Rationale for recommendations on the King County bicycle helmet mandate (Board of Health Code Title 9)

The Helmet Law Working Group[1]

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[1] The Helmet Law Working Group includes Central Seattle Greenways, Real Change, Cascade Bicycle Club, and members of other groups. For more information and a list of members, see our letter to the King County Board of Health at http://tinyurl.com/KC-helmet-law-letter. This Q&A document is accessible at https://tinyurl.com/KC-helmet-law-rationale and was last substantially updated on January 21, 2022. Research findings presented within this document should be considered preliminary and subject to change. This document is best viewed using the Google Chrome browser.

How did we develop these findings and recommendations?

Amid calls for racial justice last summer, members of Central Seattle Greenways' Racial Equity Committee[2] discussed the importance of keeping all community members safe on our streets in ways that have been too often neglected by the transportation community. In July 2020, members of Central Seattle Greenways decided to investigate whether racial disparities exist in police stops of cyclists in Seattle, including for enforcement of the King County bicycle helmet law. Later that year, police body-worn video obtained by Real Change[3] showed a homeless Real Change vendor mocked and cited by police for not wearing a helmet after being injured in a collision with a car[4]. This event, as well as the research and reporting on disparities in enforcement described below, led the board of directors of Cascade Bicycle Club[5], the nation's largest statewide bicycle organization, to approve a policy position calling for the repeal of the King County helmet law. The Helmet Law Working Group was formed by members of these three organizations, Central Seattle Greenways, Real Change, and Cascade Bicycle Club, as well as individuals from other transportation and equity-focused groups.

Our working group has met 17 times between September 2020 and February 2022 and has exchanged hundreds of emails. We studied media reports, academic research, and other literature on helmets, helmet legislation, and the disparate impacts of police enforcement within a variety of contexts. We filed public records requests with eight municipal courts within King County as well as the Seattle Police Department, University of Washington Police Department, King County Sheriff's Office, and the Washington State Administrative Office of the Courts. The records we obtained allowed us to conduct analyses of racial disparities in helmet citations from Seattle (as well as other bicycle-related infractions), which are described in a preliminary technical report[6], and obtain a first estimate of citation rates and disparities in King County cities outside Seattle, which is included in this report.

In addition to listening to concerns about helmet law enforcement raised by Real Change vendors, who are experiencing homelessness, our group has conducted extensive public outreach using a Google Form survey that has received over 400 responses[7]. Our goal has been to hear from community members about their experiences with police enforcement while biking and their thoughts about the future of the helmet law. Over a dozen transportation and equity-focused organizations distributed our survey to their membership or boards through email lists. We created flyers that linked to our survey using a QR code and also provided a phone number to contact. We posted these flyers at over a hundred public locations across the Capitol Hill, Central District, Chinatown-International District, SODO, Beacon Hill, and Rainier Valley neighborhoods of Seattle, within the Real Change building in Pioneer Square, at Seattle Neighborhood Greenways' table during an SDOT closure of Lake Washington Boulevard in April 2021, and at a Central Seattle Greenways table near Bailey Gatzert Elementary School during Bike Everywhere Day in May 2021. A summary of survey responses is provided below.

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[2] Central Seattle Greenways (CSG) is a safe streets advocacy organization whose mission is to make it safer and more comfortable for people to walk, roll, bike, and live in the Central District and Capitol Hill neighborhoods of Seattle. CSG recognizes that this goal can be achieved only by including the needs and experiences of people of all races and ethnicities in our work. For more details, see http://centralseattlegreenways.com/racial-equity/. CSG is a member organization of the Seattle Neighborhood Greenways coalition.

[3] Real Change exists to provide opportunity and a voice to low-income and homeless people while taking action for economic, social and racial justice. For more details, see https://www.realchangenews.org/about.

[4] Tom Fucoloro, "Watch: Person driving injures a biking Real Change vendor, then SPD mocks and blames the victim," *Seattle Bike Blog* (November 13, 2020), https://www.seattlebikeblog.com/2020/11/13/watch-person-driving-injures-a-biking-real-change-vendor-then-spd-mocks-and-blames-the-victim/.

[5] Cascade Bicycle Club recognizes that anti-racism in bicycling matters. Cascade is committed to transforming from being a bicycling club working to diversify itself to one that, through bicycling, works to eliminate inequities in community health outcomes and in mobility and transportation access. For more information, see https://cascade.org/about/commitment-anti-racism.

[6] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020): Methodology and preliminary findings on racial disparities" (last updated March 1, 2021), https://tinyurl.com/Seattle-bicycle-infractions.

[7] Our survey remains open and is accessible at http://tinyurl.com/KC-helmet-law-survey.

Our group also hosted two open listening sessions, to which we invited survey respondents who had expressed an interest in sharing more thoughts with us. We have discussed our advocacy effort and research findings in over two dozen meetings with elected officials and medical professionals on the King County Board of Health; a June 2021 public panel discussion at a Board of Health meeting; two public meetings with the Seattle Bicycle Advisory Board; two meetings with staff from Seattle's Office of Inspector General (OIG), including the Inspector General and Deputy Inspector General; a December 2021 day-long roundtable discussion on traffic stops convened by the Seattle OIG that included stakeholders from the Seattle Police Department, Seattle Department of Transportation, ACLU-WA, and other groups; a January 2022 public workshop hosted by the Seattle MLK Coalition; meetings with injury prevention and policing researchers, both faculty at major research institutions; correspondences with local law school professors; and numerous conversations with leaders in our local bicycling and transportation advocacy communities.

What do we know about disparities in police interactions with users of our transportation system?

Our group first studied the larger context of equity concerns around police stops of drivers, pedestrians, and cyclists. In our reading, we found the following:

- The Seattle Police Monitor conducted an extensive assessment in 2017 of investigatory stops and detentions of drivers and pedestrians by Seattle police, which are known as "Terry stops" after the 1968 case *Terry v. Ohio*[8]. The Monitoring Team found that **Black drivers and pedestrians are stopped at a rate about four times higher than their share of the Seattle population**, and reached the following conclusions: "[The] racial disparity with respect to who is stopped and who is frisked in Seattle cannot be easily explained in terms of underlying societal or social disparities in crime, demographics, or socioeconomic factors manifesting in neighborhood or geographic trends. Even after incorporating those factors, an individual's race alone helps to predict the likelihood of being stopped and the likelihood of being frisked by an SPD officer." Yet the report found that minority subjects were less likely to be found with a weapon and just as likely as white subjects to be found with a firearm.

- A *Seattle Times* report found that **26.1% of jaywalking tickets in Seattle were issued to Black pedestrians from 2011-2015, despite their share of the population being 7.1%**[9]. This represents a risk ratio of 3.7x, or 4.4x compared to white pedestrians. Racial disparities of comparable magnitude identified elsewhere in jaywalking citations have resulted in Virginia decriminalizing jaywalking in March 2021 and California, Texas, and Kansas City advancing legislation that may repeal jaywalking statutes in those locales[10].

[8] "Tenth Systemic Assessment: Stops, search, and seizure," Seattle Police Monitor (June 2017), https://static1.squarespace.com/static/5425b9f0e4b0d66352331e0e/t/59473ca3b3db2bc40ddf8a6c/1497840805898/Dkt.+394--Stops+Assessment.pdf.

[9] Gene Balk, "Seattle police writing fewer jaywalking tickets, but high rate still issued to black pedestrians," *Seattle Times* (July 20, 2017), https://www.seattletimes.com/seattle-news/data/seattle-police-are-writing-fewer-jaywalking-tickets-but-high-rate-still-issued-to-black-pedestrians/.

[10] Kea Wilson, "How (and why!) to repeal 'jaywalking' laws," *Streetsblog USA* (May 5, 2021), https://usa.streetsblog.org/2021/05/05/how-and-why-to-repeal-jaywalking-laws/.

- **Stark racial disparities have been identified in police stops of cyclists around the country**, including in Oakland, CA, Washington D.C.[11], Tampa, FL[12], and Long Beach, CA[13], with Black cyclists being stopped at 5-10 times the rate of white cyclists in these cities. In Minneapolis, MN, police stops of Black cyclists result in incident or arrest reports at over four times the rate of white cyclists[14]. Other reports have found that tickets are more frequently issued to cyclists in minority neighborhoods of Chicago, IL[15], Dallas, TX[16], and New York, NY[17], suggesting that disproportionate police stops and ticketing of cyclists of color are widespread in the United States, if not yet rigorously quantified.

- The analysis of police stops of cyclists in Oakland, CA, Washington, DC, and New Orleans, LA[18] also demonstrated that **Black cyclists are stopped substantially more frequently than white cyclists on the basis of suspicion and probable cause** (so-called "pretextual stops"), and the data from Oakland, CA show that Black riders are subject to searches and arrests far more often (by a factor of 3.3) than white riders. 70% of stops by the LA County Sheriff's Department are of Latino bicyclists, 88% of whom are subject to searches despite a lower likelihood of finding contraband compared to white and Black riders[19].

- **In Tacoma, of the 11 helmet citations in 2019 for which records are available, 45% were issued to Black men (who make up approximately 5% of Tacoma's population)**[20]. Tacoma repealed its helmet law in July 2020 in part due to concerns over racial disparities in enforcement[21].

- A recent People for Bikes report on barriers to cycling in the U.S. conducted focus groups in 10 cities[22]. **The majority of focus group participants, and particularly Black and Hispanic participants, did not view the police as an effective partner in bicycle safety education and enforcement.** Participants expressed fear and distrust of police due to past experiences with racial profiling and police harassment, police shootings in Black communities, and immigration policies that affect Hispanic communities. One focus group member from Tucson said, "We are being questioned on status… they are there to just criminalize us and over-police us. Even when our kids are on bikes, they get hassled by the cops." These experiences match those from past research that found that **racial profiling of Black and Latino cyclists is**

[11] Dan Roe, "Black cyclists are stopped more often than whites, police data shows," *Bicycling* (July 27, 2020), https://www.bicycling.com/culture/a33383540/cycling-while-black-police/.

[12] Greg Ridgeway et al., "An examination of racial disparities in bicycle stops and citations made by the Tampa Police Department: A technical assistance report," U.S. Department of Justice Office of Community Oriented Policing Services (2016), https://www.tampa.gov/document/report-23341.

[13] Kevin Flores, "'Our version of stop-and-frisk': Black cyclists most likely to be stopped and searched by LBPD," *Forthe* (August 10, 2020), https://forthe.org/journalism/black-cyclists-stopped/.

[14] Melody Hoffmann and Anneka Kmiecik, "Bicycle citations and related arrests in Minneapolis, 2009-2015," *Minneapolis Bicycle Coalition* (October 2016), https://www.ourstreetsmpls.org/citationreport.

[15] Mary Wisniewski, "'Biking while black': Chicago minority areas see the most bike tickets", *Chicago Tribune* (March 17, 2017), https://www.chicagotribune.com/news/breaking/ct-chicago-bike-tickets-minorities-0319-20170317-story.html.

[16] Tom Benning, "With Dallas bike helmet law, rules of the ride enforced unevenly," *Dallas Morning News* (June 3, 2014), https://www.dallasnews.com/news/2014/06/04/with-dallas-bike-helmet-law-rules-of-the-ride-enforced-unevenly/.

[17] Irene Chidinma Nwoye, "Cycling on the sidewalk: the new stop-and-frisk?," *The Village Voice* (October 30, 2014), https://www.villagevoice.com/2014/10/30/cycling-on-the-sidewalk-the-new-stop-and-frisk/.

[18] Dan Roe, "Black cyclists are stopped more often than whites...," *Bicycling.* As above.

[19] Alene Tchekmedyian, Ben Poston, and Julia Barajas, "L.A. sheriff's deputies use minor stops to search bicyclists, with Latinos hit hardest," *Los Angeles Times* (November 4, 2021), https://www.latimes.com/projects/la-county-sheriff-bike-stops-analysis/.

[20] Liz Kaster (City of Tacoma), personal communication with Tamar Shuhendler, April 14, 2021.

[21] Allison Needles, "Bicycling without a helmet? You can do that in Tacoma now," *The News Tribune* (July 4, 2020), https://www.thenewstribune.com/news/local/article243960367.html.

[22] "Where do we go from here? Breaking down barriers to bicycling in the U.S.," People for Bikes (2021), p. 39-40, https://www.peopleforbikes.org/reports/where-do-we-go-from-here-breaking-down-barriers-to.

a "silent barrier" to biking[23], with 23% of Black cyclists in a survey of New Jersey communities reporting having been unfairly stopped by a police officer while biking[24].

- **Police stops of Black and Latino cyclists have led to tragic incidents.** In August 2020, Dijon Kizzee was shot 16 times and killed by deputies in Los Angeles after being stopped on his bike for a minor traffic infraction[25]. This was not an isolated incident. Reporting by the *Los Angeles Times* has identified 15 other stops of cyclists in L.A. County that led to police shootings, 11 of which were fatal, all suffered by male and Black or Latino cyclists[26]. In Las Vegas, after being stopped for riding without a light, Byron Williams was killed by police while saying "I can't breathe" 17 times[27]. Closer to home, in Tacoma, 15-year-old Monique Tillman and her brother were stopped by a police officer while biking without helmets[28]. In an incident that resulted in legal expenses of $1M paid by the city of Tacoma, the officer grabbed Tillman by her hair, tossed her around "like a child's doll," threw her to the pavement, then tased and arrested her.

- **Out of the 37 largest U.S. cities, Seattle is ranked 2nd in Black-white disparities in per-capita arrests and is ranked 8th in Black-white disparities in per-capita police killings**[29]. Out of over 200 police departments in Washington assessed by the Police Scorecard Project[30], the Seattle Police Department scores third-worst on an aggregate metric taking into account its use of force, accountability, funding (including funds spent on misconduct settlements), and other outcomes. Out of the 500 police departments nationwide with the most policing data available, the Seattle Police Department scores 487th on this aggregate metric. In this ranking, only one King County city or town scores above the nationwide median (Renton PD, at 220th). Four other King County cities are below the median – Kirkland PD, ranked at 416; Kent PD at 396; Auburn PD at 300; and Federal Way PD at 251.

- **While no police stops of cyclists in King County have, to our knowledge, resulted in a fatal incident, we worry that it is only a matter of time before one occurs.**

[23] Stefani Cox and Charles Brown, "Silent barriers to bicycling, part III: Racial profiling of the Black and Latino community," *Better Bike Share* (March 3, 2017), https://betterbikeshare.org/2017/03/03/silent-barriers-bicycling-part-iii-racial-profiling-black-latino-community.

[24] Brown et al., "Understanding barriers to bicycle access and use in Black and Hispanic communities in New Jersey," Alan M. Voorhees Transportation Center, Rutgers University (November 2017), http://njbikeped.org/portfolio/barriers-to-bicycle-access-use-in-black-and-hispanic-communities-2016/.

[25] Alene Tchekmedyian, "Sheriff adds details to Dijon Kizzee shooting; says deputies stopped him for riding on wrong side of street," *Los Angeles Times* (September 17, 2020), https://www.latimes.com/california/story/2020-09-17/sheriff-dijon-kizzee-shooting.

[26] Nicole Santa Cruz and Alene Tchekmedyian, "Deputies killed Dijon Kizzee after a bike stop. We found 15 similar law enforcement shootings, many fatal," *Los Angeles Times* (October 16, 2020), https://www.latimes.com/california/story/2020-10-16/examining-dijon-kizzee-bike-stop-police-shootings.

[27] Anita Hassan, "When Byron Williams died saying 'I can't breathe,' few protested. Now his family is fighting for justice," *NBC News* (June 18, 2020), https://www.nbcnews.com/news/us-news/when-byron-williams-died-saying-i-can-t-breathe-few-n1231342.

[28] Christine Clarridge, "Teen tossed 'like a child's doll' by Tacoma cop awarded $500,000," *Seattle Times* (March 23, 2018), https://www.seattletimes.com/seattle-news/crime/teen-tossed-like-a-childs-doll-by-tacoma-cop-awarded-500k/.

[29] Samuel Sinyangwe, "The police departments with the biggest racial disparities in arrests and killings," *FiveThirtyEight* (February 4, 2021), https://fivethirtyeight.com/features/the-biden-administration-wants-to-address-racial-bias-in-policing-what-cities-should-it-investigate/.

[30] "Seattle Police Department," Police Scorecard Project (accessed May 15, 2021), https://policescorecard.org/wa/police-department/seattle.

Are helmets effective at preventing injuries?

Yes. Studies have overwhelmingly shown that bicycle helmets are effective at reducing the risk of head injuries. We look to systematic reviews of the literature, rather than individual studies, for best estimates of helmet efficacy, since different methodologies and sample populations in case-control studies have resulted in a variety of estimates. The following summarizes the conclusions of the two most recent meta-analyses on this subject, which have been widely cited in the academic literature and were regarded by a publication this year as the "best available evidence" on the efficacy of bicycle helmets[31]:

- Olivier and Creighton (2016)[32] analyze 40 studies and find that helmet use is associated with a 51% reduction in the likelihood of head injury, a 69% reduction in the likelihood of serious head injury, and a 65% reduction in the likelihood of fatal head injury.

- Høye (2018a)[33] reviews 55 studies and finds that helmet use is associated with a 48% reduction in the likelihood of head injury, a 60% reduction in the likelihood of serious head injury, and a 34% reduction in death associated with cycling.

These results indicate that helmets are effective at reducing the risk of head injury by about half in hospitalization incidents. From this, two conclusions naturally follow: (1) helmet use is valuable as a mode of injury prevention and should be encouraged, promoted, and incentivized for the safety of cyclists; and (2) other strategies that prevent crashes from occurring in the first place should also be emphasized. Helmets are particularly effective in single-vehicle crashes, such as when a cyclist falls off a bicycle or hits an obstacle[34]. On the other hand, the vast majority of cyclist fatalities that do occur in the U.S. are a result of motor vehicle collisions[35], situations in which helmets are less effective at preventing injury. A study of 119 autopsy reports of cyclists[36] concluded, for example, that 44 of the cyclists (37%) could have survived if they were wearing helmets. Helmets would not have helped cyclists survive in the majority of collisions with motor vehicles, which represent about half (54, or 46%) of the deaths studied. The authors state:

> *"**This study concludes that cyclists should wear helmets**, but they should also be aware that it cannot protect them in particular situations. These facts should be incorporated into safety campaigns to prevent cyclists from feeling protected in such situations when helmets cannot help. Our results also support the building of cycling paths separate from traffic, particularly outside of urban areas."* (emphasis added)

[31] Elvik, "Ch. 4: Cycling safety," in Buehler and Pucher, eds., "Cycling for sustainable cities" (2021), MIT Press.

[32] Olivier and Creighton, "Bicycle injuries and helmet use: a systematic review and meta-analysis," *International Journal of Epidemiology* (2016), 46(1), 278–292, https://academic.oup.com/ije/article/46/1/278/2617198.

[33] Høye, "Bicycle helmets – To wear or not to wear? A meta-analysis of the effects of bicycle helmets on injuries," *Accident Analysis & Prevention* (2018a), 117, 85–97, https://www.sciencedirect.com/science/article/pii/S0001457518301301.

[34] Bíl et al., "Cycling fatalities: When a helmet is useless and when it might save your life," *Safety Science* (2018), 105, 71–76, https://www.sciencedirect.com/science/article/pii/S0925753517302059.

