



MN3: ITS – Not Just for Freeways

National Rural ITS Conference

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Your Destination...Our Priority



Overview

- ▶ Location Selections
- ▶ Installation and On Going Costs
- ▶ Funding
- ▶ Future



Risk Based Prioritization

County Road Safety Plans

- ▶ Rural roads
 - Intersections
 - 0.5 crashes/year
 - 0.01 fatal crashes/year
 - Rural 2 lane roads
 - 1.5 crashes/mile/year
 - 0.01 fatal crashes/mile/year
 - County Highways
 - 0.5 crashes per mile/year
 - 0.003 fatal crashes/mile/year



Proactive Risk Factors

Rural Thru STOP Intersections

- ▶ **Geometry**
 - Skewed minor leg approach
 - Intersection on/near horizontal curve
- ▶ **Volume**
 - Minor ADT/Major ADT ratio
- ▶ **Proximity**
 - Previous STOP sign
 - Railroad crossing
- ▶ **Intersection Related Crashes**
- ▶ **Commercial Development in quadrants**



Rural Intersection Prioritization Example County

Rank	Int #	Sys	#	Intersection Description	Skew	On/Near Curve	Development	RR Xing	Previous STOP (>5mi)	Total Crashes	Ratio (Min/Maj)	Priority	Crash Cost
1	21.02	CSAH	21	CSAH-44 RT		★			★	★	★	★★★★★	\$ 399,000
2	6.01	CSAH	6	MNTH-74 X-ING	★				★	★	★	★★★★★	\$ 196,000
3	29.01	CSAH	29	CR-109 RT, CSAH-29 TURNS LT	★	★			★	★		★★★★★	\$ 182,000
4	21.01	CSAH	21	MNTH-43 X-ING, T-130 BHD	★	★			★	★		★★★★★	\$ 175,000
5	12.06	CSAH	12	MNTH-76 RT	★	★			★	★		★★★★★	\$ 91,000
6	25.03	CSAH	25	CR-106 AHD, CSAH-25 CURVES	★	★				★	★	★★★★★	\$ 12,000
7	12.07	CSAH	12	CR-104 RT	★	★	★		★			★★★★★	\$ -
8	1.01	CSAH	1	CSAH-12 X-ING	★	★			★		★	★★★★★	\$ -
9	25.05	CSAH	25	USTH-14 X-ING					★	★	★	★★★	\$ 813,000
10	6.02	CSAH	6	CSAH-43 RT					★	★	★	★★★	\$ 685,000
11	6.04	CSAH	6	CSAH-33 X-ING ENTER FREMON	★					★	★	★★★	\$ 503,000
12	44.02	CSAH	44	CSAH 44 Lake St		★			★	★		★★★	\$ 411,000
13	12.03	CSAH	12	MNTH-43 X-ING		★			★	★		★★★	\$ 342,000
14	39.03	CSAH	39	MNTH-74 X-ING (NORTH)	★				★	★		★★★	\$ 318,000
15	20.01	CSAH	20	CSAH-27 LT & BHD T-560 RT		★			★	★		★★★	\$ 239,000
16	23.04	CSAH	23	USTH-61 SBL X-ING	★	★				★		★★★	\$ 163,000
17	5.01	CSAH	5	CSAH-8 LT	★	★				★		★★★	\$ 136,000
18	120.02	CNTY	120	USTH-14 X-ING, T-322 AHD east	★	★				★		★★★	\$ 103,000
19	6.03	CSAH	6	CSAH-35 LT CR-113 RT	★					★	★	★★★	\$ 91,000
20	8.01	CSAH	8	CSAH-11 X-ING	★					★	★	★★★	\$ 91,000
21	11.03	CSAH	11	CSAH-12 X-ING	★				★	★		★★★	\$ 12,000
22	20.03	CSAH	20	CSAH-25 LT & BHD east		★				★	★	★★★	\$ 12,000

- ▶ Is the County's entire system equally at-risk?
 - No – about 1 / 3 of their system is high priority

