HIGHWAY SAFETY IMPROVEMENT PROGRAM - Cycle 4

Statewide Summary of Grant Applications

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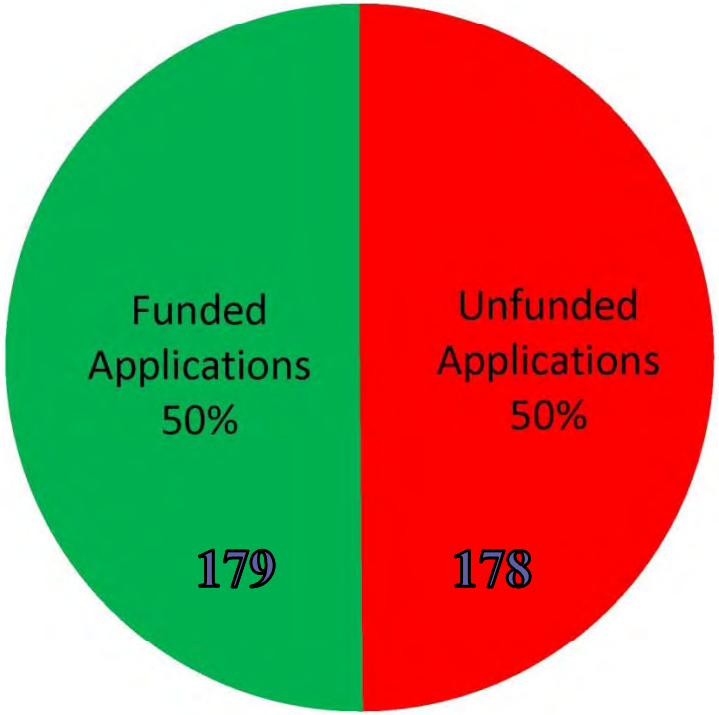
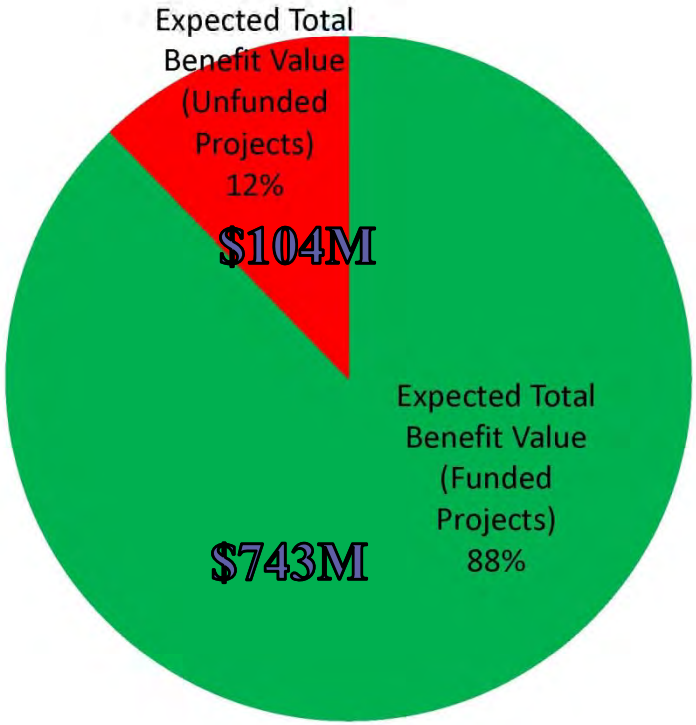
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	Statewide Totals
Total Applications Submitted													
Total Applications Submitted	11	6	30	49	23	48	81	31	6	21	29	22	**357**
Total Cost of Projects	$5,898,641	$3,787,972	$42,494,326	$36,968,632	$9,966,789	$21,398,830	$49,906,078	$20,459,331	$934,829	$18,906,225	$19,866,061	$10,248,218	**$240,835,932**
Total Federal Funds Requested	$5,297,600	$3,409,100	$17,196,900	$27,714,300	$7,257,600	$17,842,900	$33,704,200	$14,538,300	$841,000	$13,630,700	$15,287,400	$8,909,100	**$165,629,100**
Expected Total Benefit Value	$6,649,320	$8,920,214	$118,140,240	$90,173,948	$75,277,395	$47,731,478	$190,634,583	$106,534,310	$198,306	$92,518,507	$68,800,620	$41,065,091	**$846,644,012**
Average B/C Ratio	1.13	2.35	2.78	2.44	7.55	2.23	3.82	5.21	0.21	4.89	3.46	4.01	**3.5**
Funded Applications													
Total Funded Applications	3	4	9	25	8	15	55	20	2	5	16	17	**179**
Total Cost of Projects	$1,431,831	$2,499,972	$5,574,244	$17,655,557	$4,720,665	$6,321,629	$24,361,876	$9,854,500	$813,415	$3,815,900	$9,710,963	$7,071,058	**$93,831,610**
Total Federal Funds Requested	$1,288,600	$2,249,900	$4,914,000	$12,687,900	$2,971,600	$4,787,900	$19,736,700	$8,506,700	$731,900	$3,414,400	$7,147,200	$6,102,800	**$74,539,600**
Expected Total Benefit Value	$4,157,850	$8,542,430	$91,459,829	$81,955,238	$70,837,851	$41,908,275	$180,593,028	$102,425,208	$198,306	$55,957,223	$63,782,046	$41,003,615	**$742,820,899**
