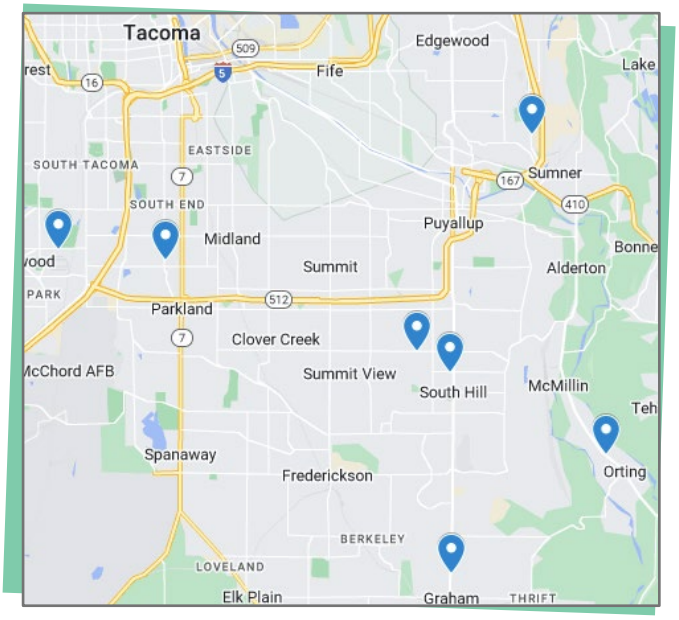
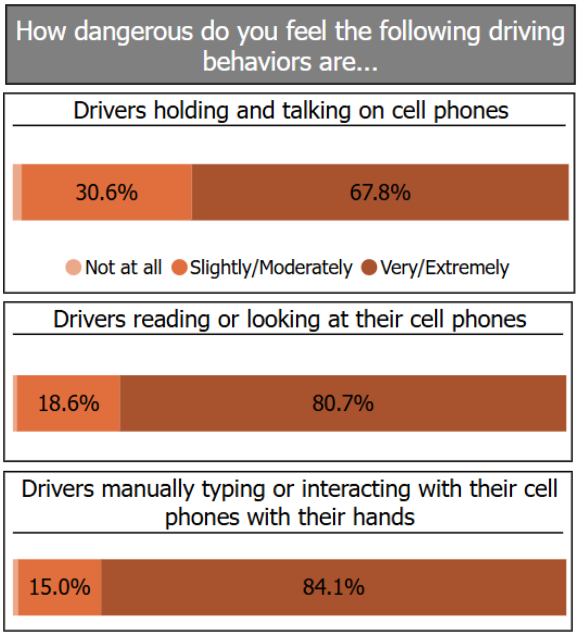
Pierce County Smart Signs

In 2023, General Motors (GM) and the Governor's Highway Safety Association (GHSA) awarded a grant to the WTSC to pilot programs to reduce distracted driving. The pilot study was conducted in Pierce County, the second most populous county in the state and a community with increasing traffic fatalities. The WTSC partnered with SaferStreet Solutions, LLC[1] to deploy Smart Signs at select locations throughout the county. Smart Signs are driver feedback signs that use infrared technology to identify driver speeding, cell phone use, and seat belt use. The sign then displays a message specific to the behavior captured, such as "PHONE DOWN" or "BUCKLE UP".

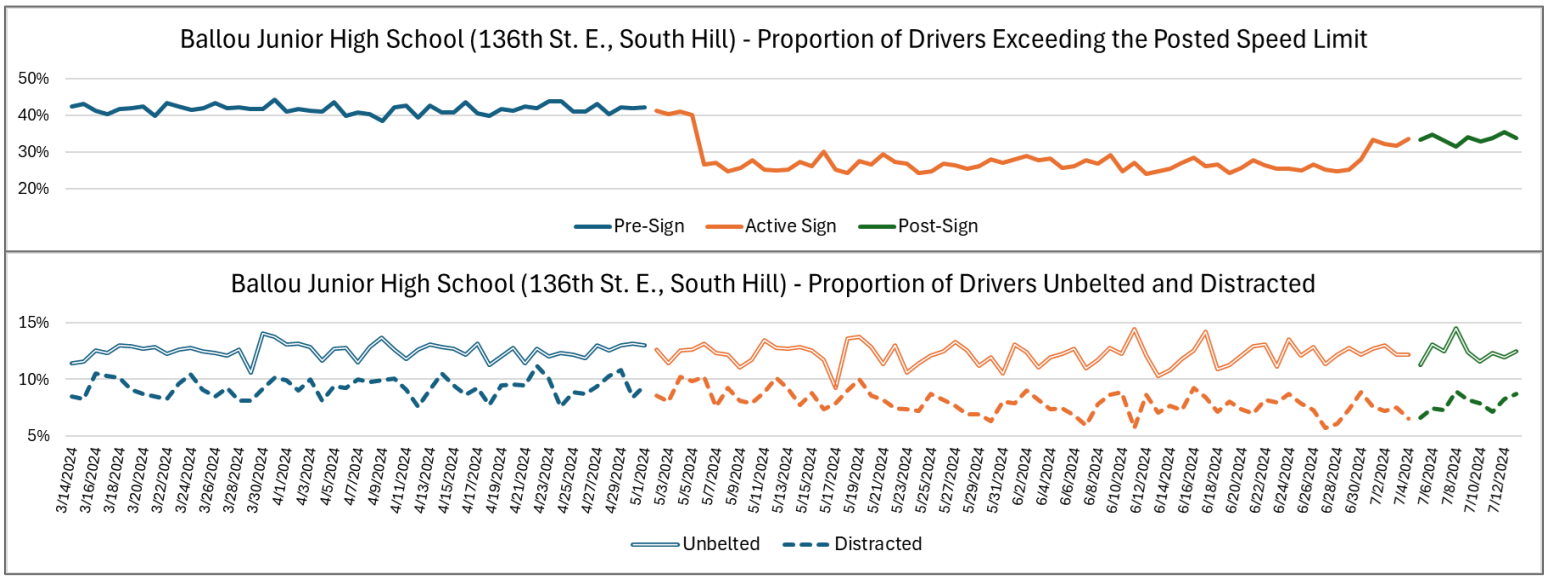
The majority of Road Users in Pierce County perceive cell phone use while driving to be very or extremely dangerous. The charts below represent survey responses from 1,870 Pierce County road users 2023-2024[2]. Nearly all respondents perceive distracted driving to be at least slightly dangerous.

