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The Effect of Bike Lanes on Congestion and Ridership in Boise

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The Effect of Bike Lanes on Congestion and Ridership in Boise

Abstract

This research project examines the effect of adding bike lanes in the downtown area of Boise and the impact it has on congestion as well as ridership. Cycling has become increasingly popular in major U.S. metropolitan areas as an alternative form of transportation. The addition of bike lanes in downtown areas has been furiously debated in recent years. We will explore how bike lanes have affected congestion and ridership thus far in Boise, and in other regional cities of comparable size, Spokane, WA and Eugene, OR in hopes of determining the impact that the addition of bike lanes causes. Our research will examine how congestion changes with the addition of bike lanes on a road and whether or not it impacts the flow of traffic. For ridership, we will use a time-series data of bike counts that show the amount of riders passing through a given area before and after bike lanes are added. We expect to show that adding bike lanes downtown causes an increase in bike ridership and alleviates some of the effects of congestion.

Keywords

bike lanes, traffic congestion, commuters, emissions

Disciplines

Urban Studies and Planning

The Effect of Bike Lanes on Congestion and Ridership In Boise

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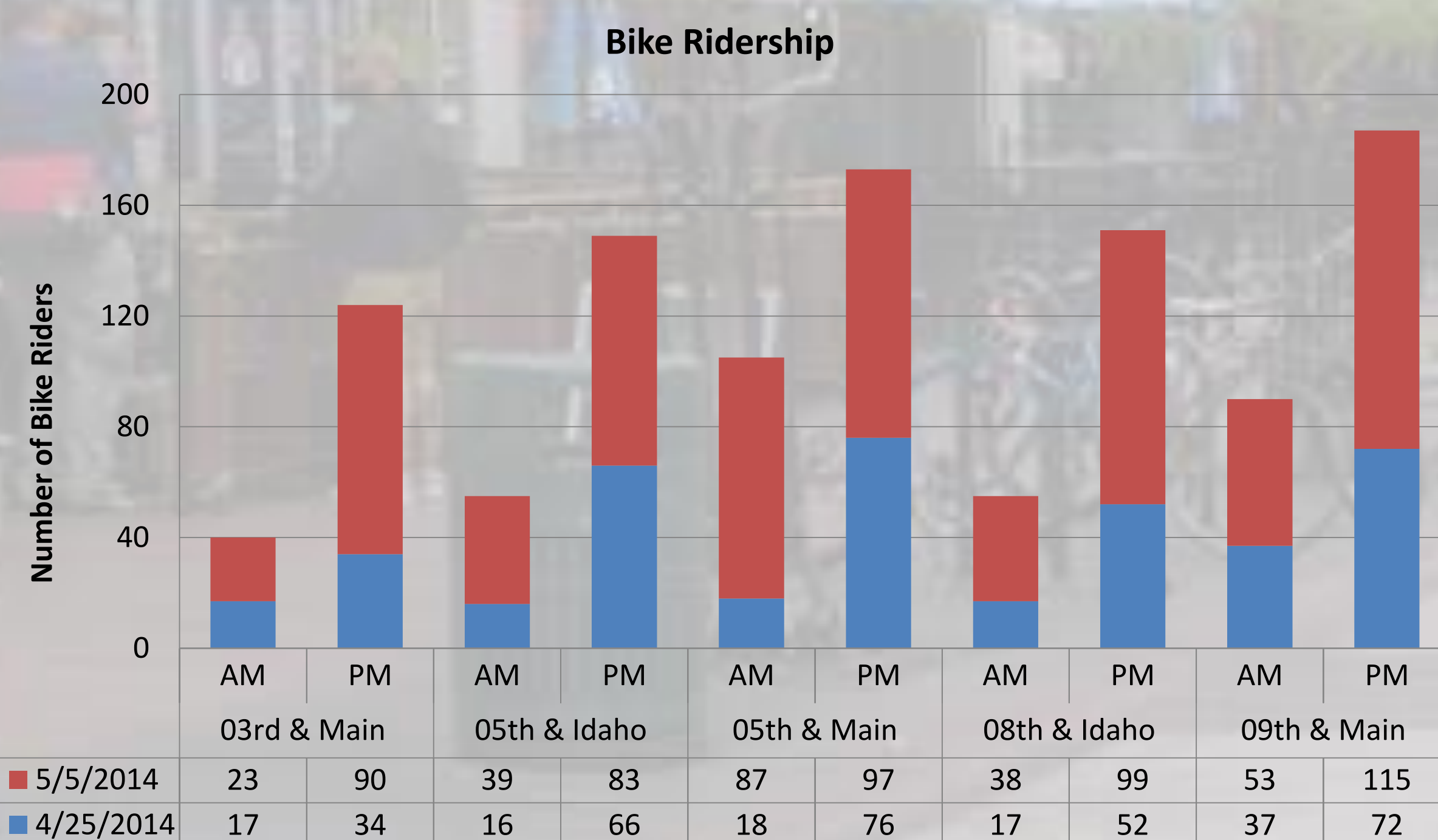
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Background

