

Changes in Transportation Patterns Follow Community Mitigation Policies in King County, WA February – May 2020

BACKGROUND

Transportation patterns changed immediately after strategies were put in place to slow the spread of COVID-19. Low traffic volumes are one way to quantify whether the community is staying home and avoiding non-essential activities. Prior to community mitigation efforts, 72% of King County workers drove to work (either alone or in a carpool), 13% took public transit, 7% walked or biked to work, and 6.7% worked at home. Policy changes resulted in drastic changes in usage of highways, public transportation, ferries, walking, and bicycling in King County and Washington State.

COMMUNITY MITIGATION TO SLOW THE SPREAD

Community mitigation policies emerged from local businesses, schools and governments throughout March. By March 4, 2020, large employers like Amazon, Microsoft and others had mandated telecommuting for those who could work from home. All major colleges in King County also halted in person classes, sports and other events and switched to online learning platforms beginning March 9th.

Washington's Governor limited group gatherings to less than 250 people as of March 11th, subsequently expanding that statewide and reducing the limit to less than 50 people on March 16th. These reductions put an immediate halt to leisure gatherings such as performance arts, sporting events, and conventions. On March 16th the Governor's proclamation prohibited onsite consumption of food and beverages from public venues which impacted operations at restaurants, bars, coffee shops, or other similar venues and limited operation to take-out. The proclamation also prohibited the operation of public venues in which people congregate for entertainment, social or recreational purposes.

Statewide school closures for all public and private K-12 and higher learning institutions began March 17th, although individual districts began to close earlier. These closures were later extended through the end of the school year in June.

The Governor's "Stay Home, Stay Healthy" order, which ordered all Washingtonians to stay home unless they need to pursue an essential activity, banned all gatherings for social, spiritual and recreational purposes and closed all non-essential businesses as of March 23, 2020. Following the "Stay Home, Stay Healthy" order, area transit agencies began implementing a series of policies aimed at supporting essential worker commuting and social distancing requirements that

KEY POINTS

- 1) Immediately after the March 23, 2020 "Stay Home, Stay Healthy" order, highway traffic volumes across King County fell to its **lowest point on March 27th: a 56% decline in usual weekday and a 67% decline in usual weekend volume**. The decline ranged from 37%-78% below baseline across highway routes.
- 2) Traffic volumes remain lower than usual but gradually rose through April and May. Weekday total highway traffic volume **increased 60%** between March 27th and May 22nd. Weekend traffic **increased 77%** during that period. State Route-167 has almost returned to baseline levels. Weekday traffic on ferry routes, public transportation and some roads remain low.
- 3) Bicyclist traffic in downtown Seattle follows the other transportation patterns above. In contrast, pedestrian and bicyclist counts on neighborhood trails are steady or higher than baseline.
- 4) Motor vehicle crashes of all kinds have **fallen by 62%** in April 2020 as compared with April of 2019. However, the number of fatal crashes remains similar to 2019 levels.

included reduced or free fares, limits on ridership, buffer space for drivers and face covering requirements.

On May 5th, Washington officially began Phase 1 stage of reopening. Phase 1 continues the “Stay Home, Stay Healthy” order and limits on group gatherings, but allows some business and outdoor recreation to operate. Industries allowed in Phase 1 include construction, vehicle and vessel sales, spiritual drive-in services, car wash, landscaping and outdoor maintenance, pet walking, curbside retail, and a variety of outdoor recreation including the opening of day use for state parks. While some Washington counties are now in Phase 2 of the reopening, King County remains in Phase 1 at the time of this report.

HIGHWAY, PUBLIC TRANSPORTATION, FERRY, AND TRAIN USE DECLINE AS RESTRICTIONS BEGIN

King County traffic volumes for January-February 2020 were relatively stable and similar to the 2019 level until the end of February. In March, use of highways, toll roads, ferries, and public transportation all fell quickly as restrictions on gatherings began. At the end of March, a few days after the governor’s March 23rd “Stay Home, Stay Healthy” order, highway traffic volume and public transportation ridership reached the lowest point.