Smart signs were deployed to seven locations in Pierce County during the spring/summer of 2024. Anonymized driver behavior data (travel speed, cell phone use, and seat belt use) was collected prior to the sign being activated, while the sign was activated, and for a short time after the sign was removed. This brief contains the results for six* smart sign locations.



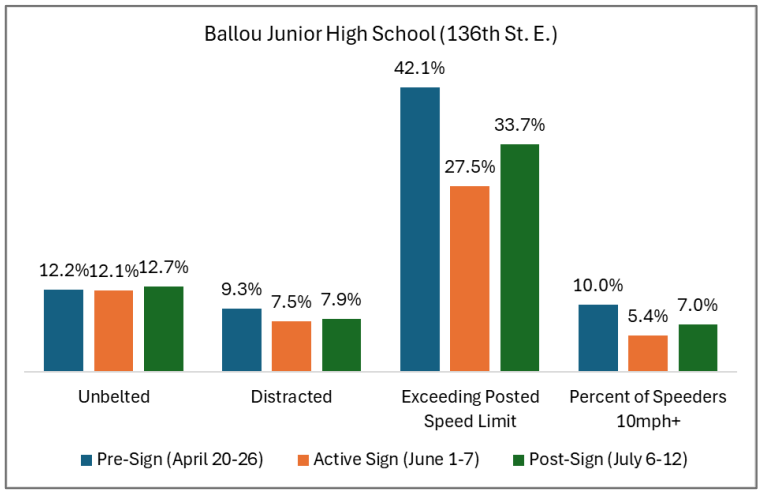


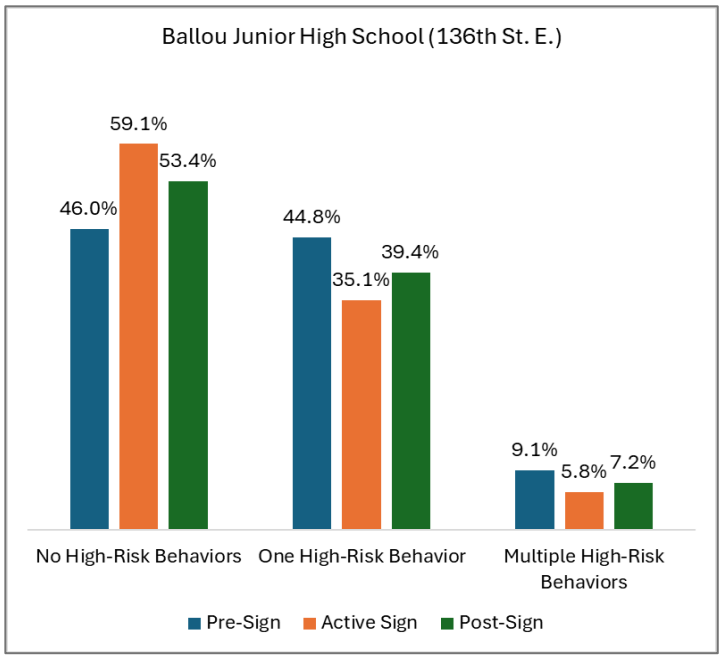
*One location was removed from this analysis due to active construction while the smart sign was activated.

