

# Safe Systems on 122nd Avenue: A model for humanizing arterial streets

## Project Elements & Related Safety Impact Assessment



PROJECT ELEMENT	SAFETY ISSUE(S) ADDRESSED ON 122ND AVE	CRASH REDUCTION FACTOR	DURATION OF BENEFIT	
<b>Corridor Treatments</b>				
1	Lighting	Pedestrian crashes in dark conditions	63% (CMC) <sup>1</sup>	Long
2	Protected bike lanes	Bike crashes away from intersections and driveways	59% (ODOT) <sup>2</sup>	Long
3	New pedestrian crossings	Pedestrians hit in roadway	55% (CMC)	Long
4	Speed reader boards (Individual changeable speed warning signs)	High-risk vehicle and motorcycle speeds	41% (CMC)	Short-Medium
5	Raised center median – two travel lanes	Angle and turning vehicle and motorcycle crashes	39% (CMC)	Long
6	Raised center median – four travel lanes	Angle and turning vehicle and motorcycle crashes	22% (CMC)	Long
7	Road reorganization (5 to 3 lane)	High-risk vehicle and motorcycle speeds, turning and angle crashes	28% <sup>3</sup>	Long
8	Street trees	High-risk vehicle and motorcycle speeds	10% (ODOT)	Long
9	Transit stop curb extensions	Bike crashes away from intersections and driveways, and high-risk vehicle and motorcycle speeds	Not available <sup>4</sup> (59% protected bike lane (ODOT))	Long



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<b>Intersection Treatments</b>				
10	Roundabout	Angle, turning, and head-on vehicle and motorcycle crashes	78% (CMC)	Long
11	Intersection design changes for extra pedestrian and bicyclist separation	Pedestrians and people biking hit by turning vehicles at major intersections, high-risk vehicle and motorcycle speeds	Not available	Long
12	Ped countdown timers	Pedestrians hit by vehicles at signalized intersections	70% (CMC)	Long
13	Signal separation for pedestrians and people biking	Pedestrians and people biking hit by turning vehicles at major intersections	39% (CMC)	Long
14	Adaptive signal timing optimization	High-risk vehicle and motorcycle speeds; angle and turning crashes	17% (CMC)	Long
15	Retroreflective backplates	Signalized intersection crashes, particularly angle and turning crashes related to red light running	15% (CMC)	Long
<b>Engagement &amp; Evaluation</b>				
16	Engagement & marketing campaign	High-risk vehicle and motorcycle speeds, turning movements, and failure to look for pedestrians	Not available <sup>5</sup>	Short-Medium
17	Evaluation	Evaluating effectiveness can evolve safety programs to prevent and reduce serious injuries overall	Not available <sup>6</sup>	Long

## Endnotes

- 1 CMC refers to the Crash Modification Clearinghouse at <https://www.cmfclearinghouse.org>
- 2 ODOT refers to Oregon Department of Transportation’s Highway Safety Improvement Countermeasures and Crash Reduction Factors at <https://www.oregon.gov/odot/Engineering/ARTS/CRF-Appendix.pdf>
- 3 Figure refers to a Portland Bureau of Transportation internal analysis indicating a 28% reduction in fatal and serious injury crashes on 5-to-3 lane conversions on three streets in Portland.
- 4 Transit stop curb extensions allow the bicycle facility to remain protected rather than requiring bicyclists to merge with a motor vehicle lane to go around a stopped bus. Additionally, it maintains a protected bicycle facility up-to, at, and after the stop. If the bus were required to pull to the curb, it would require a significant gap in bike lane protection. Finally, it allows for bus loading and unloading within the travel lane, as opposed to off to the side, which may moderate vehicle and motorcycle speeds and reduce crashes on 122nd Avenue associated with high-risk speeds.
- 5 The World Health Organization states that traffic safety campaigns can be effective in creating “shared social norms for safety” and can “help to bring about a climate of concern and develop sympathetic attitudes towards effective interventions.” <https://www.who.int/publications/i/item/world-report-on-road-traffic-injury-prevention>
- 6 FHWA states that, “Effectiveness information gained through the process of evaluating the performance of implemented countermeasures provides input to agencies that is useful for modifying and evolving their safety programs to prevent and reduce more severe crashes.” <https://safety.fhwa.dot.gov/systemic/fhwasa13019/element3.cfm>