Highway/toll roads reach a low on March 27th. Total weekday highway traffic volume in King County and Washington State overall reached its lowest point on Friday, March 27th, at 56% below the same day of the week in 2019 (51% below statewide). Weekend traffic volumes experienced greater declines, reaching the lowest point on March 28th at 67% below baseline in King County and 63% below baseline statewide. All 13 highway monitoring locations saw declines, although the least decline was on State Route (SR)-167. On Friday, March 27th, SR-167 was only 37% below baseline whereas the county average was 56%. The decline was greatest on the SR-520 floating bridge (78% decline on 3/27). Counts on I-405 in Kirkland and Bellevue had a 60% decline and the I-90 floating bridge saw a 66% decline. The remaining locations experienced declines between 52% and 56%.

Public transportation, ferries, and Amtrak ridership also showed similar trends. On Friday, March 27th, transit ridership declined an average of 74% across the three transit agencies serving King County. The decline for King County Metro, Sound Transit, and Community Transit, was 71%, 85%, and 65% below 2019 respectively. For Saturday March 28, the decline was 78%, 80%, and 44%, respectively, below 2019 ridership on the same weekend day. Statewide ridership experienced a similar 70% decline by March 27th.

Ferry ridership on Friday, March 27 for the two routes serving Seattle declined an average of 87% below the 2019 level. For Saturday, March 28, it declined 92%. Amtrak Cascades data were made available beginning in April. On Thursday, April 2, Amtrak ridership was 97% below the 2019 level with only 62 riders.