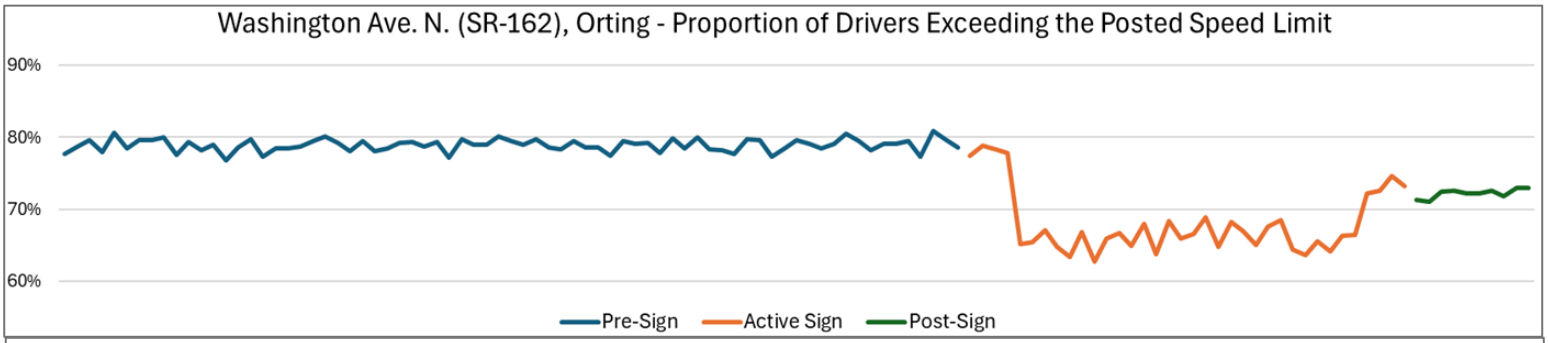


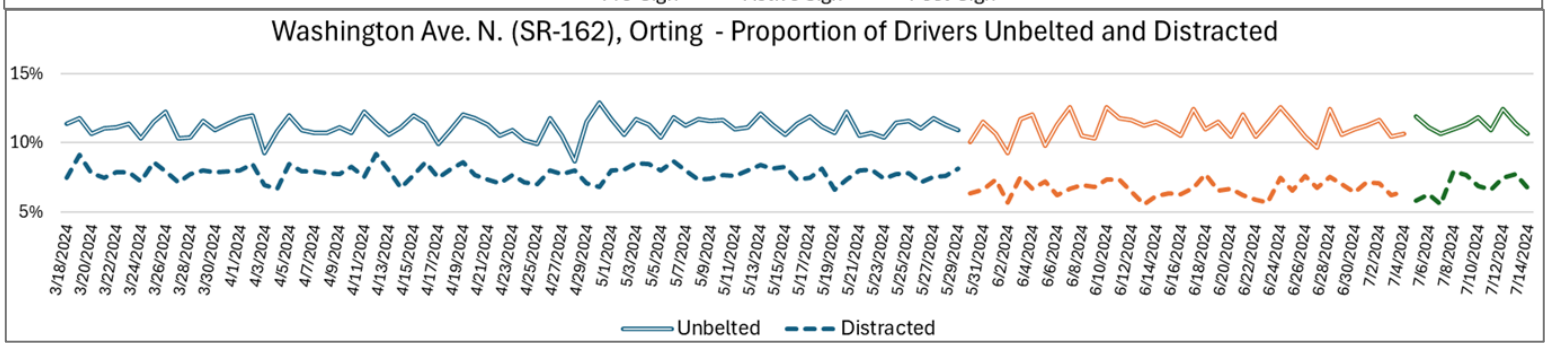
High-risk driver behavior related to seat belt use, driver cell phone use, and speeding was collected prior to the sign deployment March 13—May 1, 2024. The Smart Sign was deployed May 2—July 4. Additional data was collected July 5—July 13 after the Smart Sign had been removed. One week was identified from each period (pre-sign, active sign, and post-sign), highlighted on the chart above, to compare changes in driver behavior rates between time periods. There was no change between time periods for seat belt use, nominal changes to driver cell phone distraction, and significant reductions in driver speeding.

The Smart Signs mostly influenced changes in driver speeding behavior, with some influence on distracted driving, and seemingly no influence on front seat passenger seat belt use. Rates of driver speeding and distraction increased once the sign was removed but sustained some reduction compared to the pre-sign period. One in ten speeding drivers exceeded the posted speed limit by 10 mph or more in the pre-sign period, dropping to just one in twenty drivers when the sign was active. In addition to having impact on drivers exceeding the posted speed limit, and speeding drivers exceeding the limit by 10 mph or more, the sign also decreased the number of drivers engaging in two or more high-risk behaviors at the same time, dropping from 9.1 percent in the pre-sign period to 5.8 percent of drivers when the sign was active.

