

Routes of Health Appendix B: Bellevue, Washington

I. Background and Key Demographics

Bellevue is the fifth largest city in Washington. Known for its small-town feel, Bellevue boasts stunning vistas of neighboring Seattle and a booming high-tech industry. The city is home to over 145,000 residents spread throughout a dense downtown and suburban neighborhoods. Its strong economy, top-ranked schools, and access to nature make Bellevue one of the most desirable places to live in Washington.

Bellevue is a relatively affluent area with a diversifying population. 50% of residents identify as White, 34% as Asian, 7% as Hispanic/Latino, and 3% as Black. Median income in 2017 was \$121,168, yet around one tenth of Bellevue residents earned less than \$35,000 and a fifth had household incomes under \$50,000. About 6.5% of the population was living in poverty in 2017.

II. Programs, Plans and Policies

According to Bellevue's [2020 Pedestrian and Bicycle Progress Report](#), the city has constructed approximately 68.8 miles of bicycle facilities and 37.7 miles of pedestrian facilities. Bicycle facilities include 26.4 miles of bicycle lane, 16.2 miles of buffered bicycle lane, 8.0 miles of multi-use path, 3.1 miles of bicycle shoulder, 2 miles of shared shoulder and 13.1 miles of sharrow. Pedestrian facilities include 25.5 miles of sidewalk, 8.0 miles of multi-use path, 2.5 miles of pedestrian path and 1.4 miles of shared shoulder. As of December 31, 2019, there were approximately 75 miles of pedestrian and multi-use trails located on park properties and public easements. This number does not include pedestrian facilities adjacent to city streets.

Bellevue's [Choose Your Way](#) website offers residents and visitors resources for transportation alternatives to driving, such as walking, biking, and transit. The site includes pedestrian guides, bike maps, transit updates, and a School Pool option for students and families looking to walk and roll to school. The City's Comprehensive Plan has a [Transportation Chapter](#) which outlines goals and policies for implementing a multimodal mobility strategy. Bellevue also has a [Transit Master Plan](#) aimed at improving regional transit and developing a high-quality transit system that can meet the needs to residents, commuters, and visitors. In 2016, Bellevue City Council passed a Vision Zero ordinance with a goal of eliminating all serious injuries and traffic fatalities by 2030. The City is taking a data-driven approach to achieving their Vision Zero goal. Bellevue Transportation Department created a [Vision Zero Crash Portal](#), open to the public, that tracks serious injuries and fatalities. Users can search incidents involving people walking, biking, and people in vehicles over a ten-year period.

III. Existing Conditions

Bellevue was largely developed post-World War II with arterial systems feeding curvy residential streets. The downtown core is a major employment center that empties considerably in the evening. This mass exodus causes increased traffic on the freeways surrounding downtown Bellevue and residential neighborhoods. Much of the evening traffic is commuters heading home to

Seattle or the east side of Bellevue. There is not much of a street grid, meaning residential streets also carry a lot of traffic during the evening hours.

In recent years, Bellevue has become an increasingly attractive place to live, work, and play. Residents and visitors enjoy bustling arts and culture fairs, beautiful parks, and a variety of outdoor recreation. Population growth has brought more traffic to the area, especially in neighborhoods bordering I-405. Bellevue has a high rate of car or car ownership. Only 7.3% of workers over 16 do not have access to a car. 56% of people drive alone while 1.6% bike to work and 7.8% walk to work. King County Metro and Sound Transit buses offer additional transportation options, including a [Crossroads Connect](#) program that offers shared rides to transit centers. There is also a light rail line set to expand connections between Seattle and Bellevue in 2023. Despite the high rate of car ownership, Bellevue has been designated a Silver Walk Friendly Community and a Silver Bike Friendly Community.

Bellevue Transportation Department noted navigation apps as a potential source of increased traffic and speeding in residential neighborhoods. Drivers using navigation apps in the evening are not looking for how to get home, they are looking for the fastest route. These routes often cut through residential areas in order to avoid traffic on the freeway and busier roads. Resident complaints and growing safety concerns led to the Transportation Department implementing new traffic calming initiatives including turn restrictions and regulatory signage limiting access on certain roads. Google Maps and Waze had to respect the regulatory signage and re-route drivers away from these areas. Still, many of the city's traffic calming interventions are short-term fixes that do not address the larger challenges of the transportation system.

