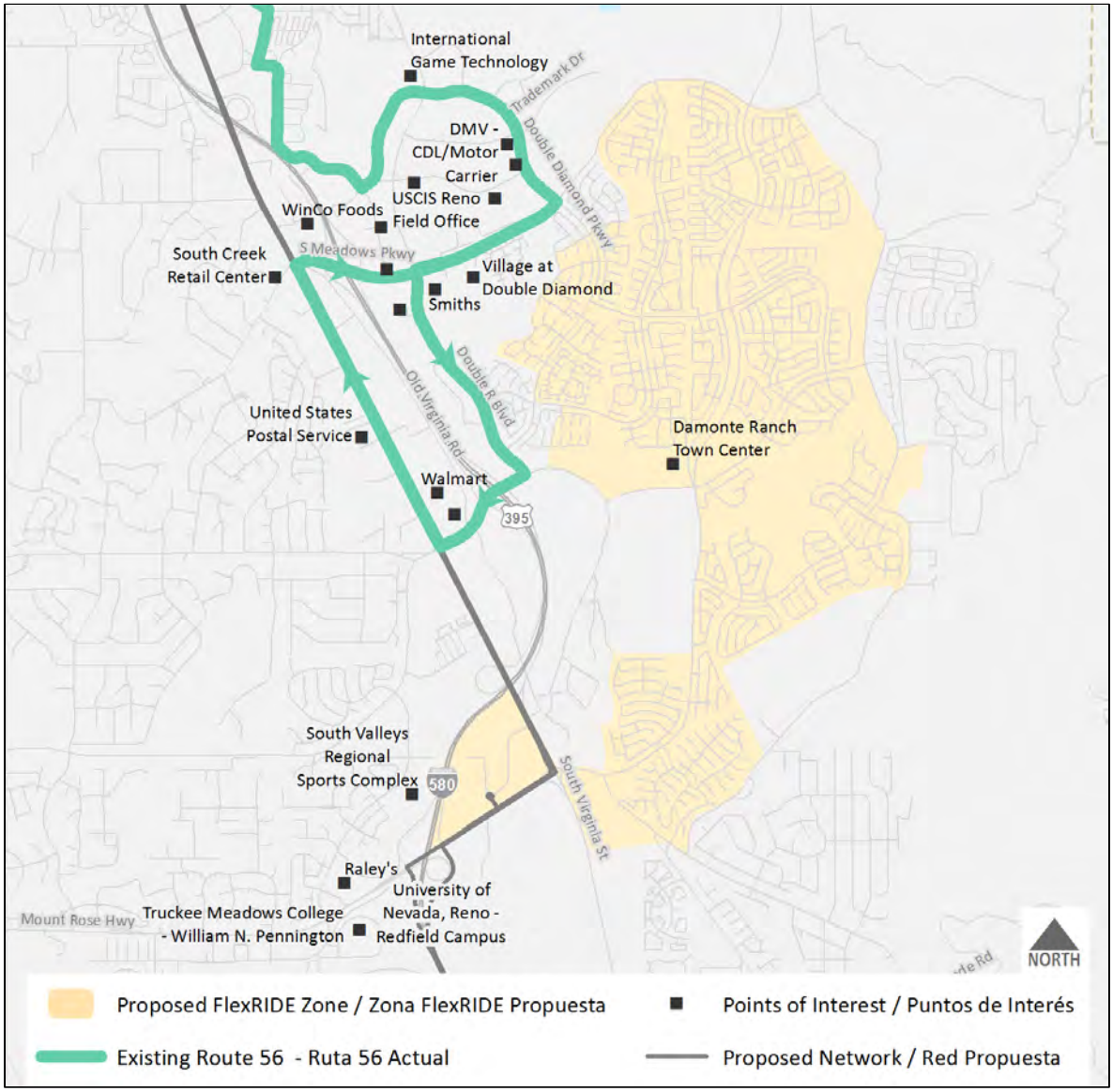
West Reno FlexRIDE (new route)

- Partially covering areas covered by discontinued Route 6 & Route 16.
- Connects to RTC 4TH STREET STATION as a Point of Interest.



