Federal HSIP Funding Application (Form 1)

INSTRUCTIONS: Complete and return completed application to Lars Impola, MnDOT, Metro District, 1500 West County Road B2, Roseville, Minnesota 55113. (651) 234-7820. **Applications must be received by 4:30 pm or postmarked on ~~June~~ July 1, 2020.*Be sure to complete and attach the Project Information form.** (Form 2)

I. GENERAL INFORMATION

1. APPLICANT: Minnesota Department of Transportation

2. JURISDICTIONAL AGENCY (IF DIFFERENT):

3. MAILING ADDRESS: 1500 County Road B2

CITY: Roseville	STATE: MN	ZIP CODE: 55113	4. COUNTY: Ramsey
5. CONTACT PERSON: Kaare Festvog	TITLE: Senior Engineering Specialist		PHONE NO. (651)234-7814

CONTACT E-MAIL ADDRESS: Kaare.festvog@state.mn.us

II. PROJECT INFORMATION

6. PROJECT NAME: TH 13 from Lynn Ave to Nicollet Ave, Cable Median Barrier

7. BRIEF PROJECT DESCRIPTION - Include location, road name, type of improvement, etc... (A complete description can be submitted separately): This project will construct cable median barrier on TH 13 from Lynn Ave to Nicollet Ave.

8. HSIP PROJECT CATEGORY – Circle which project grouping in which you wish your project to be scored.

(Proactive) Reactive

III. PROJECT FUNDING

9. Are you applying or have you applied for funds from another source(s) to fund this project? Yes ☐ No X
If yes, please identify the source(s):

10. FEDERAL AMOUNT*: $425,250	13. MATCH % OF PROJECT TOTAL: 10%
11. MATCH AMOUNT: $47,250	14. SOURCE OF MATCH FUNDS: State Funds
12. PROJECT TOTAL: $472,500	15. REQUESTED PROGRAM YEAR(S) : SEE NOTE BELOW** ☐ 2024 2025 X Either year
16. SIGNATURE: Lars Impola	17. TITLE: Principal Engineer

***Would you accept a federal award that covers 80% of the total project cost if non-HSIP federal funds were awarded? Yes_____**

****NOTE: If funding becomes available in 2022 or 2023 would this project be able to be advanced to meet this schedule?Yes_____Which years would work? 2023_____**

DEPARTMENT OF TRANSPORTATION

Scoping Map

N

FISCAL YEAR:	2025
STATE PROJECT:	1901-186
METRO SCOPING ID:	1869

DESCRIPTION: Construct cable median barrier.

