TECHNICAL MEMORANDUM

DATE:	May 15, 2023
TO:	City of Vancouver
FROM:	Parametrix
SUBJECT:	Appendix D: Safety Analysis (Corridor Details)
CC:	
PROJECT NUMBER:	
PROJECT NAME:	NE 112th Avenue Safety and Mobility Project

Corridor Details

This appendix provides additional details for specific locations from the observed crashes review and the predictive analysis by corridor section. A positive value indicates the location is performing worse than similar sites and has a greater potential to improve safety; while a negative value indicates the location is performing better than similar sites and has a lower potential to improve safety as it is already performing better than predicted.

Segment 1: SE McGillivray Boulevard to Mill Plain Boulevard

This section includes two segments, SE McGillivray Boulevard to SE 7th Street and SE 7th Street to Mill Plain Boulevard, and two intersections, SE Chkalov Drive & SE McGillivray Boulevard and SE Chkalov Drive & SE 7th Street.

SE Chkalov Drive & SE McGillivray Boulevard Intersection

Four crashes occurred at this intersection during the study period, two rear end crashes, one fixed object crash, and one pedestrian-related crash, which was a fatal crash. The pedestrian was crossing in a marked crosswalk at the intersection with the signal and was struck by a right turning vehicle. The driver's primary contributing circumstance was losing control due to the icy roadway conditions and snow. This crash also occurred in the dark (with streetlights). All other crashes involved non-severe or no injuries.

The predictive analysis shows that this intersection is performing slightly better than predicted (PSI < 0).

SE McGillivray Boulevard to SE 7th Street Segment

No segment crashes occurred between McGillivray Boulevard and 7th Street during the study period and the predictive analysis shows that this segment is performing better than predicted (PSI < 0).

SE Chkalov Drive & SE 7th Street Intersection

Thirteen total crashes occurred at this intersection during the study period, all with non-severe or no injuries. The most common crash type was angle crashes (62%) with the other crashes being rear end, fixed object, sideswipe-same direction, and other. No crashes involved pedestrians or bicyclists. Over half of the crashes occurred under dark conditions with streetlights. The most common contributing factors included inattention and failure to grant right-of-way.

The predictive analysis shows this intersection is experiencing approximately one additional crash every 2.5 years than predicted.

SE 7th Street to Mill Plain Boulevard Segment

Thirty-nine total crashes occurred on this segment during the study period. Three crashes were severe injury crashes, 14 were non-severe injury crashes, and 22 were no injury crashes. Almost 70% of crashes were angle crashes and over 75% of crashes were driveway related, thirteen of which occurred at the Fred Meyer plaza driveway. Ten crashes were also hit and run crashes.

There were four pedestrian-involved crashes and one bicyclist-involved crash. All four pedestrian crashes occurred in August or September of 2021, occurred at driveways, were non-disabling injury crashes, and involved turning vehicles (three right turns, one left turn). Two of these crashes involved motorized wheelchairs while the other two involved pedestrians under the influence of alcohol. The bicycle crash did not result in any injuries but was a hit and run crash. No other information was available for this crash.

The predictive analysis shows that this segment is performing about as predicted (PSI = 0). But this segment did have the highest crash frequency per mile (21.7 crashes/mile) of any other segment in the corridor.

Segment 2: Mill Plain Boulevard to SE 9th Street

SE Chkalov Drive & Mill Plain Boulevard Intersection

Sixty-six total crashes occurred at this intersection during the study period, including one fatal crash, 21 non-severe injury crashes, and 44 no injury crashes. About 55% of crashes were rear end crashes, 15% sideswipe-same direction, and 12% angle. About one-third of crashes were hit and run crashes and four involved alcohol.

There were five pedestrian-involved crashes and one bicyclist-involved crash. The one fatal crash involved a pedestrian on a personal conveyance device who was crossing in a marked crosswalk at the intersection but against the signal. The other pedestrian crashes at this intersection involved pedestrians crossing in a marked crosswalk with the signal, with three of them involving turning vehicles (two right turns, one left turn).

The predictive analysis shows that this intersection is performing worse than predicted, experiencing up to 5 crashes per year more than similar sites (PSI > 0). This intersection is the worst-performing intersection on the corridor compared to similar sites since it had the highest PSI (4.6 crashes/year). Additionally, as previously discussed, this intersection was included in the top ten intersections identified in the 2022 LRSP (#4) with the greatest number and severity of injury crashes than any other intersection in Vancouver during the LRSP analysis period.