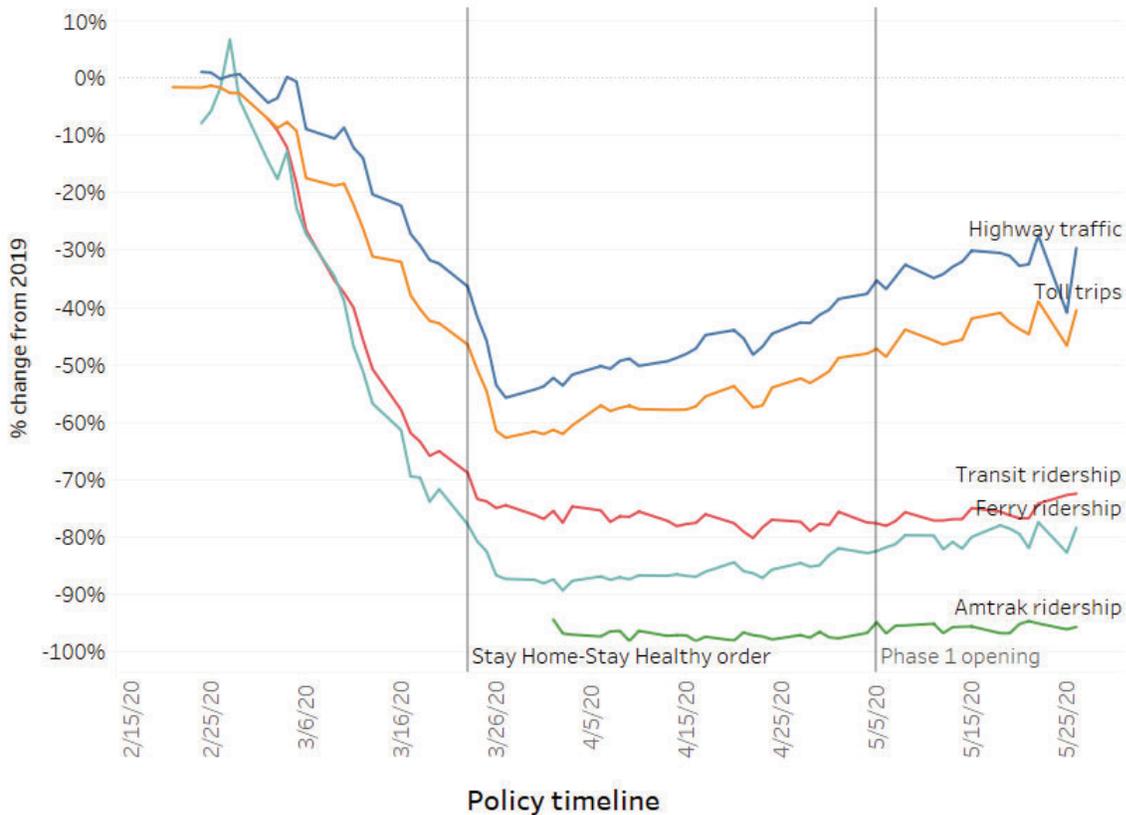
ROAD TRAFFIC RETURNING TO USUAL LEVELS

Since the end of March, highway traffic, including toll trips, has been increasing steadily on all routes. Weekday total highway traffic volume increased 60% between March 27 and May 22 while weekend traffic increased 77% between March 29 and May 24. On Friday, May 22th and Sunday, May 24th, highway traffic volume was only 27% and 36% below the 2019 level respectively, compared to the low points of 56% below and 66% below baseline in late March. Weekend traffic remained lower than in 2019 throughout May, with smaller declines on the weekend of May 9-10 (Mother’s Day), and larger declines again the following weekend. Figure 2 shows the overall highway daily volume and percentage change in King County from 2019 from late February-May. Some highways have almost regained their 2019 volumes (e.g. SR-167 a 4% decline) but some, like SR-520 and I-90, still see marked declines

(decline of 59% on SR-520 and 41% decline on I-90 as of May 22th). Low volumes on SR-520 may be influenced by workplace policies of major employers and required tolls on this route. Statewide traffic has also increased, with highway traffic volume of 22% below baseline on Friday, May 22nd and 27% below on Sunday, May 24th.

Figure 1. Daily weekday traffic percentage change for 2020 compared to the same day of the week in 2019. For weekend data, see www.kingcounty.gov/covid/impacts/traffic

Daily traffic percentage change from 2019, King County



Policy timeline		
Employers	Mandated telecommuting	3/4/2020
	Area colleges moved to online classes	3/9/2020
City	City of Seattle: Stay Healthy Streets	4/16/2020
County	Limits to large gatherings <250	3/11/2020
State	Limits to large gatherings <250	3/13/2020
	Limits to large gatherings <50	3/16/2020
	No onsite food/beverage consumption	3/16/2020
	K-12 School closures	3/17/2020
	Mandated college closure	3/17/2020
	Stay Home, Stay Healthy Proclamation	3/23/2020
	PHASE 1: Reopening	5/5/2020

Prepared by: Public Health - Seattle & King County
 Data Source: Washington State Department of Transportation (WSDOT)

