To: Bellevue Transportation Commission
From: Giovanna Arizpe, JG, SM
Re: Policy Analysis to Decrease Single Occupancy Vehicles
Date: June 4, 2024

Executive Summary

Bellevue's tax incentives increase employment and city commuting demand. However, Bellevue's car centric city design encourages commuters to utilize lone vehicle transportation. Despite city programs like Choose Your Way Bellevue, Commute Trip Reduction, Bike Bellevue, and Environmental Stewardship Plan attempting to curb the use and consequences of its single occupant vehicle (SOV) utilization problem, roughly **50% of Bellevues commuters continue to travel alone in their vehicle.** This is concerning because SOVs produce negative externalities of Bellevue's growing income gap, air pollutant related illnesses, and multiplicatively reinforces SOVs utilization from not feeling safe to use non-motorized transportation.

In this policy report, we provide Bellevue Transportation Commission a solution to Bellevue's SOV problem to recommend to Bellevue City Council. We start our analysis with an assessment of Bellevue stakeholders priorities, level of interest, and level of influence toward the city. After compiling several options to Bellevue's problem, we narrowed our focus and assessed the following potential solutions:

- **Expanding and Splitting Sidewalk**
- **Status Quo**
- **Shared Bus/Bike Lane**
- **"Road Diet"**

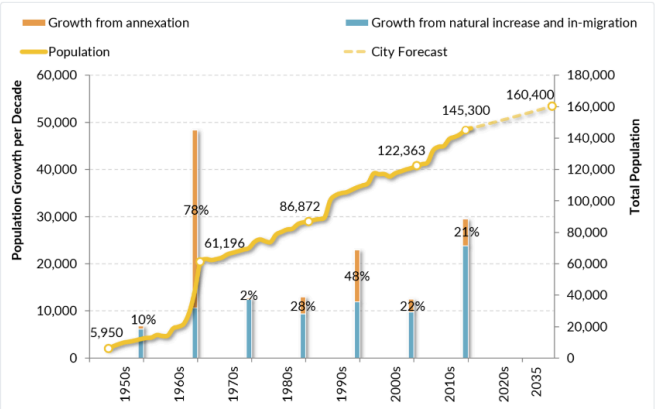
We assessed each option with the policy goals of environmental sustainability, equity, safety, and feasibility. Additionally, the criteria of measuring emissions, impact on traffic congestion, utilization, cost of transportation alternatives, percentage of car accidents, implementation cost, timeline, construction, and political support was analyzed with each option.

Based on the analysis of our goal criteria of the proposed options, **we recommended expanding and splitting Bellevue sidewalks**. By expanding and splitting Bellevue sidewalks to connect to public transportation hubs like Bellevue's downtown bus station or its newly built East Link Expansion, commuters will have greater accessibility to Bellevue without utilizing a vehicle.

As a result, this solution will decrease single occupant drivers through its increase of non-motorized transit use. Consequently, reducing SOV utilization reduces negative externalities and facilitates emission reduction, equitable access to close Bellevue's income gap, and increases alternative transportation safety, breaking the self-reinforcing cycle of SOV commuters.

Introduction

Bellevue's tax incentives have attracted companies like Amazon, Microsoft, T-Mobile, Meta, and Salesforce.[1] These companies are predicted to create 192,800 job opportunities, 42,800 more than present day, by 2035.[2] This growth, combined with Bellevue's car-centric layout, has resulted in 50% of Bellevue commuters using single occupant vehicles (SOV).



This memo proposes recommendations to decrease SOV commuters that would consequently remedy the negative externalities of Bellevue's growing income gap, increase in air pollution related illnesses, and safety concerns reinforcing SOV use to the Bellevue Transportation Commission. We start by discussing Bellevue programs that did not materially decrease SOV commuters. Next, Bellevue's causal model will illustrate how Bellevues root issues caused increased SOV commuters to produce negative externalities. The memo further dissects stakeholder interest, priority, and influence and analyzes policy options. Finally, this memo discusses our recommendation to reduce SOV commuters.

Our analysis defines commuters as individuals traveling into and out of Bellevue for work, school, or recreational activity. We define multimodal as walking, bicycling, and riding feeder public transit systems.[3] We define non-motorized transportation as walking, bicycling, skating, and scootering. We define low income and income/wage gap as the 70%[4] of Bellevue households making under the median of $151,600.[5] Income, job sector, and

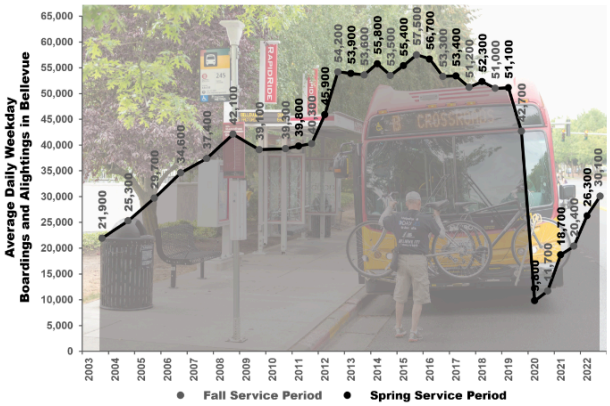
[1] https://bellevuewa.gov/city-government/departments/community-development/economic-development/why-bellevue
[2] https://bellevuewa.gov/city-government/departments/community-development/data/economic-data/economic-profile
[3] https://www.transportation.gov/mission/health/Multimodal-Access-to-Public-Transportation
[4] https://statisticalatlas.com/place/Washington/Bellevue/Household-Income#figure/household-income-distribution
[5] https://www.neilsberg.com/insights/topic/bellevue-wa-income/#year-by-year

additional Bellevue data is obtained from publicly available information from 2010 to 2023.