Bellevue anticipates more traffic-related challenges as the city grows over the coming years. This growth will include more mixed use and retail development that is expected to bring a new wave of residents and visitors to the area. As the city changes, Bellevue Transportation Department staff aim to engage more with community members and explain the difference between short-term solutions and long-term change. They also seek to develop a more equitable approach to transportation where lower income residents can participate in the decision-making process.

IV. Community Engagement Summary

Prior to this project, City of Bellevue engaged residents in developing temporary solutions to decrease cut-through traffic from drivers using navigation apps. The City installed regulatory turn restrictions during commute times to force routing apps to remove the route from their system. They also implemented time-based turn restrictions between 3-7pm in certain neighborhoods. While traffic volumes decreased substantially, some residents were unhappy because the restrictions limited access to their neighborhood streets. City staff had to explain that limiting neighborhood street access was a trade-off for reducing traffic and they would continue looking into other solutions. Overall, the City and residents agreed that the outcomes of these interventions were successful despite some of their shortcomings.

Safe Routes Partnership worked with the City to build upon some of the previous work around navigation apps. City staff identified residents who were already engaged in traffic safety

conversations to give feedback on this project. We held two virtual listening sessions with residents from the Woodridge and Bellecrest neighborhoods. The five residents who participated noted that back-ups on the 405 were causing residents to exit the freeway and cut through their neighborhoods. Residents believed that cut-through drivers did not live in the neighborhood but were traveling to other destinations, one being the busy commercial center Factoria. One resident admitted that she used to cut through the Woodridge neighborhood before she lived there. Now that she is a Woodridge resident and a parent, her perspective on cutting through neighborhoods has changed. Age also seemed to be a factor in who driving through neighborhoods. Residents noted that it seemed like younger people were using navigation apps and contributing to some of the dangerous driving behaviors they were observing. They expressed concerns about population growth leading to increased traffic and an uptick in people using navigation apps to access the fastest routes.

We also worked with the City to design and distribute a city-wide questionnaire to collect information from residents around navigation apps. Over 75 residents responded to the questionnaire. A majority of responders have lived and or worked in Bellevue for over ten years. 72% of people said that driving a personal vehicle was their main mode of travel around their community pre-COVID. 70.7% of people responded “yes” when asked if there were streets around their community where they felt unsafe walking and/or rolling. Safety concerns included lack of sidewalks, speeding, high traffic volumes, lack of crosswalks, and lack of bike lanes. When asked how where they live and work has been affected by navigation apps, 42.7% of responders said that distracted driving makes it less safe to walk and roll. 32% said that increased traffic makes it less safe to walk and roll.

When asked to elaborate about the impact of navigation apps on their communities, responders noted more cars on residential streets, more speeding, and more distracted driving. Several people mentioned delivery drivers being distracted by their phones and that navigation apps direct drivers onto surface streets as alternative routes when the freeway is congested. Others said that it was hard to determine if navigation apps are the direct cause of these problems, or if it is smartphone use in general. A majority of responders reported using navigation apps themselves - 63.5% Google Maps, 35.3% Apple Maps, and 26.5% Waze. 37.7% people reported using navigation apps to find the fastest route to their destination even if they were familiar with the route. Another 27.5% responded that they use navigation apps for most trips of any kind that they take.

The general feeling about navigation apps, as users and community members impacted by them, was varied. Some people appreciated that navigation apps make it easy to find the fastest routes and found them helpful when driving in unfamiliar areas. Others said that navigation apps were distracting due to having to watch the phone and the road at the same time. People also noted errors on navigation apps with street names or directions and asked if there was a way to provide feedback to app developers. Those who used navigation apps while walking said the apps were helpful for finding the safest walking routes without a lot of car traffic. There were also several comments about how road safety is not only a navigation apps problem, but something in the road design that needs to be addressed. Responders showed a high interest in improving overall traffic congestion and traffic safety, with navigation apps being one part of a more complex puzzle.