[35] "Every bicyclist counts: A memorial to cyclists by the League of American Bicyclists," League of American Bicyclists (May 2014), https://bikeleague.org/sites/default/files/EBC_report_final.pdf.

[36] Bíl et al. (2018). As above.

Are helmet laws effective at increasing helmet use?

Not necessarily. While there is limited contemporary research on this subject, the available evidence suggests that rates of helmet use in Seattle today are minimally related to the presence of an all-ages helmet mandate.

To start, few studies exist on the *present-day* impact of mandatory helmet laws in a North American context, and particularly on the impact of all-ages helmet laws, which are rare. No U.S. state has an all-ages helmet mandate, and of the 47 cities, towns, and counties in the U.S. known to have all-ages mandates (representing just eight U.S. states), the majority (27) are jurisdictions in Washington state[37]. A 2018 meta-analysis[38] identified 21 studies that assess the impact of helmet mandates on the prevention of head injuries. Of these:

- Only eight studies took place in the United States. The majority – five – of these examined the passage of youth-only helmet laws in the 1990s.
- Only one study[39] examined an all-ages helmet mandate in the United States – the extension of the all-ages King County helmet law to Seattle in 2003 (see discussion below).

Thus, existing research on helmet laws in the U.S. skews heavily towards before-and-after studies of youth-only helmet mandates introduced 2-3 decades ago. The body of literature assessing helmet laws' impact on helmet use, rather than injury rates, is somewhat larger, but is also predominantly composed of older studies of youth-only helmet legislation.

Most studies examining the effect of youth-only helmet legislation passed in the 1990s found notable increases in helmet use. Helmet use in the U.S. prior to the introduction of local mandates (and other interventions to increase helmet use; see following discussion) was exceedingly low. For example, a 1993 study[40] found that helmet use among children in a Maryland county increased from 11% to 37% after the passage of helmet legislation, while helmet use in nearby counties without helmet laws changed by 5% or less. A study conducted in 1999[41] found that Florida counties that had opted out of a statewide youth-only helmet law were observed to have helmet use rates of around 33%, while helmet use among children averaged 79% in counties with the helmet law.

Helmet use rates across the U.S. are now markedly higher than three decades ago (and average 87% in Seattle including bike-share users[42]) owing to a variety of factors: helmet education, promotion, and giveaway campaigns, particularly in schools[43]; role modeling[44,45]; the positioning of the helmet as synonymous with

[37] Merrill-Francis et al., "Local all-age bicycle helmet ordinances in the United States: a review and analysis," *The Journal of Law, Medicine & Ethics* (2019), 47(2), 283–291, https://journals.sagepub.com/doi/abs/10.1177/1073110519857283.

[38] Høye, "Recommend or mandate? A systematic review and meta-analysis of the effects of mandatory bicycle helmet legislation," *Accident Analysis & Prevention* (2018b), 120, 239–249, https://www.sciencedirect.com/science/article/abs/pii/S000145751830397X.

[39] Kett et al., "The effect of an all-ages bicycle helmet law on bicycle-related trauma," *Journal of Community Health* (2016), 41(6), 1160–1166, https://link.springer.com/article/10.1007/s10900-016-0197-3.

[40] Dannenberg et al., "Bicycle helmet laws and educational campaigns: an evaluation of strategies to increase children's helmet use," *American Journal of Public Health* (1993), 83(5), 667–674, https://ajph.aphapublications.org/doi/10.2105/ajph.83.5.667.

[41] Kanny et al., "Effectiveness of a state law mandating use of bicycle helmets among children: an observational evaluation," *American Journal of Epidemiology* (2001), 154(11), 1072–1076, https://academic.oup.com/aje/article/154/11/1072/185308.

[42] Mooney et al., "Free-floating bikeshare and helmet use in Seattle, WA," *Journal of Community Health* (2019), 44, 577–579, https://link.springer.com/article/10.1007%2Fs10900-018-00599-1.

[43] Bergman et al., "The Seattle Children's bicycle helmet campaign," *The American Journal of Diseases of Children* (1990), 144(6), 727–731, https://jamanetwork.com/journals/jamapediatrics/article-abstract/515201.

[44] Dannenberg et al., "Bicycle helmet use by adults: the impact of companionship," *Public Health Reports* (1993), 108(2), 212–217, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1403363/.

[45] Kakefuda et al., "Associations between childhood bicycle helmet use, current use, and family and community factors among college students," *Family and Community Health* (2009), 32(2), 159–166, http://dx.doi.org/10.1097/FCH.0b013e31819947cf.

safety in media and local government narratives[46]; advocacy from bicycling organizations and helmet mandates at bicycling events[47]; and prolonged exposure to the preceding factors over time[48]—all in addition to the passage and enforcement of helmet laws in some locales. Despite the clear need to disentangle the effect of helmet mandates from these other, often concurrent interventions and influences, we are aware of no studies that systematically address this question. Such a study would need to compare rates of helmet use in multiple U.S. jurisdictions with and without helmet mandates, and control for effects from the aforementioned factors as well as other potential demographic influences on helmet use. The role of fines and enforcement would also need to be examined; most helmet laws in the U.S. are associated with weak enforcement and low fines[49]. As far as we know, no study meeting these criteria exists. Thus, it is challenging to understand the degree to which helmet legislation in the U.S. is directly connected – or not – to rates of helmet use today, based on the current literature.

Comparing helmet use rates in Seattle to peer cities, however, suggests that the influence of helmet legislation today may be minimal, in contrast to the large effects observed when helmet laws were first introduced three decades ago.

- **In Seattle, an observational study found helmet use among all riders (including bike share users) to be approximately 87% in 2018**[50], though this may be an overestimate as the four counts from this study were conducted in wealthier areas of the city (Fremont Bridge, Burke-Gilman Trail, Broadway PBL, and an intersection in Ballard).

- **In Portland, OR, average helmet use from a citywide count was 81% in 2014**[51] (the most recent year of data available), *despite the absence of an all-ages helmet mandate*. Oregon has a state helmet mandate for riders under the age of 16 only. A time series of observed helmet use in Portland[52] shows little apparent connection between *all-ages* helmet use and the timing of the *youth-only* law, which went into effect in July 1994. Helmet use increased from 44% in 1992 to 55% in 1993, before the law was implemented, while it took seven years to see a similar increase after the passage of the law (from 60% in 1994 to 72% in 2001). Helmet use has steadily increased since, despite the absence of an all-ages helmet mandate. Research indicates that youth-only helmet mandates result in negligible "spillover" effect to adults[53], which suggests this upward trend cannot be directly attributed to the youth-only mandate.

- **In Vancouver, BC, average helmet use was observed to be 78% in 2016**[54]. Similar to King County, British Columbia has a provincial all-ages helmet law that was enforced regularly (with about 1,800 tickets

[46] Culver, "Bike helmets – a dangerous fixation? On the bike helmet's place in the cycling safety discourse in the United States," *Applied Mobilities* (2020), 5(2), 138–154, https://www.tandfonline.com/doi/full/10.1080/23800127.2018.1432088.

[47] Bachynski and Bateman-House, "Mandatory bicycle helmet laws in the United States: origins, context, and controversies," *American Journal of Public Health* (2020), 110(8), 1198–1204.

[48] Farley et al., "Evaluation of a four-year bicycle helmet promotion campaign in Quebec aimed at children ages 8 to 12: impact on attitudes, norms and behaviours," *Canadian Journal of Public Health* (1997), 62–66, https://link.springer.com/article/10.1007/BF03403862.

[49] Bateman-House, "Bikes, helmets, and public health: Decision-making when goods collide," *American Journal of Public Health* (2014), 104(6), 986–992, https://ajph.aphapublications.org/doi/10.2105/AJPH.2013.301810.

[50] Mooney et al. (2019). As above.

[51] "Portland bicycle count report 2013-2014," Portland Bureau of Transportation (2014), https://www.portlandoregon.gov/transportation/article/545858.

[52] "Portland bicycle counts 2008," Portland Bureau of Transportation (2008), https://www.portlandonline.com/shared/cfm/image.cfm?id=217489.

[53] Grant and Rudner, "The effect of bicycle helmet legislation on bicycling fatalities," *Journal of Policy Analysis and Management* (2004), 23(3), 595–611, https://onlinelibrary.wiley.com/doi/abs/10.1002/pam.20029.

[54] Zanotto and Winters, "Helmet use among personal bicycle riders and bike share users in Vancouver, BC," *American Journal of Preventive Medicine* (2017), 53(4), 465–472, https://www.ajpmonline.org/article/S0749-3797(17)30249-0/fulltext.

issued in 2013[55]) but in recent years has been enforced minimally (with only 35 tickets issued in 2017[56]). Both the earlier and more recent rates of enforcement are similar to those in Seattle, where helmet law enforcement has also steeply declined in recent years[57].

In summary, comparison of Seattle to peer cities in the Pacific Northwest suggests that the presence of an all-ages helmet mandate is minimally connected to population-wide rates of helmet use today. Helmet use in Portland, which lacks an all-ages mandate, is just 6% lower than in Seattle, and the difference is likely even less due to the sampling methodology of the helmet use counts in Seattle. However, even this small difference may not be attributable to the lack of an all-ages mandate. Vancouver, BC has somewhat lower helmet use than Portland *despite an all-ages helmet mandate* that has been enforced similarly to the helmet law in Seattle. It is probable that factors other than helmet legislation (e.g., those cultural, educational, demographic, media-related, etc.) exert a strong – and perhaps even dominant – influence on these differences in helmet use between cities.

Evidence from hospitalization records in King County (discussed in more detail below) suggests that the influence of helmet legislation may have been waning as early as two decades ago. While King County's helmet law was introduced in 1993, it did not apply to Seattle until 2003. Kett et al.[58] compare changes in bicyclist injury rates from 2000-2010 in Seattle with changes seen in King County outside of Seattle, operating on the assumption that changes observed in Seattle but not the rest of King County may be attributed to the newly-implemented helmet law, while changes observed in both populations can be ascribed to background trends. Based on this methodology, they find that the extension of the helmet law to Seattle in 2003 had no effect on rates of helmet use among injured cyclists. Among cyclists admitted to a hospital for bicycle-related injuries, the proportion of helmet-wearers in Seattle increased by 29% over the study period (from 39% to 68% over 2000-2010), which spans the introduction of the helmet law in Seattle. However, King County outside of Seattle saw a similar – and slightly larger – increase in helmet use of 34% (from 26% to 60% over that period), despite no change to its helmet mandate. This suggests that factors other than the helmet mandate led to substantially greater helmet use in both locales, and that the impact of the helmet law's extension to Seattle was negligible, unlike the large upticks in helmet use observed shortly after the implementation of helmet laws across the U.S. in the 1990s.

[55] Christopher Cheung, "City cyclists dodging helmet laws," *Vancouver is Awesome* (August 7, 2014), https://www.vancouverisawesome.com/courier-archive/news/city-cyclists-dodging-helmet-laws-2983202.

[56] Rafferty Baker, "Helmet laws called into question as Bike to Work Week fills cycling paths," *CBC* (May 31, 2018), https://www.cbc.ca/news/canada/british-columbia/bike-helmet-laws-criticised-in-bc-1.4684916.

[57] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.

[58] Kett et al. (2016). As above.

Are helmet laws effective at preventing injuries?

Studies have come to mixed conclusions on this question, which has been methodologically challenging and contentious[59,60]. However, the most recent, thorough, high-powered, and relevant studies from North American contexts, summarized below, suggest that the presence or absence of helmet mandates today has little to no association with overall rates of head injuries[61,62]. The results of a smaller-scale study assessing the impact of the King County helmet law in Seattle[63] (which is discussed in the next section) are consistent with this finding of a lack of benefit.

A meta-analysis examining 21 studies concluded that helmet mandates reduce head injuries by about 20%[64]. As discussed previously, however, the large majority of the studies examined focused on the introduction of youth-only helmet mandates in the U.S. during the 1990s, when prior helmet use was minimal, or on legislation in locales outside the U.S., where enforcement is generally more frequent and severe, and cultural and cycling conditions are often significantly different. It is unclear whether results from such different contexts are applicable to the present-day efficacy of a three-decades-old helmet law here in King County (and, in any case, the one study that examines precisely this question finds little benefit; see below). **With these challenges in mind, we believe that two studies stand out as providing the most valuable guidance due to their recency, their relevant geographic contexts in North America, their examination of locales with all-ages helmet mandates (and not solely youth-only mandates), their large sample sizes, and their rigorous methodologies that control for secular (background) trends in injuries and geographic variations in cycling rates:**

- Dennis et al. (2013)[65] examine time series of over 60,000 hospital admissions for cycling-related injuries from 1994-2008 across 10 Canadian provinces, six of which implemented helmet legislation. After controlling for baseline trends in injury rates, which the authors find were already decreasing prior to the introduction of helmet mandates, no independent effects of helmet legislation on injury rates are detected. The authors conclude that **"the incremental contribution of provincial helmet legislation to reduce hospital admissions for head injuries seems to have been minimal."**

- Teschke et al. (2015)[66] compare cycling-related hospitalization rates across 10 Canadian provinces from 2006-2011. The authors control for differences in exposure rates using data on bicycling trips. Examining over 20,000 hospitalization incidents, they find that the presence of **"helmet legislation [is] not associated with hospitalization rates for brain, head, scalp, skull, face, or neck injuries,"** despite apparent higher helmet usage in provinces with helmet laws. The authors suggest that some of the complexities listed below, such as selection and second-round effects, could explain these counterintuitive findings.

On the surface, these findings of no benefit may appear to be in conflict with studies that have shown conclusively that cyclists wearing helmets have a reduced risk of injury (see discussion above). **However, helmet *legislation***

[59] Goldacre and Spiegelhalter, "Bicycle helmets and the law," *BMJ* (2013), 346, f3817, https://www.bmj.com/content/346/bmj.f3817.full?ijkey=I5vHBog6FhaaLzX&keytype=ref.

[60] Høye et al. (2018b). As above.

[61] Dennis et al., "Helmet legislation and admissions to hospital for cycling related head injuries in Canadian provinces and territories: interrupted time series analysis," *BMJ* (2013), 346, f2674, https://www.bmj.com/content/346/bmj.f2674.long.

[62] Teschke et al., "Bicycling injury hospitalisation rates in Canadian jurisdictions: analyses examining associations with helmet legislation and mode share," *BMJ Open* (2015), 5(11), e008052, https://bmjopen.bmj.com/content/5/11/e008052.

[63] Kett et al. (2016). As above.

[64] Høye et al. (2018b). As above.

[65] Dennis et al. (2013). As above.

[66] Teschke et al. (2015). As above.

today may have a negligible effect, or a smaller effect than expected or previously observed, simply because it is not particularly influential at present. There are two main reasons why this may be the case:

1. **Norms around helmet use have shifted from those in the 1990s, both in locations with and without helmet laws.** Annual observations of helmet use over multiple decades in U.S. cities such as Portland[67], where riders are not subject to an all-ages helmet mandate, have shown steady increases in average helmet use over time. This is likely the consequence of the behavioral, normative, and policy-related factors discussed above. Over recent years, the incremental contribution of local helmet mandates to increasing and maintaining rates of helmet use may be so small as to be undetectable at the population level[68].

2. **Research has found that helmet legislation is more effective – or perhaps only effective – when enforced vigorously[69,70], which is often not the case.** Rates of enforcement in Seattle have ranged from between 500-1,000 citations issued annually a decade ago to 20-50 citations issued annually in recent years (see below), with the total number of police contacts (including those that result in warnings rather than citations being issued) being 6-30x the number of citations issued, as discussed below. 700,000 helmetless personal bicycle trips take place in Seattle annually (as estimated below), not including the approximately 1.5 million annual helmetless dockless bike share trips at present (see references below). This implies that current rates of police contacts resulting from helmet violations could range from a low value of 0.004% of all helmetless trips (including bike share trips, and using low-end estimates of enforcement frequency) to a high value of 0.2% of all helmetless trips (not including bike share trips, and using high-end estimates of enforcement frequency). In any case, enforcement in Seattle is clearly minimal. This is similar to the low or negligible enforcement rates across the Canadian provinces[71] in which the presence of helmet legislation was found to have no impact on population-wide rates of head injuries[72,73].

At the same time, it has been suggested that studies that do find reduced rates of head injuries in hospitalization records following helmet legislation, such as some reviewed by Høye (2018b)[74], are in fact observing the effects of a number of potentially confounding factors:

1. **For one, multiple lines of evidence (observational, hospital, and survey data) indicate that helmet legislation may deter people from biking[75,76,77,78,79]**, though some authors dispute aspects of these

[67] "Portland bicycle counts 2008," Portland Bureau of Transportation. As above.

[68] Dennis et al. (2013). As above.

[69] Gilchrist et al., "Police enforcement as part of a comprehensive bicycle helmet program," *Pediatrics* (2000), 106(1), 6–9, https://pediatrics.aappublications.org/content/106/1/6.long.

[70] Huybers et al., "Long-Term Effects of Education and Legislation Enforcement on All-Age Bicycle Helmet Use: A Longitudinal Study," *Journal of Community Health* (2017), 42, 83–89, https://link.springer.com/article/10.1007%2Fs10900-016-0233-3.

[71] Dennis et al. (2013). As above.

[72] Ibid.

[73] Teschke et al. (2015). As above.

[74] Høye et al. (2018b). As above.

[75] Robinson, "Safety in numbers in Australia: more walkers and bicyclists, safer walking and bicycling," *Health Promotion Journal of Australia* (2005), 16(1), 47–51, https://onlinelibrary.wiley.com/doi/abs/10.1071/HE05047.

[76] Carpenter and Stehr, "Intended and unintended effects of youth bicycle helmet laws" (2010), National Bureau of Economic Research Working Paper 15658, https://www.nber.org/papers/w15658.

[77] Rissel and Wen, "The possible effect on frequency of cycling if mandatory bicycle helmet legislation was repealed in Sydney, Australia: a cross sectional survey," *Health Promotion Journal of Australia* (2011), 22(3), 178–183, https://www.publish.csiro.au/he/HE11178.

[78] Fyhri et al., "Bicycle helmets – A case of risk compensation?," *Transportation Research Part F: Traffic Psychology and Behaviour* (2012), 15(5), 612–624, https://www.sciencedirect.com/science/article/pii/S1369847812000587.

[79] Markowitz and Chatterji, "Effects of bicycle helmet laws on children's injuries," *Health Economics* (2015), 24, 26–40, https://onlinelibrary.wiley.com/doi/full/10.1002/hec.2997.

findings[80,81]. If helmet mandates indeed have this unintended effect, population-wide head injuries would decrease without necessarily requiring an increase in helmet use. It is worth noting that reduced cycling could impact population health negatively in other unintended ways. Studies have found that the benefits of physical activity from biking far outweigh the risks to health from traffic accidents and air pollution[82,83]. Taking this into account, a modeling study found that reduced ridership related to helmet legislation may produce a large unintended negative *net* impact to societal health due to less exercise, which results in increased morbidity and mortality[84]. While potentially troubling, the magnitudes of these effects are not well-quantified at present.