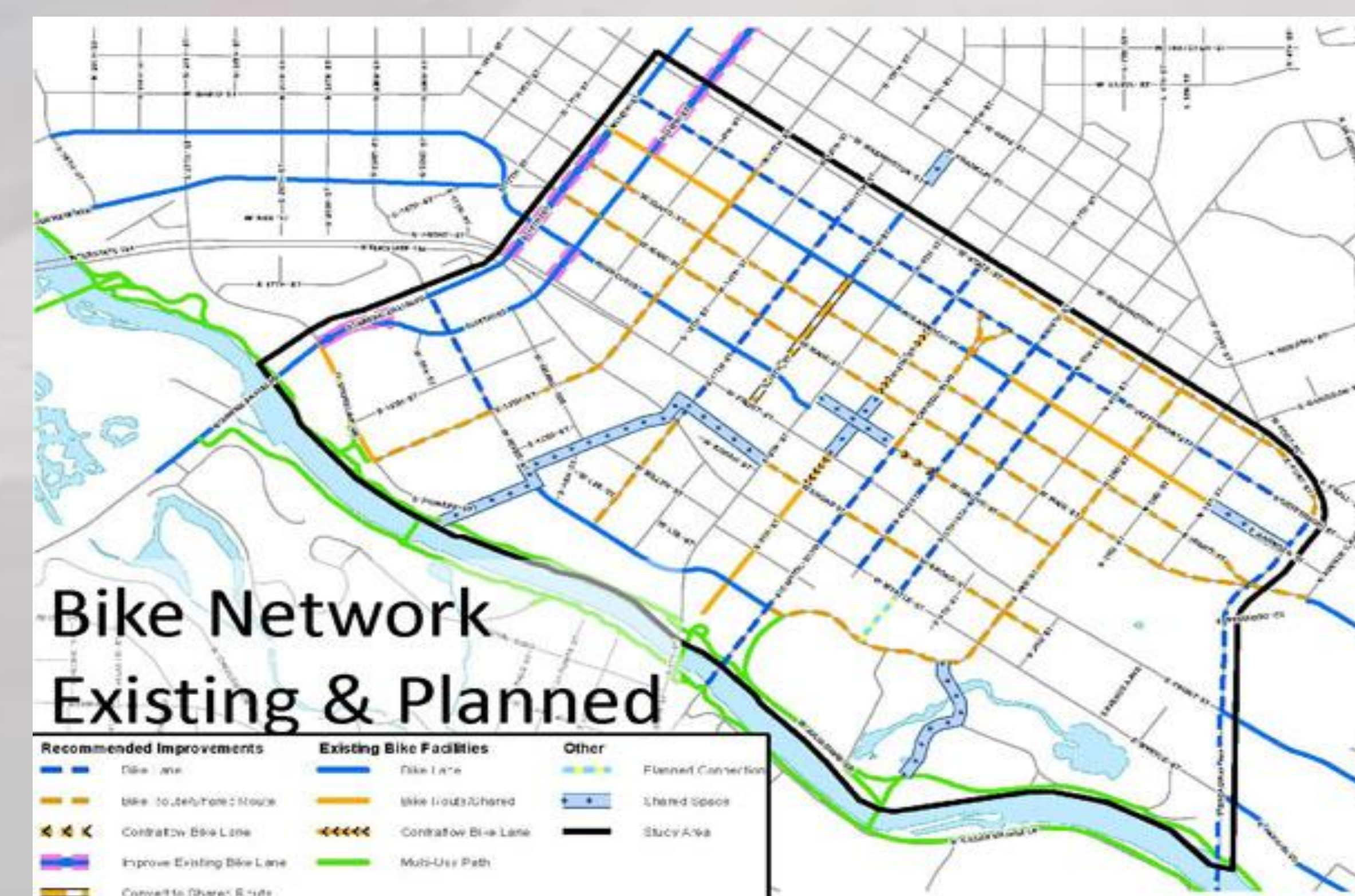
The City of Boise has been making substantial efforts to increase bike ridership within the downtown area.