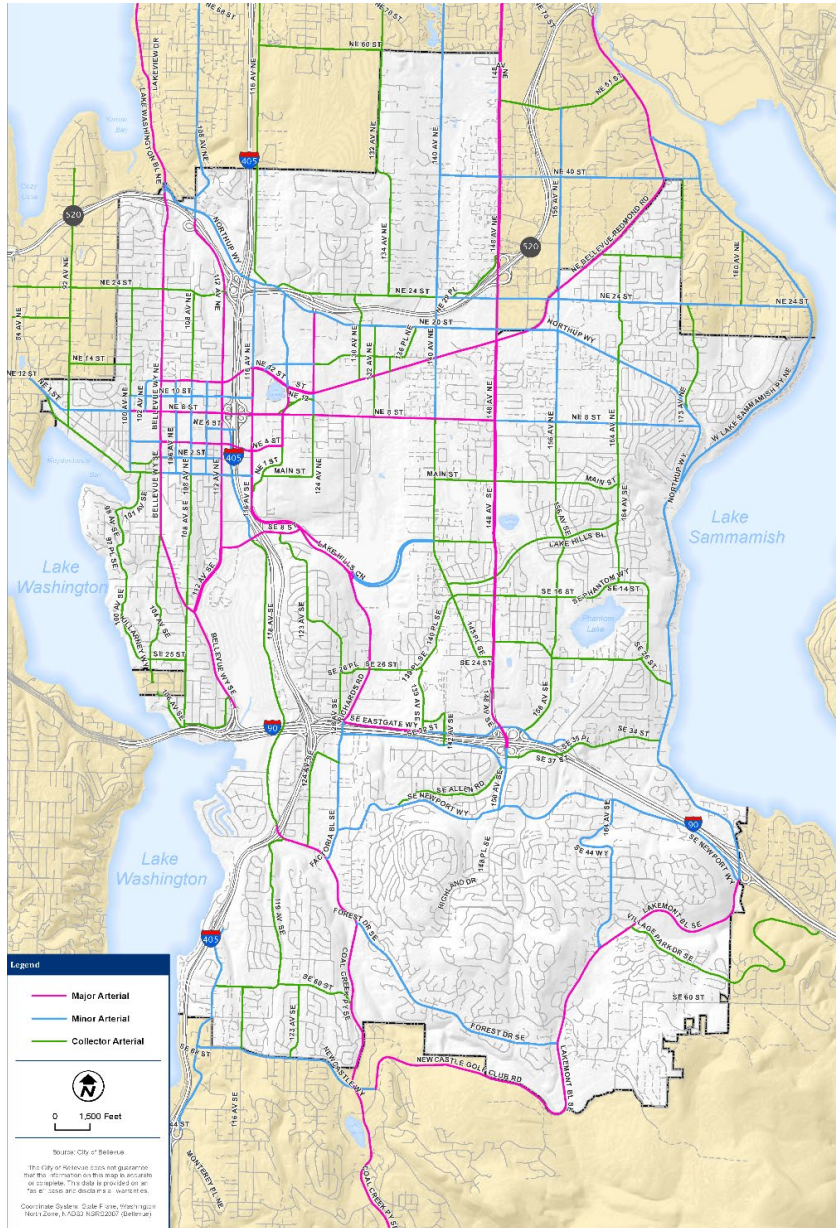
A. Key community engagement takeaways from Bellevue:

- Collaboration and communication between City staff and residents is important to addressing traffic safety challenges.
- Navigation apps are a small part of a larger traffic safety issue.
- Residents want more transparency with navigation app companies, not solely to complain about issues, but to understand more about how these platforms work and how they can be used to advance safe travel.

V. Data Analysis

Bellevue is in the Seattle metro area, east of Seattle across Lake Washington. Bellevue has approximately 150,000 residents and has the second largest city center in Washington – after Seattle. Bellevue is bisected by multiple major highways: I-405 (runs north-south), I-90 (runs east-west through the southern part of the city) and SR-520 (runs east-west through the northern part of the city).