Average B/C Ratio	2.9	3.42	16.41	4.64	15.01	6.63	7.41	10.39	0.24	14.66	6.57	5.8	**7.9**
B/C Ratio by Countermeasures													
"Unsignalized Intersection"	1.66	1.87	5.42	3.89	0.72	4.76	6.17	13.38	0.31	39.14	5.17	2.4	**7.1**
"Signalized Intersection"			1.48	2.31		6.2	6.13	5.85		10.35	3.11	2.87	**4.8**
"Roadway Segment"	3.22	3.02	19.55	5.6	15.75	11.1	4.99	8.11		8.83	8.98	2.34	**8.3**
"Systemic"	0.66		18.73	6.87	13.36	10.21	16.38	19.74		20	11.01	21.87	**13.9**
% Funded Apps vs. Total Apps													
Percent of Applications Funded	27%	67%	30%	51%	35%	31%	68%	65%	33%	24%	55%	77%	**50%**
Percent of Total Cost of Projects	24%	66%	13%	48%	47%	30%	49%	48%	87%	20%	49%	69%	**39%**
Percent of Fed. Funds Requested	24%	66%	29%	46%	41%	27%	59%	59%	87%	25%	47%	69%	**45%**
Percent of Benefit Value Expected	63%	96%	77%	91%	94%	88%	95%	96%	100%	60%	93%	100%	**88%**
Unfunded Applications													
Total Unfunded Applications	8	2	21	24	15	33	26	11	4	16	13	5	**178**
Total Cost of Projects	$4,466,810	$1,288,000	$36,920,082	$19,313,075	$5,246,124	$15,077,201	$25,544,202	$10,604,831	$121,414	$15,090,325	$10,155,098	$3,177,160	**$147,004,322**
Total Federal Funds Requested	$4,009,000	$1,159,200	$12,282,900	$15,026,400	$4,286,000	$13,055,000	$13,967,500	$6,031,600	$109,100	$10,216,300	$8,140,200	$2,806,300	**$91,089,500**
Expected Total Benefit Value	$2,491,470	$377,784	$26,680,411	$8,218,710	$4,439,544	$5,823,203	$10,041,555	$4,109,102	$0	$36,561,284	$5,018,574	$61,476	**$103,823,113**
Average B/C Ratio	0.56	0.29	0.72	0.43	0.85	0.39	0.39	0.39	0	2.42	0.49	0.02	**0.7**