2. **"Selection effects" may occur if a helmet mandate preferentially discourages certain segments of a population from riding[85]**. Different studies have suggested specific groups that are deterred by helmet mandates, for example, some youth[86,87] and some occasional cyclists[88]. There is also strong evidence that helmeted cyclists exhibit a lower overall risk profile, while unhelmeted cyclists tend to be at higher risk for crashes and injuries for a variety of reasons[89]. Some risk factors correlated with unhelmeted riding are related to income (e.g., riding a less safe bicycle, not owning a bicycle light, or not riding with high-visibility clothing), while others are more behavioral (e.g., using electronic devices more often, not following traffic laws, or cycling under the influence of alcohol). An observed reduction in injuries following the passage of helmet legislation could stem, at least in part, from reduced riding among those who are less inclined to wear helmets and tend to be at higher risk for injury for correlated reasons, or other groups with a higher risk of injury (e.g., children). **It is challenging, if not impossible, for studies to control for all of these possible selection effects, which involve variables that are "generally unmeasured and perhaps even unmeasurable"[90].**

3. Decreased rates of cycling within a population owing to helmet legislation could result in additional second-round effects related to the "safety in numbers" theory, which posits that increased cycling generally leads to safer conditions for all (and vice versa, i.e., reduced cyclist density results in higher

[80] Olivier et al., "No strong evidence bicycle helmet legislation deters cycling," *Medical Journal of Australia* (2016), 205(2), 54–55, https://www.mja.com.au/system/files/issues/205_02/10.5694mja16.00193.pdf.

[81] Olivier et al., "Does the Australian bureau of statistics method of travel to work data accurately estimate commuter cycling in Australia?," *Journal of Road Safety*, 31(2), 48–54, https://search.informit.org/doi/10.3316/INFORMIT.331256981654732.

[82] de Hartog et al., "Do the health benefits of cycling outweigh the risks?," *Environmental Health Perspectives* (2010), 118(8), 1109–1116, https://ehp.niehs.nih.gov/doi/10.1289/ehp.0901747.

[83] Rojas-Rueda et al., "The health risks and benefits of cycling in urban environments compared with car use: health impact assessment study," *BMJ* (2011), 343, d4521, https://www.bmj.com/content/343/bmj.d4521.

[84] de Jong, "The health impact of mandatory bicycle helmet laws," *Risk Analysis* (2012), 32(5), 782–790, https://onlinelibrary.wiley.com/doi/full/10.1111/j.1539-6924.2011.01785.x.

[85] Goldacre and Spiegelhalter (2013). As above.

[86] Carpenter and Stehr (2011). As above.

[87] Markowitz and Chatterji (2015). As above.

[88] Rissel and Wen (2011). As above.

[89] Høye (2018b) and references therein. As above.

[90] Goldacre and Spiegelhalter (2013). As above.

risk)[91,92,93,94,95]. The potential influence of helmet legislation on the "safety in numbers" effect is not well-characterized at present.

4. On an individual level, it has been suggested that wearing a bicycle helmet may be associated with riskier behavior through a phenomenon known as "risk compensation"[96]. However, a recent meta-analysis of 23 studies on this subject found "little to no support" for this particular effect[97].

5. There is some evidence that the behavior of drivers around people on bicycles, particularly while overtaking a cyclist, may change depending on whether the cyclist is wearing a helmet or not[98,99]. However, the impact of this effect on the risk of crash and injury has not been quantified.

Overall, interventions to prevent collisions from occuring in the first place – not helmet mandates – are widely recognized as the most effective way of preventing injuries for bicyclists, pedestrians, and other vulnerable road users. Strategies known to be powerfully protective include separated bicycle-specific facilities[100,101,102], reduced road speeds[103,104,105], safer intersection design[106], and efforts to increase rates of bicycling mode share[107,108,109]. All of these have been shown to substantially reduce the risk of injury for people riding bicycles. These interventions are readily achievable in King County, and local models exist. The Seattle Department of Transportation, for example, recently found that lowering arterial speeds in Seattle to 25 mph and increasing sign density alone – without any additional enforcement, signal retiming, or engineering changes – has been successful in

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[91] Jacobsen, "Safety in numbers: more walkers and bicyclists, safer walking and bicycling," *Injury Prevention* (2003), 9(3), 205–209, https://injuryprevention.bmj.com/content/9/3/205.

[92] Robinson (2005). As above.

[93] Teschke et al. (2015). As above.

[94] "Bicycling and walking in the United States: 2018 benchmarking report, 6th Ed.," League of American Bicyclists (2018), https://bikeleague.org/sites/default/files/Benchmarking_Report-Sept_03_2019_Web.pdf.

[95] Aldred et al., "Contextualising Safety in Numbers: a longitudinal investigation into change in cycling safety in Britain, 1991–2001 and 2001–2011," *Injury Prevention* (2019), 25(3), 236–241, https://injuryprevention.bmj.com/content/25/3/236.

[96] Phillips et al., "Risk compensation and bicycle helmets," *Risk Analysis* (2011), 31(8), 1187–1195, https://onlinelibrary.wiley.com/doi/full/10.1111/j.1539-6924.2011.01589.x.

[97] Esmaeilikia et al., "Bicycle helmets and risky behaviour: A systematic review," *Transportation Research Part F: Traffic Psychology and Behaviour* (2019), 60, 299–310, https://www.sciencedirect.com/science/article/pii/S1369847818305941.

[98] Walker, "Drivers overtaking bicyclists: Objective data on the effects of riding position, helmet use, vehicle type and apparent gender," *Accident Analysis and Prevention* (2007), 39(2), 417–425, https://www.sciencedirect.com/science/article/abs/pii/S0001457506001540.

[99] Walker and Robinson, "Bicycle helmet wearing is associated with closer overtaking by drivers: A response to Olivier and Walter, 2013," *Accident Analysis and Prevention* (2019), 123, 107–113, https://www.sciencedirect.com/science/article/abs/pii/S0001457518309928.

[100] Reynolds et al., "The impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature," *Environmental Health* (2009), 8, 47, https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-8-47.

[101] Thomas and DeRobertis, "The safety of urban cycle tracks: a review of the literature," *Accident Analysis and Prevention* (2013), 52, 219–227, https://www.sciencedirect.com/science/article/abs/pii/S0001457512004393.

[102] Marshall and Ferenchak, "Why cities with high bicycling rates are safer for all road users," *Journal of Transport and Health* (2019), 13, 100539, https://www.sciencedirect.com/science/article/abs/pii/S2214140518301488.

[103] Ibid.

[104] Chen, "Built environment factors in explaining the automobile-involved bicycle crash frequencies: A spatial statistic approach," *Safety Science* (2015), 79, 336–343, https://www.sciencedirect.com/science/article/abs/pii/S0925753515001587.

[105] Pucher and Buehler, "Cycling towards a more sustainable transport future," *Transport Reviews* (2017), 37(6), 689–694, https://www.tandfonline.com/doi/full/10.1080/01441647.2017.1340234.

[106] Harris et al., "Comparing the effects of infrastructure on bicycling injury at intersections and non-intersections using a case–crossover design," *Injury Prevention* (2013), 19, 303–310, https://injuryprevention.bmj.com/content/19/5/303.

[107] Teschke et al. (2015). As above.

[108] "Bicycling and walking in the United States… ," League of American Bicyclists. As above.

[109] Aldred et al. (2019). As above.

decreasing vehicle speeds and achieving a 20-40% reduction in collisions within five neighborhoods examined as case studies[110]. For more information, People for Bikes (a national bike advocacy nonprofit) has compiled research on various bicycle safety interventions[111].

On a societal level, helmet legislation has naturally led to a focus on helmets as a primary mode of injury prevention. **Recent research has argued that this emphasis on helmets as one of the most important tools for bicycle safety has been a "dangerous fixation" that has in fact stymied efforts to achieve safer conditions for cyclists through more effective interventions[112]**, such as those discussed below. The author of this research explains how focusing on helmet use has obscured the primary cause of injury risk for cyclists (i.e., unfettered automobility), redistributed blame onto the victims of traffic violence, and distorted the public's perception of the risk associated with bicycling. Our societal focus on helmet use, rather than other interventions, may be in part due to certain early studies that found more powerful effects of helmets on injury prevention than current best estimates, such as those from recent meta-analyses (see above). For example, a widely-reported 1989 study conducted in Seattle[113] found that helmet use conferred an 85% reduction in head injury risk. An effect of this magnitude has not been identified in the large majority of subsequent research efforts[114] and the 1989 study has since been removed as federal guidance[115,116].

It is no coincidence that the countries with the lowest rates of injury for bicyclists – such as the Netherlands, Denmark, and Germany, where biking is 4-5 times safer than in the U.S. on a per-mile basis – have achieved such safety using proven, root-cause-focused strategies and policies rather than helmet mandates[117]. Specifically, these countries have decreased cyclist fatalities by 60-80% between 1970 and 2008 (while increasing cycling rates by similar amounts) despite helmet use among adult cyclists remaining between 1% and 5%.

[110] "Speed limit case studies," Seattle Department of Transportation (July 2020), https://www.seattle.gov/Documents/Departments/SDOT/VisionZero/SpeedLimit_CaseStudies_Report.pdf.

[111] "Safety statistics: bicycling and safety," People for Bikes (accessed on May 27, 2021), https://www.peopleforbikes.org/statistics/safety.

[112] Culver (2018). As above.

[113] Thompson, Rivara, and Thompson, "A case-control study of the effectiveness of bicycle safety helmets," *New England Journal of Medicine* (1989), 320(21), 1361–1367, https://www.nejm.org/doi/10.1056/NEJM198905253202101.

[114] Høye (2018a). As above.

[115] Colleen Coggins, National Highway Traffic Safety Administration, U.S. Department of Transportation, letter to James Titus (May 14, 2013), http://bike.risingsea.net/docs/Legislation/helmet/NHTSA-response-to-Titus.pdf.

[116] Tom Fucoloro, "Feds no longer back 1989 Seattle helmet effectiveness study – City should modify its helmet law before bike share launches," *Seattle Bike Blog* (June 4, 2013), https://www.seattlebikeblog.com/2013/06/04/feds-no-longer-back-1989-seattle-helmet-effectiveness-study-city-should-modify-its-helmet-law-before-bike-share-launches/.

[117] Pucher and Buehler, "Making cycling irresistible: lessons from The Netherlands, Denmark and Germany," *Transport Reviews* (2008), 28(4), 495–528, https://www.tandfonline.com/doi/abs/10.1080/01441640701806612.

Has King County's helmet law been effective at preventing injuries?

No. There is little evidence that King County's helmet law has been effective at preventing injuries. A before-and-after study[118] examining the extension of the helmet law to Seattle in 2003, discussed in detail within this section, found an increase in the total number of head injuries after the passage of the law, no change in the prevalence of head injuries compared to other bicycle-related injuries, and no change in helmet use among injured cyclists attributable to the extension of the helmet law to Seattle. The only "positive" effect observed was a small decrease in the *fraction* of cyclist head injuries that were classified as major following the law's introduction, representing, at most, about five head injuries per year in Seattle that were not elevated to "major." But the study does not control for confounding factors that could have contributed to this change, and given the aforementioned results, this small decrease cannot be attributed to the helmet law. **Overall, we believe that the study does not make a convincing case for the efficacy of the King County helmet law.**

This 2016 study by Kett and colleagues[119] – researchers affiliated with Seattle & King County Public Health and the Harborview Injury Prevention and Research Center in Seattle – reached the following conclusions:

- **Seattle saw a total of 10.3 head injuries per year on average from 2000-2002, before the implementation of the helmet law in 2003, compared to an average of 23.6 head injuries per year afterwards (2004-2010).** An increase was also seen in the average annual number of major head injuries (from 8.7 before to 15.3 after). The authors explain that these changes are likely related to increased bicycling in Seattle, as also suggested by Census bike commuting data from 2005-2010[120].

- The study examines all bicycle-related injuries (including, for example, internal trauma) as well as the subset of all injuries that are head injuries. This comparison effectively uses non-head injuries suffered by cyclists to control for changes in exposure over time (e.g., increases in cycling). The proportion of all bicycle injuries in Seattle that were head injuries did not show a significant change from before the law (average of 38% of all injuries) to after the law (average of 39%), indicating that **the helmet law had no detectable impact on the total number of cyclist head injuries**.

- The only positive effect observed was a slight decrease in the proportion of bicycle-related head injuries classified as "major" (from an average of 84% before the law to 65% after the law), translating to about 5 head injuries per year in Seattle that the authors imply were not elevated to "major" due to the helmet law. However, the significance of this result is questionable, given the substantially larger increase in total bicycle-related head injuries in Seattle that occurred concurrently. As mentioned above, the authors attribute this large increase in total head injuries to an uptick in bicycle riding. Due to the "safety in numbers" effect of increased ridership[121,122] (also see above), it is unlikely that the individual risk profile of a cyclist remained constant over this period during which cycling may have more than doubled in Seattle[123]. **In addition to not controlling for changes in cycling risk associated with increased ridership, the authors do not attempt to control for changes in risk conferred by the construction of a significant amount of bicycle infrastructure projects over the study period.** 180 miles of bike lanes were

[118] Kett et al. (2016). As above.

[119] Ibid.

[120] American Community Survey data (2005-2018), U.S. Census Bureau (accessed May 24, 2021), https://docs.google.com/spreadsheets/d/10f2GLG-Qpnv3PhCWCowqoCbW_QsWf2lHxcbFJPmD6iE/edit#gid=9. Link provided in: Tom Fucoloro, "Census data confirms steady climb in Seattle bike commuting, driving alone now below 50%," *Seattle Bike Blog* (September 19, 2013), https://www.seattlebikeblog.com/2013/09/19/census-data-confirms-steady-climb-in-seattle-bike-commuting-driving-alone-now-below-50/.

[121] "Bicycling and walking in the United States: 2018 benchmarking report, 6th Ed.," League of American Bicyclists. As above.

[122] Aldred et al. (2019). As above.

[123] American Community Survey data (2005-2018), U.S. Census Bureau. As above.

constructed in Seattle from 2006-2011 alone[124]. The authors' failure to account for this in their methodology is far from trivial: safety-oriented bicycle infrastructure projects have been shown to substantially reduce the likelihood of serious injury and fatality for cyclists (see above).

- **The authors observe no changes in helmet use among injured cyclists that can be attributed directly to the introduction of the helmet law in Seattle.** Among cyclists admitted to a hospital for bicycle-related injuries, the proportion of helmet-wearers in Seattle increased by 29% over the study period (from 39% to 68% over 2000-2010), compared to a similar – and slightly larger – increase of 34% in King County outside of Seattle (from 26% to 60% over that period). Given that King County outside of Seattle saw no change to its helmet mandate over this period, while Seattle saw the introduction of a helmet mandate in 2003, this suggests that factors other than enactment of a new helmet mandate in Seattle led to substantially greater helmet use in both locales, and that the helmet law's extension to Seattle had no discernible impact on helmet use rates among injured cyclists. **This finding alone should fully negate their attribution of a slight decrease in head injury severity in Seattle (compared to King County outside of Seattle) to the extension of the helmet law to Seattle in 2003.**

We emphasize that the current state of bicyclist safety in King County is troubling and deserves attention from Seattle & King County Public Health. While bicyclists are involved in only 3% of roadway crashes in Seattle, they represent a much larger percentage of serious (9%) and fatal (14%) events[125]. People riding bicycles in Seattle experience an average of about 30 serious or fatal roadway crashes annually[126], contributing about two-thirds of the serious or fatal collisions experienced by bicyclists in King County as a whole, which saw 2-3 cyclist deaths and 42 serious injuries annually from 2013-2016[127]. **We believe it is time for cities across King County to invest in effective, evidence-based strategies to lower the numbers of bicyclists injured or killed on our streets, such as those discussed above that aim to prevent road collisions from occurring in the first place.**

[124] "Okay, fine, it's war," *The Stranger* (September 14, 2011), https://www.thestranger.com/seattle/okay-fine-its-war/Content?oid=9937449.

[125] "City of Seattle bicycle and pedestrian safety analysis," Seattle Department of Transportation (September 2016), https://www.seattle.gov/Documents/Departments/beSuperSafe/BicyclePedestrianSafetyAnalysis.pdf.

[126] "City of Seattle bicycle and pedestrian safety analysis: Phase 2," Seattle Department of Transportation (February 2020), http://www.seattle.gov/Documents/Departments/SDOT/VisionZero/SDOT_Bike%20and%20Ped%20Safety%20Analysis_Ph2_2420(0).pdf.

[127] Washington Traffic Safety Commission (September 2017), from "Bike helmets and bicycle safety," King County (accessed May 19, 2021), https://kingcounty.gov/depts/health/violence-injury-prevention/traffic-safety/bicycle-safety.aspx.

Can helmet laws have unintended effects?

Yes. As discussed previously, helmet laws may have unintended negative impacts on safety and population health:

- Studies drawing from multiple lines of evidence (observational, hospital, and survey data) indicate that helmet legislation has depressed rates of bicycle ridership in some locales, as discussed above.

- Decreased ridership will impact the safety of cyclists as a whole within a population due to the "safety in numbers effect" (see above). There is evidence that this may also lead to an unintended net negative impact on population health due to foregone exercise (see above).

Additionally, helmet laws run into conflict with bike share programs. For example, King County's helmet law has been cited as a contributing factor in the demise of Seattle's Pronto bike share system in 2017[128,129,130]. In another instance, the incompatibility of bike share with helmet enforcement led Mayor Bloomberg of New York City to oppose a city councilmember's helmet law proposal in 2014 in part due to concerns that it would undermine the city's new Citi Bike system[131]. Some have pointed out that differential enforcement of helmet laws for bike share users creates a problematic legal double standard[132]:

> *"Public health entities throughout the U.S. recommend the use of bicycle helmets, yet bike-shares, which are often public/private partnerships that have, at the very least, permission from local governments to operate, increase the number of cyclists on the streets without more than cursory attempts to ensure that they wear head protection. This, on the face of it, is quite at odds with policies that impose fines and even prison time for not wearing bike helmets."*

Furthermore, the cost of helmets represents an unequal burden for lower-income individuals. While some programs exist in King County for the provision of low-cost, subsidized helmets[133], the points of access for these programs are geographically sparse and, from our discussions and outreach efforts, it was clear that many residents are unfamiliar with these programs. In actuality, the cost of a helmet can be substantial[134]:

> *"It is important to realise that many people are unlikely to skimp when they buy helmets. This is because canny marketing campaigns will lead people to believe, probably erroneously, that the more expensive helmets offer extra levels of protection. Of course, this does not matter too much for those who belong to higher socio-economic groups because even a price tag of $50–$150 will not represent a serious cost. However, for less economically advantaged individuals... this 'extra' cost may well be prohibitive."*

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[128] Tom Fucoloro, "Times: King County's adult helmet law could hold back Seattle's new bike share system," *Seattle Bike Blog* (December 19, 2016), https://www.seattlebikeblog.com/2016/12/19/times-king-countys-adult-helmet-law-could-hold-back-seattles-new-bike-share-system/.

[129] Angie Schmitt, "Helmet scolds could unwittingly undermine bike safety in Seattle," *Streetsblog USA* (September 5, 2017), https://usa.streetsblog.org/2017/09/05/helmet-scolds-could-unwittingly-undermine-bike-safety-in-seattle/.