LOCATION: TH 13 from Lynn Ave to Nicollet Ave

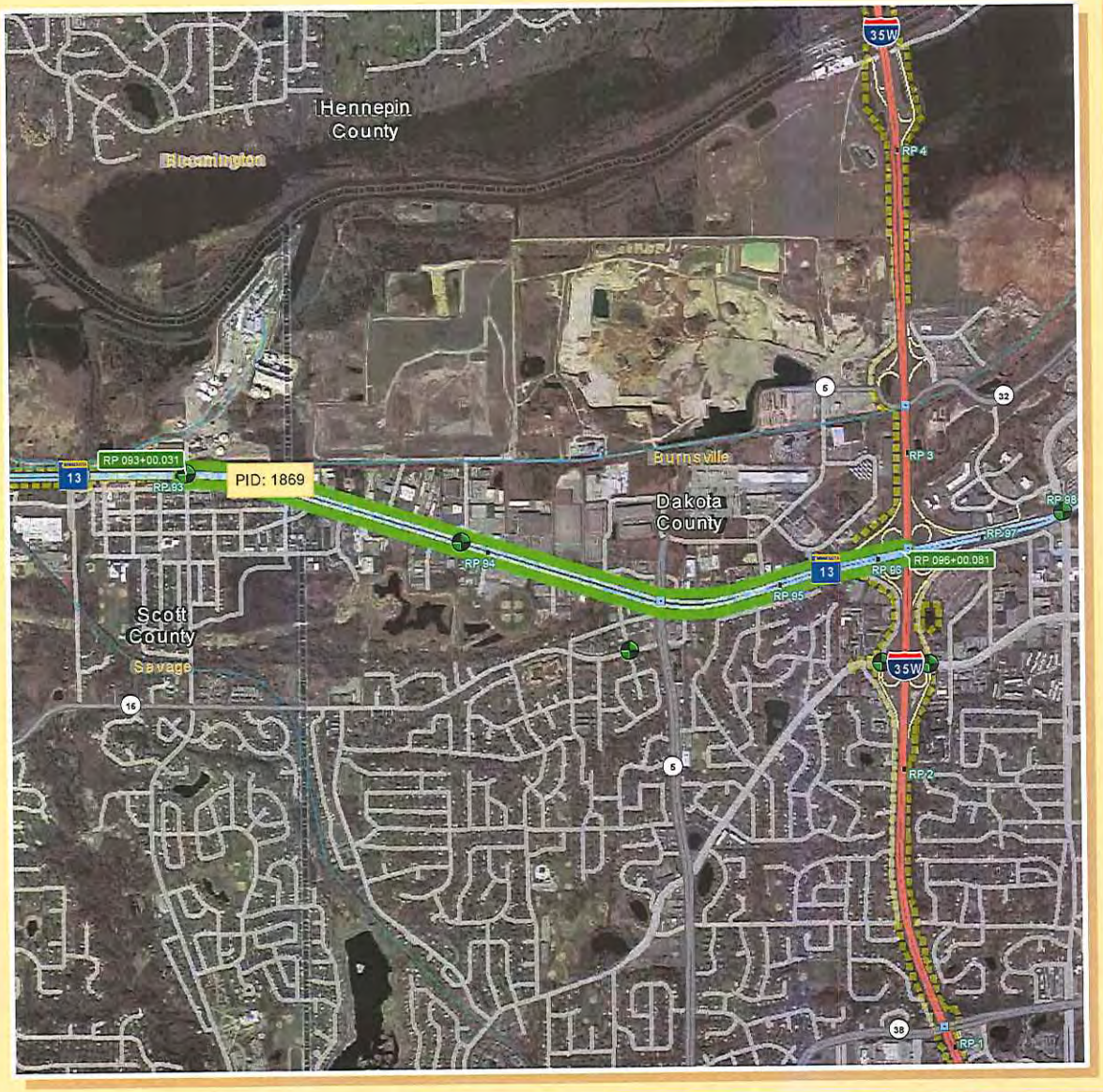
COUNTY: Dakota, Scott CITY: Burnsville, Savage

PROJECT MANAGER: Vasas, Victor E FUNCTIONAL AREA:

PURPOSE STATEMENT: Reduce fatal and serious injury crashes.

NEED STATEMENT: This segment has a history of median crossover crashes.

* See project documentation for more information.



Legend

- Project Area
- Signal Systems (Known)
- Bridges
- MnDOT Right of Way*
- Reference Posts
- Interstate
- US
- MN
- County Routes
- Street Names
- Railroad
- Ramp
- Counties
- Civil Townships
- Cities

DEPARTMENT OF TRANSPORTATION

Date: June 25, 2020

Subject: HSIP TH13 from Lynn Ave to Nicollet– Install cable median barrier

This project meets the intent of the HSIP program as it seeks to reduce crossover and head on crashes. Between 2016 and 2018, there were 25 segment crashes, including 5 injury crashes. Installing cable median barrier is a proactive approach to reducing serious crashes that result when a driver crosses the median. These crashes are random by their nature and therefore do not occur frequently, but when they do, they often result in severe injuries or fatalities. Cable median barrier is proven to reduce severe crashes and fatalities. Research suggests a significant impact on crashes compared to areas without barrier – 42% decrease in fatal crashes and a 20% decrease in severe crashes. This location has the characteristics we generally associate with a risk of crossovers crashes, including high speeds and volumes and a lack of a barrier separation between opposing lanes. MnDOT has seen great benefits in preventing crossover and head-on crashes since the first installation of cable median barrier in 2004. MnDOT Metro has been working toward addressing all locations with these characteristics as a way to support the Toward Zero Deaths initiative. Receiving HSIP funding would help move the project forward and have significant impacts on driver safety in the South Metro.

Bike/Pedestrians

There are minor incidental impacts on bike and pedestrian safety associated with the installation of cable median barrier. Barriers tend to discourage bike and pedestrians from crossing highways. Generally, the highways that benefit from cable median barrier have high volumes and speeds. Bikes and pedestrians will have the safest crossings at controlled intersections in these situations.

