

WMPO SS4A Strategies Toolbox

#	Strategy	Category	Cost (\$, \$\$, \$\$\$)	Emphasis Area				Area Type						Safe System Approach Objective	Safe System Roadway Design Hierarchy Tier			
				Speed	Intersection Crashes	Lane Departure Crashes	Pedestrian	Bicycle	Urban Local	Urban Collector	Urban Two-Lane Arterial	Urban Multi-Lane Arterial	Rural Local			Rural Collector	Rural Highway / Arterial	Interstate
1	Bicycle Lanes (including Protected and Raised)	Bike	\$\$					X		X	X	X		X	X		Safer Roads	Tier 1
2	Bicycle Intersection Treatments (e.g., Bicycle boxes, Green Pavement Markings)	Bike	\$		X			X		X	X	X		X	X		Safer Roads	Tier 4
3	Protected Intersection	Bike	\$\$		X		X	X		X	X	X					Safer Roads	Tier 1
4	Crosswalk Visibility Enhancements	Crossing	\$		X		X			X	X	X	X	X	X		Safer Roads	Tier 4
5	Medians and Pedestrian Refuge Islands/Splitter Islands	Crossing	\$\$		X	X	X			X	X	X		X	X		Safer Roads	Tier 1, Tier 2
6	Pedestrian Hybrid Beacons	Crossing	\$\$				X			X	X	X		X	X		Safer Roads	Tier 3
7	Rectangular Rapid Flashing Beacons	Crossing	\$\$				X			X	X	X		X	X		Safer Roads	Tier 3
8	Raised Crosswalks	Crossing	\$\$	X			X			X	X			X	X		Safer Speeds	Tier 2
9	Emergency Vehicle Preemption	EMS	\$							X	X	X			X		Post-Crash Care	Tier 3
10	Speed Safety Cameras (Requires Legislation, See Related Strategy)	Enforcement	\$\$	X	X	X				X	X	X					Safer Speeds	Tier 2

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11	Red Light Running Cameras (Requires Legislation, See Related Strategy)	Enforcement	\$	X	X					X	X	X					Safer Roads	Tier 1
12	Backplates with Retroreflective Borders	Intersection	\$		X					X	X	X		X	X		Safer Roads	Tier 4
13	Dedicated Left-Turn Lanes at Intersections	Intersection	\$\$		X						X	X		X	X		Safer Roads	Tier 1
14	Dedicated Right-Turn Lanes at Intersections	Intersection	\$\$		X						X	X		X	X		Safer Roads	Tier 1
15	Reduced Left-Turn Conflict Intersections	Intersection	\$\$\$		X						X	X			X		Safer Roads	Tier 1
16	Roundabouts/Mini Roundabouts	Intersection	\$\$\$	X	X					X	X	X		X	X		Safer Roads, Safer Speeds	Tier 1, Tier 2
17	Intersection Conflict Warning System	Intersection	\$\$		X									X	X		Safer Roads	Tier 4
18	All-way Stop Control	Intersection	\$	X	X		X	X	X	X			X	X			Safer Roads, Safer Speeds	Tier 3
19	Systemic Low-Cost Countermeasures at Stop-Controlled Intersections	Intersection	\$	X	X				X	X			X	X			Safer Roads	Tier 4
20	Lighting	Intersection/Roadway	\$\$		X	X		X	X	X	X	X	X	X	X	X	Safer Roads	Tier 4
21	Walkways (i.e., Pathways, Sidewalks)	Pedestrian	\$\$				X	X	X	X	X	X	X	X	X		Safer Roads	Tier 1

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22	Pedestrian Scramble	Pedestrian	\$				X			X	X						Safer Roads	Tier 3
23	Road Reconfiguration	Roadway	\$\$	X	X		X	X				X			X		Safer Roads, Safer Speeds	Tier 1, Tier 2
24	Speed Management	Roadway	\$\$	X	X	X			X	X	X	X	X	X	X		Safer Speeds	Tier 2
25	Enhanced Delineation for Horizontal Curves (i.e., Signage, Striping)	Roadway	\$	X		X								X	X	X	Safer Roads	Tier 4
26	Longitudinal Rumble Strips and Stripes on Two-Lane Roads	Roadway	\$	X		X									X		Safer Roads	Tier 4
27	Transverse Rumble Strips	Roadway	\$	X	X									X	X	X	Safer Speeds	Tier 4
28	Median Barriers	Roadway	\$\$			X					X	X			X	X	Safer Roads	Tier 1
29	Roadside Design Improvements at Curves	Roadway	\$\$	X		X							X	X	X	X	Safer Roads	Tier 1
30	SafetyEdge	Roadway	\$\$	X		X								X	X	X	Safer Roads	Tier 1
31	Wider Edge Lines, Enhanced Pavement Markings	Roadway	\$			X							X	X	X	X	Safer Roads	Tier 4
32	Corridor Access Management	Roadway	\$\$\$		X					X	X	X		X	X		Safer Roads	Tier 1