Figure 1 – Bellevue Arterial Classifications

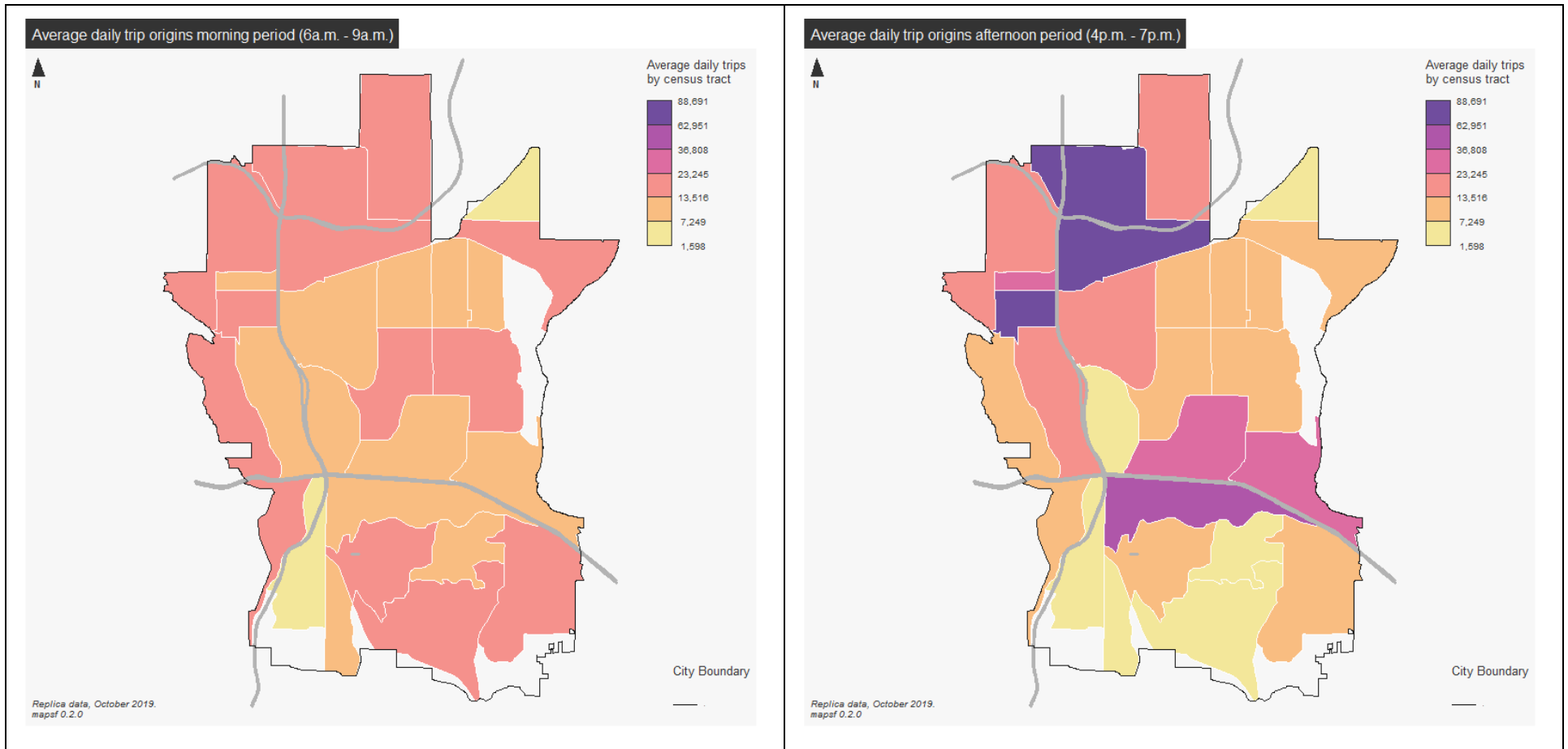


Source: City of Bellevue

Total trip origins by census tract

Maps in Figure 2 show the concentration of trips starting at a given census tract in the three-hour morning and afternoon peak period. During the morning trip origins are distributed evenly among the tracts (with less than 25,000 trips origins in each tract). In the afternoon, trip origins are much more concentrated along I-90, downtown Bellevue, and along SR-520. These areas have a high concentration of employment, including office towers, office parks, and industrial parks. The busiest tracts generate more than 80,000 trips each. The disparity between trip origins in the morning and afternoon suggest a lot of people travel into Bellevue during the day for work or other errands.