TH 13 from Lynn Ave to Nicollet Ave:

Total Length: RP 93.031 to 96.081 = 3.050 miles


HENNEPIN
SCOTT
DAKOTA
Port Cargill
Burnsville
Savage
Burnsville Sanitary Landfill
Kraemer Gravel Pit
Comstone Plant & Kramer Grav
Kraemer Mining
Lehigh Portland Cement
Former Knox Site
Seal-Rite
Walmart
Northern Tool & Equipment
Burnsville Dodge
Archery Site
Bury & Carlson
River Ridge Service Center
Progressive Insurance
Holiday Station
MN Valley Transit Bus Terminal
Cub Foods
Nicollet Plaza
Rental Service Corp. (RSC)
NSP
M&S Drywall
Lejune Bolt
Action Moving Service
Ben Franklin Electric
Burnsville Retail Plaza
Former Menards
Menards
Burnsville Distribution Center
Apple Valley Ready Mix
35/13 Distribution Center
35/13 Crossings
Genz Ryan Plumb & Heat
Yellow Freight
RDO Equipment
Fleetpride
Astleford International
Ryder Truck Rental
Quality Propane
Ride Auto
Patio Town
Rudy L. Kramer Nature Preserve
Sue Fischer Memorial
Hi-Tech Floors
Public Storage
U-Haul
Vermeer
AAMCO
Radco
Park Jeep
Southern Lights & Builder's SE
Caliber
Perkins
Prime Rate Inn
Gateway II Business Center
Gateway III Business Center
Burnsville HS Senior Campus
Gateway Office Building
Carbone's Pizza
US Bank
BP
VTI
Warren Butler Park
Hollywood Park
Highland Forest
Vista View
City Hall MSAS 112 Police Station
54000-D
54000 (2018)
51000-D
56000 (2015)
37500 (2018)
40000-D
32000-D
92000-D
89000-D
109000 (2018)
78000-D
7100 (2018)
6500 (2018)
4500 (2018)
24800 (2017)
7800 (2017)
17000 (2018)
10700 (2018)
2600 (2018)
1850 (2018)
700-D
3000-D
6300-D
5300-D
415-D
3850 (2015)
4450-D
12900-D
11100 (2017)
11600-D
7200-D
7200 (2015)
15800 (2018)
3250 (2018)
15800 (2018)
16000 (2018)
16100 (2018)
10600 (2018)
3050 (2018)
13800 (2018)
MSAS 115
MSAS 116
MSAS 119
MSAS 121
MSAS 117
MSAS 102
MSAS 135
Cliff Rd W
Frontage Rd N
Frontage Rd S
Highway 13 W
123rd St W
124th St W
125th St W
126th St W
126th Tel
126th Pl
127th Trl W
129th St W
Palmer Ave
Ottawa Ave
Monterey Ave
Joppa Ave S
Woodhill Rd
Oliver Ave S
James Ave S
Irving Ave S
Harriet Ave S
Pleasant Ave S
Heritage Cir N
Heritage Cir S
Rail Systems
Union Pacific

TH 13 F & A only (Correctable crashes only)

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Ki	Number of	Officer Narrative	Constructic
2248355	10631121	/2010, 8:0	2010	20	Fatal Crash	1	3	UNIT #1 WAS SOUTHBOUND ON MNTH 13 IN THE INSIDE (LEFT) TRAFFIC LANE JUST SOUTH OF WASHBURN AVE. S. UNIT #2 WAS NORTHBOUND MNTH 13 IN THE INSIDE (LEFT) TRAFFIC LANE JUST SOUTH OF WASHBURN AVE. S. UNIT #3 WAS TRAVELING NORTHBOUND BEHIND UNIT #2. ACCORDING TO WITNESSES, UNIT #1 WAS TRAVELING AT A HIGH RATE OF SPEED WHEN IT LEFT THE ROADWAY, CROSSED THE MEDIAN DITCH AND VAULTED, COLLIDING WITH UNIT #2. UNIT #1 THEN COLLIDED WITH UNIT #3. A PASSENGER OF UNIT #2 DIED AS A RESULT OF THE CRASH. THE DRIVER OF UNIT #1 WAS TRANSPORTED BY AMBULANCE TO HCMC. THE DRIVER OF UNIT #2 WAS TRANSPORTED BY HELICOPTER TO NORTH MEMORIAL. TWO PASSENGERS OF UNIT #2 WERE TRANSPORTED BY AMBULANCE TO HCMC. DRIVER OF UNIT #3 WAS NOT INJURED. ALL THREE VEHICLES WERE TOWED BY ALLEN`S TOWING.	M