[130] Josh Cohen, "Did Seattle's mandatory helmet law kill off its bike-share scheme?," *The Guardian* (April 18, 2017), https://www.theguardian.com/cities/2017/apr/18/seattle-mandatory-helmet-law-kill-bike-share-scheme.

[131] Bateman-House (2014). As above.

[132] Bateman-House and Bachynski, "Putting local all-ages bicycle helmet ordinances in context," *Journal of Law, Medicine, and Ethics* (2019), 47(2), 291–293, https://dx.doi.org/10.1177/1073110519857284.

[133] "Free and low-cost bicycle helmet resources in King County, Washington," King County (accessed May 24, 2021), https://kingcounty.gov/depts/health/violence-injury-prevention/traffic-safety/~/media/depts/health/violence-injury-prevention/documents/low-cost-bike-helmet-providers.ashx.

[134] Hooper and Spicer, "Bike helmets: a reply to replies," *Journal of Medical Ethics* (2015), 41(8), 719–720, https://jme.bmj.com/content/41/8/719.

Cost and other barriers to access may decrease the efficacy of helmet legislation, the impacts of which have been shown to be more durable in higher-income areas than lower-income areas. A study in Toronto, for example, found that rates of helmet use in low-income areas, but not high-income areas, had returned to pre-legislation levels six years after the passage of a youth-only helmet law[135].

Helmets are less accessible for those with big or styled hair; this disproportionately impacts Black individuals. For people with big hair (e.g., afros, locks, braids) or hair that is intentionally styled (e.g., curls, mohawks), finding a bicycle helmet that can accommodate one's hair can be challenging or impossible[136,137,138]. This tends to affect women and Black individuals more than others, and Black women especially. Wearing a helmet also makes one's hair less tidy, a phenomenon known as "helmet hair." This, too, has a disproportionate effect, as Black women are judged more harshly by society for personal grooming that is perceived as deviating from professional standards[139].

The enforcement of helmet legislation contributes to the perpetuation and criminalization of poverty. While the fine for a helmet citation in King County is $30[140], the total burden in Seattle is a minimum of $104 including Seattle Municipal Court fees, or $154 including default penalties that are frequently added[141]. This sum represents a substantially larger burden. Similar helmet citation fines are assessed in King County cities outside of Seattle. In most King County cities with available records, the majority of fines have gone unpaid and are presumably sent to collections (for more information, see detailed statistics below). This suggests that citations predominately burden low-income riders.

As discussed above, it has been argued that helmet legislation has led to a rhetorical focus on helmets as a primary mode of injury prevention, and that this has been a "dangerous fixation" that has in fact stymied efforts to achieve safer conditions for cyclists through more effective interventions[142]. A recent analysis found that disproportionate media coverage of cyclist fatalities may create feedback loops that inhibit cycling growth by warping risk perception, that is, broadcasting the message that cycling is a terribly dangerous activity when that is not the case[143]. This media coverage often focuses on whether a cyclist wore a helmet[144], a form of victim-blaming, while autopsy reports indicate that helmet use would not have prevented death in the majority of cyclist fatalities[145].

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[135] Macpherson et al., "Economic disparity in bicycle helmet use by children six years after the introduction of legislation," *Injury Prevention* (2006), 12, 231–235, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2586775/.

[136] Kristin Collins Jackson, "How to make a helmet work with your afro," *Bustle* (July 25, 2016), https://www.bustle.com/articles/173930-7-tips-for-wearing-a-helmet-with-afro-textured-hair-photos.

[137] "Styling natural hair for cycling," *Keep it Simpelle* (accessed May 24, 2021), https://www.keepitsimpelle.com/natural-hair-styles-cycling/.

[138] Tweet by Cathasach O'Neill [user @cathasach4bikes], Twitter (April 21, 2021, accessed May 24, 2021), https://twitter.com/cathasach4bikes/status/1385016677939781633.

[139] Powell, "Bias, employment discrimination, and Black women's hair: another way forward," *Brigham Young University Law Review* (2019), 2018(4), https://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?article=3177&context=lawreview.

[140] "Title 9: bicycle helmets," King County Board of Health Code (last updated on November 20, 2013; accessed on May 24, 2021), https://kingcounty.gov/depts/health/board-of-health/~/media/depts/health/board-of-health/documents/code/BOH-Code-Title-9.ashx.

[141] We identified this by searching for citation numbers associated with helmet law violations in the Seattle Municipal Court citation information portal, accessed at https://web6.seattle.gov/courts/ECFPortal/default.aspx. The default penalty of $52 is applied if a defendant fails to respond with 19 days of receiving a citation, according to: "Inventory of criminal and infraction fines and fees at Seattle Municipal Court," Seattle Municipal Court (August 2017), https://www.seattle.gov/Documents/Departments/Court/SMCFineandFeeInventoryCompiledAug2017.pdf.

[142] Culver (2018). As above.

[143] Macmillan et al., "Trends in local newspaper reporting of London cyclist fatalities 1992-2012: the role of the media in shaping the systems dynamics of cycling," *Accident Analysis and Prevention* (2016), 86, 137–145, https://www.sciencedirect.com/science/article/pii/S0001457515300981.

[144] Culver (2018). As above.

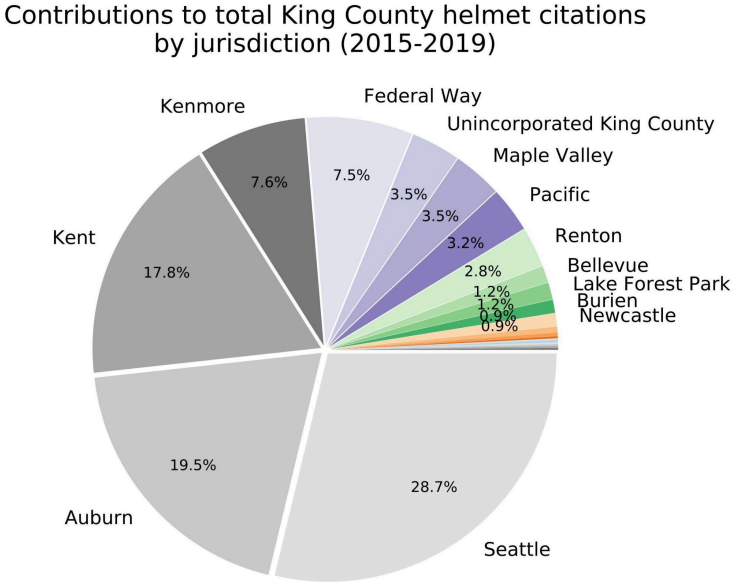
[145] Bíl et al. (2018). As above.

How frequently do police enforce the King County helmet law?

In Seattle, police have issued between 3,000 and 3,500 helmet citations from 2003-2020, an average rate of about 180 tickets per year. Our analysis of bicycle citation records obtained from the Seattle Municipal Court, detailed in a preliminary technical report[146], found that Seattle police issued about 5,900 bicycle-related citations from 2003-2020 (including those for violations other than helmet noncompliance). Due to court records retention practices, only about 3,000 citation records were provided to us. Of those records provided, 54.9% were helmet infractions, indicating that **helmet-related stops are the most common way that people riding bicycles come into contact with police.** This proportion leads to the estimate of 3,000-3,500 helmet citations from 2003-2020. For unclear reasons, the number of helmet citations issued per year in Seattle has declined steadily since 2011 (when 607 helmet citations were issued) to a rate of about 20-50 citations issued annually in recent years[147].

Most police contacts for helmet enforcement result in the issuance of a warning, rather than a citation. We believe the fraction of police contacts that result in a helmet citation could be as low as 1/30 or as high as 1/6 of all helmet-related stops (see calculation below). In any case, the number of police stops related to helmet violations is likely far greater than the number of citations issued. At the same time, the chance of being stopped for not wearing a helmet is very low. We estimate above that current rates of police contacts resulting from helmet violations in Seattle could range from a low value of 0.004% of all helmetless trips (including bike share trips, and using low-end estimates of enforcement frequency) to a high value of 0.2% of all helmetless trips (not including bike share trips, and using high-end estimates of enforcement frequency).

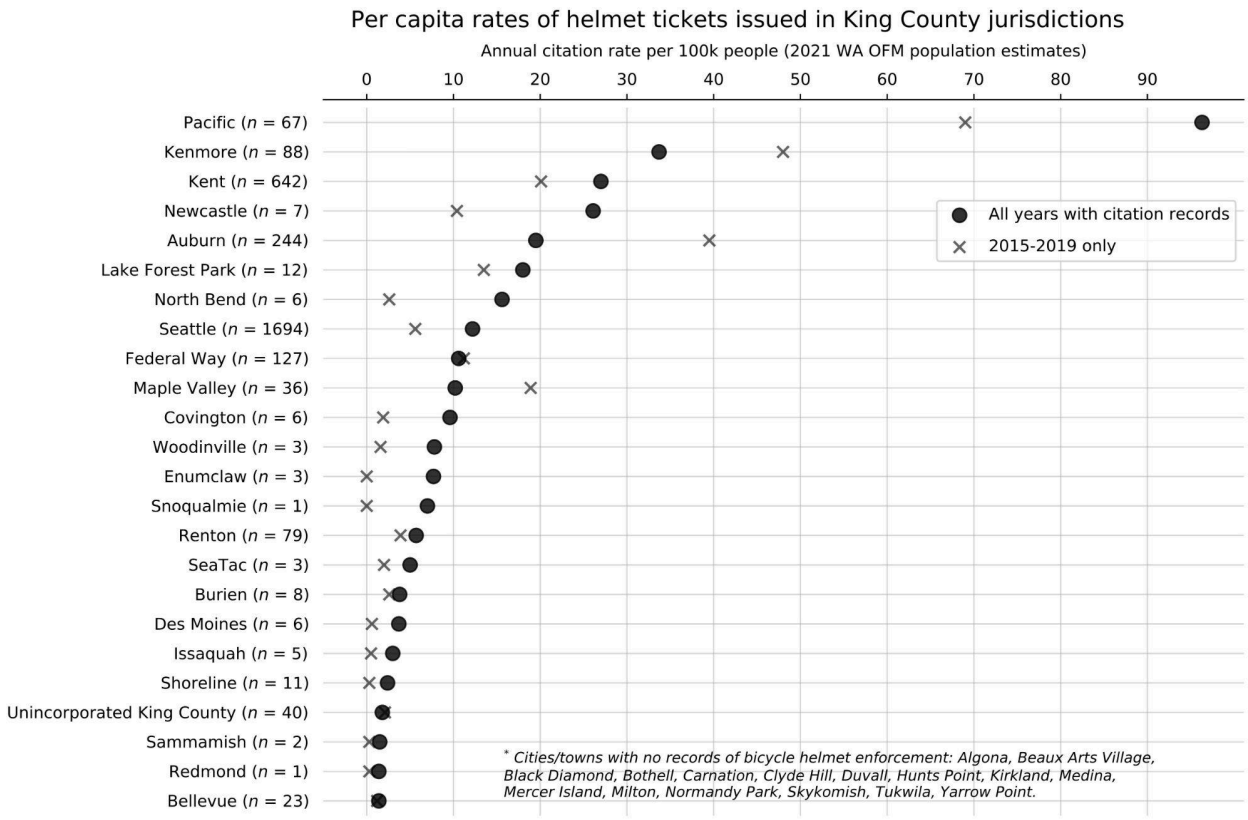
In King County cities outside of Seattle, helmet citations represent 71.8% of all citations issued to bicyclists from 2003-2021, indicating that helmet-related stops are likewise the most common form of police contact for bicyclists in King County outside of Seattle[148]. Out of all King County jurisdictions, the largest number of helmet citations have been issued in Seattle, Auburn, Kent, Kenmore, Federal Way, unincorporated King County, Maple Valley, Pacific, and Renton in recent years (2015-2019; see figure at right).



[146] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.

[147] Ibid. The report discusses whether the recent decrease in helmet ticketing could be related to the advent of bicycle share programs in Seattle. We conclude that this hypothesis is unlikely, as rates of enforcement had already begun to decline prior to the launch of Seattle's first bike share system, which itself provided helmets, and were substantially lower than the 2011 peak in enforcement by the introduction of dockless bike share in 2017.

[148] Statistics for King County cities outside of Seattle are based on 1,975 bike-related citations from 2003-2021 compiled and homogenized from public records obtained from the Washington State Administrative Office of the Courts (which includes records from King County District Court and various municipal courts), Des Moines Municipal Court, Federal Way Municipal Court, Kent Municipal Court, Renton Municipal Court, SeaTac Municipal Court, and King County Sheriff's Office. These analyses are preliminary and subject to change.



Per capita rates of helmet enforcement vary widely across jurisdictions in King County. As shown in the figure above, some cities have higher per capita rates of enforcement than Seattle – Pacific, Kenmore, Kent, Newcastle, Auburn, Lake Forest Park, and North Bend. The chart compares citation rates from all years (solid circles) and recent years only (2015-2019; lighter crosses), showing that recent citation rates are generally lower than previous years' citation rates in most jurisdictions. Note that the rates shown in the figure are normalized by population, not bicycle trips. Ridership is likely higher in Seattle than most other King County cities, and so rates of helmet enforcement per bicycle trip within those cities compared to Seattle's rates are probably broadly higher than this figure suggests.

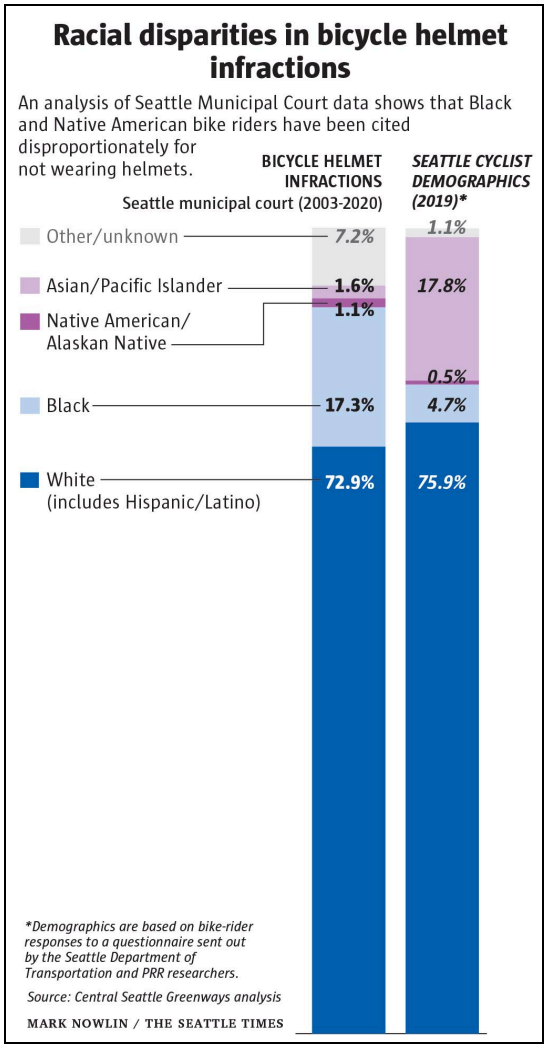
19 of the 39 cities and towns in King County have separate all-ages helmet laws in their municipal or city codes that either mirror the language of the county-wide helmet law or adopt it by reference. For a complete list of these cities, see below. Based on the available citation records, jurisdictions that generally (over ~80% of the time) have cited their municipal helmet law include: Auburn, Bellevue, Des Moines, Enumclaw, Federal Way, Issaquah, Kent, Lake Forest Park, Maple Valley, Pacific, Renton, SeaTac, Snoqualmie – a significant majority of the jurisdictions that have a municipal helmet law. On the other hand, jurisdictions that generally (over ~80% of the time) have cited the King County helmet law include: Covington, Kenmore, Newcastle, North Bend, Redmond, Sammamish, Seattle, Shoreline, Woodinville, and unincorporated King County.

Who has received tickets for not wearing a helmet?

In Seattle, nearly half of all helmet citations since 2017 were issued to people experiencing homelessness. Since 2003, Black cyclists in Seattle have received citations at a rate 3.8 times higher, Indigenous cyclists 2.2 times higher, and Hispanic/Latino cyclists 1.4 times higher than white cyclists.

- Investigative reporting in Crosscut[149] analyzed 117 helmet citation records from the Seattle Municipal Court from 2017-2020. By matching the home addresses of defendants with addresses of homeless shelters or service providers as well as cross-referencing defendant names with other records, it was found that at least 43% of citations since 2017 (and 60% since 2019) were issued to people experiencing homelessness. The report notes that these estimates are almost certainly an undercount.

- Our analysis[150] compares the racial demographics from 1,668 helmet citation records from 2003-2020 obtained from the Seattle Municipal Court with an estimate of the demographics of Seattle cyclists on an approximate per-trip basis, constructed from three population surveys of Seattle residents. For more details, see our technical report. The *Seattle Times* graphic at right summarizes our findings[151]. Disaggregated rates of citations for Hispanic/Latino cyclists, who are classified as "white" in court records, were estimated using defendant names applied to three race/ethnicity classification algorithms trained on Census and voter registration data[152].

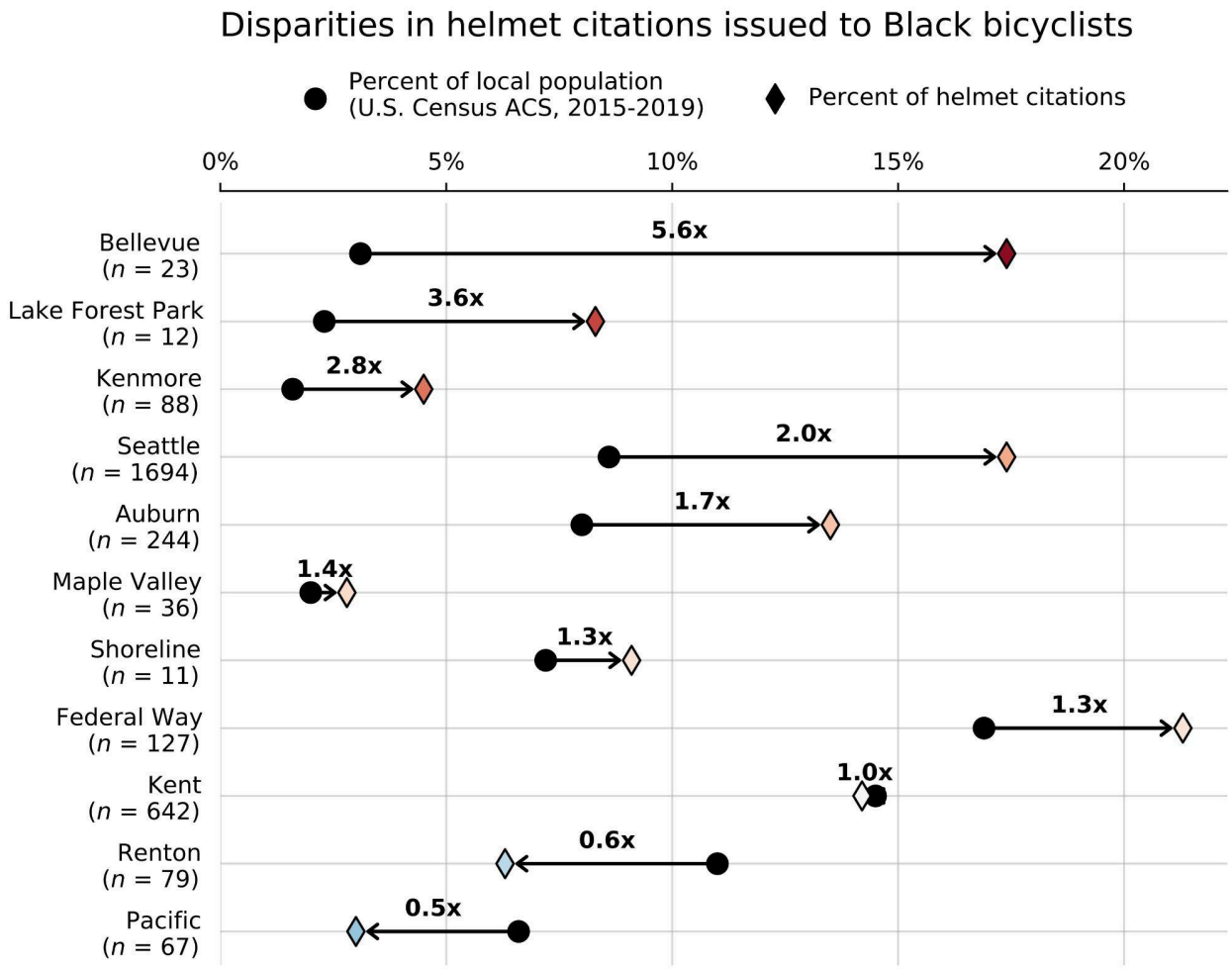


[149] David Kroman, "Nearly half of Seattle's helmet citations go to homeless people," *Crosscut* (December 16, 2020), https://crosscut.com/news/2020/12/nearly-half-seattles-helmet-citations-go-homeless-people.

