ROADWAY SAFETY IMPROVEMENT STRATEGIES

INTRODUCTION

During 2019 and 2020, the National Capital Region Transportation Planning Board (TPB) Technical Committee conducted a Regional Safety Study in collaboration with the state Safety Engineers from the District of Columbia, Maryland and Virginia Departments of transportation to:

- Understand the factors contributing to the high number of fatal and serious injury crashes in the National Capital Region (NCR);
- Determine where and what types of crashes on the roadway transportation network are over-represented;
- Identify and recommend proven effective project, program and policy solutions to significantly reduce fatalities and serious injury crashes; and
- Inform future Transportation Safety Subcommittee and Street Smart efforts.

Following are recommended actions that can, if implemented, significantly reduce the number of people killed or seriously injured throughout the region in four areas that were identified through data analysis as the area's serious traffic safety problems including pedestrian, intersection, major arterial, and young driver crashes. The appropriateness of any of the strategies listed in this document need to be determined on a case-by-case basis. This list of strategies is not comprehensive and does not preclude the use of other proven effective strategies to improve roadway safety.

The TPB condemns enforcement of roadway traffic operational and safety-related laws, both nationally and regionally in ways that are discriminatory, exclusionary, or have disparate impacts on people of color and marginalized communities and calls for unconditional commitment to equity and anti-racism. As such, the TPB strongly urges all safety strategies implemented in the region be consistent with its Equity Policy statement, below:

> The TPB and its staff commit that our work together will be anti-racist and will advance equity including every debate we have, and every decision we make as the region's MPO; and The TPB affirms that equity, as a foundational principle, will be woven throughout TPB's analyses, operations, procurement, programs, and priorities to ensure a more prosperous, accessible, livable, sustainable, and equitable future for all residents; and We recognize past actions that have been exclusionary or had disparate negative impacts on people of color and marginalized communities, including institutionalized policies and practices that continue to have inequitable impacts today, and we commit to act to correct such inequities in all our programs and policies.

LEGEND

- Intersections
- Speeding
- Pedestrians
- Education
- Major Arterials
- Alcohol Impaired Driving
- Young Drivers <25
- Emergency Medical Services
- Roadway Departure
- Distracted Driving
- Older Drivers 65+
- Communications
- Rear-end Collisions
- Occupant Protection
- Enforcement
- Legislation

DESIGN AND OPERATE SAFER INFRASTRUCTURE	
	Install pedestrian hybrid beacon and advanced yield signs, stop markings and signs, high visibility crosswalk markings.
	Implement leading pedestrian interval (LPI) at intersections with high turning vehicle volumes.
	Conduct pedestrian road safety audits in areas with a higher than average crashes.
	Reduce motor vehicle speeds by using data driven, effective, and equitable enforcement methods that utilize available technology, such as automated speed cameras, and other traffic calming strategies such as narrower lanes, adding roundabouts, and implementing road diets.
	Evaluate mid-block crossings with higher rates of fatalities and serious injuries (especially those over 10,000 Annual Average Daily Traffic (AADT)) to determine the need for more improvements such as medians, refuge islands, pedestrian hybrid beacon, and rectangular rapid flashing beacons.
	Install pedestrian countdown signals.
	Improve geometry of pedestrian and bicycle facilities at signalized intersections with high frequencies of pedestrian and/or bicycle crashes and on routes serving schools or other generators of pedestrian and bicycle traffic.
	Provide walkways where appropriate, including paved shoulders, shared-use paths, trails, bicycle lanes and/or separated bike lanes.
	Install lighting at intersection and mid-block crossings to ensure motorists can see pedestrians crossing the road at locations with high pedestrian crashes.
	Evaluate double-right turns at intersections to determine if removal of one right-turn lane is warranted.
	Implement audible pedestrian crossing signals where appropriate.
	Create pedestrian safety zone programs in areas with high occurrences of pedestrian crashes.
	Replace intersections that have high numbers of fatalities and serious injuries with roundabouts, a circular intersection configuration with channelized approaches and a center island that results in lower speeds and fewer conflict points, wherever feasible.
	Utilize multiphase signal operation at signalized intersections with a high frequency of angle crashes involving left turning and opposing through vehicles as well as rear-end and sideswipe crashes.
	Increase change intervals (when the traffic lights change) at signalized intersections at locations where too-short signal change intervals cause rear-end crashes and crashes between vehicles continuing and entering the intersection between phases.
	Improve left-turn channelization (providing definite paths for vehicles to follow) at signalized intersections where left-turn crashes, including those associated with left turning vehicles from through lanes, are an issue.
	Improve right-turn channelization at signalized intersections with a high number of rear-end collisions.