TH 13 2016-2018

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Kil	Number of Officer Nar
2579211	331629	2/23/2016,	2016	23	Fatal Crash	1	1 LOCATION
1940306	420409	1/29/2017,	2017	21	Fatal Crash	1	1 HWY 13
1868479	361626	7/5/2016, '	2016	7	Minor Injury (	0	2 V1 was SB
1926562	324882	1/31/2016,	2016	20	Minor Injury (	0	1 CRASH
2186207	329633	2/16/2016,	2016	17	Minor Injury (	0	2 Driver of
2187242	384205	9/18/2016,	2016	12	Minor Injury (	0	1 VEHICLE #1
2266111	383387	10/1/2016,	2016	15	Minor Injury (	0	4 ALL FOUR
2556335	399843	12/1/2016,	2016	7	Minor Injury (	0	5 Crash occu
1901529	503617	9/24/2017,	2017	15	Minor Injury (	0	2 Unit #2
2210480	458308	6/3/2017, '	2017	19	Minor Injury (	0	2 NB HWY
2475069	451449	5/10/2017,	2017	17	Minor Injury (	0	2 WB 13 @
2477846	507146	9/21/2017,	2017	8	Minor Injury (	0	3 Three vehi
1792090	655637	10/18/201	2018	19	Minor Injury (	0	2 - CRASH
1817509	566399	2/16/2018,	2018	15	Minor Injury (	0	2 Vehicle # 2
1947707	601683	5/29/2018,	2018	10	Minor Injury (	0	3 Three vehi
2113419	622248	7/20/2018,	2018	15	Minor Injury (	0	3 ALL THREE
2113733	624077	7/19/2018,	2018	12	Minor Injury (	0	2 Two vehicl
2368574	635318	9/13/2018,	2018	12	Minor Injury (	0	1 VEHICLE H/
2455383	626105	8/5/2018, :	2018	12	Minor Injury (	0	4 DODGE
2506491	634160	9/6/2018, !	2018	9	Minor Injury (	0	4 NORTHBOL
1946381	350755	5/20/2016,	2016	12	Possible Injur	0	5 LOCATION
1972531	389792	10/27/201	2016	6	Possible Injur	0	3 LOCATION
2022123	355729	6/10/2016,	2016	15	Possible Injur	0	3 VEHICLES
2047461	349463	5/3/2016, !	2016	5	Possible Injur	0	1 DRIVER ST/
2073150	338740	3/28/2016,	2016	17	Possible Injur	0	2 VEHICLES V
2098176	394449	11/14/201	2016	8	Possible Injur	0	1 UNIT #1 W.
2186284	340536	4/6/2016, '	2016	16	Possible Injur	0	3 VEHICLES V
2209789	409306	12/28/201	2016	17	Possible Injur	0	2 VEHICLE'S
2212864	379314	9/15/2016,	2016	6	Possible Injur	0	2 UNIT 1 & 2
2391876	381084	9/16/2016,	2016	17	Possible Injur	0	3 NB MNTH
2411382	334751	3/8/2016, '	2016	7	Possible Injur	0	2 Crash occu
2411594	346266	5/2/2016, !	2016	20	Possible Injur	0	3 VEHICLES
2476796	344574	4/25/2016,	2016	9	Possible Injur	0	2 NB HWY
2477601	368176	7/20/2016,	2016	18	Possible Injur	0	2 WB 13 /
2607382	389767	10/27/201	2016	6	Possible Injur	0	4 Crash occu
1908288	504929	9/29/2017,	2017	16	Possible Injur	0	2 VEHICLE'S
1940758	511977	10/27/201	2017	7	Possible Injur	0	3 V3 rear enc
2071960	473382	6/29/2017,	2017	10	Possible Injur	0	1 Driver 1
2106244	416236	1/17/2017,	2017	22	Possible Injur	0	2 UNIT 1
2112802	502624	9/20/2017,	2017	14	Possible Injur	0	2 Both vehicl
2157892	412863	1/9/2017, :	2017	14	Possible Injur	0	2 VEHICLE 1
2158533	431105	3/23/2017,	2017	17	Possible Injur	0	2 Vehicle tw
2163903	514653	11/4/2017,	2017	22	Possible Injur	0	2 SB HWY
2210320	447072	4/13/2017,	2017	16	Possible Injur	0	2 EB MNTH

