Rural Road Safety
Little Fixes!

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Challenge:

Rural County roads have a significantly higher fatality rate than urban counties (14 of the highest 16 rates are in rural counties) and ….

We have fewer resources to commit to capital projects, but …

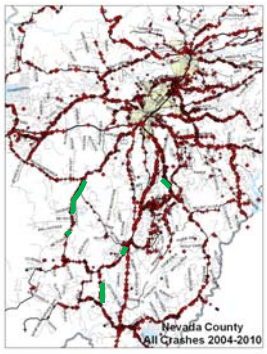
Doing little things is better than doing nothing

2011-12 RANKING OF COUNTIES WITH HIGHEST PRIMARY COLLISION FACTORS

FATAL COLLISIONS (YEARS 2009-2012*)

	Counties (Alphabetical order)	
Ranking	County	Rate
1	Trinity	27.4
2	Lassen	27.3
3	Mono	26.8
4	El Dorado	25.0
5	Modoc	22.8
6	Sierra	22.8
7	Plumas	22.6
8	Calaveras	21.8
9	Amador	21.8
10	Tuolumne	21.6
11	Colusa	20.7
12	Glenn	20.7
13	Tehama	20.4
14	Inyo	20.4
15	Mariposa	19.8
16	Alpine	19.7
17	Kern	19.5
18	Madera	19.4
19	Butte	19.3
20	Shasta	19.1
21	Siskiyou	18.9
22	Lake	18.7
23	Nevada	18.6
24	Tulare	18.5
25	Kings	18.4
26	Fresno	18.3
27	Yuba	18.2
28	Sutter	18.1
29	San Benito	17.9
30	Mendocino	17.8
31	Lassen	17.7
32	Tehama	17.6
33	Colusa	17.5
34	Glenn	17.4
35	Yuba	17.3
36	Sutter	17.2
37	Butte	17.1
38	Shasta	17.0
39	Siskiyou	16.9
40	Lake	16.8
41	Nevada	16.7
42	Tulare	16.6
43	Kings	16.5
44	Fresno	16.4
45	Madera	16.3
46	Kern	16.2
47	Mariposa	16.1
48	Alpine	16.0
49	Inyo	15.9
50	Mono	15.8
51	Modoc	15.7
52	Sierra	15.6
53	Plumas	15.5
54	Calaveras	15.4
55	Tuolumne	15.3
56	Amador	15.2
57	El Dorado	15.1
58	Trinity	15.0

Nevada County experience



In the past when work type projects were available for funding:

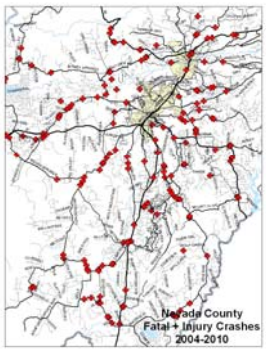
Primarily PDO crashes

Primarily run off the road crashes

Our go to fix: widen shoulders

In HSIP Cycle 2 – we received $2 million in "work type" funding for shoulder widening (5 projects at different locations)

Nevada County experience



In preparing for HSIP Cycle 4, the B/C evaluations had us concerned …

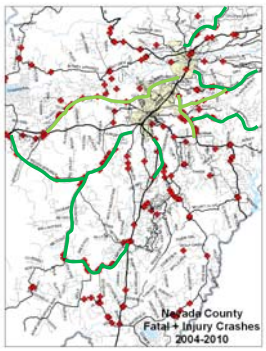
Concentrating on F+I, no dead man's curves, no killer intersections

F+I were isolated and not necessarily where PDOs were concentrated

F+I crash density not sufficient to fund shoulder widenings. Either the costs were too high to widen enough road to affect enough crashes, or the crash rate was too low for shorter shoulder projects

We thought future HSIP was uncertain!

Nevada County experience



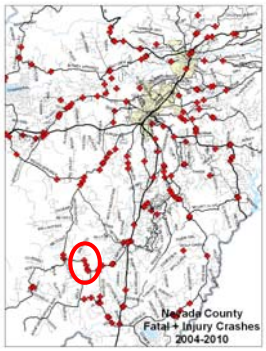
After some prodding from Jim Day/Caltrans Local Assistance, we revisited lower cost projects for Cycle 4.

We had tried thermoplastic striping instead of paint on one of our previous projects. The thermo stayed visible much longer than paint. We thought better visibility could help our overall system.

In both Cycles 4 and 5, we funded high visibility striping projects (thermoplastic) in high run off the road corridors

Cycle 5 HSIP
Cycle 4 HSIP

Nevada County experience



We did also fund a small shoulder widening at a high crash location. The B/C was lower than the striping projects but still high enough for funding

B/C evaluation doesn't eliminate the ability to fund spot improvements.

Cycle 5 HSIP
Cycle 4 HSIP

Nevada County experience

Project	Cycle	Cost	Length (miles)	3 yr crash History
Duggans	2	$500k	1	2
McCourtney Shoulders	2	$500k	2	9
McCourtney Adair	2	$300k	0.2	1
Lime Likn	2	$300k	0.5	5
Dog Bar	2	$250k	0.5	2
Cycle 2 Subtotal		**$1,850k**	**4.2**	**19**
Thermoplastic Striping	4	$300k	15	257
Thermoplastic Striping	5	$300k	20	225
Cycle 4 and 5 Subtotal		**$600k**	**35**	**482**

In retrospect, how do our current projects compare to our previous projects?

Systemic projects touch more of our system than spot location projects (35 miles versus 4.2 miles)

B/C of new projects probably 10 x higher than our previous work type projects (482 crashes versus 19 crashes)

One of our work type projects

Both the shoulder and the high visibility striping improve the safety

One of our work type projects

Both the shoulder and the high visibility striping improve the safety

B/C evaluation procedures caused us to manage the safety of our road systems differently

- Recognition that funds are limited so implement low cost/high benefit solutions
- Data driven – Know where your problems are and fix the worst problems first
- All projects must have a positive benefit cost (>1)

Additionally, in hindsight, we like the new project types because:

- In Nevada County – as noted, fatals are historically not at the same locations as PDO crashes. By doing corridor wide projects, we have the best opportunity to improve a potential fatal location.
- Striping projects have saved us approximately $50,000 per year in restriping maintenance costs (Thermo lasts longer so we restripe fewer roads annually). That's money we have invested back into low cost signing projects (chevron signs at our top 10 run off the road locations).
- Striping projects are easy to deliver quickly (limited environmental, no r/w cert).