DESIGN AND OPERATE SAFER INFRASTRUCTURE			
			Install LED heads and reflective backplates (reflective borders around traffic lights that make them more visible) in locations with high numbers of signalized intersection fatal and serious injury crashes.
			Restrict access to properties using driveway closures or turn restrictions that are near signalized intersections with high crash frequencies related to driveways.
			Restrict or eliminate turning maneuvers (including right turns on red) or employ signal coordination at signalized intersections with a high frequency of crashes related to turning maneuvers.
			Improve signage at unsignalized intersections by ensuring foliage does not block the sign, the lettering is still reflective, and the sign is located where it can be seen by motorists.
			Add reflective material to sign posts at unsignalized intersections.
			Install LED-enhanced stop signs at unsignalized intersections where there are a higher than average number of fatal and serious injury crashes.
			Implement high friction treatment at intersections that have a high number of rear-end crashes.
			Implement left-turn traffic calming (left turn hardening) to reduce left turn speeds and provide for safe turning behavior at intersections that show a pattern of pedestrian-related left turn crashes and intersection geometry that facilitates high speeds.
			Implement roadside design improvements such as clear zones, slope flattening, and adding or widening shoulders to improve ability for drivers to safely recover if they leave the travel lane.
			Implement enhanced delineation treatments to alert drivers in advance of the curve including pavement markings; post-mounted delineation; larger signs and signs with enhanced retro-reflectivity; and dynamic advance curve warning signs and sequential curve signs.
			Implement improvements including installation of cable barriers, guardrails, and concrete barriers to reduce the severity of roadway departure crashes.
			Identify areas in the region that could benefit from traffic calming including road diets that reduce the number of traffic lanes and planting trees that encourage reduced speeds.
			Install high friction surface treatment (HFST) in locations where the available pavement friction is not adequate to support operating speeds at a sharp curve, inadequate cross-slope design, wet conditions, polished roadway surfaces, or driving speeds in excess of the curve advisory speed.
			Install longitudinal rumble strips and stripes in locations where run-off-the-road crashes are high.
			Install the Safety Edge to eliminate the vertical drop-off at the pavement edge, allowing drifting vehicles to return to the pavement safely.
			Develop a regional Safety Checklist or template as a tool for local jurisdictions to use during planning and project identification efforts

ENCOURAGE SAFER BEHAVIOR	
	Include pedestrian safety and the risks of impairment for pedestrians and drivers in alcohol related media campaigns.
	Develop and implement pedestrian safety programs for elementary school students.
	Continue the regional Street Smart Campaign and strengthen by aiding member jurisdictions to engage street teams and other elements of the campaign at more locations throughout the year.
	Develop and implement school focused pedestrian strategies building on the work done in the Safe Routes to Schools program.
	Conduct education and fair, equitable, data-driven compliance campaigns focused on distracted driving (D.R.I.V.E, Texting and Driving Initiative).
	Support legislative classification of distracted driving as a "moving violation" and decide if changes are needed.
	Provide public information, education, and training for older drivers on risks associated with signalized intersections such as red-light running, speeding, not yielding to pedestrians, and difficulty judging speed and distance of approaching vehicles when making left turns.
	Conduct a study to determine the safety needs of older adults in the region and coordinate internally and externally to provide information on transportation alternatives other than driving.
	Increase automated enforcement at intersections including speed on green lights, stop-light camera, blocking the box, etc.
	Implement safety awareness campaigns specifically for low seat belt use groups.
	Support state primary seat belt legislation.
	Evaluate incident response times to determine if additional Traffic Incident Management (TIMS) training and/or other resources are needed. Develop incident response plans for interstates and arterials throughout the region.
	Implement strategic and well-publicized compliance programs aimed at young drivers.
	Conduct well publicized, multi-component compliance campaigns throughout the region to address underage drinking, including licensing actions for underage alcohol violations, and vendor compliance checks to reduce underage drinking.
	Implement and enhance server training programs to enable servers to identify underage customers and prevent overserving.
	Increase use of ignition interlocks for impaired driving offenders.
	Encourage uniform support for open-container laws, an effective countermeasure that prevents impaired driving by prohibiting the possession of any open alcoholic beverage container and the consumption of any alcoholic beverage by motor vehicle drivers or passengers.
	Provide and encourage use of ride sharing programs (like SoberRide) to reduce impaired driving; encourage more late-night transit service to provide options other than driving while impaired.
	Conduct well-publicized compliance programs aimed at impaired drivers.