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Kil	Number of Officer Nar
2339031	507883	10/5/2017,	2017	15	Possible Injur	0	1 - CRASH
2428345	501692	9/16/2017,	2017	13	Possible Injur	0	2 Both vehicl
2525452	419511	1/30/2017,	2017	14	Possible Injur	0	2 UNIT#1 AN
2603794	475248	6/26/2017,	2017	17	Possible Injur	0	3 LOCATION
1882673	606802	6/25/2018,	2018	21	Possible Injur	0	2 UNIT 1
1895865	631504	8/30/2018,	2018	23	Possible Injur	0	1 At the
2077391	569945	2/28/2018,	2018	7	Possible Injur	0	1 E/B HWY 1
2138331	599019	5/22/2018,	2018	18	Possible Injur	0	2 Both
2191038	671052	12/19/201	2018	20	Possible Injur	0	2 - CRASH
2217736	650129	10/6/2018,	2018	23	Possible Injur	0	2 UNIT 1 & U
2394954	657367	11/6/2018,	2018	17	Possible Injur	0	2 EB HWY
2478791	542093	2/2/2018, (	2018	6	Possible Injur	0	3 All vehicles
1796683	338928	3/29/2016,	2016	18	Property Dam	0	3 Unit 1 was
1807774	386664	10/13/201	2016	18	Property Dam	0	2 VEHICLE 1
1807795	389953	10/26/201	2016	14	Property Dam	0	2 On
1842687	382065	9/26/2016,	2016	17	Property Dam	0	2 VEHICLE'S
1848687	353134	5/29/2016,	2016	21	Property Dam	0	1 VEHICLE W
1874608	341597	4/11/2016,	2016	9	Property Dam	0	2 UNIT #1 AN
1874944	392405	11/4/2016,	2016	13	Property Dam	0	1 LOCATION
1881169	334799	3/9/2016, '	2016	7	Property Dam	0	2 NB HWY
1888080	402025	12/10/201	2016	21	Property Dam	0	1 driver of th
1927163	406034	12/19/201	2016	9	Property Dam	0	1 UNIT #1 W.
1940053	382561	9/28/2016,	2016	16	Property Dam	0	2 VEHICLE'S
1953123	404824	12/16/201	2016	14	Property Dam	0	2 V1
1959091	329717	2/15/2016,	2016	5	Property Dam	0	1 Vehicle 1 w
2019265	404425	12/15/201	2016	17	Property Dam	0	1 UNIT 1 UNI
2048102	360392	6/29/2016,	2016	16	Property Dam	0	2 VEHICLE'S
2072854	321946	1/20/2016,	2016	16	Property Dam	0	2 -Both
2073137	336791	3/19/2016,	2016	10	Property Dam	0	1 DRIVER #1
2073424	345229	4/28/2016,	2016	12	Property Dam	0	2 LOCATION
2095953	367032	7/21/2016,	2016	17	Property Dam	0	2 LOCATION
2111484	384951	10/7/2016,	2016	16	Property Dam	0	3 Vehicle#1
2111884	393832	10/31/201	2016	17	Property Dam	0	2 LOCATION
2134784	341220	4/7/2016, :	2016	13	Property Dam	0	2 LOCATION
2135470	370137	7/22/2016,	2016	16	Property Dam	0	2 BOTH
2161128	373670	8/10/2016,	2016	17	Property Dam	0	2 LOCATION
2185607	319447	1/11/2016,	2016	18	Property Dam	0	1 VEHICLE 1 '
2186006	341312	4/10/2016,	2016	2	Property Dam	0	1 OFFICERS V
2189388	410045	12/31/201	2016	14	Property Dam	0	2 Driver of V
2209515	401721	12/9/2016,	2016	17	Property Dam	0	2 DRIVER
2214974	387306	10/2/2016,	2016	16	Property Dam	0	2 MNTH 13
2235281	411615	12/30/201	2016	13	Property Dam	0	1 Crash occu
2235451	388605	10/20/201	2016	14	Property Dam	0	2 BOTH UNIT
2238163	348176	5/9/2016, :	2016	15	Property Dam	0	2 CRASH OCC
2238797	370234	8/8/2016, (	2016	16	Property Dam	0	2 UNIT 1
2263524	329739	2/14/2016,	2016	14	Property Dam	0	1 Crash occu