Motivations for these programs include: reducing negative environmental externalities, reducing illegal bike activity (i.e. riding bikes on sidewalks), and decreasing traffic volume from intracity commutes.

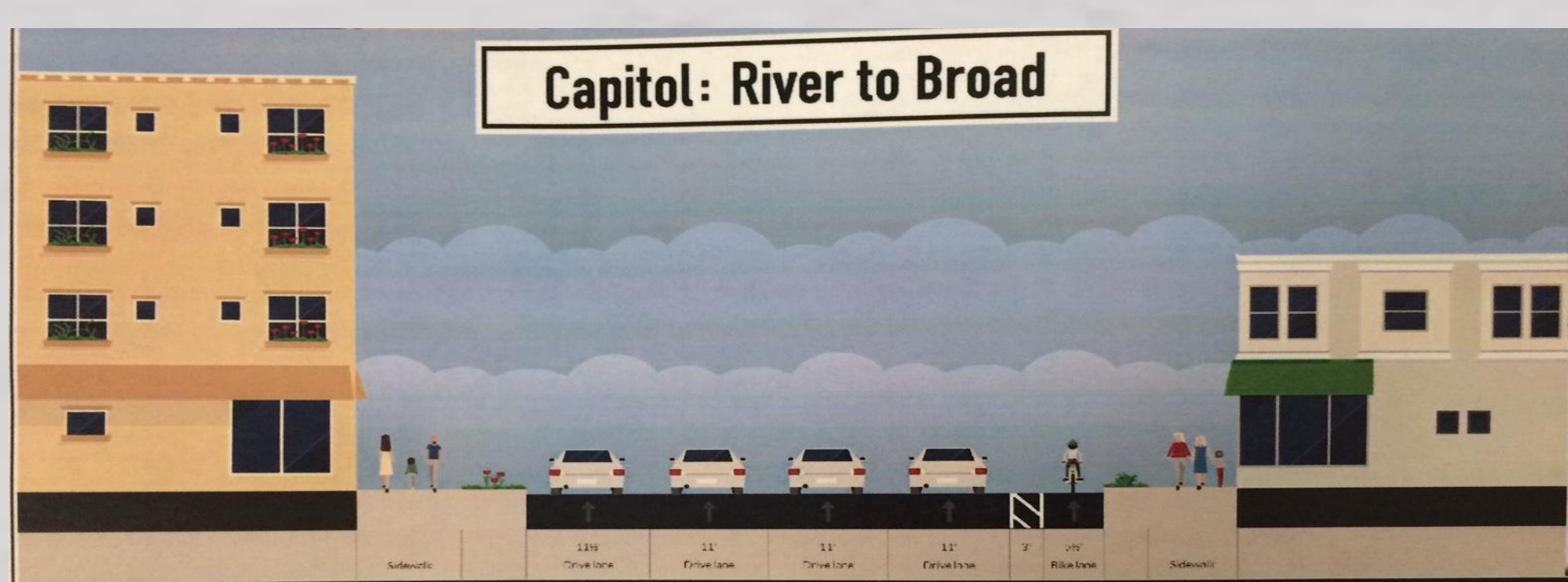
Bike Ridership



