



Intermodal Bus and Bicycling Transportation in Southern Nevada

Alexander Paz, Ph.D., PE and Courtney Coughenour, Ph.D.



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SJSU Research Foundation
210 N. Fourth St., 4th Fl.
San José, CA 95112

Tel // 408.924.7560
Fax // 408.924.7565

transweb.sjsu.edu

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Currently, numerous efforts are aimed at increasing the rates of active transportation (AT) including modes such as bicycling alone or in combination with public transportation. Perceived safety is the most important factor in an

individual's decision to travel by bicycle. It is important to understand the perceptions of bicycling infrastructure concerning safety and barriers at the local level, as many metropolitan areas differ in urban design. The purpose of this study was to understand perceptions and likelihood of using various types of bicycle infrastructures for transportation purposes by Las Vegas residents.

Residents perceive many barriers to bicycling related to safety and infrastructure type. If the goal is to increase the rate of bicycling for transportation, then the actual and perceived barriers need to be adequately addressed.

Study Methods

A questionnaire was designed and distributed in person and online to bicyclists, bus riders, and drivers of personal vehicles. Qualitative data was also collected through phone interviews from individuals who reported bicycling as their primary mode of transportation in order to gain a deeper understanding of the experiences of those individuals.

Findings

Safety concerns and barriers of the current bicycling infrastructure

While most respondents agreed that vehicle speed was adequate for bicyclists to remain safe, most also disagreed that the likelihood of a collision between a vehicle and a bicycle was low, that there was adequate signage to remind drivers to be aware and courteous to bicycles, and that drivers abide by current laws intended to keep bicyclists safe. The most commonly reported safety concern related to bicycling for transportation was motorists/distracted drivers (75.6%), followed by speed of vehicles (58.1%), and conflicts or collisions with vehicles (51.2%). The most commonly chosen factors that would result in starting or increasing the level of bicycle travel were bicycle lanes separated from traffic (61.0%), more bicycle lanes (47.8%), and better lighting around bicycle routes (46.5%).

Safety perceptions and likelihood of use for eight types of bicycling infrastructures

Respondents were asked questions related to safety perceptions, adequacy of road markings and signage, and the likelihood they would use any of eight types of bicycling infrastructures. An off-road trail completely separated from the roadway had the highest agreement by respondents, who stated that this type of infrastructure was adequate for bicyclists to travel safely (87.0%); in addition, it had the highest agreement on likelihood of use (71.2%). An on-road, green-painted bicycle lane with a 3-foot painted buffer had the highest agreement with regard to adequate amounts of signage and markings to enable motorists and bicyclists to operate safely in the roadway together (74.7%). Respondents were then asked to choose one infrastructure that they would be most likely to use bicycling as transportation. The most commonly chosen type of

infrastructure was the off-road trail completely separated from the roadway (26.6%), followed by an on-road bicycle lane separated from motor vehicle traffic by a raised curb (20.1%).

Qualitative interview findings

- Using open coding and axial coding, seven major themes emerged from the data. The most frequently discussed theme was related to bicycle facilities, with a common subtheme of inadequate connectivity in the existing bicycle infrastructure. “There are a lot of recreational trails, but the transit commute needs work... Mainly more bike lanes and separating from traffic.”
- Driver behaviors were the second most frequently discussed theme, with a common subtheme of drivers not allowing bicyclists a minimum of three feet when passing them, as required by Nevada state law. “People that have multiple lanes to move over [but do not]. People don’t know about the three foot law.... People need to know they have to share the roads.”

Given the findings, it is apparent that LVMA residents perceive many barriers to bicycling related to safety and infrastructure type.

Policy Recommendations

Based on the current findings from this sub-sample of LVMA residents, and considering findings from previous research, the authors make the following recommendations:

- Invest in modifiable factors that are perceived as barriers. Specifically, when appropriate, include barriers between motor vehicles and bicyclists, such as painted buffers or physically separated curbs.
- Create educational information and outreach materials to inform community members of the procedures related to shared bus-bicycle lanes.
- Examine existing bicycle infrastructure for connectivity to major destinations, and enhance connectivity where necessary.
- Ensure that construction done near bicycle lanes takes into consideration bicyclist safety by a careful placement of cones, removal of debris from the roadway, and adequate replacement of damaged bicycle lane markings.
- Continue, and potentially enhance, education efforts that inform motorists and bicyclists of the laws and regulations intended to keep all users safe, such as distracted driving laws.
- Ensure enforcement of the laws and regulations put in place by the NRS that are intended to keep all road users safe.

About the Authors

Alexander Paz, PhD, is an Associate Professor of civil engineering and the director of the Transportation Research Center at the University of Nevada, Las Vegas. He is also licensed as a professional engineer (PE) in Nevada. Courtney Coughenour, PhD, is an assistant professor in the UNLV School of Community Health Sciences.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1250.html

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