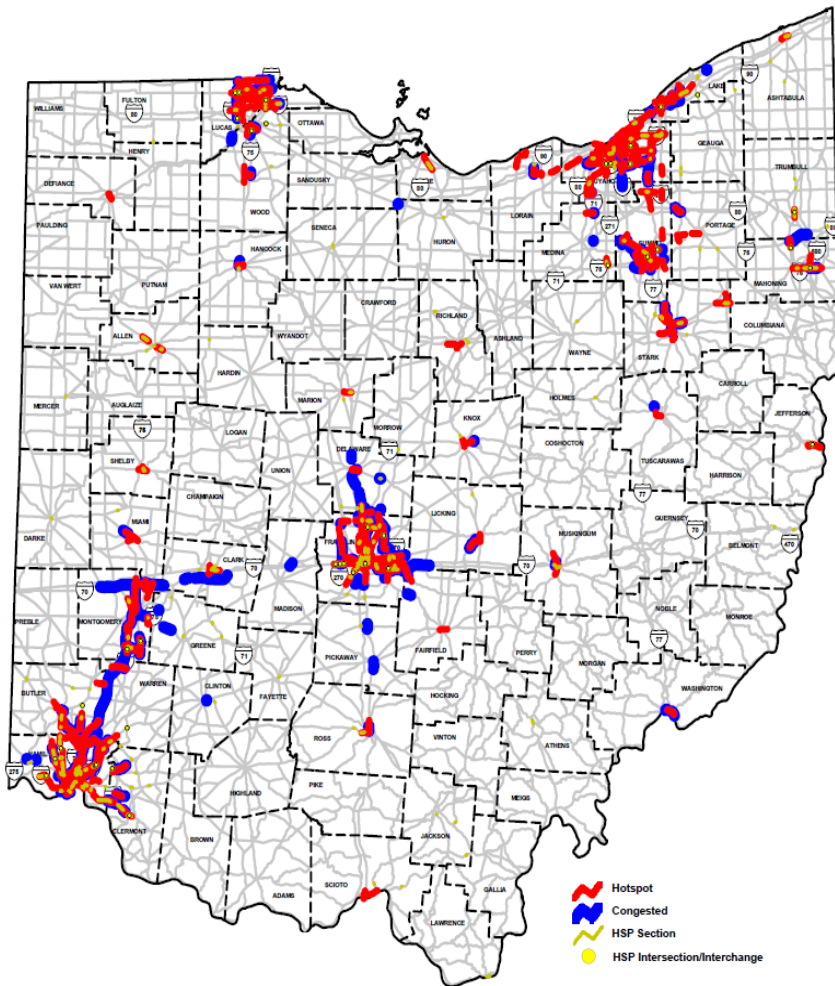




EVERY
move
YOU MAKE

KEEP IT SAFE

Why Integrate?



Safety and Congestion are linked:

- 43% of all Freeway crashes occur on 12% of the Freeway System
- 19% of all Non-Freeway crashes occur on 2% of the Non-Freeway System

* Baseline 2002

SHSP: Tool to Focus Investment



- Documents state priorities
- Makes activities eligible for safety funding
- Tracks investments across organizations
- Evaluates outcomes

Emphasis Area



Incident and Congestion-Related Crashes

Emphasis Area V - Incident & Congestion-Related Crashes - Dave Holstein, Chair

Rear End Crashes	Dave Holstein Chairs this section.
1. Target congested highway segments for improvements, including adding roadway capacity and Intelligent Transportation Systems, as well as deploying access management techniques.	Major new (capacity additions) is a larger department issue that is being examined. The Cleveland and Akron systems are under construction and the Dayton and Toledo systems will sell in April 2011. Contracts to obtain real time speed/travel time information in 6 largest metro areas are sold and sensor deployment will be complete by end
Work Zone Crashes	
2. Consider use of innovative technology in candidate work zones to supplement available law enforcement officers	We still lack legislative authority for this. The Ohio Contractor's association has stated interest in a pilot video speed program for work zones. ODOT and ODPS are currently in discussions about obtaining the necessary authority from the legislature.
12. Advertise (signs) work zones with increased law enforcement	Standards and signs are complete and now commonly used.
3. Develop work zone training to ODOT, local agencies, law enforcement, contractors, and utility companies	Continuing.
14. Provide work zone information to the public	Public information efforts are extensive for large work zones. Considering a pilot of speed/travel time info in some work zones. Schedule for Cleveland ITS is predicated on being in place for the innerbelt bridge rehab. Have sold an early deployment of the Dayton ITS system to support construction activities in Dayton I-75 projects.
15. Update current state guidelines, policies, regulations and statutes pertaining to work zone safety including those of public safety and motor vehicles to adopt the FHWA final rule on Work Zone Safety and	ODOT has now been ruled compliant with the federal regulations. A formal process review as required by the regulations will be conducted in September 2010.
16. Utilize new and innovative ITS technologies to obtain traffic count data, verify traffic queue lengths in order to deploy a reliable traffic alert system.	See previous on speed/travel time system in work zones. 17 miles of work zones between Cincinnati and Dayton are now being monitored.