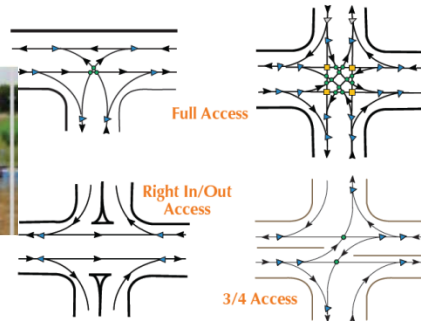
	#	%	
★★★★★★★	0	0%	} Considered for projects
★★★★★★	0	0%	
★★★★★	0	0%	
★★★★	8	11%	
★★★	21	30%	
★★	33	46%	
★	9	13%	
-	0	0%	
	71	100%	



Example – Typical Intersection Strategies



Change Intersection Type



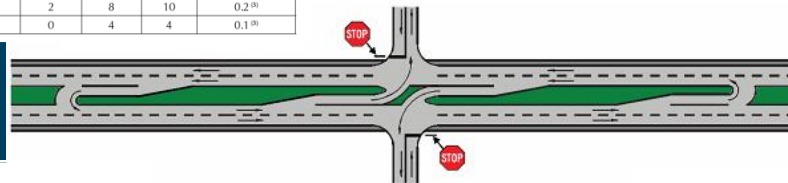
	Crossing	Turning	Merge/Diverge	Total	Typical Crash Rate (crashes per mt. entering vehicles)
Full Access +	4	12	16	32	0.3 ⁽¹⁾
Full Access T	0	3	6	9	0.3 ⁽²⁾
3/4 Access	0	2	8	10	0.2 ⁽³⁾
Right In/Out Access	0	0	4	4	0.1 ⁽³⁾