Data Updated as of: 4/8/2011

Results from HSIP - Cycle 4

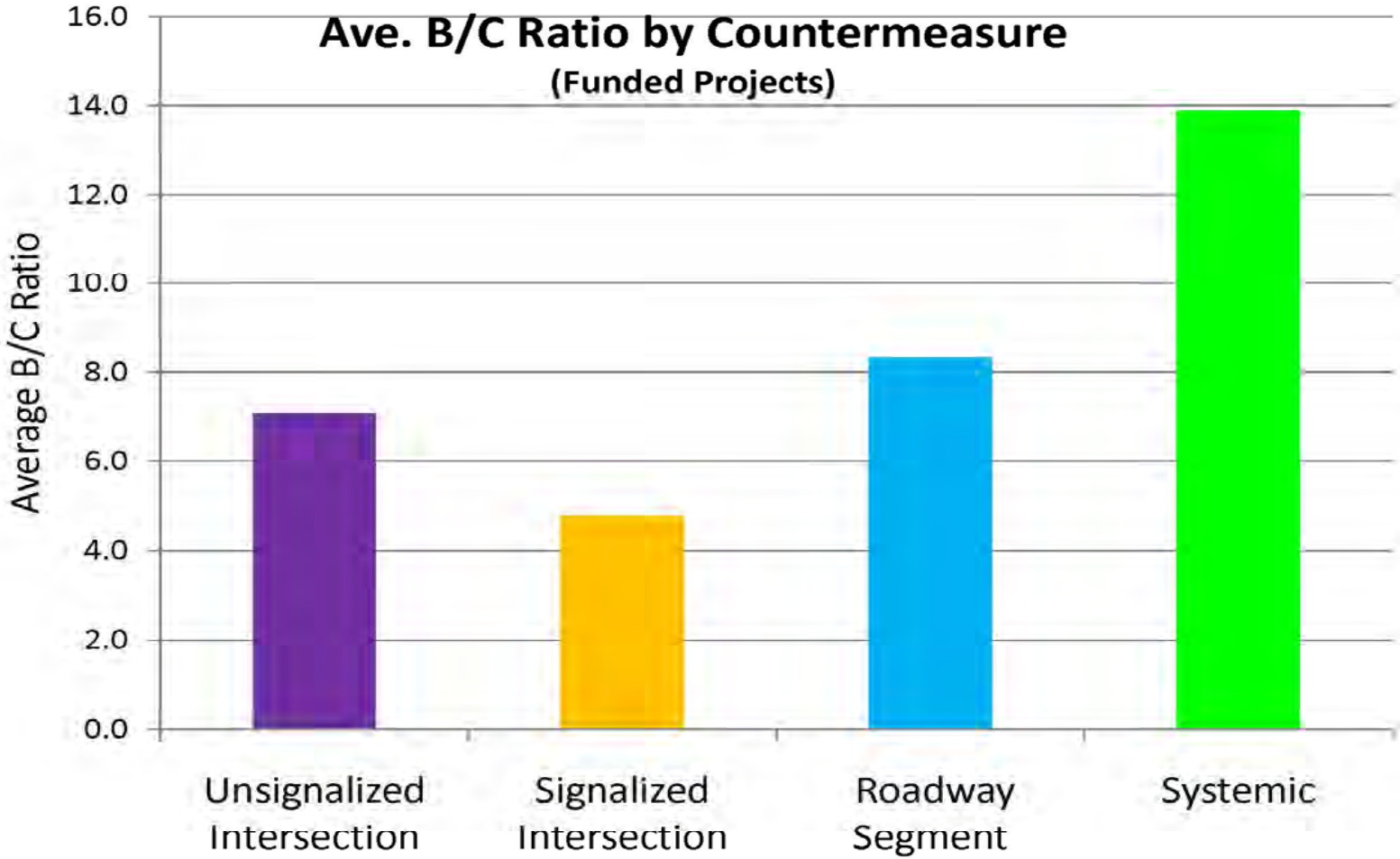