Mill Plain Boulevard to I-205 NB Off-Ramp Segment

Seventeen total crashes occurred on this segment during the study period, including eight non-severe injury crashes and nine no injury crashes. About 65% of crashes (11 crashes) were driveway-related, which were all angle crashes (seven crashes) or rear end crashes (four crashes). No pedestrian- or bicyclist-involved crashes occurred on this segment during the study period.

The predictive analysis shows that this segment is performing slightly worse than predicted, experiencing up to one crash more every two years than similar sites (PSI > 0). This site also had the second highest crash frequency per mile on the corridor and a portion of this segment was ranked as the top segment by crash weight in the 2022 LRSP.

NE 112th Avenue & I-205 NB Off-Ramp Intersection

Sixteen total crashes occurred at this intersection during the study period, including one fatal crash, two severe injury crashes, one non-severe injury crash, and 12 no injury crashes. Fixed object crashes were the most common crash type (81%), including all three fatal and severe injury crashes. Six crashes involved alcohol or

drugs, including both severe injury crashes (alcohol). The driver in the fatal crash was noted as ill. No pedestrian- or bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this segment is performing about as predicted (PSI = 0).

I-205 NB Off-Ramp to NE 9th Street Segment

Nine total crashes occurred on this segment during the study period, all with non-severe or no injuries. There was little variation of crash type, but five of the crashes were hit and runs, including one attributed to racing and another attributed to fleeing a lawful pursuit. The other crashes were attributed to inattention.

One bicyclist-involved crash occurred on this segment with no pedestrian-involved crashes. The bicyclist was struck in a driveway, in the dark with no streetlights while raining.

The predictive analysis shows that this segment is performing better than predicted (PSI < 0), with up to 1 fewer crash every two years than predicted.

Segment 3: NE 9th Street to NE 18th Street

NE 112th Avenue & NE 9th Street Intersection

Twelve total crashes occurred at this intersection during the study period, all with non-severe or no injuries. Angle and rear end crashes were the most common crash types, and there were a range of contributing factors.

There were two pedestrian-involved crashes and one bicyclist-involved crash. Both pedestrian crashes occurred while the pedestrian was crossing in a marked crosswalk with the signal and the driver failed to yield. One involved a right-turning vehicle, the other a left-turning vehicle. The bicycle crash involved a distracted driver making a left-turn.

The predictive analysis shows that this segment is performing about as predicted (PSI ≈ 0).

NE 9th Street to NE 14th Street Segment

No segment crashes occurred between 9th Street and 14th Street during the study period and the predictive analysis shows that this segment is performing better than predicted (PSI < 0), with up to 1 fewer crash every two years than predicted.

NE 112th Avenue & NE 14th Street Intersection

No intersection crashes occurred at this intersection during the study period and the predictive analysis shows that this segment is performing about as predicted (PSI = 0).

NE 14th Street to NE 18th Street Segment

One crash occurred on this segment during the study period. It was an angle crash with no injuries due to an improper left turn at a driveway. No pedestrians or bicyclists were involved.

The predictive analysis shows that this segment is performing better than predicted (PSI < 0), with up to 1 fewer crash every two years than predicted.

Segment 4: NE 18th Street to NE 28th Street

NE 112th Avenue & NE 18th Street Intersection

Twenty-four total crashes occurred at this intersection during the study period, all with non-severe or no injuries. The majority of crashes (54%) were angle crashes, three of which involved speeding, four involved inattention or distractions, and three disregarded the signal. No pedestrian- or bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this intersection is performing worse than predicted, experiencing up to about 1 crash more per year than similar sites (PSI > 0).

NE 18th Street to NE 20th Street Segment

Four total crashes occurred on this segment during the study period, all with non-severe or no injuries. Two crashes were sideswipe same-direction crashes, one was a rear end, and one was a fixed object crash. No pedestrian- or bicyclist-involved crashes occurred on this segment during the study period.

The predictive analysis shows that this segment is performing slightly better than predicted (PSI < 0), with up to 1 fewer crash every four years than predicted.

NE 112th Avenue & NE 20th Street Intersection

No intersection crashes occurred at this intersection during the study period and the predictive analysis shows that this intersection is performing slightly better than predicted (PSI < 0), with up to 1 fewer crash every four years than predicted.

NE 20th Street to NE 23rd Street Segment

Nine total crashes occurred on this segment during the study period, including one fatal crash, two non-severe injury crashes, and six no injury crashes. The fatal crash involved a pedestrian crossing at a non-intersection with no crosswalk under dark (with streetlights) conditions. The majority of the other crashes were fixed object crashes and included a variety of contributing factors.