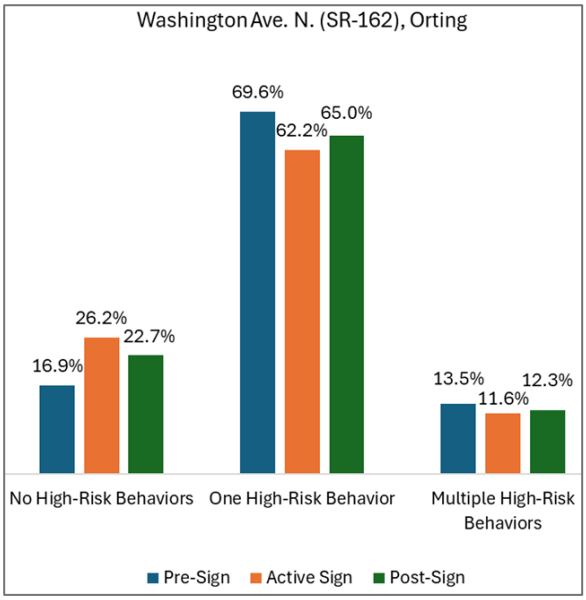




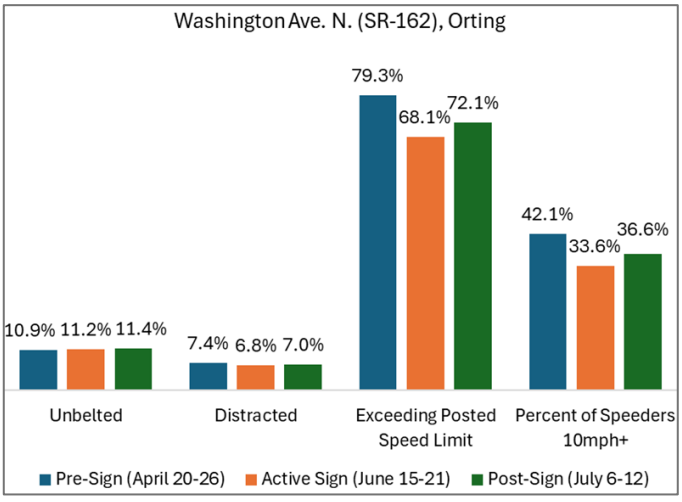


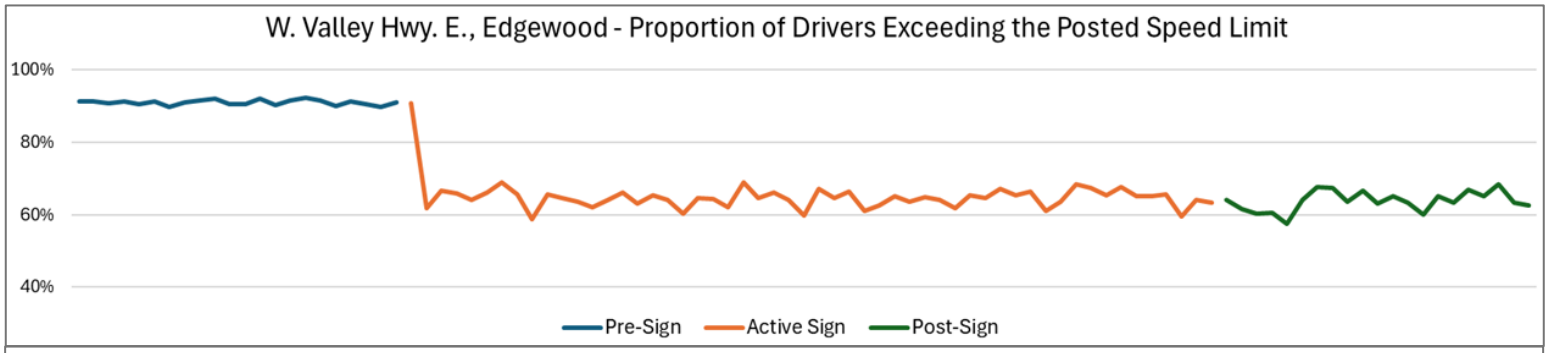


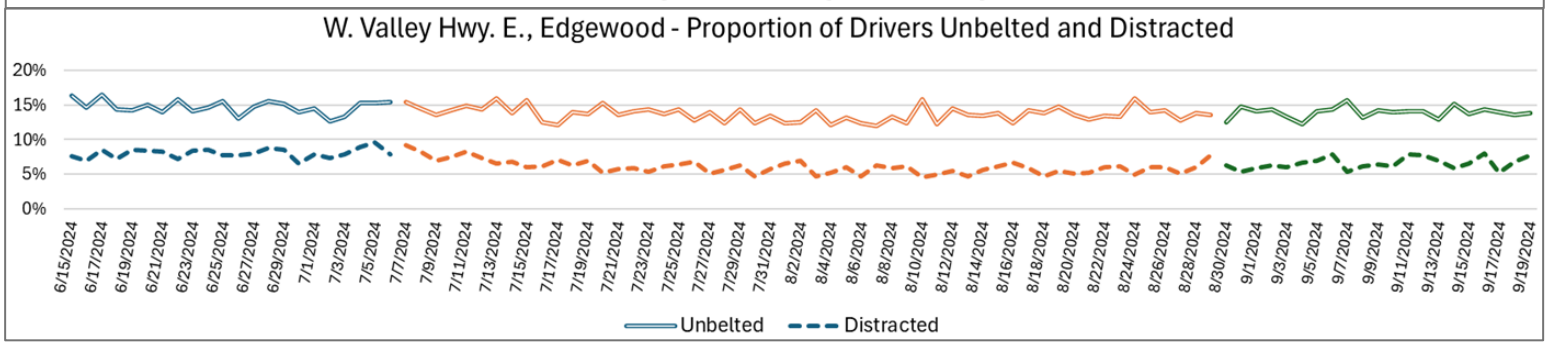
High-risk driver behavior related to seat belt use, driver cell phone use, and speeding was collected prior to the sign deployment March 18—May 29, 2024. The Smart Sign was deployed May 30—July 4. Additional data was collected July 5—July 14 after the Smart Sign had been removed. One week was identified from each period (pre-sign, active sign, and post-sign), highlighted on the chart above, to compare changes in driver behavior rates between time periods. There was no change between time periods for seat belt use or distracted driving, and nominal reductions in driver speeding compared to other Smart Sign locations.



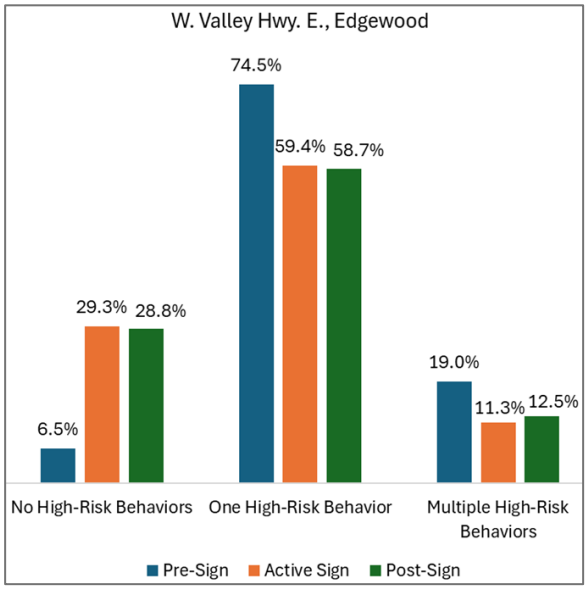
The Smart Signs mostly influenced changes in driver speeding behavior, with some influence on distracted driving, and seemingly no influence on front seat passenger seat belt use. Rates of driver speeding and distraction increased once the sign was removed but sustained some reduction compared to the pre-sign period. A large portion of speeding drivers at this location are traveling greater than 10 mph over the posted speed limit. While the sign had some impact on this group, one-third of speeding drivers still traveled 10 mph or more over the posted speed limit while the sign was active. The proportion of drivers engaging in two or more high-risk driving behaviors at the same time decreased slightly while the smart sign was active. Despite some decreases during smart sign deployment, high-risk driver behavior is persistent at this location.