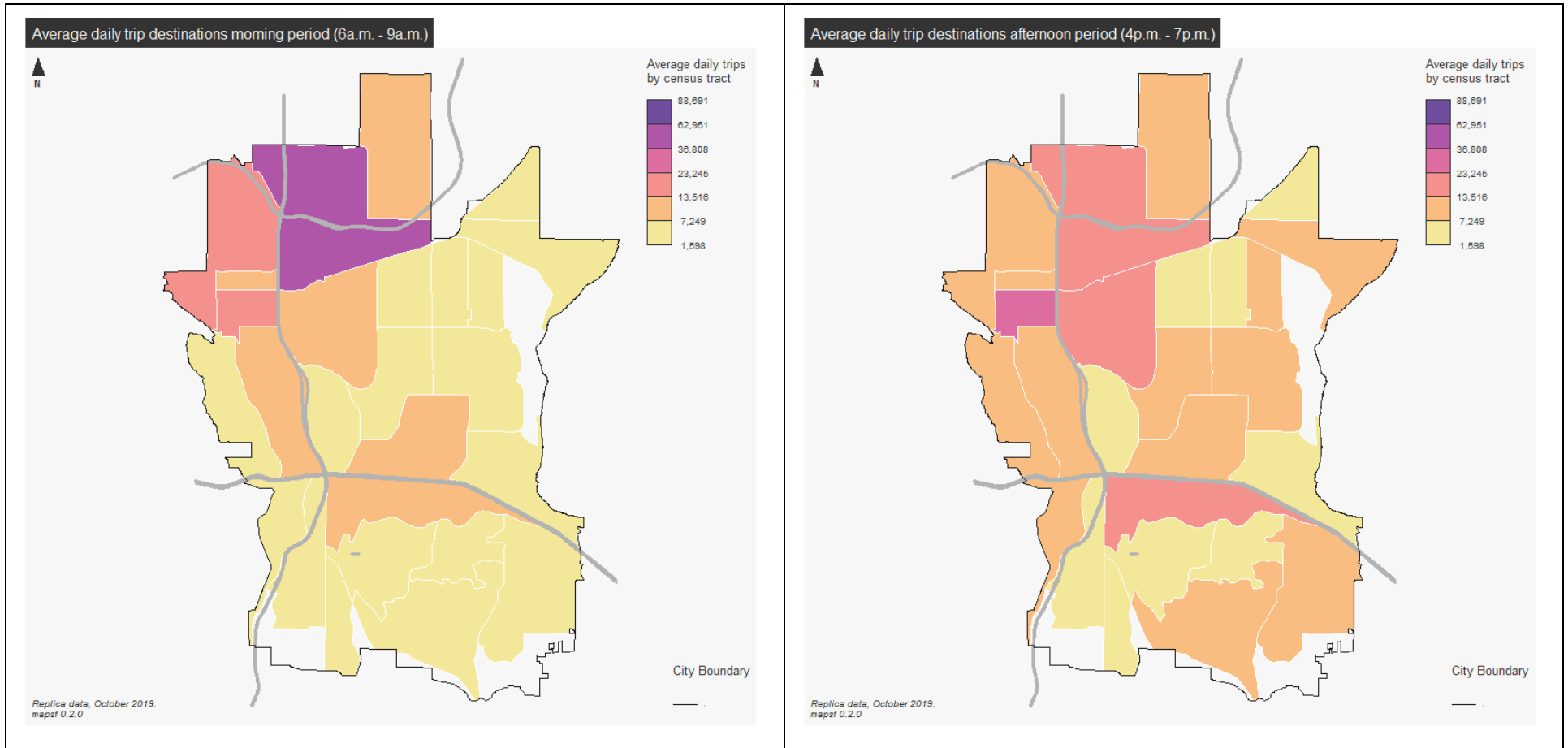
Figure 2 - Total trip origins by census tract, morning and afternoon peak periods



Total trips destinations by census tract

Maps in Figure 3 show the concentration of trips with destination at a given census tract in the three-hour morning and afternoon peak period. The destinations in the morning are concentrated near downtown Bellevue and along SR-520, with a moderate number of trips destined for the tracts along I-90. In the afternoon, trip destinations drop to moderate levels. Downtown Bellevue remains the busiest tract, suggesting entertainment or social activities that occur there. High concentrations of retail and restaurants along I-90 attract trips to that area in the afternoon.