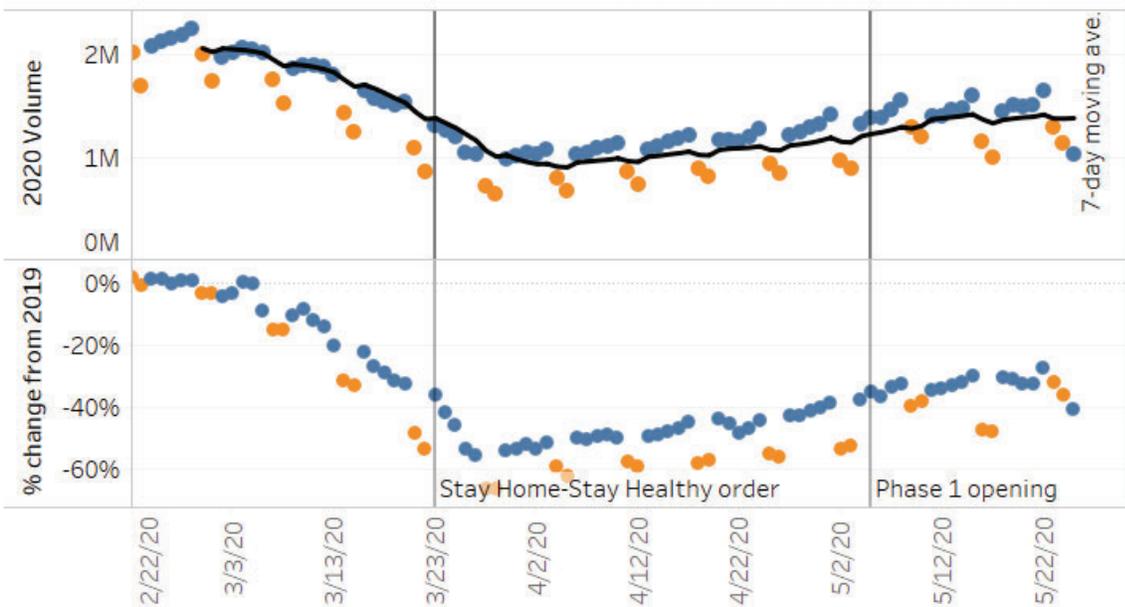
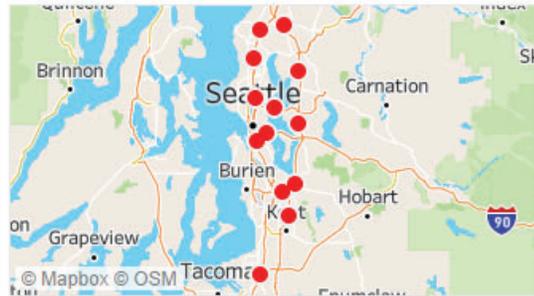
Since March 27, ferry ridership has remained at low levels into late April although they are on the rise. Weekday ferry ridership increased from 87% below 2019 baseline to 77% below 2019 baseline between April 23 and May 22. For weekends, ferry ridership increased from 92% below 2019 on March 29 to 72% below 2019 by May 23rd. Statewide ferry ridership has also increased from the low of 87% below baseline on March 28th to 54% below baseline by May 22nd.

Transit ridership in King County and the statewide average have stayed at the low level reached at the end of March and we have not seen any significant change in both the ridership volume and the percentage change from baseline since then for any of the three King County transit agencies. Amtrak ridership only increased slightly in early May and was still below 95% of the 2019 level at the current time.

Figure 2. Daily traffic volume and percentage change from 2019 on King County highways show a steady increase.

Traffic on 5/25/2020, Monday

2019 baseline volume	1,746,111
Volume on this date	1,032,202
Change from baseline	-40.9%



Note: The solid line denotes 7-day average. Blue dots are weekdays; orange denotes weekends.

BICYCLING AND PEDESTRIAN COUNTS STEADY OR INCREASING

Trends on biking and walking show different patterns from the other modes of transportation discussed above. Washington State’s March 23rd “Stay Home, Stay Healthy” proclamation stated that “it’s still safe for people to go outside as long as they remain at least six feet from each other. Grocery stores and other essential businesses will remain open. People can still participate in activities such as bike rides,

gardening, and dog walking — as long as they follow social distancing rules.” Therefore, higher volume of active transportation, if social distancing guidelines are observed, can be viewed as necessary.

Bicyclist counts declined in downtown Seattle (4 counter locations) in March and reached the lowest levels at the end of March. Downtown Seattle bicycle volume has stayed at this low level through the end of April and is likely influenced by work commuting patterns. At other trails, greenways, and cycle tracks within Seattle, bicyclist counts were similar to the 2019 baseline on weekdays, with large increases on weekends (up to 90% increase on April 26th). Hourly counts of bicycling within these Seattle locations suggest a change in trip purpose from work commuting to other purposes. Daily bicyclist volume has seen a large, steady increase in the remainder of King County. On April 17th, other locations in King County saw a peak 130% increase in bicyclists above the 2019 baseline.

Pedestrian counts at counted locations remained steady in late March then more than doubled throughout April on both Seattle trails and other King County measurement points. Changes ranged from -1% to +173% on March 27; changes varied by pedestrian counter location. On April 20th, there was a 124% increase in pedestrians counted in Seattle. Hourly counts within Seattle are suggestive of changes in trip purpose. Outside Seattle, pedestrian volume percent change doubled in early April.