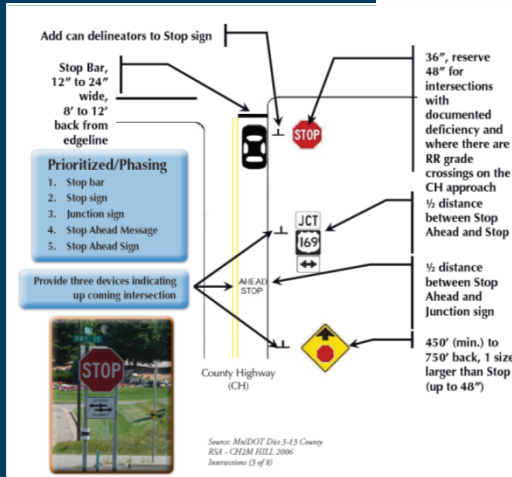
Street Lighting



Dynamic Warning Signs

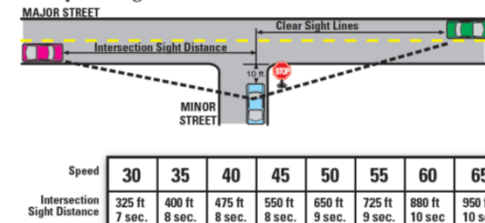


Indirect Turns

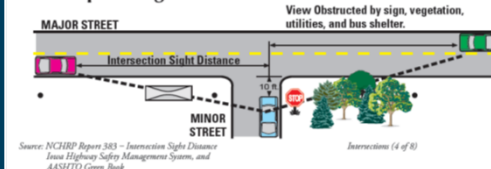


Enhanced Signing and Delineation

Adequate Sight Distance



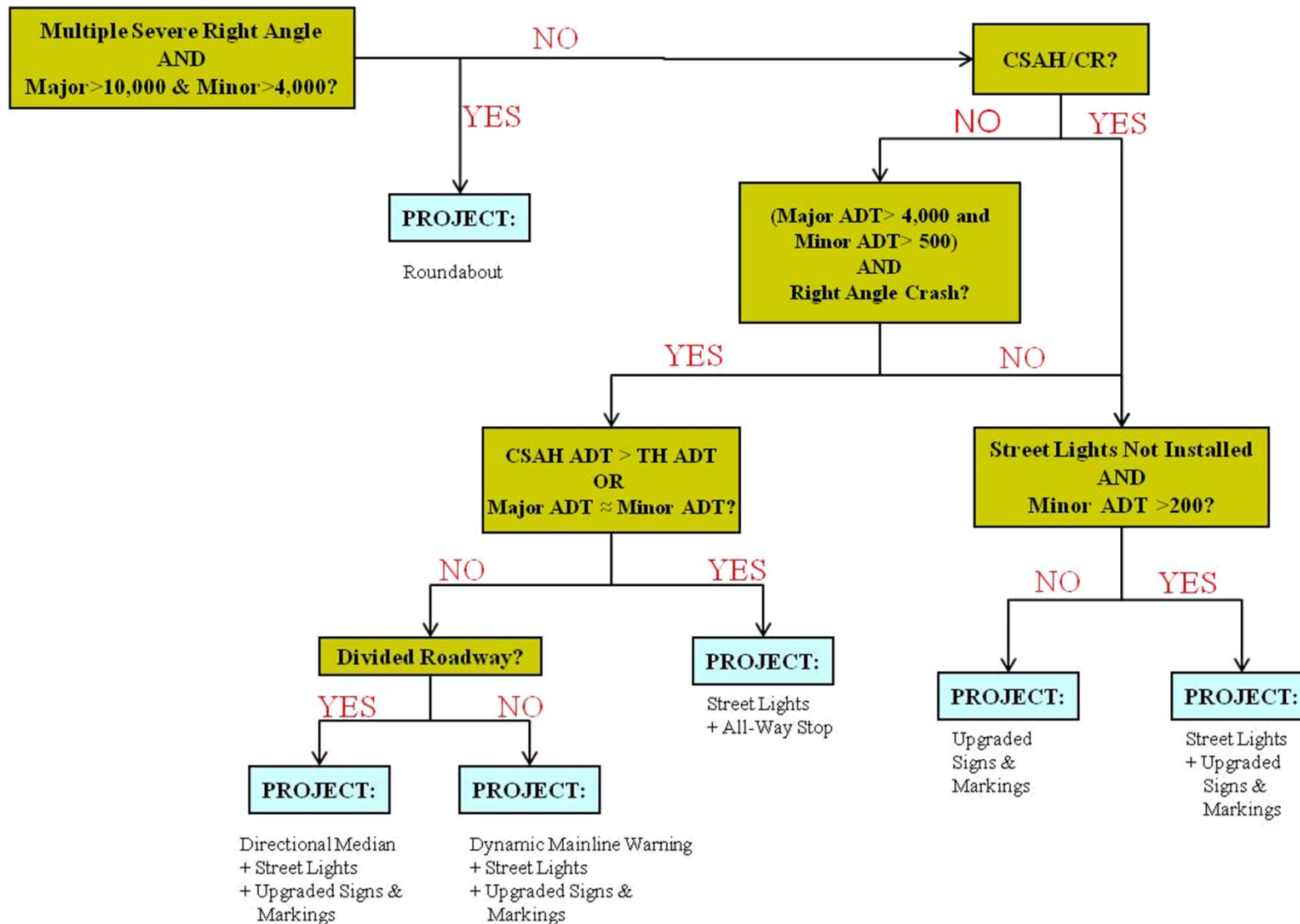
Inadequate Sight Distance



Improve Sight Distance

Project Development

High Priority Rural Intersections



Reactive Risk Factors Complaints and Crashes



Unsignalized Intersection Strategies

17.1 D1 Provide Dynamic Gap Assistance for Turning and Crossing Maneuvers



Dynamic Mainline Warning Sign



Then (2009) and Now (2012)