[150] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.

[151] Michelle Baruchman, "Racial disparities prompt calls to repeal King County's bicycle helmet law," *Seattle Times* (Feb. 19, 2021), https://www.seattletimes.com/seattle-news/transportation/racial-disparities-prompt-calls-to-repeal-king-countys-bicycle-helmet-law/.

[152] This portion of the analysis is not detailed in the technical report. We average the result of three algorithms that infer race/ethnicity from defendant names: a last name matching model trained on 2010 U.S. Census data, a second predictive algorithm using last names trained on the same data set, and a third predictive algorithm using full names that was trained on Florida voter registration data. Using 1,472 bicycle-related citations that were provided with full defendant names, the three algorithms estimated the Hispanic/Latino share of all citations to be 9.4%, 11.1%, and 8.0%, respectively, and reproduced known proportions of Black and Asian/Pacific Islander defendants to within 3% and 1%, respectively. We use the average of the three Hispanic/Latino estimates, which is 9.5%. The three algorithms are detailed in: Sood and Laohaprapanon, "Predicting race and ethnicity from the sequence of characters in a name," *arXiV* (May 8, 2018), 1805.02109, https://arxiv.org/abs/1805.02109v1.



* *Note: only cities/towns with at least 10 helmet citation records are shown.*

In King County cities outside of Seattle, racial disparities in helmet citations vary across a wide range. The figure above compares the Census demographics for Black residents of King County cities with the percent of helmet citations issued to Black bicyclists in those cities based on the records compiled from King County district and municipal courts and the King County Sheriff's Office (see earlier footnote for more information). Disparities vary across a wide range, but three cities have worse disparities than Seattle (Bellevue, Lake Forest Park, and Kenmore). Out of the 11 cities with at least 10 helmet citations in the compiled records, Black cyclists are cited at rates higher than their share of the population in 8 of those cities. Unincorporated King County was not assessed due to a lack of matched census data.

Why have certain populations received helmet citations more than others?

In general, disparities in infractions can arise from situations of equitable enforcement if different demographic groups commit a certain offense at different rates, or commit a certain offense at the same rate but have different levels of exposure to policing. **These explanations, however, cannot fully account for the stark disparities in helmet citation issuance in Seattle by race and housing status.** Here is why:

- **Our analysis of racial disparities in helmet citations takes into account differences in cycling frequency.** We quantify differences in the frequency of cycling between demographic groups in Seattle, and find that Black, Hispanic/Latino, Asian/Pacific Islander, and Indigenous cyclists in Seattle are all underrepresented to varying degrees when compared to their census distributions[153]. While our analysis does not account for different average trip lengths or durations, we do not have a reason to believe that Black, Hispanic/Latino, and Indigenous bicyclists take dramatically longer (or shorter) trips than white cyclists on average.

- **Rates of citations issued to Black cyclists compared to white cyclists remain disproportionate after accounting for possible differences in helmet use rates.** While demographic data on helmet use is not available for Seattle or King County, some estimates are available for other U.S. locations and the U.S. as a whole. An observational study in a southeastern U.S. city[154] found that rates of helmet use among white cyclists were 10% higher than for Black cyclists. Weighted results from a national survey[155] found no (0%) difference in the fraction of Black and white adult respondents who always wear a helmet, while an earlier national survey[156] found that rates of helmet use among white youth (ages 5-14) were 12% higher than for Black youth. While hospital records of trauma patients appear to suggest larger Black-white disparities in helmet use[157], we note that the chance of hospital admission is affected by correlated factors other than helmet use (as an example, bicyclists who are least able to afford a helmet may disproportionately ride for purposes of transportation on the busiest, most dangerous streets, and may be disproportionately Black; also see above). Thus we use the observed average city-wide helmet use of 87% in Seattle[158] and assume a 10% Black-white difference in helmet use, which would imply approximate helmet use rates of 88% among white, non-Hispanic cyclists and 78% among Black cyclists given those groups' relative cycling frequencies in Seattle (and neglecting other demographic groups)[159]. **Under a situation of equitable enforcement, these rates of helmet use would result in a Black-white citation disparity of 1.8x, thus explaining 47% of the total disparity (3.8x) assuming a 10% Black-white difference in helmet use rates, which is larger than a national survey-based estimate.** We note that actual average city-wide helmet use is likely lower than 87% (see above), in which case 47% would be an overestimate. However, we emphasize that precise rates of helmet use within demographic groups in Seattle are not known, and so

[153] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.

[154] Cathorall et al., "Prevalence and predictors of bicycle helmet use in a southeastern, US city," *International Journal of Injury Control and Safety Promotion* (2016), 23(4), 400–404, https://www.tandfonline.com/doi/abs/10.1080/17457300.2015.1047868.

[155] Jewett et al., "Bicycle helmet use among persons 5 years and older in the United States, 2012," *Journal of Safety Research* (2016), 59, 1–7, https://www.sciencedirect.com/science/article/pii/S002243751630278X.

[156] Dellinger and Kresnow, "Bicycle helmet use among children in the United States: The effects of legislation, personal and household factors," *Journal of Safety Research* (2010), 41(4), 375–380, https://pubmed.ncbi.nlm.nih.gov/20846554/.

[157] Chen et al., "Race and insurance status as predictors of bicycle trauma outcome in adults," *Journal of Surgical Research* (2020), 245, 198–204, https://www.journalofsurgicalresearch.com/article/S0022-4804(19)30558-X/.

[158] Mooney et al. (2019). As above.

[159] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.

this calculation is only approximate. Due to a lack of baseline data on helmet use, we have not performed a similar calculation for the disparities in citations issued to Hispanic/Latino and Indigenous cyclists.

- **The fraction of citations issued to homeless cyclists remains disproportionate after accounting for probable differences in cycling rates and helmet use between homeless and non-homeless riders.** Data on rates of bicycling and helmet use among homeless individuals in King County are not available. However, estimates of homeless cycling rates from other cities are informative: a study of homeless adults in Long Beach, CA found that 5% of trips were taken by bicycle[160]; interviews with homeless individuals in Toronto found that biking was the primary means of transportation for 11% of those surveyed, that biking constituted about 10% of all trips, that 25% owned a bicycle, and that 43% of those who owned a bicycle rode 7 days a week[161,162]; and a study of homeless individuals in and around shelters in a mid-sized city in South Carolina found that 9% used a bicycle as their primary mode of transportation[163]. For the purposes of this estimate, we presume helmet use to be minimal among homeless individuals. The 2020 point-in-time count of the homeless population in King County found about 8,300 homeless individuals in Seattle[164]. Assuming a high-end estimate of 15% of homeless individuals riding, on average, 3 days per week, twice per day (i.e., one round trip), this would result in about 400,000 annual (helmetless) bicycle trips by homeless riders in Seattle. Given an estimate of 8 million annual bicycle trips in Seattle among all riders[165], an average helmet use rate of 87%[166] would translate to 1 million helmetless rides annually. This statistic does not include homeless riders, who are not likely to be well-represented in the four observational count locations of the study cited; bike share is also not included, as helmet enforcement is presumed to be minimal for bike share users. In this comparison, which adopts the most extreme assumptions for nearly all unmeasured variables, homeless riders would receive 27% of all citations under a situation of equitable enforcement. **Even this extreme scenario does not fully explain the high rate of helmet citation issuance to homeless individuals—homeless bicyclists do not generate enough helmetless trips to merit about half of all citations**. In actuality, we anticipate that average bicycle trip lengths for homeless individuals are shorter than those for housed individuals (leading to reduced exposure to policing), some homeless bicyclists likely use a helmet (rather than 0% of homeless riders), the fraction of the homeless population that rides bicycles is probably lower than the high-end estimate of 15%, the total annual bicycle trips in Seattle may be much higher than 8 million (which was estimated using 2013 data with conservative assumptions), and actual average city-wide helmet use is likely lower than 87% (see above).

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[160] Jocoy and Del Casino, "Homelessness, travel behavior, and the politics of transportation mobilities in Long Beach, California," *Environment and Planning A: Economy and Space* (2010), 42(8), 1943–1963, https://journals.sagepub.com/doi/abs/10.1068/a42341.

[161] Hui, "Role of urban transportation through the lens of homeless individuals: a case study of the city of Toronto," Master's Thesis, Department of Civil Engineering, University of Toronto (2015), https://tspace.library.utoronto.ca/handle/1807/70394.

[162] Hui and Habib, "Homelessness vis-à-vis transportation-induced social exclusion: an econometric investigation of travel behavior of homeless individuals in Toronto, Canada," *Transportation Research Record* (2017), 2665(1), 60–68, https://journals.sagepub.com/doi/abs/10.3141/2665-07.

[163] Brallier et al., "Rolling forward: addressing needs in the homeless community," *Journal of Social Distress and Homelessness* (2019), 28(2), 186–192, https://www.tandfonline.com/doi/full/10.1080/10530789.2019.1646477.

[164] "Seattle/King County point-in-time count of individuals experiencing homelessness," Vega Nguyen Research and All Home King County (2020), https://regionalhomelesssystem.org/wp-content/uploads/2020/07/Count-Us-In-2020-Final.pdf.

[165] This estimate of 8 million annual trips was computed using the 2013 SDOT/EMC bicycle survey data, available at: Seattle Department of Transportation/EMC Research, *Third Bicycle Participation phone survey* (September 2013), https://www.seattle.gov/Documents/Departments/SDOT/BikeProgram/13-5004bikesdotcrosstab.pdf. We adopt the following conservative correspondences for reported bicycling frequency: "a few times a year" (= 2/year), "a few times a month" (1.5/month), "a few times a week" (1.5/week), "daily" (3/week), and scale the resulting estimate using a Seattle population of 625,000 as of 2013. We believe the total of 8 million trips per year is likely an underestimate, given increases in cycling since 2013. For comparison, individual bicycle counters in Seattle show total annual volumes of similar magnitude, e.g., 1.2M at Fremont Bridge, 0.3M at Spokane Street Bridge, 0.4M at the Elliott Bay Trail, 0.6M at the 2nd Avenue Protected Bike Lane, 0.2M at I-90 Trail, 0.4M at the Burke-Gilman Trail north of NE 70th Street, which sum to 3.1M unique trips annually at just these points, assuming a cyclist will pass one or fewer counters on an average ride. Bicycle counter data for 2019 were obtained from: Tom Fucoloro, "Seattle's 2019 bike boom in 6 charts + Where should Seattle's next bike counters go?," *Seattle Bike Blog* (January 6, 2020), https://www.seattlebikeblog.com/2020/01/06/seattles-2019-bike-boom-in-6-charts-where-should-seattles-next-bike-counters-go/.

[166] Mooney et al. (2019). As above.

If differences in cycling rates and helmet use between demographic groups cannot explain the disparities in enforcement, what can explain them? We believe the answer is most likely uneven and/or biased policing. To start, police officers do not randomly patrol a city[167]:

> *"A department will deploy its officers based primarily on calls for service. Areas that are densely populated and have more commercial activity tend to have more calls for service and so more officers will be deployed there. … If there are more officers in an area, there will be a greater chance that they will observe suspicious activity or criminal acts and so there is a greater chance of an individual being stopped."*

In Seattle, the neighborhoods with the highest percentage of minority residents are characterized by a higher-than-average population density, lower household income, and lower educational attainment[168]. The latter two factors often correlate with crime rates[169,170]. This suggests the potential for increased calls for service and thus uneven policing, concentrated disproportionately in minority neighborhoods. However, reported crime rates appear to be only weakly related to the geography of communities of color in Seattle[171,172]. With the caveat that we do not have data on patterns of policing at the beat or precinct level in Seattle, this suggests that geographically uneven policing at the neighborhood level (i.e., "over-policing" of certain neighborhoods) may not be a primary cause of the racial disparities in helmet citations. However, geographically uneven policing at smaller geographic scales may still influence racial disparities in citations, and at all scales, uneven exposure to policing may contribute to the high fraction of citations issued to homeless individuals.

Disparities in policing may also manifest from encounters at the individual level. In its 2011 investigation into the Seattle Police Department that led to the opening of a consent decree, the U.S. Department of Justice wrote[173]:

> *"... SPD officers may conduct a disproportionate number of street checks on people of color in certain precincts when compared to population percentages. For example, in the East precinct, non-whites make up only 33% of the population, however, they made up 64% of the street checks. Similarly, in the West precinct, non-whites only make up 26% of the population, but made up 47% of the street checks. In the Southwest precinct, non-whites make up 32% of the population, but made up 49% of the street checks."*

As previously discussed, even after accounting for differences in underlying disparities in crime, demographics, or socioeconomic factors in Seattle, an individual's race alone is predictive of the likelihood of being stopped and frisked by Seattle police as a driver or pedestrian[174]. **This evidence on inequities in police stops by Seattle police raises concerns that the disparities in helmet citations are likely related to biases in who police tend to stop, as well as biases in the outcomes of stops (i.e., whether a citation or warning is issued).**

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[167] "Demographic disparity analysis of law enforcement data from the Spokane Police Department," Police Strategies LLC (January 2021), https://static.spokanecity.org/documents/opendata/spd/spokane-pd-disparity-report-police-strategies-llc-jan-2021.pdf.

[168] "Growth and equity: analyzing impacts on displacement and opportunity related to Seattle's growth strategy," Seattle Office of Planning & Community Development (May 2016), http://www.seattle.gov/documents/departments/opcd/ongoinginitiatives/seattlescomprehensiveplan/finalgrowthandequityanalysis.pdf.

[169] Kelly, "Inequality and crime," *The Review of Economics and Statistics* (2000), 82(4), 530–539, https://direct.mit.edu/rest/article/82/4/530/57217/Inequality-and-Crime.

[170] Lochner, "Education and crime," Ch. 9, in Bradley and Green, eds., "The economics of education" (2020), Academic Press, https://www.sciencedirect.com/science/article/pii/B9780128153918000094.

[171] "Growth and equity…," Seattle Office of Planning & Community Development. As above.

[172] Gene Balk, "'Mean world syndrome': In some Seattle neighborhoods, fear of crime exceeds reality," *Seattle Times* (June 28, 2018), https://www.seattletimes.com/seattle-news/data/mean-world-syndrome-in-some-seattle-neighborhoods-fear-of-crime-exceeds-reality/.

[173] "Investigation of the Seattle Police Department," Civil Rights Division, United States Department of Justice (December 2011), https://www.justice.gov/sites/default/files/crt/legacy/2011/12/16/spd_findletter_12-16-11.pdf.

[174] "Tenth Systemic Assessment: Stops, search, and seizure," Seattle Police Monitor. As above.

This is ultimately unsurprising. Low rates of enforcement relative to the nearly one million helmetless personal bicycle trips that occur annually in Seattle (see calculation above) imply that **stops for helmet violations are highly discretionary**. A Seattle Police Department spokesperson has acknowledged this[175]:

> *"Do we write tickets? Yes, from time to time. We have the discretion to either write a citation or explain the laws and road safety and provide a warning. I think officers probably do the latter more."*

When enforcement is highly discretionary, existing biases are more easily introduced and magnified. Abundant research has shown that biases in policing can arise from both explicit prejudice as well as deep-seated implicit biases that associate Black individuals with crime[176,177]. Structural aspects of policing's mission to reduce "urban disorder" can also lead to a systematically punitive approach to interactions with people experiencing homelessness[178,179].

[175] David Gutman, "Helmets may be Seattle law, but many bike-share riders don't wear them," *Seattle Times* (August 19, 2017), https://www.seattletimes.com/seattle-news/transportation/helmets-may-be-seattle-law-but-many-bike-share-riders-dont-wear-them/.

[176] Weir, "Policing in black and white," *American Psychological Association* (2016), 47(11), 36, https://www.apa.org/monitor/2016/12/cover-policing.

[177] Fridell, "The science of implicit bias and implications for policing," in "Producing bias-free policing," SpringerBriefs in Criminology (2017), Springer, 7–30, https://link.springer.com/chapter/10.1007/978-3-319-33175-1_2.

[178] Herring et al., "Pervasive penalty: how the criminalization of poverty perpetuates homelessness," *Social Problems* (2020), 67(1), 131–149, https://academic.oup.com/socpro/article/67/1/131/5422958.

[179] Sylvestre, "Policing the homeless in Montreal: is this really what the population wants?," *Policing and Society* (2010), 20(4), 432–458, https://www.tandfonline.com/doi/abs/10.1080/10439463.2010.523114.

If enforcement rates are low, why should one care about repealing the helmet law?

Despite low enforcement rates at present in Seattle (see above), the helmet law can still cause harm in a number of ways:

- **The number of police stops related to helmet violations is likely far greater than the number of citations issued.** As a Seattle Police Department spokesperson acknowledged (see above), helmet-related stops can lead to the issuance of a citation or a warning. It is unclear how officers make these decisions. The number of warnings issued from helmet stops is probably an order of magnitude greater than the number of citations, representing more frequent police contacts than citation records suggest. Seattle PD records from 2019 to 2021 show that the total number of contacts arising from the helmet law is, at minimum, six times greater than the number of citations issued over that period[180]. As many stops are not documented, this is likely a gross underestimate. Additional lines of evidence suggest this is the case. In the city of Burien, only about 4% of contacts due to pedestrian- and bicycle-related violations result in a citation being issued[181]. In Tampa, FL, an examination by the U.S. Department of Justice found that just 3-5% of cyclists stopped by police for various reasons received a formal citation[182]. Anecdotally, in responses that we have received to our outreach survey (some provided below), we have heard of five first-hand experiences of bicycle-related citations being issued in King County but 15 first-hand experiences of bicycle-related stops resulting in a warning being issued, rather than a citation. These lines of evidence suggest that the number of police contacts resulting from the helmet law is 6-30x greater than the number of citations issued.