The predictive analysis shows that this segment is performing slightly better than predicted (PSI < 0), with up to 1 fewer crash every five years than predicted.

NE 112th Avenue & NE 23rd Street Intersection

No intersection crashes occurred at this intersection during the study period and the predictive analysis shows that this intersection is performing slightly better than predicted (PSI < 0), with up to 1 fewer crash every three years than predicted.

NE 23rd Street to NE 28th Street Segment

Seven total crashes occurred on this segment during the study period, all included no injuries except for one non-severe crash. The non-severe injury crash was a pedestrian-involved crash where a left-turning distracted driver struck a pedestrian crossing in a marked crosswalk. Two of the other crashes involved alcohol and one involved speeding.

The predictive analysis shows that this segment is performing better than predicted (PSI < 0), with up to 1 fewer crash every year than predicted.

Segment 5: NE 28th Street to NE 39th Street

NE 112th Avenue & NE 28th Street Intersection

Thirty-seven total crashes occurred at this intersection during the study period, all with non-severe or no injuries. The majority of crashes were either rear end (49%) or angle crashes (32%), seven of which were hit and runs and three involved alcohol. No pedestrian- or bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this intersection is performing worse than predicted, experiencing up to about 2 crashes more per year than similar sites (PSI > 0).

NE 28th Street to NE 39th Street Segment

Sixteen total crashes occurred on this segment during the study period, including two severe injury crashes, 6 non-severe injury crashes, and 8 no injury crashes. One severe injury crash was an angle crash and the other was an opposite direction crash that involved alcohol. Six total crashes on this segment involved alcohol. No pedestrian- or bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this segment is performing better than predicted (PSI < 0), with up to 3 fewer crashes every year than predicted. However, this segment was identified in the 2022 LRSP as number 7 on the top ten list of segments by crash weight.

Segment 6: NE 39th Street to NE 51st Street

NE 112th Avenue & NE 39th Street Intersection

Fourteen total crashes occurred at this intersection during the study period, including five non-severe injury crashes and 9 no injury crashes. The majority of crashes were angle or rear end crashes (71%), but there was one pedestrian crash that involved a left-turning driver striking a pedestrian crossing in a marked crosswalk with the signal. No bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this intersection is performing slightly better than predicted (PSI < 0), with up to 1 fewer crash every three years than predicted.

NE 39th Street to NE 49th Street Segment

Fourteen total crashes occurred on this segment during the study period, including two severe injury crashes, five non-severe injury crashes and seven no injury crashes. The majority of crashes were either rear end (43%) or angle crashes (29%), in addition to one pedestrian-involved crashes. The pedestrian was not crossing at an intersection or in a marked crosswalk with dark (streetlight on) conditions. Two crashes involved alcohol including the other severe injury crash. No bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this segment is performing better than predicted (PSI < 0), with up to five fewer crashes every two years than predicted.

NE 112th Avenue & NE 49th Street Intersection

Thirty-nine total crashes occurred at this intersection during the study period, including one severe injury crash, 12 non-severe injury crashes, and 26 no injury crashes. The majority of crashes (46%) were rear end crashes, five crashes (13%) involved alcohol or drugs, and two involved a pedestrian. One of the pedestrian crashes was a severe injury crash that was a hit and run where the pedestrian was struck in a marked crosswalk at an intersection, crossing with the signal, in the dark (with streetlights), and while snowing. The other pedestrian cross occurred at a driveway and did not involve any injuries. No bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this intersection is performing worse than predicted, experiencing up to about two crashes more per year than similar sites (PSI > 0).

NE 49th Street to NE 51st Street Segment

Six total crashes occurred on this segment during the study period, including one severe injury crash, two non-severe injury crashes, and three no injury crashes. The majority of crashes (67%) were rear end crashes. The one severe injury crash was a fixed object crash where the driver was exceeding a reasonable safe speed and lost control during rainy and wet conditions, running off the road into a utility pole. No pedestrian- or bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this intersection is performing slightly better than predicted (PSI < 0).

NE 112th Avenue & NE 51st Street Intersection

Fifty-two total crashes occurred at this intersection during the study period, all with non-severe or no injuries. The majority of crashes were angle crashes (65%), which were often attributed to a failure to yield and/or disregarding the traffic control. About one-third of crashes were attributed to some form of inattention or distraction and four involved alcohol. No pedestrian- or bicyclist-involved crashes occurred at this intersection during the study period.

The predictive analysis shows that this intersection is performing worse than predicted, experiencing up to about seven crashes more every two years than similar sites (PSI > 0). This was the second worst performing intersection according to the predictive analysis.