Funded vs. Unfunded



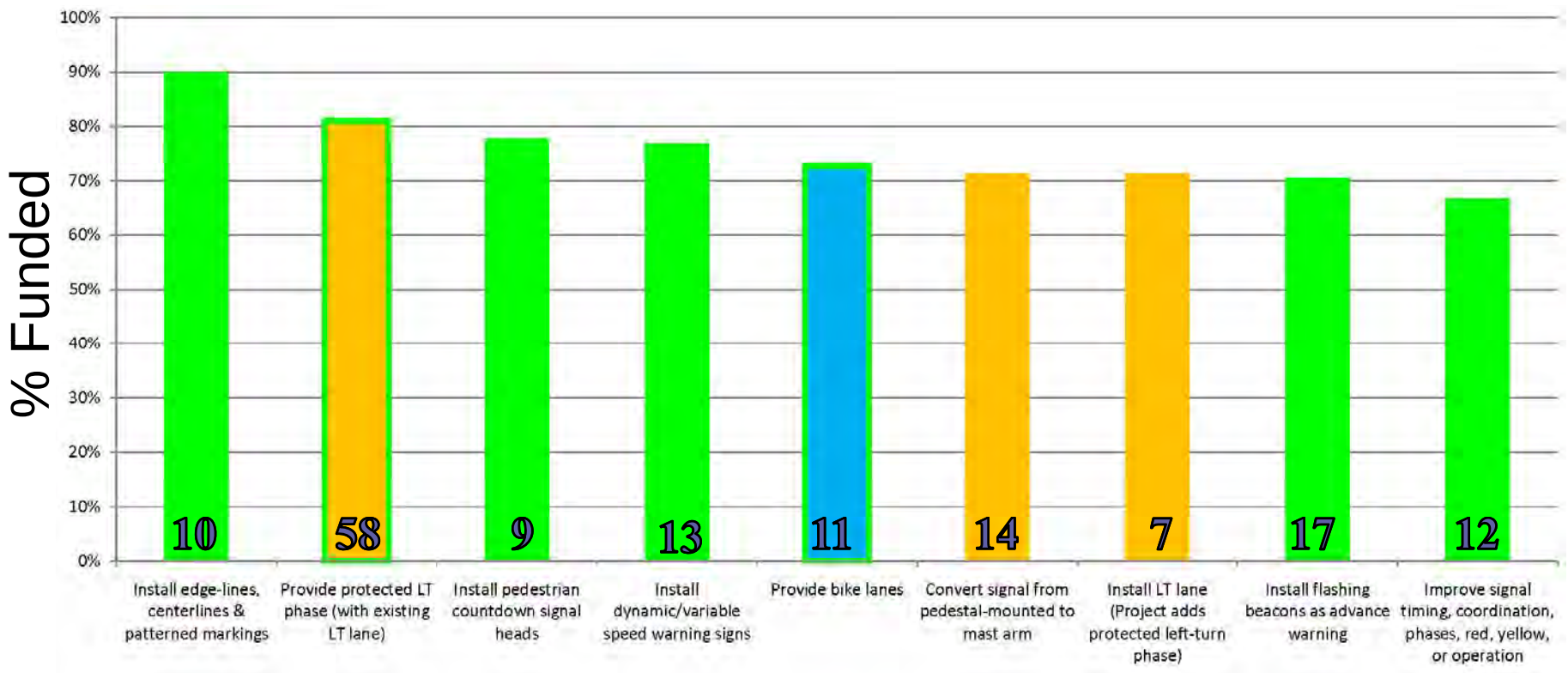
Expected Total Benefit Value (Funded vs. Unfunded)