South Meadows and Damonte Ranch FlexRIDE (new route)

- Covering new areas of South Meadows south and east of Route 56.
- Additional points of interest served outside of zone:
    - Walmart
    - Raley's at Galena
    - University of Nevada Reno: Redfield Campus
    - Other locations as demand warrants.



Enhanced Senior Services

- Expand and improve access to the Washoe Senior Ride Program that includes Lyft, Taxis and Uber.
- Change ACCESS reservation hours to a consistent 8:00 a.m. to 5:00 p.m. seven days a week.
- Create additional points of interest for existing FlexRIDE zones (e.g., senior housing in Spanish Springs).

REGIONAL TRANSPORTATION COMMISSION
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MEETING DATE: April 29, 2022 **AGENDA ITEM 6.1**

From: Bill Thomas, Executive Director

Monthly verbal update/messages from RTC Executive Director Bill Thomas – *no action will be taken on this item.*

MEETING DATE: April 29, 2022 **AGENDA ITEM 6.2**

From: Bill Thomas, Executive Director

Monthly update/messages from RTC Executive Director Bill Thomas on federal matters related to the RTC – *no action will be taken on this item.*

ATTACHMENT(S)

A. Written report prepared by Cardinal Infrastructure and Thompson Coburn

Federal Update for the Regional Transportation Commission of Washoe County
Prepared by Cardinal Infrastructure and Thompson Coburn
April 29, 2022 Board Meeting
Prepared April 5, 2022

Fiscal Year 2022 Appropriations
The House and Senate approved the Consolidated Appropriations Act for Fiscal Year 2022 and it was signed by the President on March 15th. The final bill totaled $1.5 trillion, including $15 billion in emergency aid for Ukraine as well as $13.4 billion for the Federal Transit Administration.

The government funding package substantially boosts funding for the military and nearly every non-defense agency, growing domestic spending to $730 billion, an almost 7 percent increase over current funding. The measure increases national defense coffers to $782 billion, about a 6 percent increase.

The bill included, for the first time in decades, congressionally directed spending referred to as "earmarks." The return of earmarks has helped build support, since lawmakers will be able to tout specific projects they got funded in their districts. The final bill includes over $800 million in earmarks for transportation projects, including $2 million for the RTC's Arlington Bridges project..

Renewed Spending Bill Discussions
Senate Democrats are making a final push to pass a large party-line tax and spending bill. With no chance of an affirmative Republican vote (barring a miracle), they will need to cut a deal with Sen. Manchin. And there is some optimism that they will go ahead and meet him where he stands, rather than trying to squeeze out a few more programs. The belief is that the longer this drags on, the more disjointed the party looks and the less capable they are of passing the President's agenda. As the midterms get closer and closer, there is little time for Democrats to maneuver and they will need to pass something before election season takes over the hill.

Fiscal Year 2023 Appropriations and Budget
President Biden's budget request for fiscal year 2023 for the U.S. Department of Transportation totals envisions $142.3 billion in gross spending authority, an increase of about $1.6 billion from the fiscal 2022 enacted level. The bulk of the funding has been authorized under the bipartisan infrastructure law (entitled the Infrastructure Investment and Jobs Act, or IIJA) and a considerable amount of advance appropriations have been provided under the IIJA.

The document rollout is taking some time. The main Budget Message is here and the detailed Appendix is here, but most of the rest isn't complete. We hope to get some summary documents from the Department of Transportation soon.

The House Budget Committee held its first hearing on the FY 2023 budget on
Tuesday, March 29. The Senate Budget Committee held its hearing on Wednesday, March 30.

Congressional leaders and top appropriators have already started discussing their plans for moving quickly to pass the 12 annual spending bills for fiscal year 2023. Congressional offices are requesting interested local governments to submit earmark requests before mid-April.

Infrastructure Law Implementation
The U.S. Department of Transportation is moving ahead quickly on disbursing the historic funding levels provided by the Infrastructure Investment and Jobs Act. On March 4, the Federal Transit Administration announced they will be accepting grant applications for the Low and No Emissions program as well as the Bus and Bus Facilities discretionary grant program through May 31. There is more than $1.1 billion available for Low-No projects and $550 million for Buses and Bus Facilities.