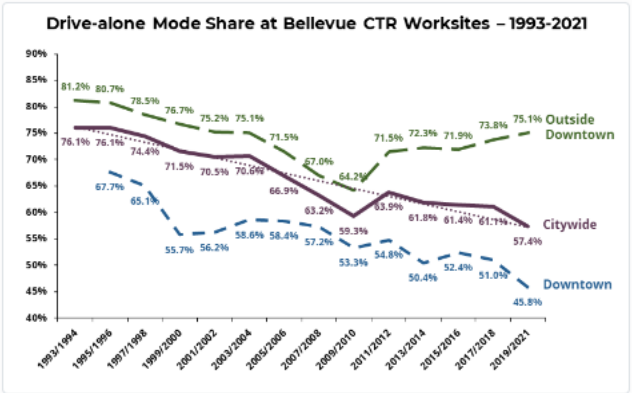
Previous Policies

Bellevue's programs Choose Your Way Bellevue, Commute Trip Reduction plan, Bike Bellevue, and Environmental Stewardship Plan (ESP), were created to provide multimodal transportation accessible and discourage SOV commuting:

- *Choose Your Way Bellevue* provides virtual personalized commute assistance, centralizes public transportation information, and financially incentivizes commuters to register their non-SOV trips.[6] Between 2012 and 2020, Bellevue's daily boardings rose to 57,500, but have dropped by 50% since 2020.



- *Commute Trip Reduction's* aims to mitigate SOV traffic congestion by working with qualified city employers to create plans that reduce employee drive-alone rates. Although the program saw a decrease in resident drive-alone rates, it has not reduced the rate of SOVs outside and is important as 60% of Bellevue's workforce comes from surrounding cities.



- *Bike Bellevue* was adopted by Bellevue City Council, after polling stated that 57% of Bellevue's population felt unsafe riding a bicycle and 62% would ride a bike in

[6] https://chooseyourwaybellevue.org/commuters

downtown more often if streets had safe and comfortable bike lanes. However, Bike Bellevue, and its goal to enhance commuter access to multimodal transportation and improve safety, connectivity, and bicycling in the city, was paused after its manager was removed during an ethics investigation prompted by business community members. Business community members argued that bike expansion would negatively affect businesses and increase congestion.[7]

- Bellevue's *Environmental Stewardship Program's* goal is to reduce the city's Greenhouse Gas Emissions (GHGE) by 50% compared GHGE in the 1990's.[8] However, Bellevue has been unsuccessful with the program's last report has called for aggressive policies to mitigate GHGE from vehicles.[9]

Bellevue's programs show a pattern of inconsistency and lack of success in decreasing commuting SOVs. Without policy intervention, Bellevue faces negative externalities of an increasing income gap, air pollution related illnesses and successively increasing Bellevue's SOV usage from multimodal insecurity.

Problem Diagnosis

As shown in Figure 1, Bellevue's tax incentives attract information technology and technical service businesses who provide employment opportunities. With the financial incentive of the sector's median salary of $104,420,[10] employees relocate to Bellevue and the surrounding area and increase total Bellevue commuters.[11] With Bellevue's city design revolving around vehicle travel performance at arterial intersections,[12] commuters utilize their vehicles. The culmination of these causes result in roughly 50% of Bellevue's commuters driving alone[13]

[7]https://www.theurbanist.org/2024/03/27/bellevue-city-council-all-but-abandons-bike-bellevue-network/#~:text=On%20Monday%20night%2C%20the%20Bellevue,and%20BelRed%20neighborhoods%20that%20the
[8]https://bellevuewa.gov/sites/default/files/media/pdf_document/2020/Bellevue%20Enviornmental%20Stewardship%20Plan_Adopted.pdf
[9] https://bellevuewa.gov/sites/default/files/media/pdf_document/2024/Executive_Summary_Bellevue_FINAL.pdf
[10] https://www.bls.gov/ooh/computer-and-information-technology/home.htm
[11]https://datausa.io/profile/geo/bellevue-wa/#housing
[12] https://bellevuewa.gov/sites/default/files/media/pdf_document/2022/Bellevue_MIP_Vol1%262_8.1.22.pdf
[13]https://datausa.io/profile/geo/bellevue-wa/#transportation

and generates initial negative externalities of traffic congestion[14] and a cycle of fear for commuters that would otherwise use non-motorized transportation, reinforcing SOV commuting.

Traffic congestion is a negative externality because of its consequential health and economic effects. Engine idling from stop-and-go traffic produces synthetic chemicals that accumulate in the air,[15] and already accounting for Bellevue's 45% GHGE.[16] Without intervention, Bellevue's air quality will decrease[17] and cause negative health issues for those working in the city.[18] Moreover, traffic congestion from SOV utilization increases commuting time and reduces available distance traveled[19] effectively shrinking the areas commuters can arrive in a specific time period. This reduction diminishes employment opportunities that would be available to those outside of the technology sector who are utilizing multimodal transportation. Reducing the availability to obtain opportunites with a median income of over $100,000 stalls upward economic mobility and consequently creating a larger wage gap within the Bellevue area.

Another negative externality of Bellevue's increase of SOV commuters is a multiplicative insecurity-to-increased-SOV-commuter loop. Currently, the majority of Bellevue commuters' severe injury or death was from car/multimodal collisions. Without updating its car centric infrastructure and continued injuries will increase insecurity of multimodal utilization. This fear would perpetuate in resistance to attempting alternative non-motorized transportation and leave many the sole option of SOV commuting.