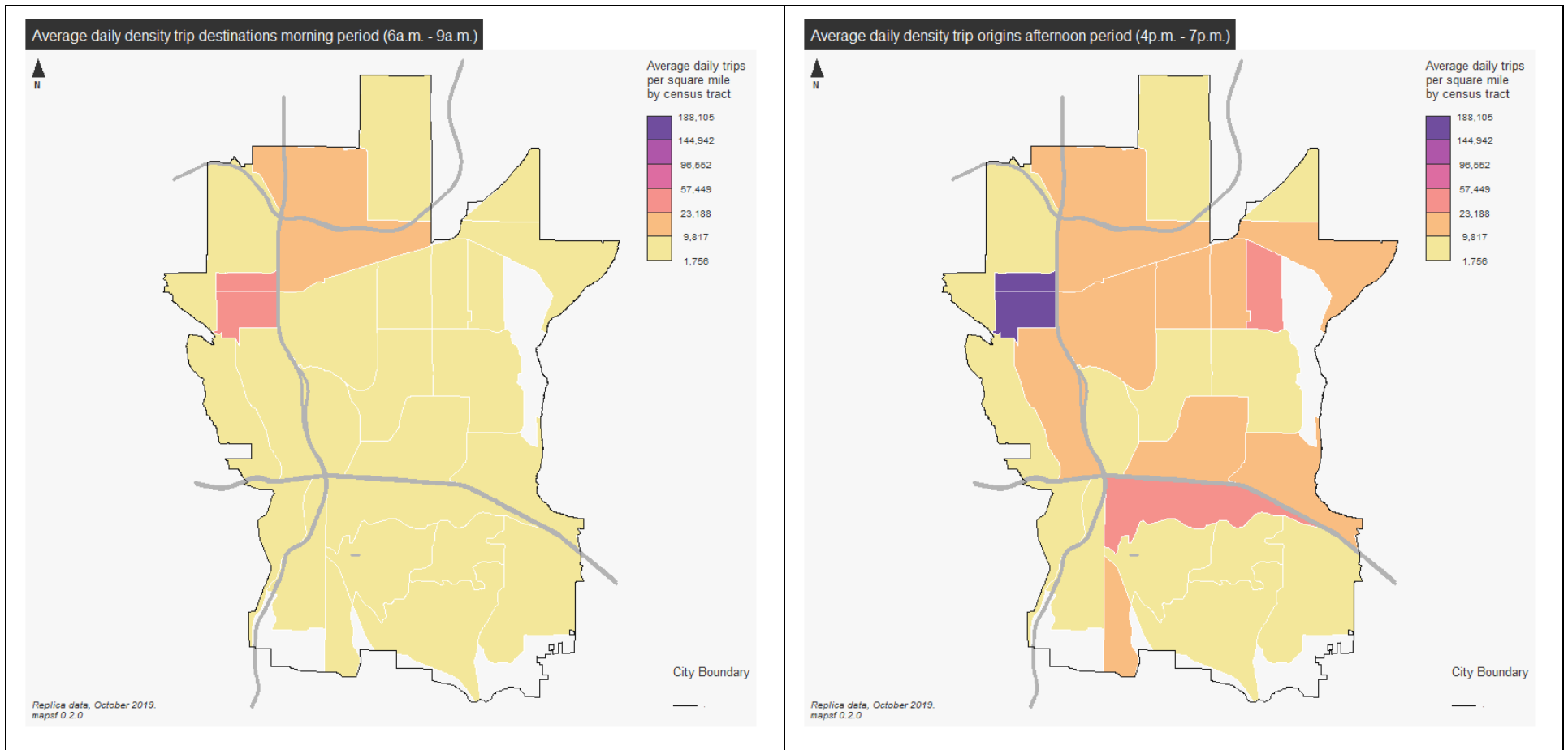
Figure 3 - Total trip destinations by census tract, morning and afternoon peak periods



Density trips by census tract

Figure 4 shows the density of trip origins and destinations in each census tracts for each three-hour period in the morning and afternoon. The greatest concentration of trips occurs within downtown Bellevue during both time periods. Trip activity increases in all parts of the city during the afternoon, with the greatest concentration of trips occurring along I-90 and the Bel-Red Road corridor.