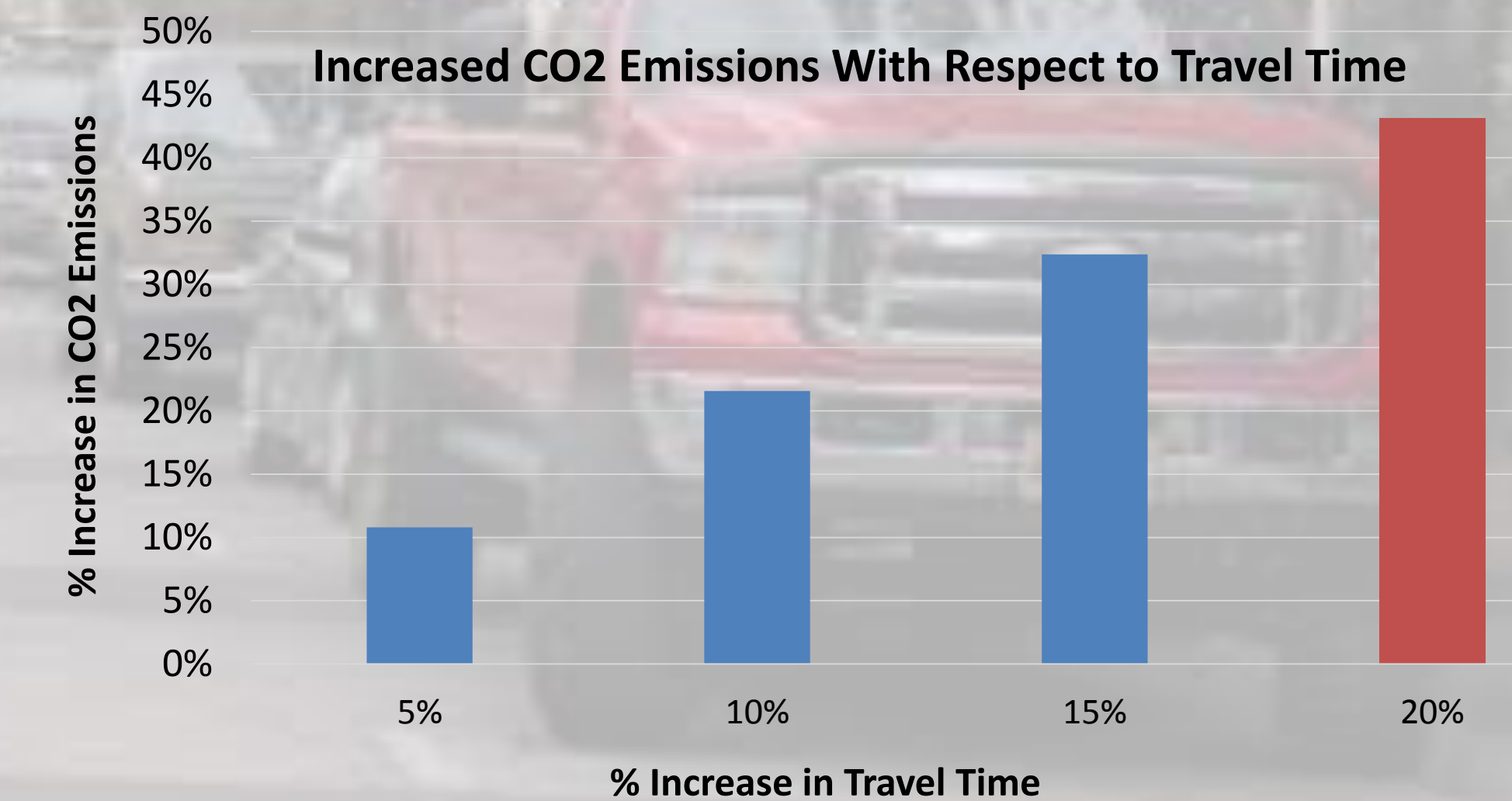
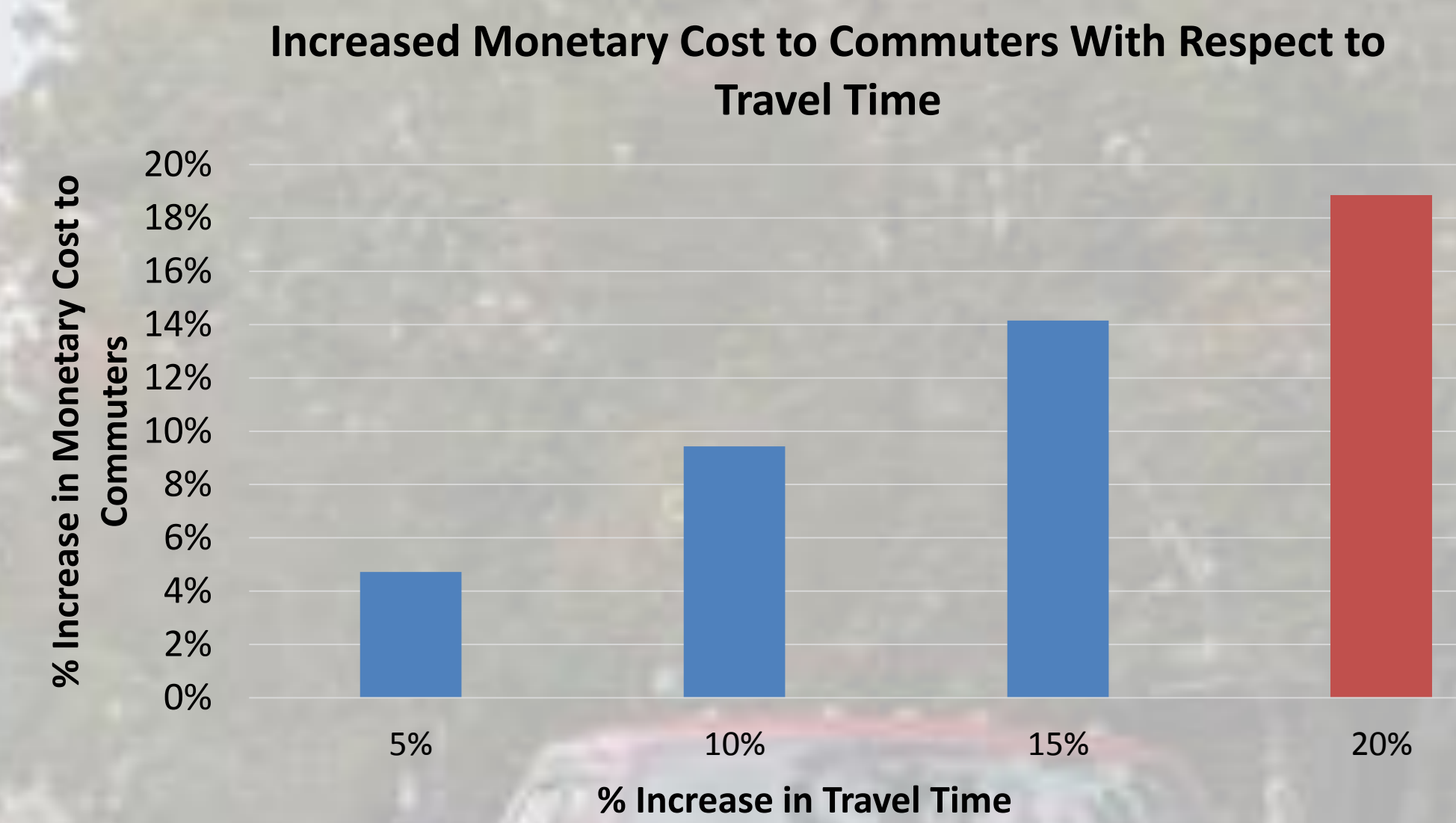
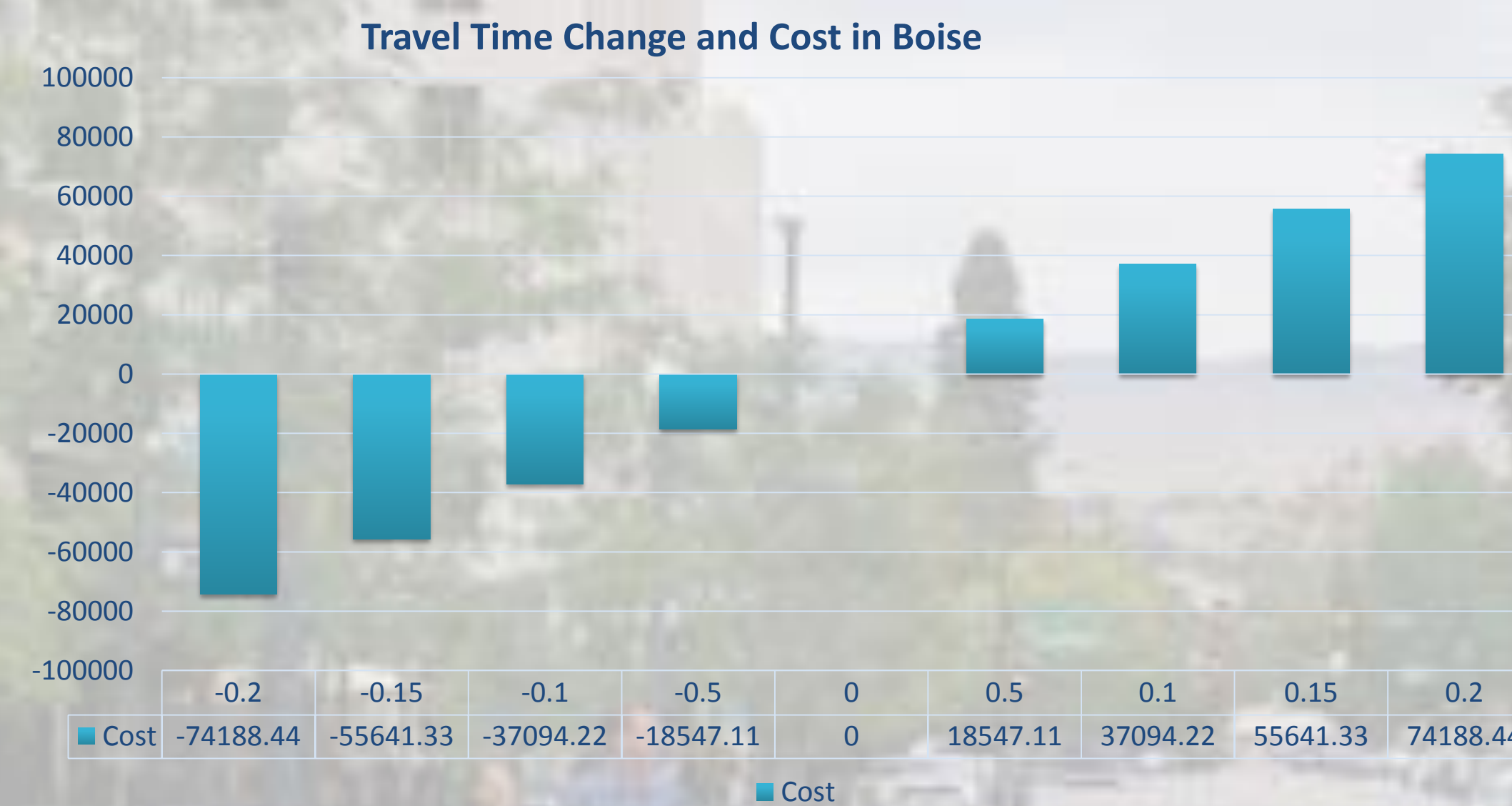
Current and Planned Bike Lanes