Stakeholders

[14] https://ops.fhwa.dot.gov/congestion_report/chapter2.htm
[15]https://ecology.wa.gov/issues-and-local-projects/education-training/what-you-can-do/reducing-car-pollution#:~:text=Vehicle%20pollutants%20harm%20our%20health,common%20human%2Dcaused%20greenhouse%20gas.
[16]https://app.powerbigov.us/view?r=eyJrIjoiOTRkYzZiOWItNDY5NC00MTAzLTg0YTEtYWMzMmY3YzlmZmQ4IiwidCI6IjIyMmQyZWRkLTgyNTUtNDViZC04NTk3LTUyMTQxYjgyZjcxMyJ9
[17] https://afdc.energy.gov/files/u/publication/idling_personal_vehicles.pdf
[18] https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-9-65
[19] https://ops.fhwa.dot.gov/congestion_report_04/chapter3.htm

In analyzing Bellevue's SOV commuter issue, we consider each stakeholder. A comprehensive assessment on each group's priorities, power and influence are detailed in Figure 2.

- Bellevue's City Council, specifically the transportation committee, along with additional Bellevue elected officials, hold the broad power to make the policy decisions pertaining to infrastructure improvements in the area. This stakeholder is essential to approving infrastructure policies that are proposed below.
- Microsoft and similar large information technology businesses have the power to influence the policies being implemented in Bellevue. These businesses bring economic opportunities into the area through its employment opportunities which increase Bellevue and other Eastside cities' population who, in turn, utilize their salaries to contribute to the local economy.
- Bellevue residents are affected by the policies implemented. Residents additionally hold the power to influence decisions made by the elected officials. This is due to their ability to vote for leaders that directly meet their policy needs and vote on legislation on ballots.
- Anti-bike interest groups have power to influence infrastructure changes, as they have the cohesiveness and size to interfere with government actions.
- Those that are most affected and have the least influence on policy decisions are multimodal transportation and car non-resident commuters. These stakeholders lack electoral power, and therefore lack influence on elected officials. However, these stakeholders are the most affected by the lack of connectivity currently in Bellevue.

Goals and Criteria

To ensure consistent analysis of all of our options, we have created the following goals and criteria to evaluate the strengths and weaknesses of potential policy solutions.

- *Environmental Sustainability* has been an overarching goal of the City of Bellevue. We are defining sustainability as the steps taken to improve climate harming conditions, and maintaining steps already taken. Our analysis addresses how each policy fits this goal through:
    - Measuring the quantity of GHG emissions created by vehicles.
    - Measuring alternative transit usage through daily ridership numbers on public transit.
    - SOV Utilization/ Impact on Traffic Congestion.
- *Equity* in transportation creates opportunity for residents and commuters to Bellevue alike. By creating a more robust infrastructure plan that supports multimodal transportation, stakeholders will be able to access new opportunities. We will create policy options that speak to this through:
    - Tracking an increase or decrease over time in transportation alternatives such as increased bus routes, frequency of routes, etc.
    - Measuring household transportation cost.
- *Safety* is a concern for commuters of all modes of mobility with a particular emphasis on accidents between bikers and vehicles. We will measure this through:
    - Accounting for car and multimodal accidents.
    - Measuring the percent of severe accidents or deaths involving cars and alternative transportation.

- *Feasibility* is an essential factor for the Bellevue Transportation Commission to consider when selecting a policy option. Ensuring the city has enough resources to enact any of the options listed will be measured by:
    - Implementation cost of the policy.
    - Scale of Construction needed to be implemented.
    - Time required to complete implementation.
    - Political support.

Policy Options

After extensive examination, we compiled options specifically targeted for Bellevue's needs. A complete list of tentative potential policy options are included in *Figure 3*. Below are the four options most suitable to Bellevue based on the provided goals and criteria:

<u>Option 1- Status Quo</u>

- Bellevue's car centric infrastructure lacks a safe multimodal infrastructure and attempts to improve bike/walking trails or road setups stalled after the manager of *Bike Bellevue* was removed. The status quo ensures drivers continue to face increased congestion on major roads. SOVs will continue to contribute to creating GHGE (straying further away from Bellevue's Environmental Stewardship Plan) threatening public health and causing longer commutes that prevent upward opportunity and contribute to a growing income gap.
- However, the absence of infrastructure improvements ensures construction is not needed. This removes the construction side effect of long periods of increased traffic during peak hours. Additionally, rerouting of other multimodal trails or roads keeps commuting relatively predictable and consistent for daily travelers.

Option 2 - Expanding and Splitting Sidewalks

- Biking on sidewalks in the state of Washington is legal. Working with the current infrastructure offered in Bellevue, it is possible to expand sidewalks on busy roads to accommodate bikers and walkers comfortably, similar to a section of the Burke-Gilman Trail which runs through a large portion of Urban-Seattle. Depending on the location, this will use space from roads, natural brush, or parking lots. This offers a safer option for non-motorized transportation. By giving space to transit with ease, and removing bikes from busy streets, but not requiring them to share space with pedestrians, safety for all commuters will increase and encourage more people to walk or bike to their destinations.
- Planners should be mindful of connecting these expanded sidewalks to existing bike trails and areas such as bus stations to create connectivity through multiple modes of transportation. For example, an individual may bus from Seattle to Bellevue, but finish their commute via bike. So, by connecting these sidewalks to areas such as the downtown bus station or close to Link Light Rail Line 2 stations, connectivity through multiple modes would be possible and more accessible for commuters.
- By taking on this opportunity, Bellevue may save money and construction time, as expanding existing sidewalks would require minimal planning, lane closures, and access to parking lots.
- This option may hinder the ability of shoppers who are driving to access local businesses easily, but with extensive planning, this issue could be kept to a minimum. While there may be political pushback from those believing that this option will only continue to increase traffic, by focusing on expanding in areas where brush can be converted, opposition will likely ease.