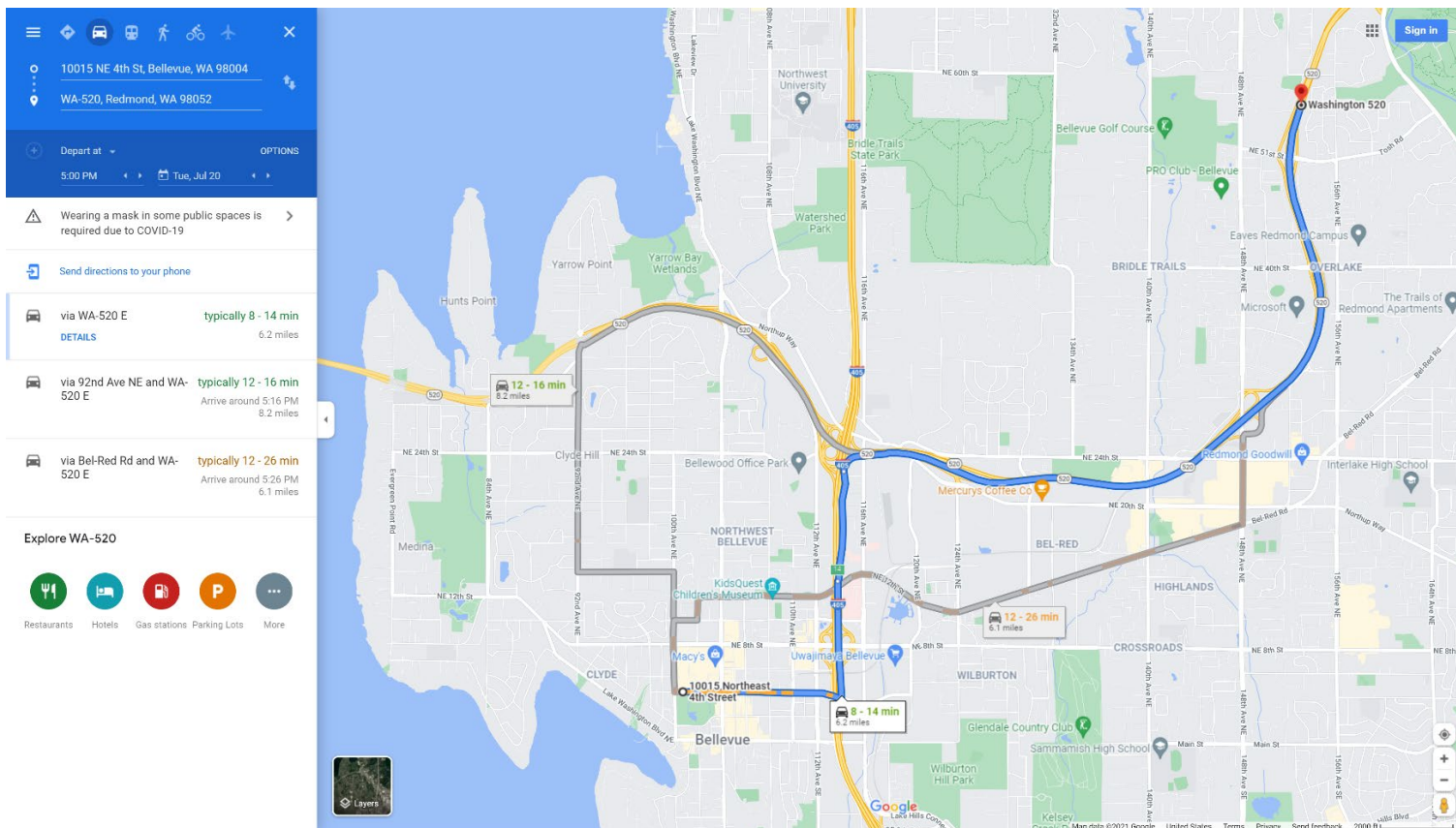
Figure 4 – Trip origins and destinations per square mile periods



Bellevue's app routing example

Among the five case studies, Bellevue is possibly the one that is most affected by regional travel patterns. As previously mentioned, the city's three main roads I-405, I-90 and SR-520 have the highest travel flows, but most of it is thru-traffic. The diverted traffic will be highly determined by destinations and origins that might be outside the city and the congestion conditions in the three primary highways. A more detailed assessment would require analyzing trip concentration outside the city or conduct specific traffic studies (as the city of Bellevue as already done). As a regional employment center, downtown is the area with the highest concentration of trip origins and destinations. Figure 5 shows the suggested driving alternatives for a 5 p.m. weekday trip from Bellevue Downtown outside the city in the northbound direction. The suggested route is the I-405 northbound and the SR-520 eastbound. However, depending on traffic, a diversion through NE 12th St and Bel-Red Road can be also alternatives.

Figure 5 – Afternoon weekday trip from Bellevue Downtown to north of the City



Source: Google. (n.d.). [[Google Maps directions](#)]. Retrieved July 20, 2021.