Work Zone Data in Ohio - Historic

- Tells how we are doing with safety.....

2000 - 2005 Work Zone Fatal Crashes

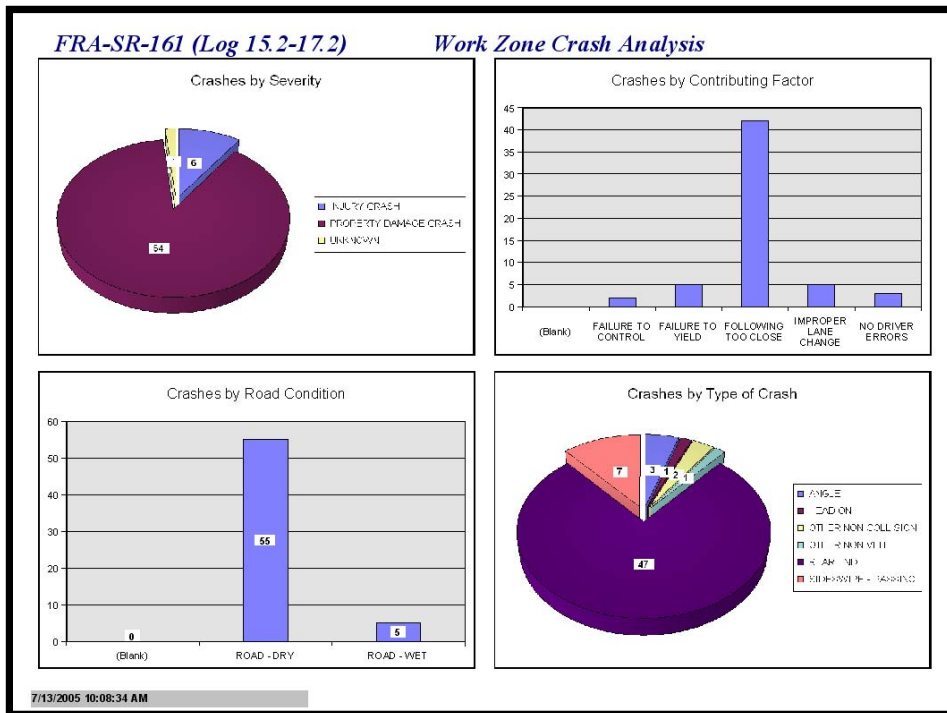
Year	Total Number	Peds	Construction Equip/Worker	Speeding	Dui	Seatbelt Used	Interstate	US/SR	Other Route	motorcycle	Stopped Traffic	Not staying in Correct Lane	Not dry pavement	Night
2005	20	5 25%	5 25%	4 20%	2 10%	6 30%	11 55%	6 30%	3 15%	2 10%	5 25%	8 40%	4 20%	7 35%
2004	14	2 14%	4 29%	7 50%	1 7%	4 29%	7 50%	5 36%	2 14%	1 7%	2 14%	2 14%	2 14%	8 57%
2003	14	2 14%	4 29%	7 50%	1 7%	2 14%	10 71%	3 21%	1 7%	1 7%	3 21%	6 43%	1 7%	1 7%
2002	26	4 15%	5 19%	11 42%	6 23%	10 38%	10 38%	12 46%	4 15%	1 4%	2 8%	10 38%	4 15%	11 42%
2001	20	4 20%	7 35%	6 30%	2 10%	3 15%	14 70%	1 5%	5 25%	3 15%	4 20%	5 25%	2 10%	7 35%
2000	16	5 31%	2 13%	4 25%	4 25%	3 19%	8 50%	4 25%	4 25%	0 0%	1 6%	5 31%	1 6%	4 25%
Total:	110	22 20%	27 25%	39 35%	16 15%	28 25%	60 55%	31 28%	19 17%	8 7%	17 15%	36 33%	14 13%	38 35%

New Emphasis Areas??