Option 3 - Shared Bus/Bike lane

- This option is modeled on areas in North Seattle. Buses and bikes would share a painted lane clearly marked so other vehicles do not drive in it, with fines for violators. This could be implemented in especially congested areas of Bellevue to reduce traffic caused by buses stopping on routes, or requiring more time to turn. This would also give bikes a dedicated space where the lane would be mostly clear. By creating a shared lane, policymakers could potentially expand or create bus stops along these routes that are easy to access by bikers and walkers. Costs associated with a shared lane would be minimal as no major construction would be necessary and required painting could be as short as a few days.

Option 4 - Road Diet

- A “Road Diet” is a way to reduce speeds on major roads through implementing speed bumps, stop signs, and roundabouts. Doing this would not take away any lanes from cars, but would create roads with a lower potential speed, creating a safer environment for pedestrians, bikers, drivers, and other types of transportation along busy roads. A road diet would also be a good solution for easing congestion during rush hour, as a road diet is meant to both lower top speeds, and create congestion alleviation. Costs and construction associated with this option depend on the selected solutions. Stop signs and speed bumps would be cost effective and easy to install, whereas roundabouts would take longer, but ease traffic issues.

Policy Analysis

Each policy option is analyzed as mutually exclusive for comparative purposes. By focusing on individual policy options, we can understand a policy's impact and view if it aligns with desired policy goals and criteria.

Option 1 - Status Quo*:* This option requires no action from the Bellevue Transportation Commission. However, abstaining from action creates a negative impact on Bellevue's *Sustainability.* Not expanding the infrastructure for alternative transportation utilization leaves the inevitable increasing number of commuters to utilize SOV as their most accessible option and negatively impacts Bellevues' reduction of GHGE and traffic congestion.

This option also negatively affects Bellevue's goal of *Equity*. Bellevue's current trails are in need of repair; this discourages alternative multimodal transportation that could be cheaper or faster for low income individuals. Consequently, Bellevue's income gap grows as low income individuals with access to a vehicle spend disproportionately more of their income on gas for their SOV commute and those without a vehicle miss opportunities for upward economic mobility.

Bellevue's negative impact outweighs its positive results of *Feasibility's* lack of construction, implementation cost, or time needed for implementation. Bellevue's current infrastructure conflicts with its goal of *Safety* and, without infrastructure intervention, accidents involving bikers and vehicles will continue to increase with SOV increase.

Option 2 - Expanding and Splitting Sidewalks: Expanding and spitting sidewalks to connect with feeder transportation generates greater accessibility to alternative multimodal transportation. This option creates positive results in its *Sustainability*. By streamlining access to trails and

connecting to multimodal stations, Bellevue commuters take advantage, increasing multimodal transportation.

The trail provides *Equitable* access to non motorized traffic. Accessing trails will not have a surcharge and can be utilized by anyone. Financial barriers might arise from a desire to purchase a non-motorized vehicle. A bicycle or scooter has a substantially lower cost than purchasing a vehicle without the obligation to purchase gasoline and as a result is more equitable and affordable. However, this is not a prerequisite to utilize the trail.

This expansion provides non-motorized users the space needed to feel *Safe*. Having a designated area separated from cars reduces total accidents and prevents severe accidents from occuring.

The *Feasibility* of this option is less secure. Expanding and splitting sidewalks on high-traffic roads for non-motorized users do not require large changes to other transportation infrastructure. As a result, construction costs and time would vary the magnitude of Bellevue's anticipated expansion. In addition, there might be some resistance from local businesses to builds on road lanes or parking lot space to accommodate the wider space needed, but likely to be persuaded when discussing commuters direct access to businesses and other organizations located off of these main roads giving micro-mobility[20] users and drivers equal opportunities to engage with Bellevue's robust attractions.

Option 3- Shared Bus/Bike lane:Bellevue would also have the opportunity to create more robust and accessible routes which would ideally increase ridership on a monthly basis. This option creates more environmentally *Sustainable* options to commute through Bellevue via High Occupancy Vehicle (HOV) or micro-mobility in a dedicated lane along the same path as larger vehicles. However, it is not *Feasible* to update busy roads to implement a shared bus and bike lane and would create a large burden on all commuters and residents in Bellevue in the short-run.

[20] Micro-mobility is defined as small transportation options that only carry 1 individual such as a bicycle, scooter, skateboard, etc.

The Bellevue City Council will likely face pushback from drivers in the area from the proposed decreased driving lanes and increased traffic in these areas. However, this would increase visibility of public transit and biking routes which would encourage drivers to consider alternate approaches to commuting and give those without a vehicle option the spark needed to look into these *equitable* transit options. Bikers would be more protected on these routes which would result in *safer* transit for micro-mobility users, reducing accidents, as well as having easier access to public transit to help reduce commute time.