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33	Pavement Friction Management	Roadway	\$\$			X								X	X	X	Safer Roads	Tier 1, Tier 2
34	Centerline Buffer Areas	Roadway	\$\$			X								X	X		Safer Roads	Tier 1
35	Gateways (e.g., Advanced Warning Signage/Structure)	Roadway	\$\$	X	X		X	X			X	X			X		Safer Speeds	Tier 2
36	Variable Speed Limits	Roadway	\$	X		X						X			X	X	Safer Speeds	Tier 2
37	Dynamic Speed Feedback Signs	Roadway	\$\$	X		X		X	X	X	X	X		X	X		Safer Speeds	Tier 2
38	Yellow Change Intervals	Signal Timing/Operations	\$		X					X	X	X		X	X		Safer Roads	Tier 3
39	Leading Pedestrian Interval	Signal Timing/Operations	\$		X		X	X	X	X	X	X					Safer Roads	Tier 3
40	Left-Turn Phasing (Convert to Protected Phasing)	Signal Timing/Operations	\$		X		X			X	X	X		X	X		Safer Roads	Tier 3
41	Prohibit Right-Turn on Red	Signal Timing/Operations	\$		X		X			X	X	X					Safer Roads	Tier 3
42	Coordinated Signal Timing (Lower Speeds)	Signal Timing/Operations	\$\$	X	X		X	X		X	X	X					Safer Speeds	Tier 2
43	Rest on Red	Signal Timing/Operations	\$		X		X	X		X	X	X		X	X		Safer Roads, Safer Speeds	Tier 3

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44	Flashing Yellow Arrow with Time-of-Day and Pedestrian Call Restrictions	Signal Timing/Operations	\$		X		X			X	X	X			X		Safer Roads	Tier 3
45	Dedicated Bike Signals	Signal Timing/Operations	\$		X			X		X	X	X					Safer Roads	Tier 3
47	Raised Intersections	Intersection	\$\$	X	X		X	X		X	X	X					Safer Roads, Safer Speeds	Tier 2
48	Multi-Use Path/Shared Path	Bike	\$\$				X	X	X	X	X	X	X	X	X		Safer Roads, Safer People	Tier 1
49	Bike Boulevard	Bike	\$	X			X	X	X	X							Safer Roads, Safer Speeds	Tier 2
50	Bulb Out/Curb Extensions/Turn Wedge	Pedestrian	\$\$				X		X	X	X						Safer People, Safer Speeds	Tier 2
51	Crosswalk	Pedestrian	\$				X		X	X	X	X					Safer People	Tier 4
53	Extend Yellow and All-Red Time	Signal Timing/Operations	\$		X					X	X	X			X		Safer Roads	Tier 3
54	Convert 12-foot lanes to 10-foot lanes	Roadway	\$	X					X	X	X						Safer Roads, Safer Speeds	Tier 2
55	Speed Table, Speed Hump, Speed Cushion	Roadway	\$\$	X					X	X							Safer Speeds	Tier 2
56	Curb Radius Reduction	Intersection	\$\$	X					X	X	X						Safer Speeds	Tier 2

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57	Centerline Hardening/Continuous Raised Median	Roadway	\$\$			X	X			X	X	X		X	X		Safer Roads, Safer Speeds	Tier 2
58	Pedestrian signal improvements (recall, countdown heads, extended crossing time)	Signal Timing/Operations	\$\$				X			X	X	X			X		Safer People	Tier 3
59	Convert Signal from Pedestal-Mounted to Mast Arm	Intersection	\$\$		X					X	X	X		X	X		Safer Vehicles	Tier 4
60	Raised Pavement Markers	Roadway	\$	X		X				X	X	X		X	X	X	Safer Roads	Tier 4
61	Increase Distance to Roadside Features (from 3.3 FT to 16.7 FT)	Roadway	\$\$\$			X				X	X	X		X	X	X	Safer Roads	Tier 1
62	Flatten Sideslope	Roadway	\$\$			X							X	X	X	X	Safer Roads	Tier 1
63	Extend Green Time for Bicyclists	Bike	\$					X		X	X	X					Safer Roads, Safer People	Tier 3
64	ADA-Compliant Directional Curb ramps and Audible Push Buttons (APS)	Pedestrian	\$\$				X		X	X	X	X					Safer People	Tier 4
65	Communication Protocol	EMS	\$\$?														Post-Crash Care	n/a
66	Truck Routes	Roadway	\$		X	X					X	X		X	X	X	Safer Vehicles	Tier 1
67	Touchless Tire Pressure Monitoring	Roadway	\$\$\$		X	X			X	X	X	X		X	X	X	Safer Vehicles	n/a

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68	Progressive Ticketing	Enforcement	\$\$	X						X	X	X	X		X	X	X	Safer People, Safer Vehicles	Tier 4
69	Daylighting/Improve Intersection Sight Distance/Clear Sight Triangles	Intersection	\$\$		X					X	X	X						Safer Vehicles	Tier 1
70	Loading Zone Guidelines	Roadway	\$							X	X	X	X					Safer Roads	Tier 1
71	Implement Car-Free Zones	Roadway	\$\$	X	X	X	X	X	X	X	X							Safer Roads, Safer People	Tier 1
72	In-Street Pedestrian Gateway Crossing (MUTCD R1-6)	Pedestrian	\$	X			X		X	X	X							Safer People	Tier 4
73	Directional Median Openings for Left- and U-Turn Control (Unsignalized Intersections)	Roadway	\$\$		X					X	X	X		X	X			Safer Roads	Tier 1

Notes

\$=low cost, \$\$=medium cost, \$\$\$=high cost

1: Safe System Roadway Design Hierarchy tiers are based on FHWA guidance.

See: https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-01/Safe_System_Roadway_Design_Hierarchy.pdf