SHSP Strategies



“Near Real-Time” Work Zone Crash Analysis



- Consult with District WZ Traffic Managers to select projects
- Partner with police agencies to arrange crash report collection
- Partner with GHSO to fund enforcement grants

SHSP Strategies



Changes in Design Standards

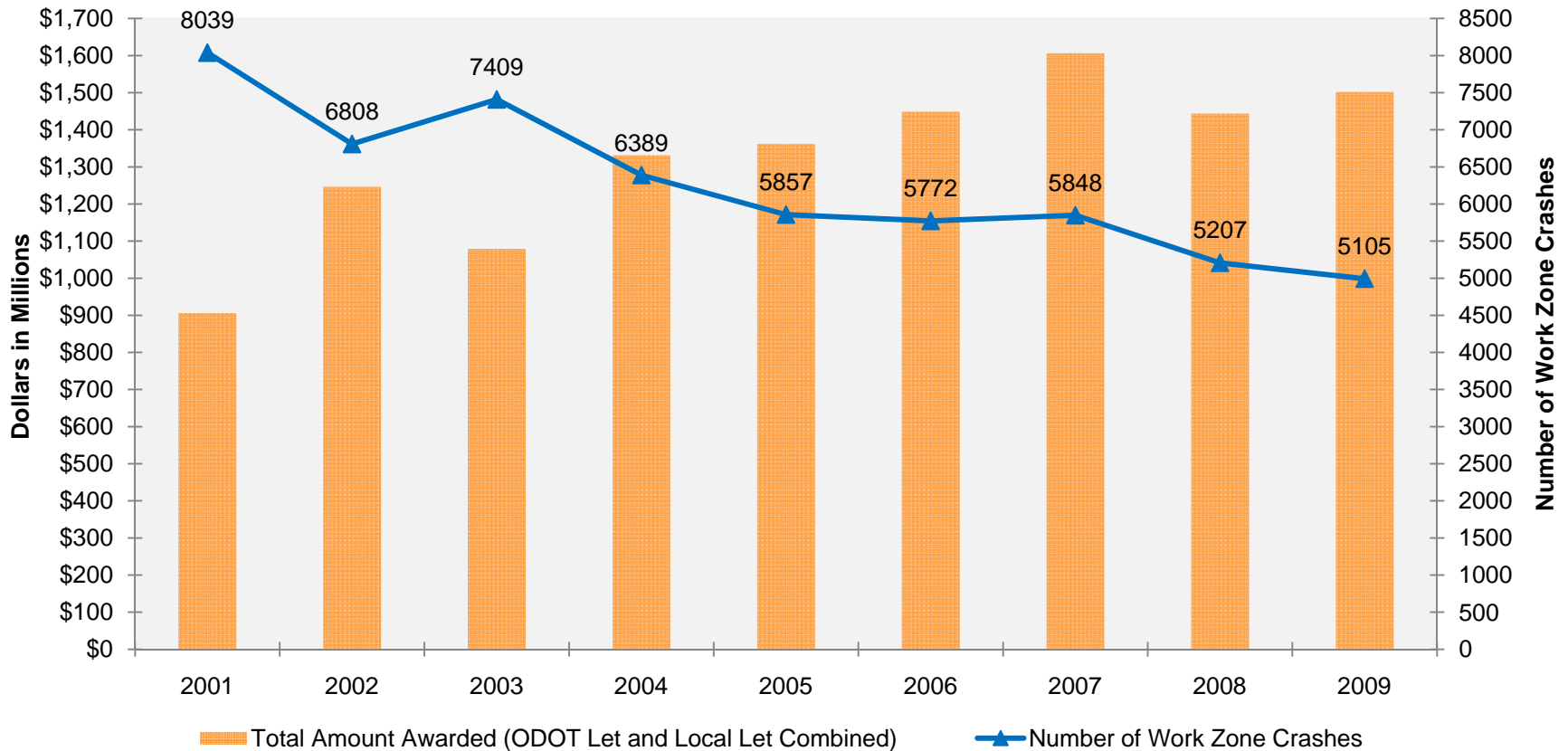


- **Minimum site distance at on-ramps**
- **Minimum cross sections**
- **Contractor ingress and egress**
- **Improved nighttime delineation**
- **Signage and other improvements that improve motorcycle safety**

SHSP Strategies



Construction Cost Awarded by ODOT vs. Work Zone Total Crashes



SHSP Strategies



ITS Solutions



- Three major projects planned in the Dayton area.
- FMS planned to construct in 2010.
- Some devices deployed early using Safety funds to provide traffic surveillance, data collection, and provide lane closure information to the public.
- Freeway Service Patrols (FSP) were also implemented early.