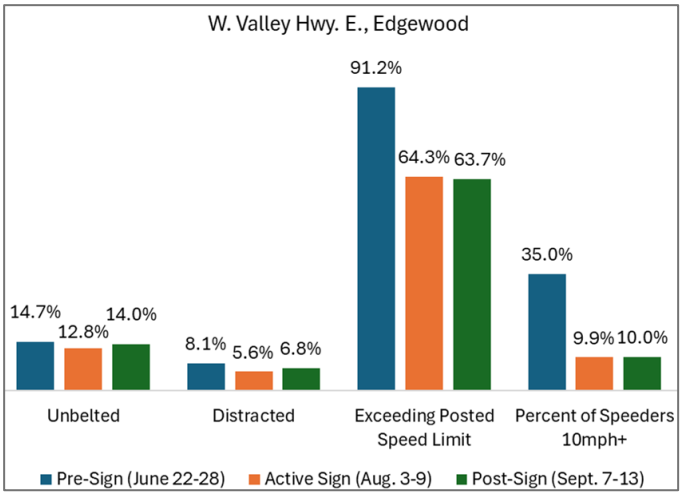


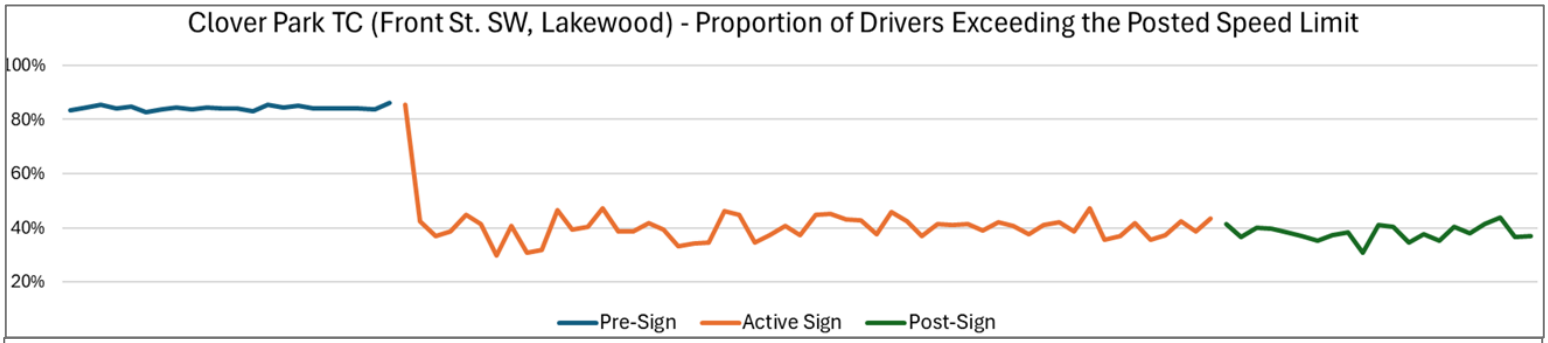


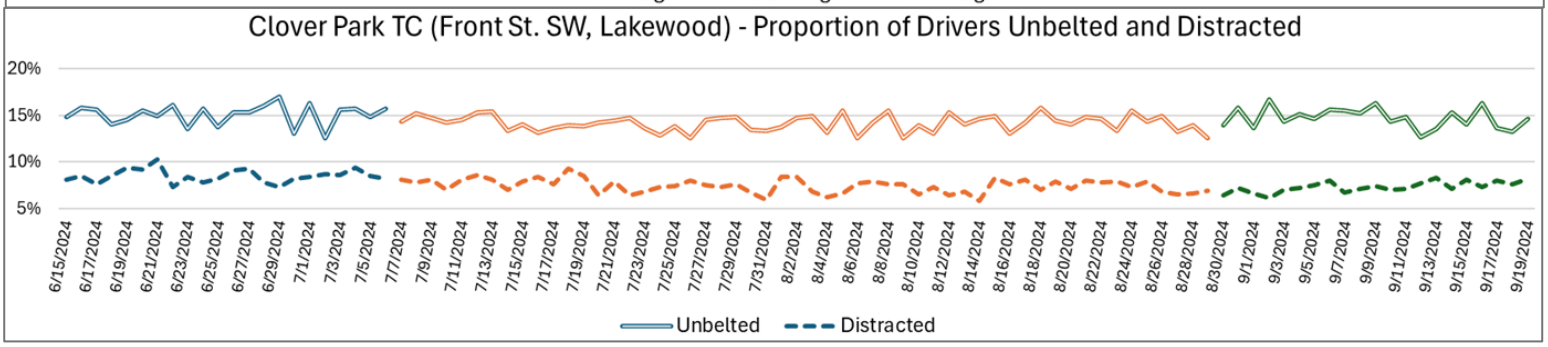
High-risk driver behavior related to seat belt use, driver cell phone use, and speeding was collected prior to the sign deployment June 15—July, 6, 2024. The Smart Sign was deployed July 7—August 29. Additional data was collected August 30—September 19 after the Smart Sign had been removed. One week was identified from each period (pre-sign, active sign, and post-sign), highlighted on the chart above, to compare changes in driver behavior rates between time periods. There was nominal changes to seat belt use and driver cell phone distraction, and significant reductions in driver speeding.