Option 4- Road Diet:

Utilizing the Road Diet option would reduce automotive top speeds by reducing speed limits on busy streets. This addresses both *safety* and *sustainability*, as lower speeds give drivers more time to process their surroundings and make decisions on the road. Lowers speeds have also been proven to reduce overall GHGE compared to higher speed limits[21] when the limit does not drop below 40 miles per hour. However, in creating a road diet, the concern over *equitable* transportation is not addressed, as there would be no infrastructure updates that improve bike trails or lanes in the area. We found that implementing a road diet on busy streets would not be *feasible* for the City of Bellevue. The costs would be higher for the city, and commuters would face long term effects from a road diet. In the short-run, driver and micro-mobility users would be faced with increased traffic due to construction on roundabouts and speed bumps. However, in terms of construction, there is some evidence of recent projects taking no more than a few days, but on average around 8 weeks if the intersection is completely shut down.[22] The cost of this project would remain fairly low if the amount of roundabouts were limited and the use of stop signs and speed bumps were more prevalent.

[21] https://energynews.us/2020/03/20/do-urban-speed-limit-reductions-improve-air-quality-experts-say-not-so-fast/
[22] https://www.texite.org/wp-content/uploads/meeting-presentations/F165A02.pdf

Recommendation

We recommend **<u>Option 2- Expanded/Split sidewalks</u> as the best opportunity to reduce SOV commuting trips.** This solution provides safety and accessibility for non-motorized users and commuters are incentivized to replace SOV commuting with expanded sidewalks and resolving Bellevue's problem of increasing **SOV commuters** with its negative externalities of traffic congestion and the fear to utilize nonmotorized transportation. As Bellevue traffic congestion eases, commuters will come across new economic opportunities. Leftover SOV commuters and multimodal commuters can travel greater distances with the same, or shortened commuting time. This access opens up opportunities of upward economic opportunities that would otherwise not be attainable because of traffic congestion and lack of connectivity options. As people access this path to upward economic mobility, Bellevue's income gap will start closing. Additionally, a reduction in traffic congestion reduces exhaust produced from idling. This curbs Bellevue's GHGE production and prevents the air quality from worsening. This chain of events wipes the potential of air pollution related illnesses that would otherwise come to fruition.

In addition to this option's ease of accessibility incentivizing multimodal use, as discussed in the analysis of option 2, the separation of non-motorized paths from main roads increases safety, reducing traffic congestion, transit costs in households, and the chance of being in a serious accident on Bellevue roads. It would also prove safer than Option 3, which had numerous safety concerns. Instead, we will ensure that split sidewalks are placed on streets with desirable public transit connections as well as current bike trails and infrastructure, such as the Mountains to Sound Greenway and the SR 520 Trail. By ensuring these connections, Option 2 can be utilized while still creating the benefits other options would have provided, leading to the best experience

for bicycle and pedestrian users, while keeping disruption to drivers to a minimum benefitting all commuters and residents of Bellevue.

Photo of Split Sidewalk/Bike Lane on Burke Gilman Trail in Seattle,Source: University of Washington