Example of proposed bike lane



Methodology



Bike lanes were added on Capitol, Main, and Idaho. The project showed that there was a 20% increase in travel time on Main/Idaho during that time period. In order to determine the effects of adding bike lanes we looked at the opportunity cost associated with being stuck in traffic for an additional increase or decrease in overall travel time. To determine this we found:

- Median wage in Boise for 2014
- Average commute time for Boise zip codes
- Number of workers in each zip code

By using the initial commute time we multiplied by a 5%, 10%, 15%, and 20% increase/ decrease in order to calculate how much is either saved or lost by the increase or decrease in travel time.

According to a study from Texas A&M Transportation Institute a 1.59% increase in travel time between 2010 and 2011 resulted in a 3.43% increase in CO₂ emissions and 1.5% increase in monetary cost to drivers. Assuming that the City's own conclusions regarding increases in congestion as a result of adding bike lanes are accurate, it means a 43.14% increase in CO₂ emissions and a 18.86% increase to cost for commuters

Conclusions and Recommendations

This research showed that adding a bike lane by taking away a lane of car traffic caused an increase in bike riders in the downtown corridor, as well as an increase in travel time and congestion for all commuters. We have found that the current plans to implement bikes lanes throughout Boise will not be successful in decreasing congestion and will therefore increase CO₂ emissions as well as costs to commuters. Bike lanes have become more popular around downtown; therefore, it is imperative that a careful combination of bike lanes and traffic changes are made to minimize the overall effects of congestion. Successful implementation of bike lanes without reducing the number of traffic lanes is possible, and has been done in other cities throughout the country.

Sources and Acknowledgements

achIdaho.org tti.tamu.edu census.gov zipatlas.com Kittelson & Associates Boiseweekly.com