- **Police use the helmet law selectively to conduct pretextual or 'mixed-motive' stops.** We have found that police contacts arising from helmet violations in Seattle are predominantly associated with investigative traffic stops. Detailed Seattle PD records from the past two years show that helmet-related stops resulting in a warning, rather than a citation, in which "suspicion" was a factor in the stop are more common than stops that actually led to issuance of a ticket[183]. There are clear examples of the King County helmet law being used for a purpose it was not intended. In 2016, a police dashboard camera video[184] captured a Seattle police officer pulling over and detaining a homeless Black man who was riding a bike without a helmet or lights, using these as an excuse because, as the officer confided to another officer on the scene, the man matched the description of a burglary suspect. In a tense, 19-minute-long encounter that at times appeared close to escalating, the man protested, "There are people all the time riding their bikes without helmets… why are you picking on me? It's racial profiling." In another instance in 2019, a Seattle police officer stopped a homeless man, ostensibly for riding a bicycle without a helmet, while the real motive was to investigate for warrants, search for drugs, and locate an unrelated individual[185]. Short, narrative Field Contact reports by Seattle PD officers include multiple clear examples of helmet

[180] These findings are based on a preliminary analysis of Seattle PD Field Contact entries in Mark 43 Records Management System (RMS) public records from May 7, 2019 to March 26, 2021, compared to Seattle Municipal Court records of all helmet citations during that period.

[181] Theodore (Ted) Boe (Burien PD chief), personal communication with Burien Deputy Mayor Krystal Marx, via Tiffani McCoy, May 18, 2021.

[182] Ridgeway et al., "An examination of racial disparities in bicycle stops and citations made by the Tampa Police Department… ." As above.

[183] See footnote above regarding Seattle PD Field Contact entries from 2019 to 2021.

[184] User SPDwatcher, "Seattle Police cop stops black man for riding a bike with no helmet" [video], YouTube (March 23, 2017, accessed on May 24, 2021), https://youtu.be/Bhew1Q9yLsA?t=189.

[185] Tweet by David Kroman [user @KromanDavid], Twitter (December 17, 2020, accessed May 24, 2021), https://twitter.com/KromanDavid/status/1339692243829985280.

enforcement used as an avenue to effect pretextual stops[186]. This is consistent with findings from other U.S. cities (see above) that Black cyclists are stopped far more frequently on the basis of "suspicion" and "probable cause," as well as growing evidence that helmet laws are frequently used by police outside the U.S. to conduct pretextual stops of cyclists (e.g., in Australia, where helmet violations are issued disproportionately to Aboriginal people)[187]:

> *"[P]olicing policy and practice appears to have become wholly detached from the public safety approach that originally ushered in the MHL (mandatory helmet law) offence and focuses more closely on proactive fines enforcement. ... Under such circumstances the MHL offence becomes little more than an adjunct to street-level police powers unrelated to safety and which are open to arbitrary use as a pretext to stop (and possibly search, question, harass) citizens on grounds that escape any form of meaningful legal accountability. ... [T]his is precisely the way the MHL offence is administered in some areas."*

- **Helmet-related police stops can lead to arrests for outstanding bench warrants, most of which are for low-level offenses.** The police chief of a city in King County has acknowledged that bicycle helmet-related stops can result in an officer checking and running identification, which can pull up outstanding warrants and lead to an arrest[188]. We found examples of this occurring in Puyallup[189,190], which is in Pierce County. In Dallas, TX, reporting found about 1 in every 6 bicycle helmet-related stops and citations was also associated with an arrest[191]. There are millions of outstanding bench warrants in the U.S.[192], the large majority of which are issued for a failure to show in court or to pay fines for minor offenses, often so-called "crimes of poverty" like failing to pay a parking ticket[193]. In 2019, the Seattle Municipal Court held 5,000 hearings to address bench warrants[194], and of the 795 bench warrants issued to King County youth in 2019 for court order violations and failures to appear in court, more than 80 percent were against Black youth, Indigenous youth, and other youth of color[195]. While the situation is King County is not as severe as in places like New Orleans – where 1 in every 7 adults has a warrant out for their arrest, typically for nonviolent offenses like panhandling or fishing without a license[196] – thousands of warrants remain

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[186] This is based on a preliminary analysis of a quasi-random, semi-redacted sample of 40 Seattle PD Field Contact narrative reports of traffic stops of bicyclists from May-July 2019 obtained by public records request.

[187] Quilter and Hogg, "'[I]f it's a public health and safety thing… why not just give the kids helmets?": Policing mandatory helmet laws in New South Wales," *University of New South Wales Law Journal* (2021), 44(2), https://www.unswlawjournal.unsw.edu.au/article/if-its-a-public-health-and-safety-thing-why-not-just-give-the-kids-helmets-policing-mandatory-helmet-laws-in-new-south-wales-advance/.

[188] Theodore (Ted) Boe (Burien PD chief), personal communication with Burien Deputy Mayor Krystal Marx, via Tiffani McCoy, May 18, 2021.

[189] Puyallup Police Department, "Blotter week of March 4th – 10th" [social media post], Facebook (March 11, 2021, accessed on June 5, 2021), https://www.facebook.com/PuyallupPD/posts/blotter-week-of-march-4th-10thdrug-paraphernalia-warrant-210630045231300-blk-9th/1791103804397875/.

[190] Travis Loose, "Officers arrest WA's most wanted, a bad dad, and a bad son: log," *Patch.com: Puyallup, WA* (June 18, 2019), https://patch.com/washington/puyallup/officers-arrest-was-most-wanted-bad-dad-bad-son-log.

[191] Tom Benning, "With Dallas bike helmet law, rules of the ride enforced unevenly," *Dallas Morning News.* As above.

[192] Mike Wagner, Doug Caruso, Daphne Chen, and John Futty, "Tens of thousands of warrants go unfilled in Ohio," *The Columbus Dispatch* (December 2, 2018), https://www.dispatch.com/news/20181202/tens-of-thousands-of-warrants-go-unfilled-in-ohio.

[193] Doug Caruso, Eli Sherman, and Mike Wagner, "Open arrest warrants are rapidly increasing," *The Milford Daily News* (January 20, 2019), https://www.milforddailynews.com/news/20190120/open-arrest-warrants-are-rapidly-increasing.

[194] Anita Khandelwal, King County Department of Public Defense, letter to Seattle City Council and City Attorney Holmes (June 22, 2020), https://defensenet.org/wp-content/uploads/2020/06/6.22.20-Letter-regarding-SMC.pdf.

[195] "Annual report 2021," King County Department of Public Defense (April 2021), https://kingcounty.gov/~/media/depts/public-defense/Documents/2021-DPD-Annual-Report_reduced.ashx.

[196] Richard A. Webster, "One in 7 adults in New Orleans have a warrant out for their arrest, new data shows," *Washington Post* (September 20, 2019), https://www.washingtonpost.com/national/one-in-7-adults-in-new-orleans-have-a-warrant-out-for-their-arrest-new-data-shows/2019/09/20/db85a5c8-da3d-11e9-a688-303693fb4b0b_story.html.

outstanding in Seattle[197]. Police contacts that allow for arrests on bench warrants actualize the criminalization of poverty in multiple ways[198]:

> *"It is important to note that often bench warrants are related to people not paying their fines and fees. ... [C]ourts regularly [issue] warrants for people who owed court debt but failed to appear. Furthermore, recent research found that many people did not receive the notices due to being unhoused or because the court had the wrong address. And, right or wrong, many times people fail to appear in court out of fear of being incarcerated, missing employment, or not having child care. Just because a warrant is issued does not mean that a person has been or will be dangerous."*

- **Research has shown that police stops of youth associated with "proactive policing" cause significant psychological distress that can change one's life trajectory.** A 2019 study found that adolescent Black and Latino boys stopped by police are more likely to engage in delinquent behavior in the following months and years, even after controlling for prior delinquency, and that this is partially mediated by psychological distress (i.e., stress, depression, and anxiety responses)[199]. Similarly, a 2020 study by University of Washington researchers that followed Seattle Public Schools students found that police encounters in childhood increase the risk of arrest in young adulthood for Black youth, but not white youth[200]. This adds to evidence that Black youth are treated more poorly during discretionary police stops, such as those for minor bicycle infractions, as well as evidence that Black boys are more likely to be perceived as older and less innocent than peers of other races during these interactions[201]. Overall, discretionary stops can cause harm and erode trust in the police[202].

- **As detailed <u>above</u>, every minor police stop, including of bicyclists, is inherently dangerous for people of color.** It is for this reason that Seattle Inspector General Lisa Judge, who leads Seattle's civilian police oversight agency, the Office of Inspector General, recently asked the Seattle Police Department to cease conducting routine traffic stops for minor violations[203,204], writing:

> *"Stopping a person is a significant infringement on civil liberty and should be reserved for instances when a person is engaged in criminal conduct that harms others. Stops for government-created requirements like car tabs, with nothing but a potential monetary penalty, do not justify the risk to community or to officers. ... While these interactions may create the potential for a tragic outcome, they also generate an encounter that can impact whether and how community members form negative opinions of the police, which can influence public trust in the department. Researchers have documented that persons stopped for traffic violations are significantly less likely to seek help from the police and/or to report non-crime emergencies than*

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[197] Steve Miletich, "Seattle moves to quash old misdemeanor warrants involving low-level, nonviolent crimes," *Seattle Times* (November 27, 2018), https://www.seattletimes.com/seattle-news/crime/seattle-moves-to-quash-old-misdemeanor-warrants-involving-low-level-nonviolent-crimes/.

[198] Alexes Harris, "Daunte Wright and the grim financial incentive behind traffic stops," *Vox* (April 15, 2021), https://www.vox.com/first-person/22384104/daunte-wright-police-shooting-black-lives-matter-traffic-stops.

[199] Del Toro et al., "The criminogenic and psychological effects of police stops on adolescent black and Latino boys," *Proceedings of the National Academy of Sciences* (2019), 116(17), 8261–8268, .https://www.pnas.org/content/116/17/8261.short.

[200] McGlynn-Wright et al., "The usual, racialized, suspects: the consequence of police contacts with Black and white youth on adult arrest," *Social Problems* (2020), spaa042, https://academic.oup.com/socpro/advance-article/doi/10.1093/socpro/spaa042/5953172.

[201] Goff et al., "The essence of innocence: consequences of dehumanizing Black children," *Journal of Personality and Social Psychology* (2014), 106(4), 526–545, https://pubmed.ncbi.nlm.nih.gov/24564373/.

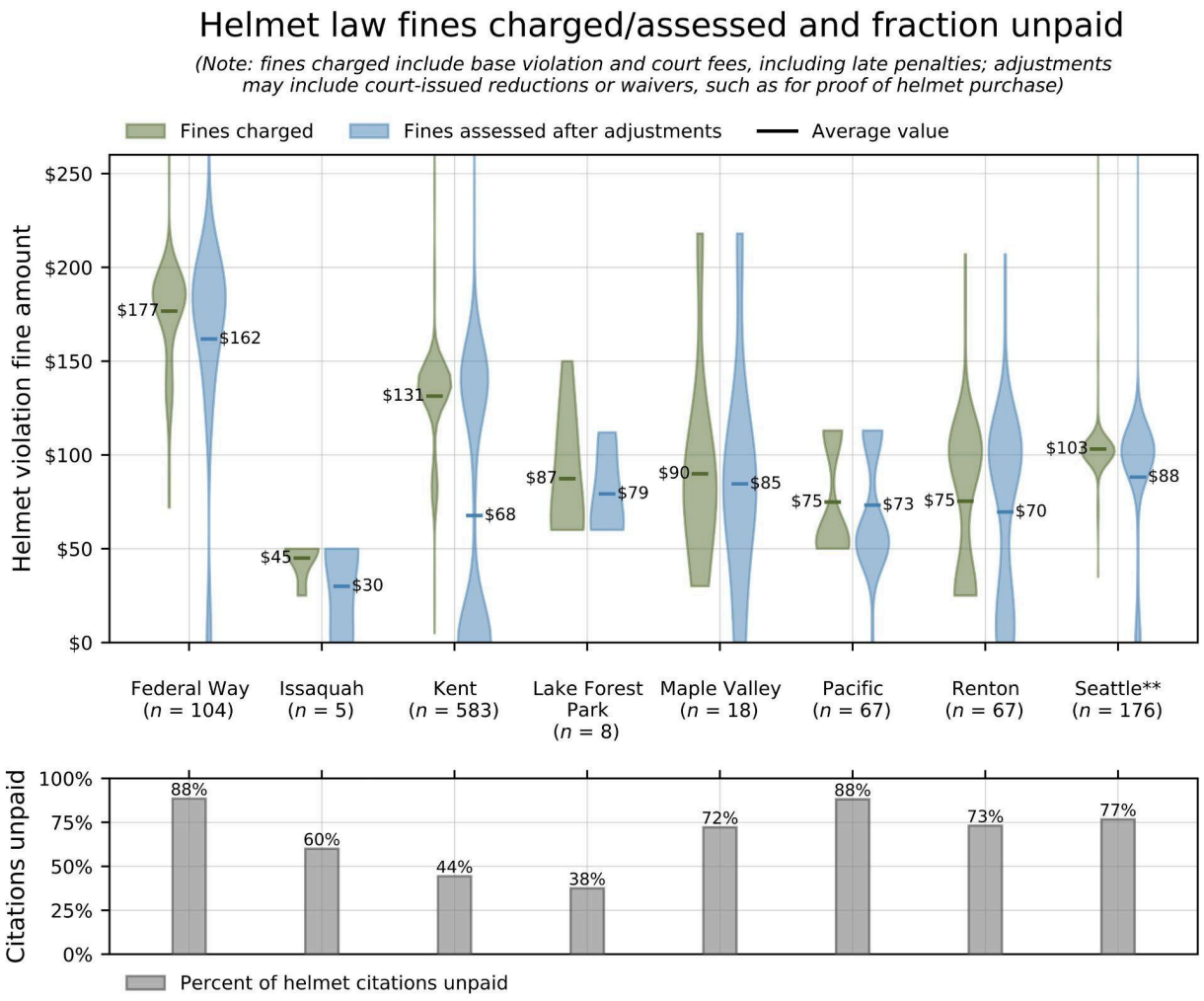
[202] McGlynn-Wright et al. (2020). As above.

[203] Lisa Judge, Seattle Inspector General, Office of Inspector General, letter to Seattle Police Chief Adrian Diaz (May 18, 2021), https://publicola.com/wp-content/uploads/2021/05/OIG-Diaz-Letter-Minor-Offenses-0518212831.pdf.

[204] Paul Faruq Kiefer, "Police accountability leader asks SPD to phase out routine traffic stops," *South Seattle Emerald* (May 21, 2021), https://southseattleemerald.com/2021/05/21/police-accountability-leader-asks-spd-to-phase-out-routine-traffic-stops/.

those with other types of direct police interactions. Moreover, research has consistently shown that Black and Latino experiences during traffic stops are different from those of white persons. … For safety of both officers and the public and for racial fairness, [Seattle Police Department] should seek to eliminate routine traffic stops for civil and non-dangerous violations."

- **Even with low rates of enforcement, issuing citations for helmet violations is a punitive practice that disproportionately impacts low-income individuals and contributes to the perpetuation and criminalization of poverty** (see discussion above). Our analysis of court financial data from King County cities found that average fines for a helmet violation in the cities with available data – Federal Way, Issaquah, Kent, Lake Forest Park, Maple Valley, Pacific, Renton, and Seattle – range from $45 to $177 including court fees. After adjustments, such as court-ordered waivers or reductions, average fines assessed in those cities range from $30 to $162. **In most communities with available fine records, the majority of helmet-related fines have gone unpaid, suggesting that citations predominately burden low-income riders.**



* *Note: only cities/towns with at least 5 helmet citation financial records are shown, and only helmet citations issued as the sole violation are included due to the inability to disaggregate multiple charges issued together. Instances of $0 in fines assessed after adjustments are considered paid citations in the bottom panel.*

** *Fine records for Seattle shown here do not include late/default penalties, commonly $52 when a defendant fails to respond within 19 days of receiving a citation.*

Why not focus on reforming the police instead of repealing the helmet law?

We acknowledge that the disparities in helmet citations by race and housing status are a symptom of larger, structural problems that systematically disadvantage, punish, and endanger vulnerable community members through the institution of policing and the criminal justice system. Some have suggested that biased police enforcement can be reformed, and that our advocacy coalition should focus on reform rather than repealing the helmet law. While optimistic, we believe this sentiment is shortsighted. As detailed above, research shows that biases in policing arise from deep-seated explicit, implicit, and structural factors that associate Black and homeless individuals with crime[205,206,207,208]. These factors have been proven to influence officers' behavior, affecting decisions regarding stops, arrests, and use of force at an individual level[209] and resulting in racially disparate outcomes that are detectable in millions of police interactions across the nation[210]. These problems are not only individual, but also deeply-rooted at the department and city level. Black neighborhoods around the country are over-policed, a legacy of policies that created racial segregation and entrenched poverty within communities of color in cities[211,212,213].

Furthermore, as long as the helmet law remains on the books, it will continue to enable pretextual traffic stops. We find that a majority of recorded helmet-related police stops in Seattle have been pretextual, i.e., that helmet violations are consistently invoked for unrelated investigatory purposes. We have little doubt that this has contributed to the observed disparities in citations and stops by race and housing status. The ability of police officers to conduct pretextual traffic stops has been enshrined in U.S. case law for nearly a century, from U.S. Supreme Court cases like Whren v. United States to Washington state Supreme Court cases like State v. Arreola[214]. There is no policy or reform option that can curtail this lawful misuse of helmet violations for pretextual policing, short of the full removal of the law or a coordinated effort to end primary helmet enforcement by every policing agency within King County.

We believe that these biases and patterns of policing are deeply-rooted and cannot be effectively reformed or mitigated through existing accountability mechanisms. Racial disparities (see above), psychological trauma (see above), and deaths (see above) associated with policing of bicyclists will remain an urgent risk for people of color in King County for years to come. Across the nation, Black and Hispanic bicyclists have expressed a lack of trust in the ability of police to serve as an effective partner in bicycle safety education and enforcement (see details above). Repeal of the helmet law is needed to immediately limit encounters between police and people riding bikes, reducing the potential for harm to be inflicted on vulnerable community members.

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[205] Sylvestre (2010). As above.

[206] Weir (2016). As above.

[207] Fridell (2017). As above.

[208] Herring et al. (2020). As above.

[209] Ba et al., "The role of officer race and gender in police-civilian interactions in Chicago," *Science* (2021), 371(6530), 696–702, https://science.sciencemag.org/content/371/6530/696.

[210] Pierson et al., "A large-scale analysis of racial disparities in police stops across the United States," *Nature Human Behavior* (2020), 4, 736–745, https://www.nature.com/articles/s41562-020-0858-1.

[211] Gellman and Adler-Bell, "The disparate impact of surveillance," The Century Foundation (December 2017), https://tcf.org/content/report/disparate-impact-surveillance/.

[212] Fagan et al., "Stops and stares: street stops, surveillance, and race in the new policing," *Fordham Urban Law Journal* (2016), 43(3), 539, https://ir.lawnet.fordham.edu/ulj/vol43/iss3/3/.