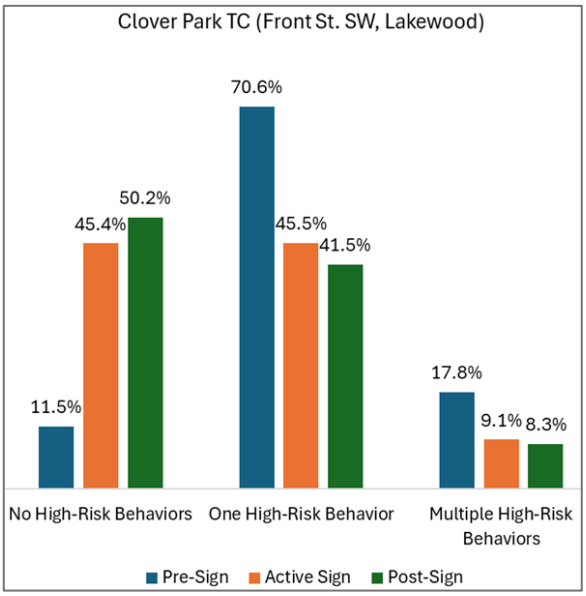
The Smart Signs mostly influenced changes in driver speeding behavior, with some influence on seat belt use and distracted driving. Reductions in driver speeding behavior were sustained in the post-sign period. During the pre-sign period, more than one-third of speeding drivers were exceeding the posted by speed limit by 10 mph or more. This dropped to just one in ten speeding drivers once the sign was activated. In addition to having impact on drivers exceeding the posted speed limit, and speeding drivers exceeding the limit by 10 mph or more, the sign also decreased the number of drivers engaging in two or more high-risk behaviors at the same time, dropping from 19 percent in the pre-sign time period to 11.3 percent of drivers when the sign was active.



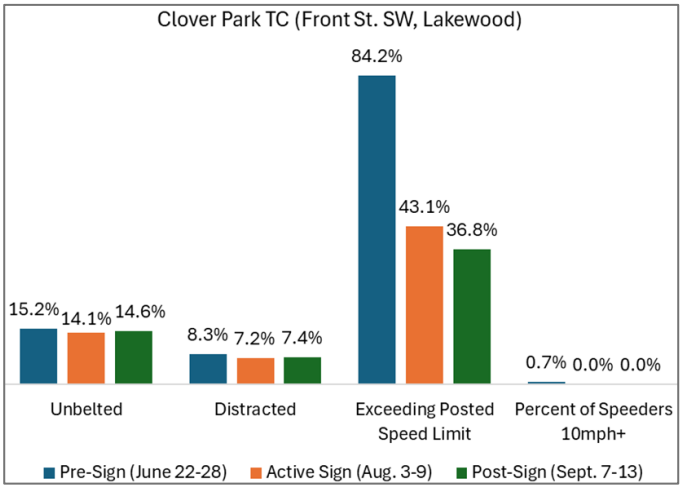


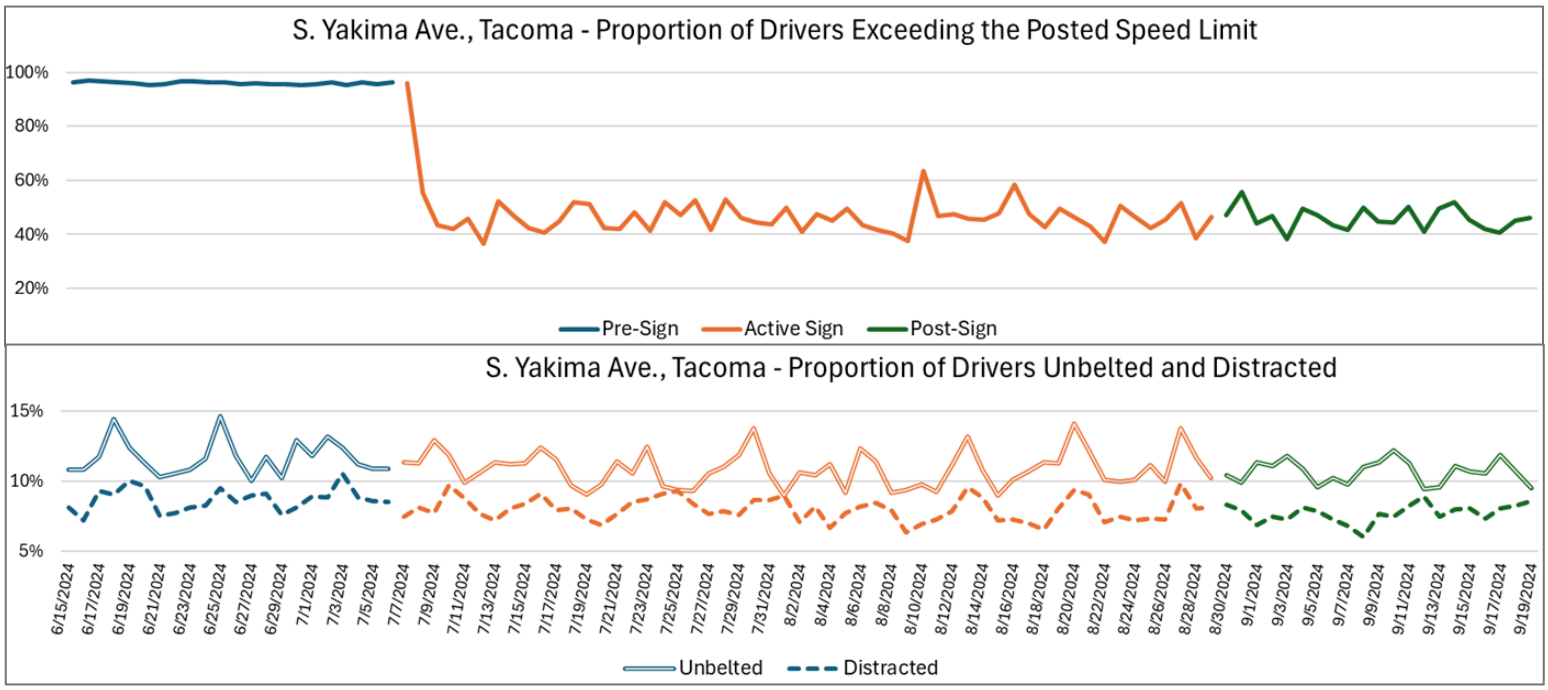


High-risk driver behavior related to seat belt use, driver cell phone use, and speeding was collected prior to the sign deployment June 15—July 6, 2024. The Smart Sign was deployed July 7—August 29. Additional data was collected August 30—September 19 after the Smart Sign had been removed. One week was identified from each period (pre-sign, active sign, and post-sign), highlighted on the chart above, to compare changes in driver behavior rates between time periods. There were nominal changes to seat belt use and driver cell phone distraction, and significant reductions in driver speeding.