Installation Power Locates Repairs

CMF

\$2,500

\$0

\$0

Low

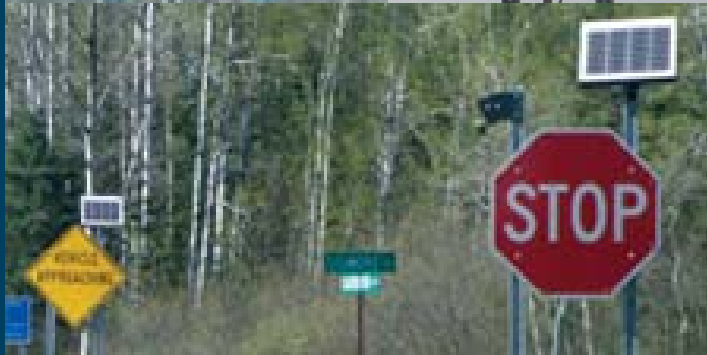


\$22,500

\$0

\$0

Low



\$35,000

\$0

\$0

Low



Funding

- Destination Innovation (DI)
- Safe Corridor Enhancements (SCorE)
- Highway Safety Improvement Program (HSIP)
- Local Operational Research Assistance (OPERA) Program
- Corridor Investment Management Strategy (CIMS)
- Safe Routes to School (SRTS)
- County State Aid Maintenance
- Municipal State Aid Maintenance





A Signal That Leads the World in Value \$67⁵⁰

SIMPLEX

extraordinary features plus
a Phenomenal Low Price

COMPLETE, INCLUDING
BUILT-IN CONTROLLER

This new type meets the demand of many cities for 2-Color signals. They are ideal; low in price, hung up, simply controlled, and very efficient.

The operation is quite simple. When the red signal is out, there is an interval of about three seconds before the green GO lights up, and vice versa. This interval gives driver time to get ready.

The Lowest Cost of Operation

AT 10 CENTS PER KILOWATT HOUR THIS SIGNAL OPERATES FOR 2 CENTS PER HOUR.

The scientific reason for Simplex efficiency is based on the law that any light throws its rays, illumination, or power, EQUALLY IN ALL DIRECTIONS. Simplex uses 150-watt bulbs which are just as bright on one side as on the other.

Where other signals of this type use 8 bulbs, this takes only 2 bulbs. Where other signals take 20, this Simplex uses only 165 watts. They save \$40 a year on current alone.

And where 45 candlepower illuminates the other signals, 105 candlepower lights Simplex.

NO maze of wires and sockets and "what-nots." Signals are NOT complicated.

No wonder Simplex Signals do not get out of order; wonder repairs are never needed.

Any local electrician can easily hang Simplex Signals. Often it takes only a day, depending on how far the power wire, etc. Wire and conduit cost very little.

Interior
Simplicity
Insures
Satisfaction

Simplex
Inside
Completely
Trouble-Free



No maze of wires and sockets and "what-nots." Simplex Signals are NOT complicated.

No wonder Simplex Signals do not get out of order. No wonder repairs are never needed.

Any local electrician can easily hang and connect SIMPLEX Signals. Often it takes only a day, depending on how far to the power wire, etc. Wire and conduit cost very little.

FOR
WITH
TAKING
3
DISCOUNT

Our Signals are built in SEPARATE PARTS. We save —only 1%— to the consumer.

SIMPLEX and equal signals are NOT run in sunlight out the back and vibrate and not.

On all places by will not. No. C81 SELF-OPERATING and open.

Our Customers Sell Themselves From Our Buyer's Guide



Its only traveling expenses are a postage stamp. It has no hotel bills; receives no salary or commissions to be added to the price of equipment you buy from us.

Read
What
This Official Has
to Say About
Simplex Traffic
Signals

W. S. DARLEY & CO.
Chicago, Ill.

Gentlemen:
You will find attached check for \$65.50 in payment of your invoice for C810 Simplex Signal. We are well pleased with the Simplex Signal.

Yours very truly,
JAMES McDONALD, Mayor
Winfield, Alabama.

W. S. Darley & Co. Offer Lowest Prices—30 Days-Free Trial and 3% Discount for Cash or C. O. D.



POINT OF TRANS



Questions?



- ▶ <http://www.wdio.com/article/stories/s3114404.shtml>