Results from HSIP - Cycle 4



Results from HSIP - Cycle 4

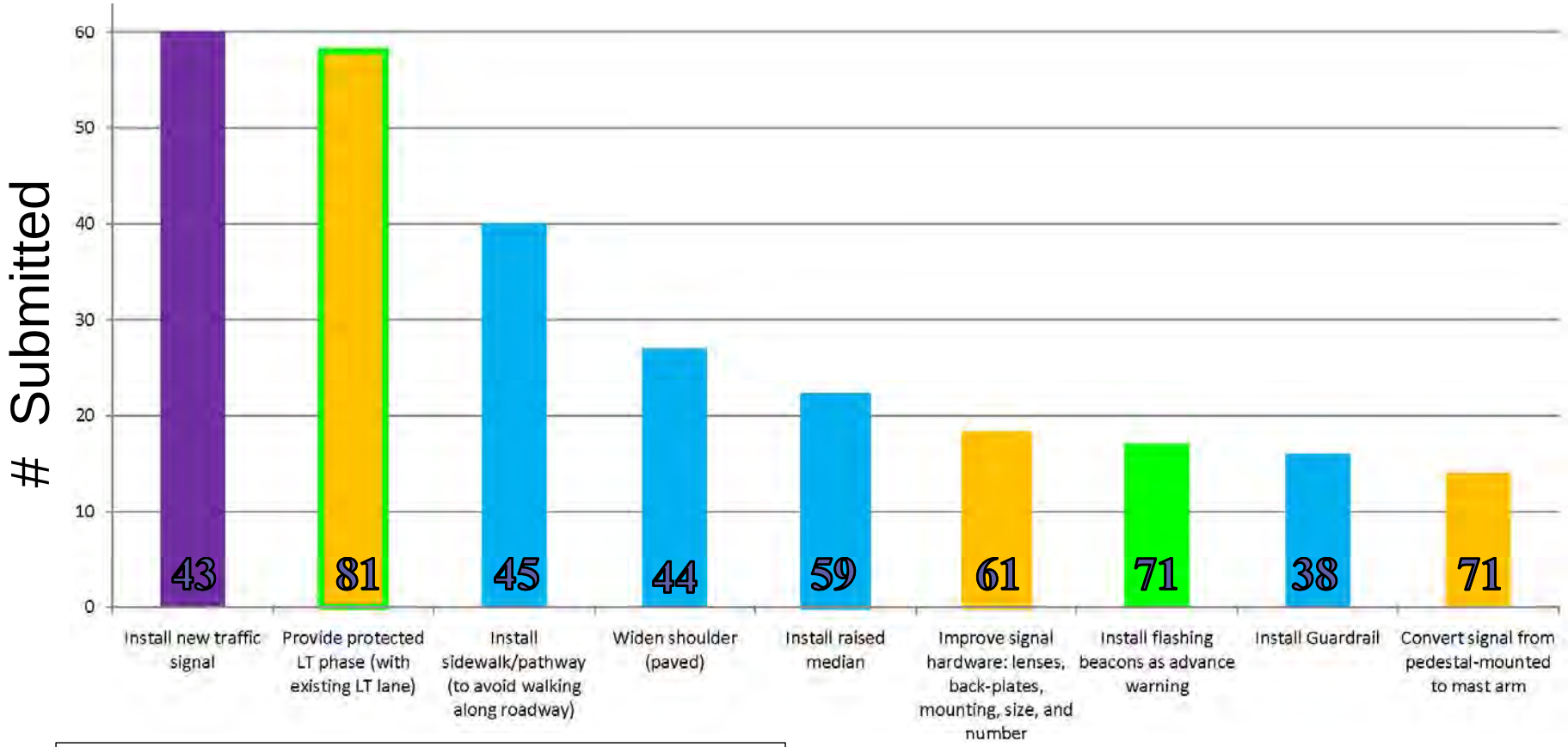
Top Funded Countermeasures (by %)



= No. of times CM used

Results from HSIP - Cycle 4

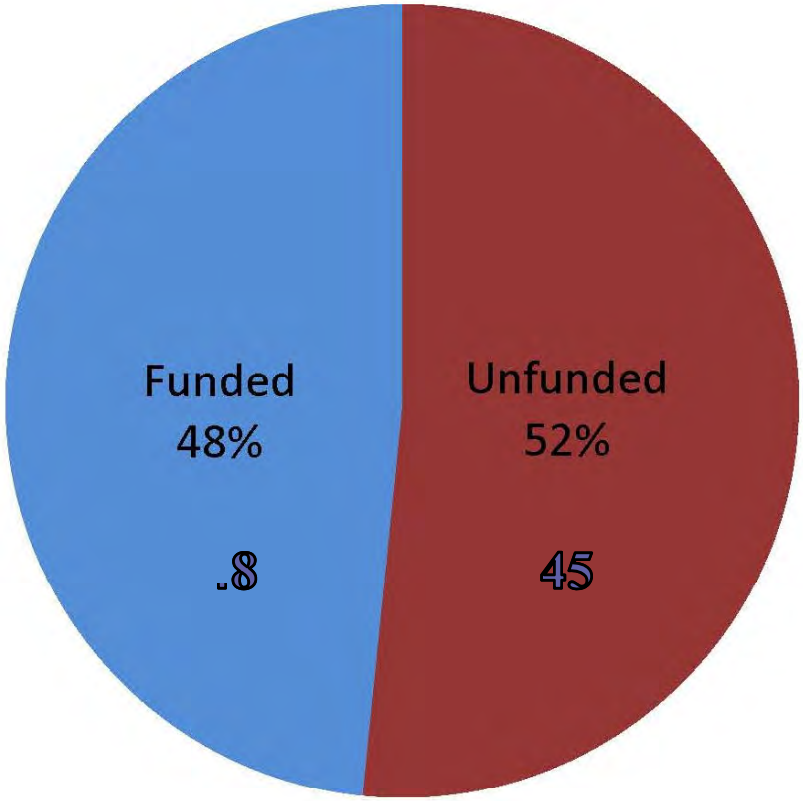
Top Submitted Countermeasures (by #)



