

Secondary Definition

Crashes that occur as a result of a primary incident or it's congestion.

Do you include stalls as secondary's?



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Why track?

- THE cost/benefit justifier for what we do and advocate.
 - SSP's ETC. Quick clearance, incident responsive TMC. TIM programs, responder training.
- Fatality reductions
- Responder safety.
- Why don't we have good data?



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It's complicated

- Who decides?
 - Trooper/ LE
 - On the crash report?
 - TMC operators?
 - Post analytical?
- Human side = Highly subjective.
- Post data side = Guesswork /not enough data



What counts as originating incident?

Sensitivity? Blame game? Liability admission?

- Traffic stop?
- Service patrol stop?
- Construction?
- Winter?



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Accuracy goals?

- Do you want a rough gross number, that you try to influence +/- through large scale impacts?

OR

- Do you want an exact, accurate number so you understand issue/deal with specific problem areas?
- Do you just want worst case examples?



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History

“Approximately 20 percent of all incidents are secondary incidents.”

“...traffic incidents account for about one-third of all delay”

FHWA TIM one pager 2004



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MNDOT Secondary crash analysis project

C	D	E	F
location	cdts	xdts	camera
I 35W NB @ WASHINGTON AVE	8/22/2016 5:18	8/22/2016 5:21	NONE
I 35W SB @ 35TH ST	8/22/2016 5:44	8/22/2016 6:34	6221
HWY 169 NB @ HWY 610	8/22/2016 5:54	8/22/2016 8:27	688
PORTLAND AVE @ 3RD ST S	8/22/2016 6:06	8/22/2016 6:22	NONE
I 35 NB @ HWY 95	8/22/2016 6:07	8/22/2016 6:10	NONE
I 35E NB @ RANDOLPH AVE	8/22/2016 6:56	8/22/2016 12:26	1021
BUSH LAKE RD @ EAST BUSH LAKE RD	8/22/2016 7:06	8/22/2016 9:07	426
BUSH LAKE RD @ EAST BUSH LAKE RD	8/22/2016 7:07	8/22/2016 7:08	DUP
I 494 EB @ EB 494 I TO BUSH LAKE RD E RMP	8/22/2016 7:07	8/22/2016 7:10	DUP
VALLEY CREEK RD TO NB 494	8/22/2016 7:09	8/22/2016 7:21	400
I 694 EB @ MAIN ST	8/22/2016 7:22	8/22/2016 7:37	702
I 694 NB @ 10TH ST	8/22/2016 7:32	8/22/2016 7:46	1021
I 94 EB @ EB 94 I TO MAPLE GROVE PKWY N RMP	8/22/2016 7:48	8/22/2016 10:53	808
HWY 55 @ PLEASANT DR	8/22/2016 7:55	8/22/2016 9:02	NONE
HWY 169 SB @ GATEWAY DR	8/22/2016 7:56	8/22/2016 9:25	NONE
I 94 EB @ EB 94 I TO MAPLE GROVE PKWY N RMP	8/22/2016 7:57	8/22/2016 8:25	NONE
NB HWY 169 @ HWY 41	8/22/2016 8:07	8/22/2016 8:17	1021
HWY 36 WB @ LEXINGTON AVE	8/22/2016 8:25	8/22/2016 9:32	NONE
I 494 WB @ CONCORD BLVD	8/22/2016 8:48	8/22/2016 8:49	NONE
I 94 WB @ CEDAR ST	8/22/2016 9:04	8/22/2016 9:18	852
I 94 WB @ MINNESOTA ST	8/22/2016 9:21	8/22/2016 10:25	852
HWY 62 EB @ FRANCE AVE	8/22/2016 10:04	8/22/2016 13:43	1021
FRANKLIN AVE @ FRANKLIN AVE	8/22/2016 11:25	8/22/2016 12:39	624
I 35W SB @ CR 42	8/22/2016 11:35	8/22/2016 12:36	NONE
I 94 WB @ HIAWATHA	8/22/2016 12:45	8/22/2016 14:00	625
NB I 35W TO 5TH AVE S RMP	8/22/2016 12:47	8/22/2016 13:32	NONE
HWY 169 SB @ I 394	8/22/2016 12:56	8/22/2016 13:17	DUP
BETTY CROCKER DR @ BETTY CROCKER DR	8/22/2016 12:56	8/22/2016 13:32	906
HWY 169 NB @ CANTERBURY DOWNS BL	8/22/2016 13:00	8/22/2016 14:39	NONE
HWY 36 EB @ LEXINGTON AVE	8/22/2016 13:00	8/22/2016 14:03	NONE



- On the wish list for 5+ years.
- MNDOT is on State Patrol's CAD
- MNDOT records its cameras



Results

- 2 weeks in Aug - 4:30am-10pm M-F
- Average 81 crash events per day in Metro
 - 60% had vehicles visible on playback (48 crashes)
 - 40% not visible: Dups, outside cam coverage, minor bump & go H&R's, 10-21 events.
- Of the per-day average 48 crash scenes visible
 - Rear end collisions in recurring congestion
 - 18% actual crash visible
 - 4% classifiable as “secondary crash”
 - **About 2 secondary crashes per day**



Secondary anecdotes

#1 Semi vs car crash on I-35 blocking LL.

- Secondary at tail of queue +30 mins
- Another rear-ender in residual (15 mins after primary cleared).
- 3 weeks later! – crash in the backups from guard rail repair crew.

#2 Multi car crash on I-94 construction area

- Secondary in shockwave 3 minutes later
- Car stalls in backups +45 mins blocking LL
- Crash at tail of unusual congestion +90 mins



It's complicated part 2

- If conditions contributed to first crash...
 - Recurring congestion
 - Slippery roads
- Where does bad driving fit in???