[213] Robin Smyton, "How racial segregation and policing intersect in America," *Tufts Now* (June 17, 2020), https://now.tufts.edu/articles/how-racial-segregation-and-policing-intersect-america.

[214] Whren v. U.S., 517 U.S. 806 (1996); State v. Chacon Arreola, 176 Wn.2d 284, 290 P.3d 983 (2012).

Why is the helmet law particularly damaging for those experiencing homelessness?

For many low-income individuals and, in particular, those experiencing homelessness, access to bicycling means access to mobility, independence, and joy. A lack of reliable and low-cost transportation options often presents a major structural challenge for homeless individuals. A bicycle can lessen this challenge, connecting homeless individuals to places of employment, shelters, medical services, one's social support network, and other critical survival needs[215,216]. Equally important, studies have shown that access to a bicycle leads to increased health, self-esteem, and social interactions for people experiencing homelessness[217,218,219].

However, for homeless individuals already stigmatized by exclusion from public spaces and forms of restricted mobility[220], a helmet law and the police contacts that it invites represent an additional restriction on mobility that can be uniquely damaging for those who bike out of necessity, rather than choice. While Census data indicates that around 4% of all Seattle residents use bicycling as their primary mode of transport to get to work[221], homeless individuals in other cities use bicycling as their main mode of transport at 2-3x that rate (as discussed above). A recent study of homeless and unstably-housed men in Vancouver, BC[222] who use bicycles for informal recycling work, arrives at similar conclusions on the benefits of cycling to those mentioned above. But participants also describe being hassled by police, who conduct "street checks" and hand out tickets for minor infractions, such as violations of British Columbia's provincial helmet law. In the words of one homeless participant:

> *"[The police] went on a spree there a couple years ago and started handing out 29-dollar tickets for no helmet. 'Course, I got nailed, everybody I know got nailed. But, now they want you to pay it. You don't pay it, they say you're gonna go to jail. … I can't pay that bill."*

For homeless individuals, penalties for not wearing a bicycle helmet can trigger – or exacerbate – the crippling cycle of debt and legal consequences that can result from unpaid minor infractions. These practices have the effect of criminalizing poverty and entrenching homelessness[223]. We find that the high rate of helmet citations issued to homeless riders in Seattle is disproportionate, even after accounting for differences in cycling rates and helmet use (see calculation above). We find this pattern even more unacceptable given the highly discretionary nature of current helmet enforcement practices (as mentioned previously), which suggests that police officers may, in fact, be 'singling out' homeless bicyclists for stops, or systematically issuing fewer warnings and more citations during stops of homeless bicyclists.

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[215] Brallier et al. (2019). As above.

[216] Grimes and Smirnova, "Perspectives on an earn-a-bike intervention on transportation, health and self-esteem among men experiencing homelessness," *Journal of Transport and Health* (2020), 18, 100904, https://www.sciencedirect.com/science/article/abs/pii/S2214140520301080.

[217] Ibid.

[218] Parker, "Bicycle use and accessibility among people experiencing homelessness in California cities," *Journal of Transport Geography* (2019), 80, 102542, https://www.sciencedirect.com/science/article/abs/pii/S0966692318305210.

[219] Crawford et al., "'It's good to have wheels!': Perceptions of cycling among homeless young people in Sydney, Australia," *Youth Studies Australia* (2012), 31(4), 55–63, https://ro.uow.edu.au/sspapers/3691/.

[220] Jocoy and Del Casino (2010). As above.

[221] Tom Fucoloro, "Census survey: Biking, walking and transit up as commute data corrects itself + driving alone down to 44.5%," *Seattle Bike Blog* (September 27, 2019), https://www.seattlebikeblog.com/2019/09/27/census-survey-biking-walking-and-transit-up-as-commute-data-corrects-itself-driving-alone-down-to-44-5/.

[222] Steinmann, "(Re)cycling through poverty: A study of homelessness and bicycling in Vancouver, Canada," Master's Thesis, University of British Columbia (2020), https://open.library.ubc.ca/cIRcle/collections/ubctheses/24/items/1.0394710.

[223] Karen Dolan and Jodi L. Carr, "The poor get prison: the alarming spread of the criminalization of poverty," Institute for Policy Studies (2015), https://ips-dc.org/wp-content/uploads/2015/03/IPS-The-Poor-Get-Prison-Final.pdf.

What stories have we heard from people impacted by helmet enforcement?

- During the February 2021 King County Board of Health meeting, a homeless Real Change newspaper vendor shared his experience with enforcement of the helmet law, which he believes is used by police to harass people who they believe are homeless or don't belong in a certain area. He related two stories of helmet-related stops in the SODO neighborhood of Seattle, one while he was trying to ride around an officer who had pulled over a car, and another in the parking lot of a Denny's restaurant. In his view, **"I don't think it has to do with protection or anything else, it's just total harassment. … I don't see that this is really fair to the entire population. I don't see why some can ride without helmets and others get stopped and harassed."**

- Also during the February 2021 Board of Health meeting, a Seattle city councilmember shared an experience from one of their staff members. The staff member was biking with her friends, all women of color, and were pulled over in a bike lane by police for not wearing helmets while using bike share (which does not provide helmets). **She and her friends had been feeling the excitement of bicycling, but she reported that this encounter led to trauma, fear, and disappointment.** As previously mentioned, 75-80% of bike share users in Seattle ride without helmets, leading to over 1.5 million helmetless bike share trips annually in Seattle.

- A staff member of another Seattle city councilmember related to us that two of her nephews, both Black boys who were 16 and 17 years old at the time, were stopped by Seattle police for not wearing a helmet while bicycling. The officer eventually let them go with a warning, but first wanted to ask them questions (including, "Do you live around here?") and run their names through SPD's computer system. The children asked if they could call their parents but the officer did not allow them to do so. **They found the experience traumatizing, and believed the purpose of the stop was for the officer to "make contact" for reasons unrelated to the helmet violation.**

- In social media comments on stories about our advocacy effort, we have seen people relate stories of police harassment. For example, a member of the BIPOC-focused NorthStar Cycling Club shared a story on Facebook of being stopped by Seattle police in the Capitol Hill neighborhood for having "such a nice bike and no helmet." The rider, a person of color, was questioned about where his bicycle was from, to which he felt he needed to respond by showing them a registration sticker (which is not required in Seattle). In his words, **"That police interaction could have ended a million different ways... all because of a helmet."**

In addition, respondents to our survey (described above) have shared stories related to helmet enforcement, as well as enforcement of similar bicycle infractions. All respondents quoted here have indicated that their responses and demographic details about themselves could be shared publicly. Emphasis is added to highlight key points:

- *From a local bike shop owner in Seattle:* "I am a white person, and I have brown skin and I have been ticketed or stopped by police while riding my bike more times than I can count, at least a dozen times in the last 20 years in Seattle. I was once on the staff of Bike Works as a teacher and ride leader of groups of mostly POC kids, and on part-time staff at Cascade as a Bike Ambassador. **The disconnect between the experiences of police enforcement for the South End youth and the mostly white Cascade members was jarring**. I remember being told by Cascade staff that, 'No one gets helmet tickets,' in the same week that **two of my Bike Works students were harassed by a LEO [law enforcement officer] and held for an hour riding home from our programs** with no charge or tickets issued."

- "**I'm a male of Hawaiian/Filipino descent and I've always had negative experiences with police enforcement while riding my bike in King County.** In Seattle, I've been yelled at and stopped on several occasions for multiple reasons but lack of helmet was the majority of those interactions. The most interesting but not surprising aspect of all these interactions is that **whenever I was riding with one of my white friends, I was still the focus of these negative interactions**. It became a joke among my white friends that they should always ride with me so that they never have to get a citation."

- "**My good friend is black and had an afro hair style that cannot fit under a bicycle helmet. His afro was part of his identity and to ask him to cut his hair to wear a helmet would have been detrimental to him.** He was a cyclist who used his bike as his primary mode of transportation. He was pulled over by a motorcycle cop for not wearing a helmet and running a red light while biking home from work. There was no one at the red light and he had treated it as a yield, which he considered safe and had no negative consequences for anyone. **My friend has been harassed many times by police due to being black and to have yet another opportunity for police to harass and criminalize him is unacceptable.** Stop policing bicyclists. Repeal the helmet law."

- "I am a white female rider in my 40s and I always wear a helmet. I've never been stopped on my bike and often get friendly treatment by police who direct traffic or are out of their cars for other reasons. **I used to volunteer at a day shelter for youth and one young man (who is white, but who was also experiencing homelessness) told me about getting a ticket for no helmet**. He was seeking resources so that it didn't happen again. I have seen a person of color pulled over for running a stop sign in Fremont and it felt unnecessary on a quiet street early in the morning…"

- "[W]hile volunteering at [a community bike shop], one of our volunteers who was experiencing homelessness was so uncomfortable when a [police] officer came in that he walked out. **After the officer left, he came back and shared that the [police] frequently harasses cyclists who are underhoused/unsheltered/depend on bikes for transportation.** Usually, they use not having a light or reflector as an excuse to initiate contact."

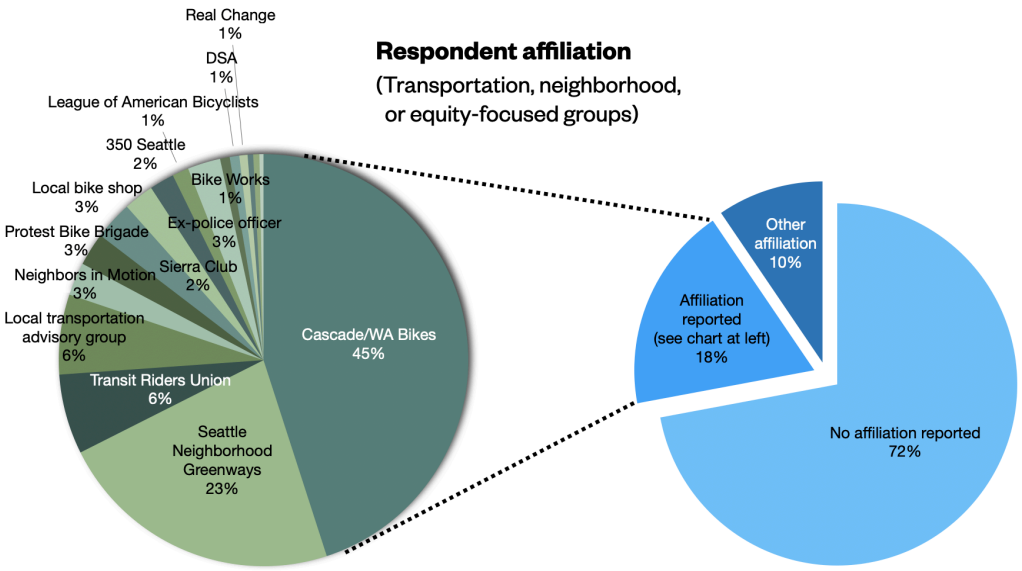
- "I was involved in a collision with a car. **The first question from the officer on the scene was, 'where's your helmet?'** This was more important than any other aspect of the scene or apparently even my well-being. The officer's subsequent behavior made clear he was looking for a reason to ticket me, to prevent insurance repercussions for the driver. These negative experiences occurred to me, a white male. **My conversations with cyclists of color suggest that their experiences with selective enforcement of helmet laws are in general much worse**."

- This respondent, a Hispanic and Asian man, was stopped by Seattle police three years ago under suspicion for a "safety check" while bicycling home from work. The officer gave him a "warning about using lights" after checking his ID. He felt "intimidated and frightened due to other past police threats in other states since childhood." **Since then, he has "reduced late night cycling, and just uses buses."** The motivation for this stop was not a helmet violation, but we believe the interaction that resulted is likely to be qualitatively similar to those experienced by those stopped for helmet violations.

- "I think the King County helmet law does more harm than good for our communities and that investments should be prioritized in better and stricter driver education programs and more education programs for cyclists. **I've been stopped and given warnings by Seattle police officers in relation to the bike helmet law, but never given a ticket. The conversations with the officers were never educational, only stern warnings of intimidation.**"

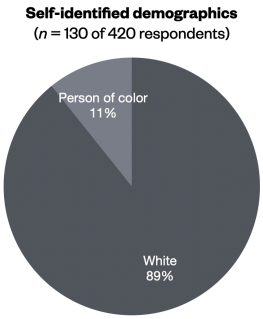
What perspectives have community members shared with us about the future of the helmet law?

Our survey, described above, has received 420 unique responses from community members as of April 2021. The following charts summarize those responses. Note that our survey was not intended to be rigorous or scientific. Its primary purpose was to elicit stories about experiences with helmet law enforcement and to provide a barometer of community opinions on the future of the helmet law.

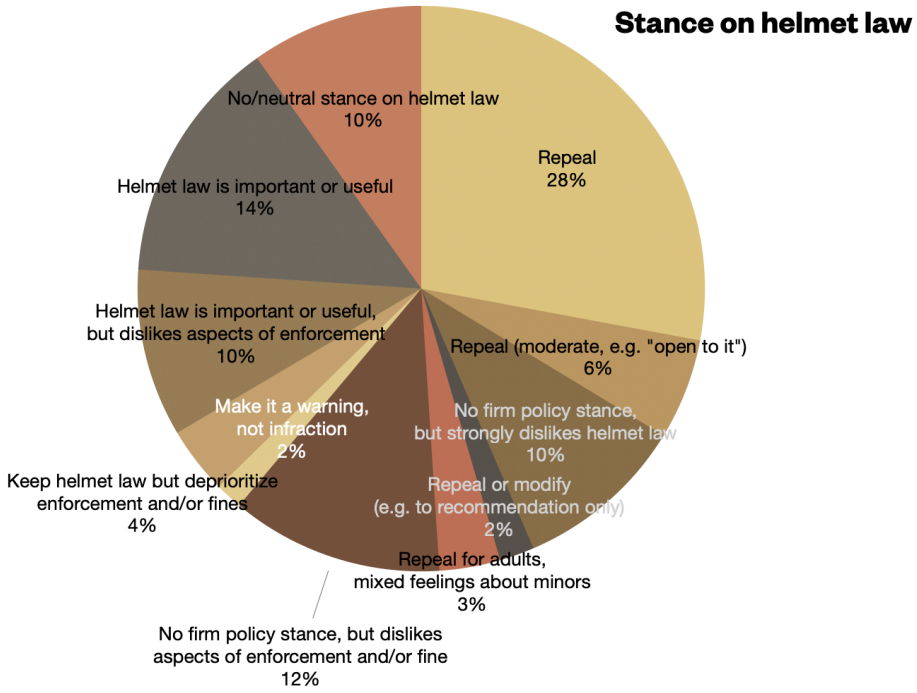


Respondent affiliation: Our survey asked, *"What community organization(s) are you affiliated with, if any? Specifically, we would like to know if you are involved in any neighborhood, transportation, environmental, community-based, or equity-focused organizations."* The pie charts above show that the majority (72%) of respondents did not name an affiliation, while 18% of respondents reported an affiliation also mentioned by at least one other respondent. While just 8% of respondents indicated an affiliation with Cascade Bicycle Club, more than half of our responses (~65%) were received within two days after the survey was advertised in emails from Cascade in February 2021. This suggests that the majority of our survey responses are representative of those involved in some capacity with Cascade, a community whose demographics we recognize skew towards white, recreational cyclists.

Self-identified demographics: Respondents' open-ended written responses were reviewed, and we flagged instances in which a respondent clearly self-identified as white or a person of color. The pie chart at right shows that out of the 31% of respondents who self-identified in their comments, demographics skew more white (89% white) than both the demographics of Seattle as a whole (60% white, from 2017-2018 census data) and the demographics of Seattle cyclists (71% white, from our estimates constructed using three population surveys)[224].

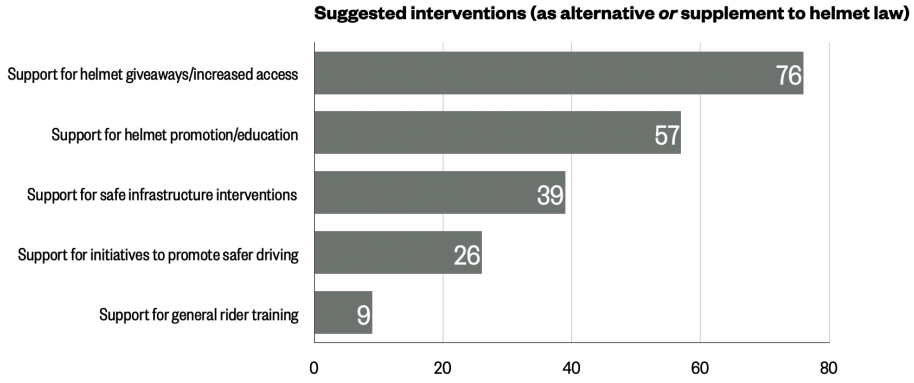


[224] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.



Stance on helmet law: The chart above illustrates survey respondents' opinions about the helmet law, which were categorized based on answers to the open-ended question, *"What are your thoughts about policing of cyclists in King County, particularly related to the helmet law? We are interested in your perspectives on repealing or modifying the helmet law, alternatives to mandating helmet use, criminalization and/or enforcement of other bicycle infractions, etc."* Responses that fit into more than one of the categories shown above were allocated evenly between the relevant views.

While the subject of the helmet law has been polarizing in the past within the cycling community, **about 70% of survey respondents were supportive or open to modifying or repealing the law, and almost 80% expressed some degree of dissatisfaction with the current helmet mandate or the way that it is enforced**. Respondents were most frequently supportive of efforts to increase helmet use but opposed to using police enforcement to try to accomplish that goal.



Suggested interventions: Many respondents shared ideas about preferred strategies to keep cyclists safe, either in the absence of a helmet law *or* in addition to the existing (or a modified) helmet law. The chart above shows that the

most frequently-mentioned interventions were efforts to increase access to helmets, such as through subsidies or giveaway programs. We note that the lower frequency of comments recommending strategies to prevent collisions from occuring in the first place (e.g., safer infrastructure, safer driving) is not necessarily indicative of a lower level of support for those interventions, as the open-ended question did not specifically ask about these.

Selected comments: Below we share some illustrative survey responses that were generally supportive of changes to the helmet law. All respondents quoted here have indicated that their responses and demographic details about themselves could be shared publicly in our advocacy. Some responses have been condensed, but we have not edited respondents' words except for those in brackets that were substituted for clarity when condensing comments. Emphasis is added to highlight key points:

- "[The helmet law] needs to be repealed. Many people of color barely afford a cheap used bicycle, yet alone a helmet. ... **I'm Black and cycle everyday. But, I'm dressed the part.** I have a couple of high end bikes and nice bicycle clothing. Plus I always wear a helmet."

- "I think it's a bad idea to ride a bike without a helmet but I also don't think people should be ticketed if they're not wearing one. … **I don't have a lot of confidence that the police will change their behavior without decriminalizing helmet wearing**."