APPENDIX A

Figure 1: Problem Definition and Diagnosis

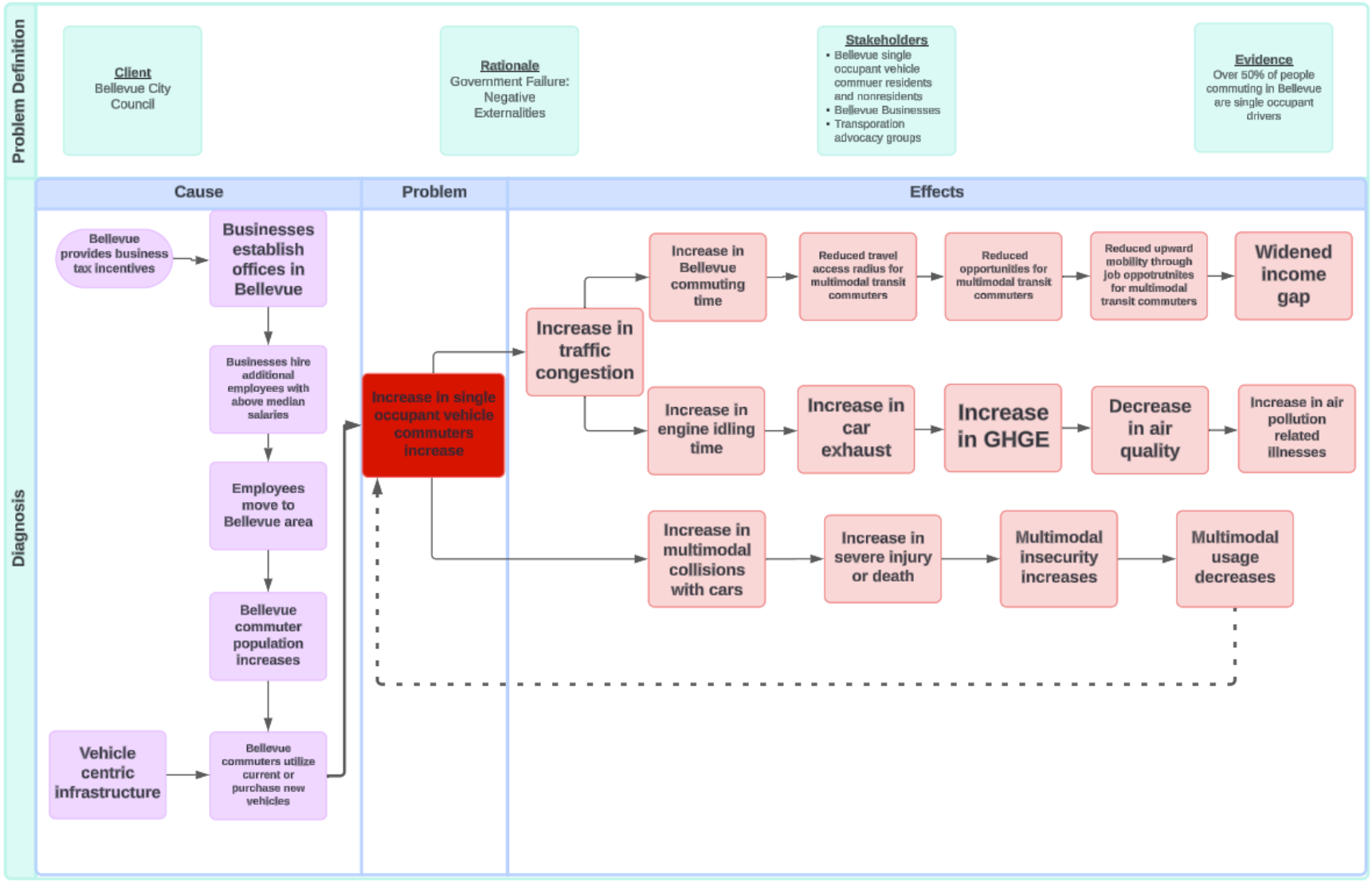


Figure 2: Stakeholder Matrix

Stakeholder	Description	Priorities	Level of Interest	Level of Influence
Transportation Commision Members	Members of the Bellevue City Council assigned to the transportation commission. They are the members responsible for implementing the Bike Bellevue plan, which should make it easier for bicyclists to get around Bellevue	To make it easy to bike around Bellevue while maintaining the current road infrastructure	Low level of interest in implementing the original plan of increased bike lanes at the expense of car lanes	High. As the members of the council, the commission has final say on the Bike Bellevue plan
Business Owners	Business owners along corridors that would be impacted by the Bike Bellevue plan, such as BelRed Rd. Also businesses that have large influence over the region that could be affected, such as Microsoft and Meta	Make it easy for employees to get to work while minimizing construction that could limit foot/car traffic in the area.	Medium level of interest in implementing the plan, since the changes made by the plan could make it easier for employees to get to work. On the other hand, traffic could have a negative short term impact.	Medium-High, depending on the size of the business. Small businesses would have medium influence while large stakeholders such as Meta and Microsoft have high influence
Bellevue Residents	People living in Bellevue that may or may not travel in the Bike Bellevue corridors (either by driving, biking, or walking)	Varies based on whether or not they bike. Bikers would prefer a safer biking environment, while drivers want minimal traffic.	Medium-High, depending on where in Bellevue they live. Residents who don't live or work near the proposed corridors likely don't care (Bellevue is a big city), but those living or traveling through the proposed corridors care deeply.	Medium influence. While they are ordinary citizens, they have the power to vote for City Council members, potentially changing the vote for Bike Bellevue.
Car Commuters living outside Bellevue	People who live in other places but travel through Bellevue for work by car	Get to and from work as fast as possible	Low. They do not care about the Bike Bellevue plan and simply want the least traffic possible.	Low. Since these people do not live in Bellevue, there is little they can do to impact the outcome of the plan.
Bike Commuters living outside Bellevue	People who live in other places but travel through Bellevue for work by bike	Get to and from work in a fast and safe environment	High. The Bike Bellevue plan would provide a safer environment for people to get to work, especially from places such as Kirkland and Redmond.	Low. Since these people do not live in Bellevue, there is little they can do to impact the outcome of the plan.

Figure 3: Policy Considerations

*Policy option in our analysis

Option	Criteria	Analysis	How will this advance the goal?
Status Quo	Bellevue remains a car-centric city, with safety and equity issues in transportation despite the recent addition of light rail	The lack of adequate bike infrastructure on high trafficked thoroughfares such as BelRed Rd will lead to increasingly dangerous conditions for bike riders, with more deaths as a possible outcome.	Based on our criteria, the status quo does not advance our goal
Congestion Pricing Toll	Need to take into account technical specificity to this issue. Bellevue is not known as a congested city beyond I-405 so this is simply being used as a way to incentivize mode change. This could be measured by the number of low drivers (which should decrease).	This would create tolls to access certain streets in Bellevue (ask if we need to specify which ones).	This will hopefully lead people to either park in areas that don't require tolls, and allow them to take bikes to their final destinations (first-mile last-mile transit)
Subsidies for bike racks	While this is an equitable option, in that it would allow for more bike racks in areas where biking is needed to get around, its connection to new bike lanes is dubious on its own. Could be considered if paired with another option.	This would create more bike racks in the city in places where people want to go, including shopping areas, supermarkets, housing spaces, and job centers	Creating more bike racks should allow more people to use bike infrastructure, which will incentivize the council to invest in Bike Bellevue
Subsidies for small businesses affected by potential Bike Bellevue construction	This is an equitable option, ensuring that any small businesses will have financial options with the onset of Bike Bellevue. This may make small businesses more likely to support the plan, especially if implemented in conjunction with a road diet or other plan that may bring in more foot traffic to the area.	Providing subsidies for businesses along Northup Way and BelRed Rd will allow for a level of income in case there is a decline of foot traffic due to Bike Bellevue construction.	This will hopefully allow businesses to support the Bike Bellevue plan, putting greater pressure on the Bellevue City Council.
Existing bike trail expansion	This could be measured by the level of car accidents before and after expansion, although the lack of expansion into new areas neutralizes the goals of Bike Bellevue which is to make it easier to bike in places that don't already have service	This would expand current bike trails in Bellevue, making them wider and more inviting to those using them. These corridors include 120th Avenue NE and 108th Avenue NE.	By expanding bike trails, this will hopefully reduce the need for new bike corridors as currently described in the Bike Bellevue plan.
New bike lanes that don't take away car lanes	The feasibility of this is unknown, especially since the new 2 Line is elevated in certain places that may make it difficult to build bike trails. Furthermore, bike riders could instead just use the 2 Line and bike to their final destinations.	Insert new bike trails in areas where cars do not currently go. This could be along light rail corridors or near businesses that are offset from the street (such as Google in Kirkland)	Expanding bike infrastructure in ways that do not interfere with cars could be a way to get the Bike Bellevue plan to pass, while still serving important businesses such as Meta and Microsoft.
Tolled HOV lanes on surface streets	Like the congestion pricing toll, the technical specificity of this would likely make this difficult, as tolls would need to be set up and lanes would need to be taken away from cars. While this could increase carpooling, it still requires people to have a car or know someone who has a car that is going to the same place. This could be measured by the number of Vanpool users both before and after implementation	This would create tolled lanes on surface streets in Bellevue, most likely the left most lanes of BelRed Road, allowing for more mixed traffic along the edges of the arterial	Having tolled HOV lanes would allow drivers who want to travel fast to pay to do so, while giving more space of the road to other uses. Furthermore, funding from these tolls can go to improve public non-motorized transit in Bellevue.