= % of the time CM was funded

Results from HSIP - Cycle 4

“Ped & Bike” Countermeasures Funded



Summary of Countermeasures Funded - Sorted by % Funded

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(Countermeasures used 5 or more times)

	Countermeasures	Funded Sub-Total	Unfunded Sub-Total	Total Submitted	% Funded (submitted)	Counter-measure Type UI, SI, RS, S
1	Install edge-lines, centerlines & patterned markings	**9**	**1**	10	90%	S
2	Provide protected left turn phase (with existing LT lane)	**47**	**11**	58	81%	SI
3	Install pedestrian countdown signal heads	**7**	**2**	9	78%	S
4	Install dynamic/variable speed warning signs	**10**	**3**	13	77%	S
5	Provide bike lanes	**8**	**3**	11	73%	RS
6	Convert signal from pedestal-mounted to mast arm	**10**	**4**	14	71%	SI
7	Install left-turn lane (Project adds protected left-turn phase)	**5**	**2**	7	71%	SI
8	Install flashing beacons as advance warning	**12**	**5**	17	71%	S
9	Improve signal timing, coordination, phases, red, yellow, or operation	**8**	**4**	12	67%	S
10	Improve signal hardware: lenses, back-plates, mounting, size, and number	**11**	**7**	18	61%	SI
11	Create directional median openings to allow(and restrict) left-turns and u-turns	**3**	**2**	5	60%	UI
12	Install raised median	**13**	**9**	22	59%	RS
13	Install/Upgrade signs (general)	**8**	**6**	14	57%	S
14	Improve pavement friction (overlay)	**3**	**3**	6	50%	S
15	Install beacon (flashing) at intersection	**4**	**4**	8	50%	UI
16	Install left-turn lane	**6**	**6**	12	50%	UI
17	Install pedestrian crossing	**7**	**7**	14	50%	S
18	Install raised medians (refuge islands)	**4**	**4**	8	50%	UI
19	Widen lane (initially less than 10 ft)	**3**	**3**	6	50%	RS
20	Install sidewalk/pathway (to avoid walking along roadway)	**18**	**22**	40	45%	RS
21	Widen shoulder (paved)	**12**	**15**	27	44%	RS
22	Install new traffic signal	**26**	**34**	60	43%	UI
23	Improve horizontal alignment (flatten curves)	**3**	**4**	7	43%	RS
24	Add segment lighting	**2**	**3**	5	40%	RS
25	Install centerline or eddgeline rumble strips	**2**	**3**	5	40%	S
26	Install Guardrail	**6**	**10**	16	38%	RS
27	Add intersection lighting	**2**	**5**	7	29%	UI
28	Convert intersection to roundabout (from 2-way stop)	**2**	**6**	8	25%	UI
29	Improve horizontal and vertical alignments	**2**	**6**	8	25%	RS
30	Install Median Barrier	**1**	**4**	5	20%	RS
31	Install right-turn lane	**2**	**8**	10	20%	UI
32	Install emergency vehicle pre-emption systems	**1**	**5**	6	17%	S
33	Improve sight distance to intersection	**1**	**7**	8	13%	UI
34	Install pedestrian signal	**1**	**8**	9	11%	UI

* UI = Unsignalized Intersection
SI = Signalized Intersection
RS = Roadway Segment
S = Systemic

Summary of Countermeasures Funded - Sorted by % Funded

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(Countermeasures used 1 to 4 times)