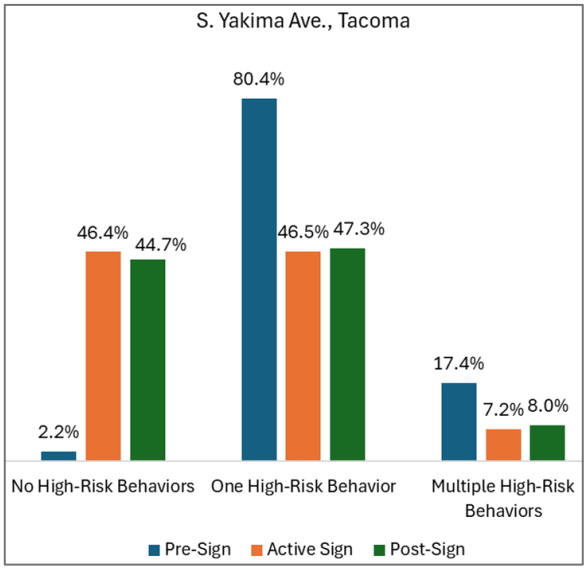


The Smart Signs mostly influenced changes in driver speeding behavior, with some influence on distracted driving front seat passenger seat belt use. Reductions in driver speeding behavior were sustained in the post-sign period. Speeding drivers are traveling less than 10 mph over the posted speed limit in all time periods. In the pre-sign period, four of every five drivers were exceeding the posted speed limit. This dropped to just two in five drivers when the sign was active. In addition to having impact on drivers exceeding the posted speed limit, the sign also decreased the number of drivers engaging in two or more high-risk behaviors at the same time, dropping from 17.8 percent in the pre-sign period to 9.1 percent of drivers when the sign was active.