EARLY INDICATIONS OF REDUCED CRASHES

Motor vehicle crashes fell 62% in King County (55% statewide) in April 2020 as compared with April 2019, and there was a smaller 37% decline (22% statewide) in March. There was also a decline in crashes that resulted in serious or minor injuries. However, the number of fatal crashes remained similar (38 fatal crashes statewide in April 2020 as compared with 30 in 2019; 10 of those fatal crashes occurred in King County). Factors that may contribute to crashes such as speed, weather conditions, or driver impairment are not available at this time; May data are not yet complete.

POLICIES TO MITIGATE THE IMPACT

Lower levels of non-essential trips are the goal of successful non-pharmaceutical interventions to slow the spread of COVID-19. To promote physical activity and well-being, the City of Seattle launched its Stay Healthy Streets pilot in mid-April. This pilot program supports the ability of residents to walk or bike to grocery stores and essential businesses by closing some city streets to through traffic. These streets also add to the City’s extensive park system and provide more room for people to safely recreate or exercise outdoors. Subsequently, Seattle City Mayor Durkan announced on May 7th that the pilot project will become permanent.

LIMITATIONS

These data have many limitations. They do not allow for the ability to disaggregate by whether these are essential trips, essential workers, how far people are going, nor the demographic characteristics of the people making these trips. They also measure counts at specific points and do not count all trips. Short neighborhood trips may not be reflected in traffic counts. Weather may also play a role, particularly for walking and biking. We will continue to monitor these data (see www.kingcounty.gov/covid/impacts) and examine changes as phased re-opening continues.

Technical Notes

We used the following transportation data: WSDOT daily traffic volumes at 13 highway locations in King County; WSDOT daily toll trips along 6 toll road locations; WA State Ferries daily ridership for the Seattle-Bremerton and Seattle-Bainbridge Island routes; transit ridership for King County Metro, Sound Transit, and Community Transit; Amtrak Cascades ridership; active transportation (bicycle/pedestrian) data from WSDOT and Seattle Department of Transportation (SDOT), and WSDOT crash data (which only count crashes if a police report has been filed). Traffic volumes for SR-167 are managed lanes only. Work commuting data are from the U.S. Census Bureau, 2018 American Community Survey; it does not include recreational or other non-work commuting trip purposes.

Active transportation data volumes were measured at 20 trail, greenway, or cycle track locations throughout King County; Seattle data are only available through April 30. Counters in downtown Seattle were located at 2nd Ave & Cedar, 2nd Ave & Marion, 7th & Blanchard, and Westlake & Newton. Active transportation activities may be for transportation (such as walking to a bus stop or bicycling to work) or for leisure or exercise. Not all locations measured both pedestrian and cyclist use. Weather has a strong influence on active transportation trends and late April was a rainy period.

At the time of this writing, highway, transit, and ferry data are through 5/25/2020. Year-over-year percent change comparisons of the 2020 data are made to the same day of the week in 2019 (e.g. Monday, May 18, 2020 is compared to Monday, May 20, 2019) as traffic volumes dip on weekends. The percentage change compares the difference between 2020 and 2019 as compared to the 2019 baseline. During March and April of 2019, the highway traffic volume was 4% below the weekday average on Saturdays and 15% below on Sundays. During March and April of 2020, the volume drop in the weekends was larger than weekdays. Therefore, volume trend analyses are examined using 7-day moving averages in traffic volume.

Resources

Washington State Coronavirus Response: <https://coronavirus.wa.gov/>

WSDOT COVID-19 Multimodal Transportation System Performance Dashboard:

<https://www.wsdot.wa.gov/about/covid-19-transportation-report/>

King County Parks COVID-19 News & Updates: <https://kingcountyparks.org/covid/>

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See kingcounty.gov/covid/impacts for more information, map of monitoring locations, and updated data.