	Countermeasures	Funded Sub-Total	Unfunded Sub-Total	Total Submitted	% Funded (submitted)	Counter-measure Type UI, SI, RS, S
	Countermeasures used 4 times or less					
35	Convert from two-way to one-way traffic	**1**	**0**	1	100%	RS
36	Convert to all-way STOP control (from 2-way or Yield control)	**1**	**0**	1	100%	S
37	Improve curve superelevation	**1**	**0**	1	100%	RS
38	Install left-turn lane (signal has no turn phase)	**1**	**0**	1	100%	SI
39	Narrow cross section (4 to 3 lanes with two way left-turn lane)	**3**	**1**	4	75%	RS
40	Flatten side slopes	**2**	**1**	3	67%	RS
41	Convert intersection to roundabout (from signal)	**1**	**2**	3	33%	SI
42	Pave existing shoulder	**1**	**2**	3	33%	RS
43	Remove or relocate fixed objects outside of clear zone	**1**	**2**	3	33%	RS
44	Install acceleration/ deceleration lanes	**1**	**3**	4	25%	RS
45	Widen shoulder (unpaved)	**1**	**3**	4	25%	RS
46	Add exclusive pedestrian phasing	**0**	**1**	1	0%	SI
47	Flatten crest vertical curve	**0**	**3**	3	0%	RS
48	Flatten side slopes and remove guardrail	**0**	**1**	1	0%	RS
49	Improve Guardrail	**0**	**4**	4	0%	RS
50	Install animal fencing	**0**	**1**	1	0%	RS
51	Install curve advance warning signs	**0**	**1**	1	0%	S
52	Install delineators and reflectors (general)	**0**	**1**	1	0%	S
53	Install impact attenuators	**0**	**1**	1	0%	RS
54	Install larger or additional stop signs or other warning signs	**0**	**2**	2	0%	S
55	Install median (flush)	**0**	**2**	2	0%	RS
56	Install no-passing line (where passing is currently allowed)	**0**	**2**	2	0%	S
57	Install pedestrian overpass/underpass	**0**	**1**	1	0%	SI
58	Upgrade bridge railing	**0**	**2**	2	0%	RS
				535		

* UI = Unsignalized Intersection
SI = Signalized Intersection
RS = Roadway Segment
S = Systemic

Lesson Learned HSIP - Cycle 4

- Key factors for receiving funding:
  - The most successful applications were prepared by agencies that focused on High Collision Concentration Locations (HCCLs) or on low cost improvements at numerous locations (systemic).
  - Agencies that focused on minimizing project costs by limiting the project scope to only safety elements were able to maximize the B/C ratio of their project and were more successful in receiving funding.

Lesson Learned HSIP - Cycle 4

- Application Tool:
  - Proved extremely effective in maximizing the benefits of the program with the limited available funding.
  - Several features will be improved before the next call:
    - Provide more guidance on selecting proposed projects
    - Update Tool's programming to eliminate a few glitches
    - Provide detailed Countermeasure (CM) descriptions

Lesson Learned: HSIP - Cycle 4

- Application Tool (cont'd)
  - Update and add to the mix of available CMs to choose from
  - Provide better examples of collision diagrams for various types of countermeasures
  - Establish stricter adherence to the Tool's guidelines and instructions. i.e. applications will be rejected without CMs, crash data, and collision diagrams being correctly applied

Questions on

Cycle 4 Results
and
Lessons Learned?

Recommended Planning

- Between now and the next call for projects, DLA recommends agencies take steps to continually improve the safety of their roadways:
  - Use traffic collision data analysis tools to assess the High Collision Concentration Locations (HCCLs)
  - Consider using the Transportation Injury Mapping System (TIMS) tool recently established by UCBerkeley-SafeTREC.
  - Once the HCCLs have been identified, consider low-cost countermeasures to reduce future collisions.

Recommended Planning (cont.)

- Calculate the expected benefit from countermeasures chosen
  - Agencies may use any B/C tool or formula they are comfortable with. Caltrans HSIP application Tool calculates a rough B/C ratio and provides insight on how the project might compete in the next call for projects
  - Agencies are encouraged to familiarize themselves with the HSM and consider selecting sample project(s) to apply its methodologies.

Recommended Planning (cont.)

- Given there is currently no limit on the number of HSIP applications an agency can apply for during a call for projects, agencies that are proactively assessing the safety of their roadways and focusing on low-cost improvements to maximize the benefits will likely be rewarded with increased HSIP funding

Future Safety Program Calls for Projects

- HRRR – Cycle 3:
  - Summer 2011
- HSIP – Cycle 5:
  - Summer 2012
- SRTS – Cycle 3:
  - April 2011 – Recently announced

QUESTIONS?

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