Build more EV stations	Could be measured through the number of EV's purchased in Bellevue, as well as the emissions levels in the city before and after implementation	Incentivize EV market purchase, incentivize driving EV, shows prioritization of Vehicle i.e. less space for traditional vehicles	While this will do little to increase bike infrastructure in Bellevue, it would incentivize greener car travel in the city.
Public Parking tax	This could be measured via the number of people using public transit before and after implementation of the tax. Still, this is more of a funding mechanism versus an actual alternative to Bike Bellevue.	Increase the cost of parking in Bellevue by raising rates through taxes. Any public lot in Bellevue that is designated for long term use (i.e not supermarkets) could face this tax.	These taxes can in turn fund future bike, pedestrian, or transit projects in the city.
Free transit for commuting employees	Like with the public parking tax, this is less of an actual alternative to Bike Bellevue, instead acting more as an incentive to take public transit. With less cars on the road though, the Bike Bellevue plan can hopefully be implemented. This has high feasibility though since many employers on the Eastside already subsidize public transit usage for their employees.	Ensure that employees at businesses across the Eastside had access to subsidized ORCA cards, allowing all transit to be made for free.	By making commuting on transit free for employees, cars will be taken off roadways in Bellevue, hopefully allowing for more bike and pedestrian infrastructure to take its place.
Expand employee bus network	The feasibility of this depends on the employer. Employers such as Microsoft with existing bus networks could potentially expand or realign its services to popular destinations on the Eastside. As of now there is only one shuttle between Bellevue and Redmond, so either expanding this service or diverting all employees to light rail could help spur bike development.	Employee bus networks such as Microsoft Connector provide easy access to job sites on the eastside from a variety of places in Seattle.	Expanding this network to other places in Bellevue such as Factoria and Eastgate (which does not provide easy access to job centers near the Bike Bellevue sites) would keep cars off the road and allow for the expansion of bike lanes instead.
Expand sidewalks to split between bikers and pedestrians*	Depending on which sidewalks, this has medium feasibility. Drivers already protested the reduction in road space for bike lanes, but having the bike lanes be shared use with pedestrians (albeit slightly split) may galvanize pedestrians. Furthermore, this could be paired with a road diet on certain streets to create a more equitable, complete street environment.	Washington State is one of the few states where biking on the sidewalk is legal. Instead of taking away lanes for bike lanes that can only be used by bicyclists, sidewalks should instead be expanded allowing for uses by pedestrians as well. Roads where this could occur include BelRed Rd and Northup Way	Bringing pedestrians into the fold could galvanize more people in Bellevue to save the project
Shared bus/bike lanes*	This is primarily an equitable solution, as it would create specific space for people not taking personal vehicles. Options would need to be put in place to enhance feasibility, mainly a way for buses to pass bikers when needed. Questions about bus frequency would also have to be answered, although buses currently do not run on Northup Way and BelRed Rd.	Much like current plans in North Seattle, bus lanes can be painted that can be shared between buses and bikes. While no bus lanes exist on Northup Way and BelRed Rd, they can be added	This would create a dedicated lane for those who do not drive, while not taking away road space from 'road vehicles' such as buses.
Road diet*	A road diet is likely the best solution to make roads safer for bikes. It has less technical specificity compared to tolls and simply involves construction. Traffic could be diverted towards SR 520 and other highways. With cars being slowed, this could be packaged with another solution such as bike lanes that don't take away car lanes	Traffic calming features such as speed bumps, stop signs, and others will help reduce high speeds on major Bellevue roads, making them safe for bikers while not adding additional lanes.	A road diet would allow for people to bike in a safer environment while not taking away infrastructure from cars, instead making cars travel at slower, safer speeds. This would allow bicycles to share the road with these cars while increasing safety.