The U.S. Department of Transportation released a combined INFRA/Mega NOFA with applications due May 23, 2022. Railway/highway grade separation or elimination projects are eligible for both Mega and INFRA programs.

Gas Tax Holiday Proposal
A handful of Senate Democrats (Kelly-AZ, Hassan-NH, Warnock-GA and Cortez Masto-NV) who are in for tough midterm election battles are throwing their weight into a proposal to suspend the federal gas tax through the end of the year. A similar bill was also introduced in the House.

A gas tax holiday creates problems on several fronts: any reduction in receipts would short what was passed in Bipartisan Infrastructure Bill or require a general fund transfer. In addition, there's no assurance that lower gas prices would be passed along to the consumer at the pump.

Mask Order
The Biden administration extended the federal mask mandate for all transportation networks through April 18, one month after it was set to expire. The one-month extension is based off a recommendation from the Centers for Disease Control and Prevention (CDC).

"During that time, CDC will work with government agencies to help inform a revised policy framework for when, and under what circumstances, masks should be required in the public transportation corridor," according to an administration spokesperson.

Reps. Sam Graves of Missouri and Garret Graves of Louisiana sent letters to the CDC, TSA — which oversees the mandate's implementation — , and the White House requesting that it immediately be reversed, saying the "contradictory" policy "continues to frustrate and damage an airline industry." The lawmakers' letter follows Senate action a few days prior, where the chamber voted to support a resolution intended to void the CDC's guidance to mask up on transportation services. The measure is unlikely to go anywhere, considering the House Democratic leadership is not on board and the White House has threatened a veto.

Congressional Hearings
The Senate Banking Committee held a hearing on Tuesday, March 15 entitled "Advancing Public Transportation under the Bipartisan Infrastructure Law." The CEOs of Metropolitan Atlanta Rapid Transit Authority and the Central Ohio Transit Authority testified on the importance of transit-oriented development with room for affordable housing, newly created funding programs for fleet modernization, and research and development to improve safety and mobility for all riders.

The Senate Environment and Public Works Committee held a hearing on implementation of the "Infrastructure Investment and Jobs Act" by the Transportation Department on March 2, 2022. A link to the hearing, including testimony from DOT Secretary Pete Buttigieg, can be found here.

The House Transportation and Infrastructure Highways and Transit Subcommittee postponed a hearing on "Examining Workforce Development and Job Creation in Surface Transportation Construction." More info will be made available here.

APTA Conference

The 2022 APTA Legislative Conference was a successful reunification of transit leaders from around the country after two years of remote meetings. Highlighted by the attendance of Secretary Buttigieg, FTA Administrator Nuria Fernandez, Rep. DeFazio (House T&I Chair), and Sen. Brown (Senate Banking Chair) the Conference was an opportunity to hear directly from the Biden Administration and its allies about what its priorities were and what the expectations for transit agencies should be over the next two years. Hundreds of transit authorities carried the public transportation message to the Hill for visits with their delegation.

Administration

The White House is keen on using wartime executive powers to boost U.S. battery production to help secure supplies for the growing market for electric vehicles and power storage on the electric grid. Hard to tell if this suggests a more aggressive administration leading up to the midterms but it certainly would be welcome from members of both sides of the aisle, with Republicans offering support of domestic mining, while the more centrist Democrats waffle on mining opposition in favor of their clean energy agenda.

EPA

Plans to tackle climate and environmental justice priorities at the Environmental Protection Agency have lagged behind some expectations. During the Trump administration, there was a mass exodus from the agency, which now faces some challenges staffing up to meet the demands of the generous funding from the BIL. The agency is working to recruit across the country to make sure the funding is properly implemented.

REGIONAL TRANSPORTATION COMMISSION
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

MEETING DATE: April 29, 2022 **AGENDA ITEM 6.3**

From: Kristina Swallow, Director NDOT

Monthly verbal update/messages from NDOT Director Kristina Swallow – *no action will be taken on this item.*