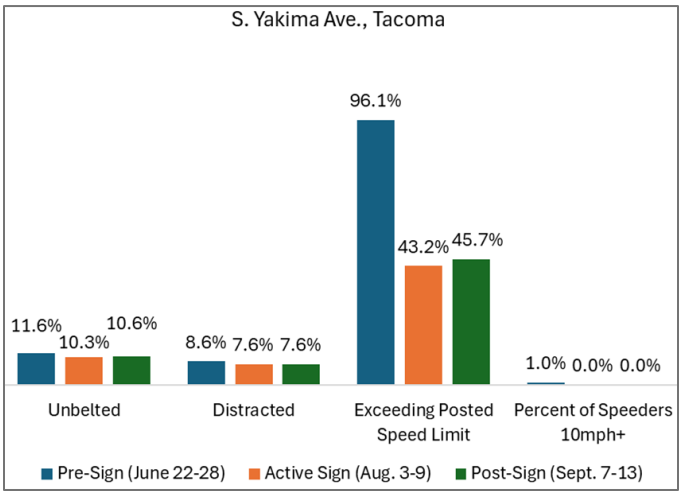


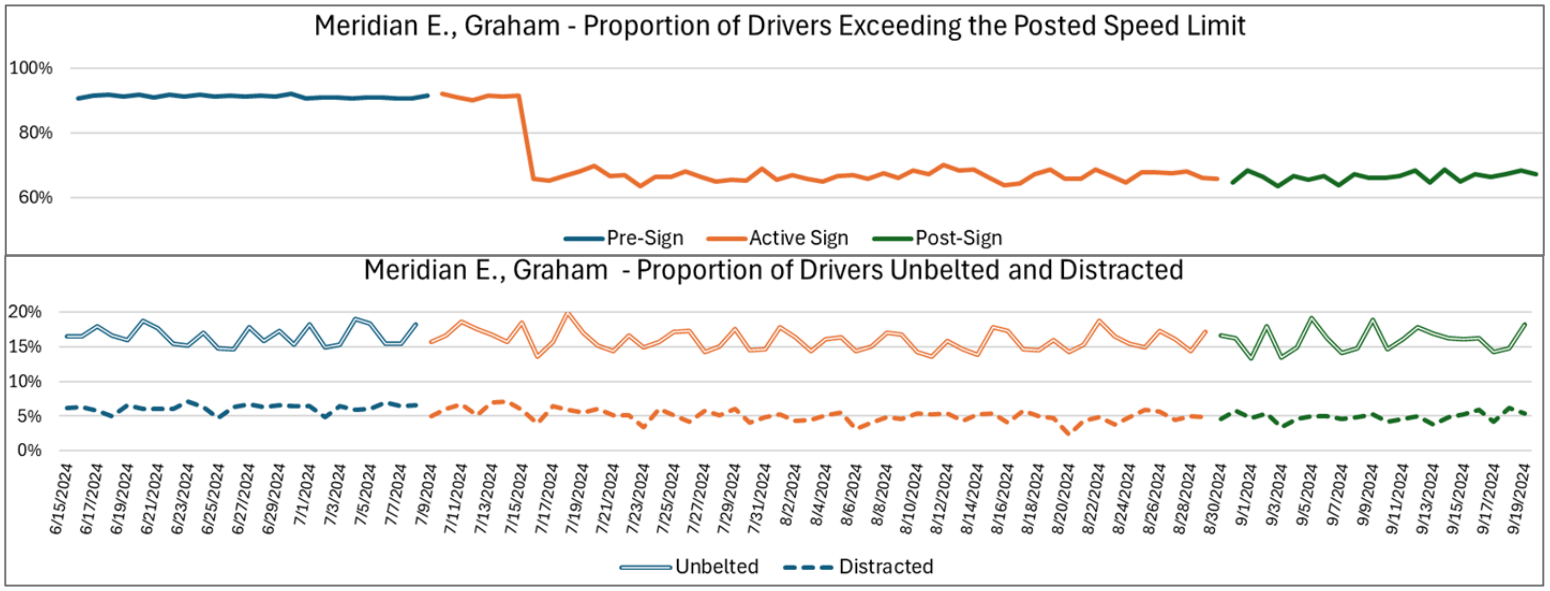


High-risk driver behavior related to seat belt use, driver cell phone use, and speeding was collected prior to the sign deployment June 15—July 6, 2024. The Smart Sign was deployed July 7—August 29. Additional data was collected August 30—September 19 after the Smart Sign had been removed. One week was identified from each time period (pre-sign, active sign, and post-sign), highlighted on the chart above, to compare changes in driver behavior rates between time periods. There was nominal changes to seat belt use and driver cell phone distraction, and significant reductions in driver speeding.

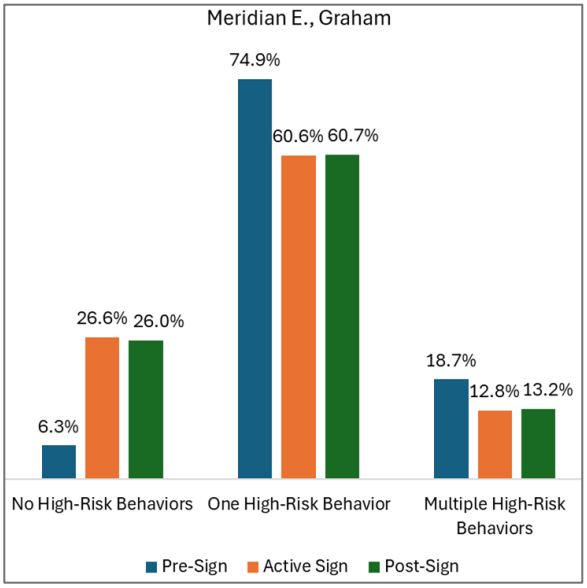


The Smart Signs mostly influenced changes in driver speeding behavior, with some influence on distracted driving front seat passenger seat belt use. Reductions in driver speeding behavior were sustained in the post-sign period. Speeding drivers are traveling less than 10 mph over the posted speed limit in all time periods. In the pre-sign period, four of every five drivers were exceeding the posted speed limit. This dropped to just two in five drivers when the sign was active. In addition to having impact on drivers exceeding the posted speed limit, the sign also decreased the number of drivers engaging in two or more high-risk behaviors at the same time, dropping from 17.4 percent in the pre-sign period to 7.2 percent of drivers when the sign was active.

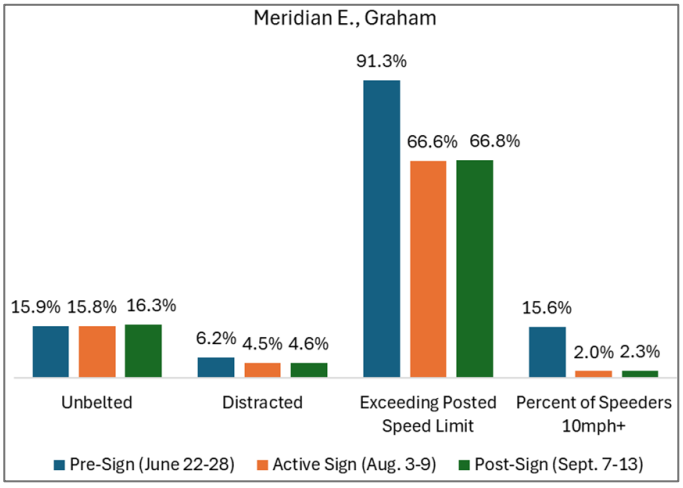




High-risk driver behavior related to seat belt use, driver cell phone use, and speeding was collected prior to the sign deployment June 15—July 8, 2024. The Smart Sign was deployed July 9—August 29. Additional data was collected August 30—September 19 after the Smart Sign had been removed. One week was identified from each time period (pre-sign, active sign, and post-sign), highlighted on the chart above, to compare changes in driver behavior rates between time periods. There was no change between time periods for seat belt use, nominal changes to driver cell phone distraction, and significant reductions in driver speeding.



The Smart Signs mostly influenced changes in driver speeding behavior, with some influence on distracted driving, and seemingly no influence on front seat passenger seat belt use. Reductions in driver cell phone use and driver speeding behavior were sustained in the post-sign time period. Over 90 percent of drivers exceeded the posted speed limit in the pre-sign period, which dropped to two-thirds of drivers while the sign was active. The proportion of speeding drivers exceeding the posted speed limit by 10 mph or more also decreased to just two percent when the sign was active. Despite these reductions, driver speeding is persistent at this location. The sign also slightly decreased the number of drivers engaging in two or more high-risk behaviors at the same time, dropping from 18.7 percent in the pre-sign period to 12.8 percent of drivers when the sign was active.



Data Sources: [1] SaferStreet Solutions Smart Signs [2] WTSC Statewide Survey

For more information, please contact the WTSC Research and Data Division at (360) 725-9860.