- *From a nationally-certified bicycling instructor, a white woman who lives in Seattle:* "Helmets often save lives, but helmet use shouldn't be criminalized, especially if they discourage people of color and homeless people from riding. … People living in poverty can't afford to pay for a gym membership, and it's understandable they wouldn't pay upwards of $40 for an ANSI-certified helmet. Yet there are many ways to make [bicyclists] safer: safe riding education, fixing broken bicycles and/or teaching bicycle maintenance, and safer infrastructure are way more important. **People of color have made it abundantly clear that criminalizing trivial things like wearing helmets affect them negatively."**

- *From a respondent living in Belltown:* "Repealing this law is one small step our community can take for racial and social justice in policing. I am a white man and have never been stopped by Seattle police while cycling. Though I typically wear a helmet, **I have occasionally ridden without one and have never been stopped or cited – even when riding right past police officers**."

- "I am a white male that has been stopped once before for an unrelated reason and was reprimanded for not wearing a helmet. **I suspect my experience would have been different were I a person of color.**"

- *From a white man:* "I never bike without a helmet as I have broken two helmets in falls (one on black ice, one on spilled transmission fluid). Each time I had no injury although my helmet was destroyed. **So I strongly believe in helmets**. But if a helmet law ends up being not a tool for safer biking but rather one for inequitable treatment of certain cyclists, then **the law has failed in its purpose**. I do not object to repeal of the law."

- "**Helmet laws were intended to end an era of people ignoring safety. Nobody today is ignorant of the societal ask for people to wear helmets.** The law now serves as another piece of out of date code to use to harass people of lesser means or status. The science is also fairly clear that 1) every bit about wearing bike helmets improving safety probably also applies to driving or crossing the street, and 2) the best way to improve bike safety is to give bikes spaces away from cars, which means having more riders which means being inclusive, even of people without helmets. ... **Until we establish systems of law enforcement that work substantially better and more fairly, we need to get rid of laws like this that are pointed tools of enforcing inequality.**"

- "That police view those on bicycles – especially those who bicycle for transportation instead of fitness – as somehow deviant from the mainstream whose interests they protect is no secret. Our traffic laws and legal system are also full of people who have negative biases against cyclists. Add institutional or structural racism and anti-homeless biases to the mix, as well as police training that teaches police officers that those they are sworn to protect are in fact a threat to their safety, and **you've got a recipe for more death at the hands of police.**"

- "**I was pulled over for speeding without a helmet at 2 am**, I had been drinking but I didn't volunteer this info, **I am white, I rode my bike home with a 'warning'**. This law is unfairly applied."

- *From a woman who lives in downtown Seattle:* "As someone who has commuted by bicycle in and around downtown Seattle since 2003, I can tell you without data that helmet usage has increased exponentially in the past 4-5 years. It has become normalized by choice so I believe it does not need to be legislated or policed. **As a white woman I have never once been stopped by police much less cited, and until 2-3 years ago I never wore a helmet.** So your data doesn't surprise me at all, the racial profiling is intolerable, and no policing of helmet use will do as much good as peer socialization anyway."

- "... personal safety laws like the helmet law deflect issues around street safety. **Helmets are like surveillance cameras – they only matter after the harm has been done.** What can be done to put the responsibility back on the agencies to make our streets safe from vehicle violence?"

- "The helmet law reminds me of the words of my microeconomics professor: **'If something is good in theory but lousy in practice then it is actually lousy in theory.'** Repeal the law. I suspect that most who wear a helmet do so for safety reasons, not to comply with the law. Have an ongoing campaign promoting the use of a helmet. Use a portion of motor vehicle violations to create a fund to distribute helmets to low income households."

- "**Wanted to say that the helmet law has messaged to my daughter and to everyone as a whole that bicycling is dangerous.** I think it's led to less likelihood of my daughter to ride. If there are helmet laws for bicyclists, there should be helmet laws for vehicle/car occupants as well, for parity in messaging to align with true dangers."

- "Wearing helmets should be encouraged but never punished. **Enforcing it also is not compatible with rental bike operations.**"

- "**I support decriminalizing helmet use.** I always wear one, and when I ride with friends and family members, I insist on helmets in our group. But I recognize that helmet cost (and attitudes) are barriers to people riding bikes in many cases: the cost of a helmet, or just a preference not to wear one, shouldn't keep someone from biking. … **I'd rather see crowds of bareheaded cyclists, like the pics of Swedish cities, than a trickle of people with helmets.** More riders equals more safety for all, as drivers are forced to adapt their habits to more rolling vulnerable humans."

- "**Bicycle helmet laws reduce bicycle usage**, especially among poor (affordability), women (don't like helmet hair), and beginners (just another hassle and item to store at work when commuting). **It is misguided to say helmets save lives**, as by reducing bicycle use they shift people to hazards associated with driving, and to sedentary lives and subsequent heart attacks."

- "**Wearing bike helmets should be a strong safety advisory**, but failure to wear a helmet should not be a criminal infraction. I always wear a helmet and wearing a helmet has protected me from head injuries on several occasions."

- "Make [biking] safe for all people – **enforce bad driving, which harms pedestrians, other drivers and all people on bikes**. On top of that, our supposedly 'progressive' city is notoriously discriminating to black/POC citizens and it is a huge shame. Getting more people on bikes is climate action. **Making biking more accessible and easy to do without being pulled over is KEY!** The helmet law is ridiculous. I'm the daughter of a physician and grew up with his emphasis on helmet wearing. I am now a 30+ year adult cyclist and completely see the other side. I wear a helmet and figure anyone who becomes a more regular cyclist will eventually find their way to helmets, but as it stands it is a ridiculous deterrent to just getting GOING on a bike, and again – more people on bikes is climate action and will contribute to health, freedom and joy. … **I'm not the target of changing this law, it's those newer to bikes or bike curious, and we need to help support more BIPOC folks to learn to ride and feel comfortable using a bike or e-bike for transportation**."

- "**I bought my first bike helmet in 1992 because the law was coming.** In 2010 I was struck by a pick-up truck while riding. My helmet was smashed. It certainly was the difference between life and death for me. That said, the point of the law was to motivate people to wear helmets, **not provide a convenient citation for folks that are not harming others.**"

- "There's no question that current enforcement of bicycling laws targets people of color, as well as people perceived to be homeless. I'm not sure if I'm in favor of repealing helmet laws, but I definitely want to stop racist outcomes caused by enforcing them. **Not sure why enforcement is even necessary: having the law on the books encourages use, which is the point.**"

- "Personally, I'll always wear a helmet when I'm on a bike, but it shouldn't be legally required to do so. **The helmet law discourages people from using bicycles for errands, shopping, and commuting.** Countries that have the highest rates of bicycle use do not have helmet laws. If you want to improve safety through laws and enforcement measures, increase patrols targeting distracted driving, speeding, mobile phone use while driving (make it illegal to use a phone while driving, PERIOD), improper lane use, driving into bike lanes, failure to yield to cyclists, aggressive driving, etc."

- "Decriminalization is a good idea. I guess it means it will be no longer mandatory. It's OK, **the same usage can be achieved with education, awareness, and distribution of helmets to low income people**."

Why not just modify the helmet law?

Our Working Group considered alternatives to repealing the helmet law, such as reducing fines, authorizing warnings but not citations, downgrading the violation to a secondary offense, or limiting the mandate to youth only. However, these avenues would fall short of preventing dangerous police interactions and fully ending punitive enforcement.

- **Reducing fines** would make little difference. As noted above, the majority of the financial burden of a helmet citation is not from the $30 fine, but rather from court fees that raise the total cost to $104 in Seattle, or $154 including default penalties that are frequently added.

- **Authorizing warnings but not citations** would not prevent the helmet law from being used by police to conduct pretextual stops (see discussion above), would not limit arrests for crimes of poverty due to outstanding bench warrants (as explained previously), would not mitigate the psychological harm and erosion of trust associated with police contacts (as discussed earlier), and would not keep people safe from the inherent dangers of policing that have led to tragedy in too many instances (note examples above). In fact, making a warning the only available penalty would be unlikely to significantly decrease the number of police contacts resulting from the helmet law, as most helmet-related stops already result in a warning rather than a citation.

- **Downgrading the violation to a secondary offense** may prevent pretextual stops, but would not end the situation of punitive enforcement that disproportionately impacts low-income individuals and contributes to the perpetuation and criminalization of poverty.

- **Limiting the mandate to youth only** would not prevent incidents of police harassment such as those experienced by Monique Tillman and her brother in Tacoma (details above) and youth riding home from a bicycling program in the South End of Seattle (see story shared above). Keeping a youth-only helmet mandate would leave youth vulnerable to the damaging and lasting psychological consequences of police contacts (as discussed earlier).

Our support for full repeal of the King County helmet law is consistent with research-based opposition to mandatory helmet laws from transportation professional groups, including the National Association of City Transportation Officials (NACTO)[225] and the Association of Pedestrian and Bicycle Professionals (APBP)[226]. Both the Safe Routes to School National Partnership[227] and the Vision Zero Network[228] have also recently removed enforcement as a recommended strategy to achieve safer conditions for street users such as cyclists.

[225] Corinne Kisner, "NACTO statement re: mandatory helmet laws," National Association of City Transportation Officials (NACTO) (November 2019), https://nacto.org/2019/11/08/helmet-laws/.

[226] Jessica Roberts and Caron Whitaker, Association of Pedestrian and Bicycle Professionals (APBP), letter to National Transportation Safety Board (January 10, 2020), https://drive.google.com/file/d/1xVkMBoGrCRFncHKPu2rg7le__JnWToc5/view.

[227] Cass Isidro, "Dropping enforcement from the Safe Routes to School 6 E's framework," Safe Routes Partnership (June 9, 2020), https://www.saferoutespartnership.org/blog/dropping-enforcement-safe-routes-school-6-e's-framework.

[228] Leah Shahum, "Acting for racial justice and just mobility – Vision Zero advocates: let's step up to our responsibilities," Vision Zero Network (June 8, 2020), https://visionzeronetwork.org/acting-for-racial-justice-just-mobility/.

If the helmet law were to be repealed, would bicyclists be less safe?

No. There is strong evidence that helmet legislation offers little benefit from an injury prevention perspective at present (see studies cited above). As discussed previously, the only study examining the King County helmet law[229] actually found an increase in the total number of head injuries after the extension of the law to Seattle in 2003, no change in the prevalence of head injuries compared to other bicycle-related injuries, and no change in helmet use attributable to the helmet law in Seattle. Other evidence also suggests that helmet use rates in King County today are minimally connected to the presence of a helmet mandate (see comparison to Portland and Vancouver above). With this in mind, we strongly believe that repeal of the King County helmet law would have minimal or negligible impact on helmet use and head injuries.

It is important to keep in mind that vehicular collisions, unsafe infrastructure, and low rates of cycling represent the primary risk factors in population-wide cyclist safety, not low rates of helmet use (see previous discussion). While we believe that rates of helmet use would not change upon repeal of the law, bike share presents a recent example of a drastic increase in helmetless bicycle trips that has not resulted in a catastrophic increase in head injuries. To the contrary, in five North American cities that implemented bike share, total numbers of head injuries declined by 14% (compared to a 4% decrease in five control cities), despite none of the bike share programs providing helmets[230,231]. In one powerful example, New York's CitiBike bike share system generated 8.2 million new trips in its first year, while total numbers of cyclists killed or severely injured in New York decreased by 17%[232,233]. In Seattle, dockless bike share contributes over two million trips annually[234], 75-80% of which are without a helmet[235,236], yet Seattle bike share was associated with just one serious injury in 2019[237]. This phenomenon may reflect the "safety in numbers" effect of increased ridership (see above).

We believe that continuing to encourage helmet use is important, and that new efforts to increase access to helmets within homeless and low-income populations in King County would be worthwhile. However, we would urge Seattle & King County Public Health to focus on the larger goal of preventing cyclist injuries and deaths, and to look towards more effective strategies aimed at preventing the most deadly situations – vehicular collisions – from occurring in the first place, such as those described above.

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[229] Kett et al. (2016). As above.

[230] Salomon et al., "The safety of public bicycle share programs in North America," *American Journal of Public Health* (2014), 104(11), e5–e6, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4202953/.

[231] Angie Schmitt, "WaPo is wrong: head injuries are down, not up, in bike-share cities," *Streetsblog USA* (June 13, 2014), https://usa.streetsblog.org/2014/06/13/wapo-is-wrong-head-injuries-are-down-not-up-in-bike-share-cities/.

[232] "Safer cycling: bicycle ridership and safety in New York City," New York City Department of Transportation (2017), https://www1.nyc.gov/html/dot/html/bicyclists/bike-ridership-safety.shtml.

[233] Rebecca Smith, "A counterintuitive argument against bicycle helmet laws," *Columbia University Urban Health Student Voices* (February 2, 2020), https://www.publichealth.columbia.edu/public-health-now/news/counterintuitive-argument-against-bicycle-helmet-laws.

[234] "2019 free-floating bike share evaluation report," Seattle Department of Transportation (April 2020), https://www.seattle.gov/Documents/Departments/SDOT/BikeProgram/2019_FreeFloat_BikeSharePermit_Evaluation.pdf.

[235] Mooney et al. (2019). As above.

[236] "2017 free-floating bike share pilot evaluation report," Seattle Department of Transportation (August 2018), https://www.seattle.gov/Documents/Departments/SDOT/BikeProgram/2017_BikeShare_Evaluation_Report_113018.pdf.

[237] "2019 free-floating bike share evaluation report," Seattle Department of Transportation. As above.

If the helmet law were to be repealed, would police find other ways to conduct investigatory stops of cyclists?

We regard this as unlikely. Issuance rates of other bicycle-related citations suggest these violations are far less ubiquitous – and less easily enforced – than helmet violations.

Seattle Municipal Court records from 2003-2020 show that helmet infractions represent 55% of all bicycle-related citations[238]. Second most common are "rights and duties of riders" and roadway violations, which contribute 32% of citations, followed by a lack of proper lights or reflectors, at 7%, failing to yield the right of way in a crosswalk or public path, at 3%, and unsafe passing on the right and improper use of hand signals, at 1% each.

Based on experiences shared in responses to our survey, we believe the large majority of tickets for roadway-type violations are for failing to fully stop at a stop sign, a common and safe practice by bicyclists that was legalized in 2020 through Washington state's new "Safety Stop" law[239] and so is no longer enforceable. The third most common violation, a lack of proper lights or reflectors, is only enforceable during nighttime. The remaining violations listed above are much less common, likely because they only occur intermittently within certain contexts, and so are less likely to be observed by a passing police officer on patrol than helmet or lights violations.

Overall, we believe that removing helmet violations from the possible minor infractions that police can use to justify pretextual stops will significantly limit the potential for cyclists to be stopped, detained, and searched for investigatory reasons (see discussion on pretextual stops above).

[238] Ethan C. Campbell, "Technical report on bicycle infractions in Seattle (2003-2020)... ." As above.

[239] Katie Olsen, "Washington State's new bicycle 'Safety Stop' law allows people biking to treat stops signs as yield signs with some exceptions," Seattle Department of Transportation Blog (September 30, 2020), https://sdotblog.seattle.gov/2020/09/30/washington-states-new-bicycle-safety-stop-law-allows-people-biking-to-treat-stops-signs-as-yield-signs-with-some-exceptions/.

What jurisdictions would be affected by changes to the King County helmet law?

There are 39 cities and towns in King County, some of which have local helmet laws separate from the county helmet law. We examined each city and town's municipal code for language about bicycle helmets, which allowed us to characterize the patchwork of helmet laws in King County:

- **17 jurisdictions (representing 35.4% of King County's population) have separate all-age bicycle helmet laws in their municipal or city code that mirror the language from King County Health Code Title 9.** These jurisdictions *would not be affected* by changes to the King County helmet law, and are the following: Auburn, Bellevue, Black Diamond, Burien, Des Moines, Duvall, Enumclaw, Federal Way, Issaquah, Kent, Lake Forest Park, Maple Valley, North Bend, Pacific, Renton, SeaTac, and Snoqualmie.

- **Two more jurisdictions (representing 1.6% of King County's population) have adopted the King County helmet law by reference in their municipal codes**, including all future amendments and changes. These two jurisdictions, Kenmore and Woodinville, *would be affected* by changes to the King County helmet law.

- **20 jurisdictions as well as unincorporated King County (together representing 63.0% of King County's population, of which Seattle represents about half) are covered by only the King County helmet law.** These jurisdictions *would be affected* by changes to the King County helmet law, and are the following: Algona, Beaux Arts Village, Bothell, Carnation, Clyde Hill, Covington, Hunts Point, Kirkland, Medina, Mercer Island, Milton, Newcastle, Normandy Park, Redmond, Sammamish, Seattle, Shoreline, Skykomish, Tukwila, and Yarrow Point.

Are there specific experts with whom we would recommend that the Board consult?

Yes. In addition to researchers affiliated with Seattle & King County Public Health and the Harborview Injury Prevention and Research Center, we strongly recommend that the Board consult external researchers who have expertise in helmet legislation and other aspects of bicycle policy and were not involved in the creation of the King County helmet law. We would suggest the following researchers:

- Kay Teschke, PhD, MPH, Professor Emeritus, School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada (and one of University of Washington Public Health's 50 Changemakers)
    - Examples of work:
        - Teschke et al. (2015) in *BMJ Open*, "Bicycling injury hospitalisation rates in Canadian jurisdictions: analyses examining associations with helmet legislation and mode share"
        - Teschke et al. (2012) in *American Journal of Public Health*, "Route infrastructure and the risk of injuries to bicyclists: A case-crossover study"

- Alison Bateman-House, PhD, MPH, Assistant Professor, Division of Medical Ethics and Department of Population Health, New York University Grossman School of Medicine, New York, NY
    - Example of work: Bateman-House (2014) in *American Journal of Public Health*, "Bikes, helmets, and public health: Decision-making when goods collide"

- Kathleen Bachynski, PhD, MPH, Assistant Professor, Public Health Program, Muhlenberg College, Allentown, PA
    - Example of work: Bachynski and Bateman-House (2020) in *American Journal of Public Health*, "Mandatory bicycle helmet laws in the United States: Origins, context, and controversies"

- Jessica Dennis, PhD, Assistant Professor, University of British Columbia and BC Children's Hospital Research Institute, Vancouver, BC, Canada
    - Example of work: Dennis et al. (2013) in *BMJ*, "Helmet legislation and admissions to hospital for cycling related head injuries in Canadian provinces and territories: interrupted time series analysis"

- Charles T. Brown, MPA, Senior Research Specialist and Adjunct Professor, Alan M. Voorhees Transportation Center, Rutgers University, New Brunswick, NJ
    - Example of work: "Where do we go from here? Breaking down barriers to bicycling in the U.S.," People for Bikes (2021)

- John Pucher, PhD, Professor Emeritus, Alan M. Voorhees Transportation Center, Rutgers University, New Brunswick, NJ; or Ralph Buehler, PhD, Professor and Chair of Urban Affairs and Planning, School of Public and International Affairs, Virginia Tech, Arlington, VA
    - Examples of work:
        - Pucher and Buehler (2008) in *Transport Reviews,* "Making cycling irresistible: Lessons from The Netherlands, Denmark and Germany"
        - Pucher et al. (2010) in *Preventative Medicine*, "Infrastructure, programs, and policies to increase bicycling: An international review"
        - Pucher, Buehler, and Seinen (2011) in *Transportation Research Part A: Policy and Practice*, "Bicycling renaissance in North America? An update and re-appraisal of cycling trends and policies"