SHSP Strategies



Systematic Signal Improvements

Turnkey services that help with:

- Equipment Inspections
- Equipment Upgrades
- Timing Analysis
- Signal Coordination



Systematic Signal



CLE-32 2.45-4.50 (Glen Este to Old 74) Crash Type Comparison

Before Signal Timing Project				After Signal Timing Project					
Year	Rear End Crashes	All Inj Crashes	Serious Inj/ Fat Crashes	Total Crashes	Year	Rear End Crashes	All Inj Crashes	Serious Inj/ Fat Crashes	Total Crashes
2004	189	69	5	241	2008	131	41	5	177
2005	158	47	7	212	2009	125	45	2	175
2006	136	49	1	189	2010	127	44	3	178
2007	157	57	2	206					
Avg	160	56	4	212	Avg	128	43	3	177
Percent Reductions:						-20%	-22%	-11%	-17%

Typically see:

- 5% to 20% reduction in travel time
- 15% to 20% reduction crashes

SR-32 (Glen Este Withamsville Rd to Cincinnati-Batavia Pike) 2007

	Travel Time (sec)			Total Delay (sec)		
	Pre-Study	Optimized	%Δ	Pre-Study	Optimized	%Δ
AM EB	164.2	151.0	-8.0%	48.6	35.2	-27.6%
AM WB	193.4	189.6	-2.0%	79.0	74.4	-5.8%
MID EB	134.5	134.4	-0.1%	20.3	20.0	-1.5%
MID WB	198.0	185.5	-6.3%	83.4	69.7	-16.4%
PM EB	378.0	132.6	-64.9%	262.0	17.4	-93.4%
PM WB	166.8	137.0	-17.9%	55.6	25.6	-54.0%
OFF EB	202.0	157.7	-21.9%	70.6	33.0	-53.3%
OFF WB	233.4	161.0	-31.0%	100.6	31.6	-68.6%
Ave Peak	205.8	155.0	-24.7%	91.5	40.4	-55.9%
Ave	208.8	156.1	-25.2%	90.0	38.4	-57.4%

SHSP Strategies



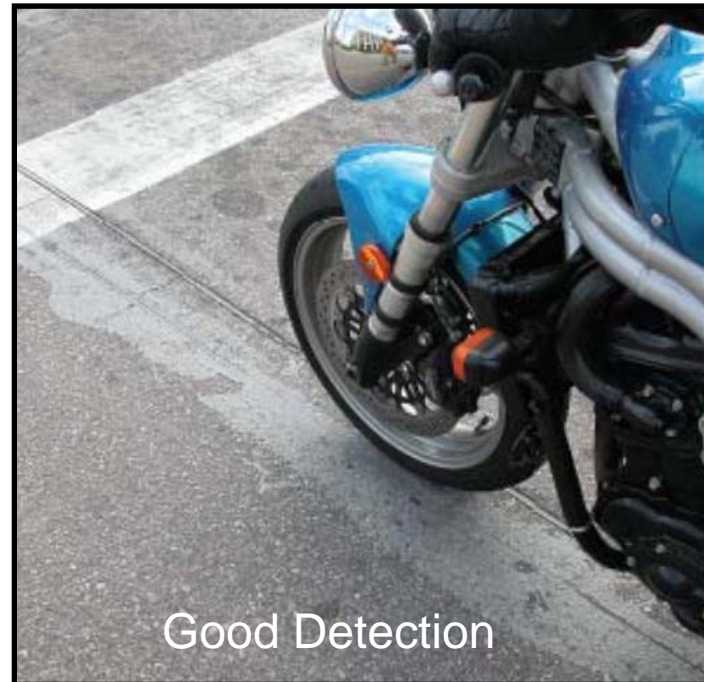
Systematic Signal Improvements



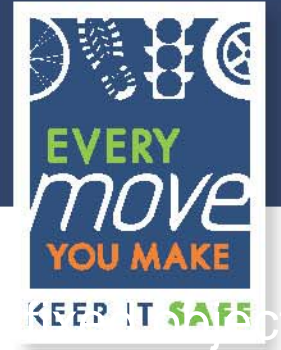
- Install new 2070 controllers
- Establish wireless broadband Ethernet to signal systems
- Establish remote communication to master controllers
- Replace conflict monitors and malfunction management units older than 10 years

SHSP Strategies

Traffic Signals – Motorcycles & Bikes



SHSP Strategies



Operations Staff – Dedicate 6% to Safety



- Added barrier reflectors guardrail
- Addressed shoulder drop-offs
- Dual Signs
- Sign Post Delineators



SHSP Strategies



Operations Staff – Curve Safety



- Developed sign package
- Reviewed 576 top curve crash locations
- Sign shop making signs; Ops staff install

SHSP: Tool to Focus Investment



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