Figure 4: Policy Analysis

Goals	Criteria	Option 1 - Status Quo	Option 2 - Expanding & Splitting Sidewalks	Option 3 - Shared Bus/Bike Lane	Option 4 - "Road Diet"
Sustainability	Quantity of GHGE	**Low** - Maintaining the status quo would allow cars to travel on Bellevue roads unencumbered, allowing for emissions to continue and for mode change to remain relatively stagnant (although new light rail openings may still bring some benefit.	**High** - By splitting sidewalks, bike riding is encouraged which should decrease car usage and the amount of emissions	**Medium** - Promotes bus use which will reduce SOV Trips, but buses will still release emissions (albeit less so due to alternative fuel forms in Metro buses)	**Medium** - The road diet would still lead to people driving, just at a safer speed for bicyclists. Since people are still driving, GHGE is still being emitted.
	Alternative transit usage	**Low** - Maintaining the status quo would mean no non-motorized arterials on these corridors, including bike lanes or public transit	**High** - Greater space for non-motorized transit use, including bicycle and pedestrian travel, should encourage new commuting options other than cars	**High** - New bus corridors on streets such as Northup Way and Bel-Red Road (which currently do not see service) could lead to more public transit use should bus lines go to places people have an interest in	**Medium** - People may still be encouraged to use their cars, but may simply choose to take a different route not impacted by the road diet. On the other hand, those who are on the fence between biking and taking a car may switch due to the safer bike infrastructure.
	SOV Utilization/ Impact on Traffic Congestion	**Low** - Traffic congestion would remain a problem, especially during commute hours. This congestion will pose dangers to bicyclists and potentially pedestrians	**High** - Access to alternative modes of transportation bring less drivers and congestion	**Low** - Introducing a bus/bike lane would reduce possible lanes for drivers, likely leading to increased congestion even if some drivers switched to using the bus.	**Low** - has an impact but that impact may be negative (more traffic, etc). Biking will hopefully become more popular, taking cars off the road, but this is an assumption
Equity	Effect on Transportation Costs	**Low** - SOV travel would still be encouraged, which incur the highest costs between the cost of the car and gasoline	**Medium** - Bike travel will be highly encouraged, which brings lower purchase and maintenance costs compared to a car. No changes to the road infrastructure may still encourage car travel.	**Medium** - Bus travel would be encouraged, which could reduce vehicle miles traveled in a car and reduce maintenance costs	**Medium** - Bike travel would be encouraged by the slower speeds, but this may not be enough to discourage car travel

Color	Result
	Positive
	Neutral
	Negative

	Use of Alternative Transportation	**Low** - there will be little incentive to bike on roads currently proposed in the Bike Bellevue plan due to the high speeds and potential dangers of traveling on said roads.	**High** - Splitting sidewalks would open up use to both bicyclists as well as pedestrians, creating a safer environment for those choosing not to take motorized transit.	**Low** - Bicyclists may be put off with having to share a lane with a bus, and may choose not to ride	**Medium** - Cars may choose to use other routes instead of the roads facing the road diet, allowing for safer bicycle travel that may be compelling for people
	Equitable Transportation Alternative	**Low** - Status quo would maintain car forward infrastructure, which is inequitable for those who cannot afford a car	**High** - Adding bike lanes that are separated from the street will increase opportunities to bike, offering a safe way to get around	**High** - A new bus lane would incentivize traveling in ways that are not SOV's, providing new accessibility to people without a car	**Medium** - makes roads safer for bikers, but doesn't create new infrastructure for them
Safety	Total Accident Incidence	**Low** - The amount of traffic from the status quo would lead to accidents, as they have already to this day	**High** - Bikers would be separated from the street, reducing likelihood of accidents.	**Low** - Bikers sharing the lane with buses could lead to severe accidents. Furthermore, they would still share the street with cars	**Medium** - Confusion with roundabouts, speed bumps, and stop signs could lead to accidents
	Severe Accident Ratio	**Low** - Accidents on corridors proposed for Bike Bellevue are sometimes fatal. Without Bike Bellevue, the status quo would produce 4 to 8 serious injuries in 20 years.	**High** - Bikers will be separated from the street, likely preventing severe accidents	**Low** - Bikers sharing the lane with buses could lead to severe accidents	**Medium** - Lower speeds should prevent severe accidents from occuring, although bicyclists would still share the streets with cars

Feasibility	Scale of Construction Needed to Implement	**High** - No construction involved	**Medium** - Construction would be needed to potentially widen sidewalks, paint lines, and change surfaces, but this is less than larger projects such as Options 4 and 5	**High** - Construction would likely only involve the painting of bus lanes	**Low** - A road diet would close streets for a long period of time to add roundabouts and speed bumps
	Implementation Costs	**Low -** No implementation costs involved	**Medium** - Costs are higher compared to status quo due to construction	**Low** - Very little construction cost. Mostly paint application.	**Medium** - Costs are higher compared to other options due to construction
	Time needed to complete implementation	**Low** - No time needed to complete implementation	**Medium** - Depending on the amount of split sidewalks added, construction could vary from months to years (although should only take a couple months depending on corridor length)	**Low** - Time to apply paint should be minimal	**Medium** - Depending on the amount of roundabouts, stop signs, and speed bumps needed to be constructed, construction could vary between months to years (although length varies due to differing corridor length
	Political Support	**Medium** - While some members of city council may want to preserve the status quo, others on the transportation commission may want to make improvements	**High** - Due to the lower construction costs compared to Option 4, this could be seen as a 'compromise' option for city council that likely doesn't take away road space	**Medium** - May be seen favorably as a cost saving measure that benefits public transit, but safety issues may hamper support.	**Medium** - Speed reduction features likely to have mixed reception in city council due to difference in priorities between car and bike/ped advocates