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Kil	Number of	Officer Nar
2266164	381934	9/26/2016,	2016	9	Property Dam	0	2	Both vehicl
2288818	318820	1/10/2016,	2016	14	Property Dam	0	1	UNIT #1 W.
2363548	331373	2/13/2016,	2016	12	Property Dam	0	2	VEHICLE #1
2363730	341646	4/11/2016,	2016	16	Property Dam	0	2	VEHICLES V
2364534	368934	8/4/2016,	2016	8	Property Dam	0	2	LOCATION
2387026	409417	12/29/201	2016	6	Property Dam	0	2	Driver # 2 v
2390057	362150	7/6/2016,	2016	8	Property Dam	0	2	LOCATION
2391674	376845	8/22/2016,	2016	3	Property Dam	0	2	VEHICLE 1
2409121	403706	12/14/201	2016	6	Property Dam	0	3	Crash occu
2424959	331753	2/25/2016,	2016	7	Property Dam	0	2	LOCATION
2451053	341223	4/9/2016,	2016	9	Property Dam	0	2	LOCATION
2476633	335129	3/8/2016,	2016	19	Property Dam	0	2	LOCATION
2502623	344254	4/23/2016,	2016	17	Property Dam	0	2	V1 WAS SL
2503120	363096	7/11/2016,	2016	17	Property Dam	0	2	UNIT 1
2505641	398862	11/23/201	2016	17	Property Dam	0	2	BOTH N/B
2553708	354355	6/4/2016,	2016	19	Property Dam	0	1	V1 SB
2553881	365393	7/21/2016,	2016	7	Property Dam	0	2	LOCATION
2556324	402019	12/10/201	2016	19	Property Dam	0	2	The Buick v
2579195	338679	3/24/2016,	2016	8	Property Dam	0	2	V1 PROCEE
2579361	340375	4/1/2016,	2016	23	Property Dam	0	2	V#1 CAME
2604241	328075	2/10/2016,	2016	18	Property Dam	0	2	BOTH VEHI
1797221	415796	1/16/2017,	2017	21	Property Dam	0	1	LOCATION
1797519	476267	7/11/2017,	2017	17	Property Dam	0	2	WB HWY
1797700	509999	10/19/201	2017	16	Property Dam	0	4	W/B MNTH
1830425	507679	10/9/2017,	2017	12	Property Dam	0	2	V1
1849754	531569	12/28/201	2017	12	Property Dam	0	2	UNIT #1 W.
1855863	420985	2/6/2017,	2017	8	Property Dam	0	2	UNIT #1 AN
1856072	469170	6/1/2017,	2017	16	Property Dam	0	2	both
1856073	469178	6/4/2017,	2017	15	Property Dam	0	2	v2 was on
1856398	524851	12/6/2017,	2017	9	Property Dam	0	2	BOTH VEHI
1862331	445273	3/27/2017,	2017	15	Property Dam	0	2	LOCATION
1882159	503106	9/22/2017,	2017	8	Property Dam	0	2	SOUTH BOI
1894968	446483	4/20/2017,	2017	11	Property Dam	0	2	Crash occu
1895231	503572	9/22/2017,	2017	7	Property Dam	0	2	2 vehicle cr
1895298	513152	10/31/201	2017	18	Property Dam	0	2	On
1895345	519969	11/20/201	2017	17	Property Dam	0	2	both
1914333	448154	4/27/2017,	2017	16	Property Dam	0	3	ALL UNITS
1921300	501279	9/13/2017,	2017	17	Property Dam	0	2	WB HWY
1921451	523654	12/5/2017,	2017	8	Property Dam	0	2	V1
1940594	488053	7/10/2017,	2017	18	Property Dam	0	2	The crash
1940690	500794	9/12/2017,	2017	17	Property Dam	0	2	V1 AND
1966239	449785	5/4/2017,	2017	17	Property Dam	0	2	WB HWY
1966391	489703	7/24/2017,	2017	17	Property Dam	0	1	Crash
1966443	497642	8/23/2017,	2017	16	Property Dam	0	2	SB MNTH
1966633	522510	12/5/2017,	2017	5	Property Dam	0	2	WB 13 @
2000457	504458	9/27/2017,	2017	18	Property Dam	0	1	Crash

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Kil	Number of Officer Nar
2019715	423610	2/17/2017,	2017	7	Property Dam	0	2 UNIT #1 AN
2044907	416150	1/17/2017,	2017	16	Property Dam	0	3 VEHICLE'S
2046537	506239	10/4/2017,	2017	8	Property Dam	0	2 V1 IN THE
2076617	510680	10/19/201	2017	18	Property Dam	0	2 WB HWY
2106993	427207	3/6/2017, 8	2017	8	Property Dam	0	2 UNIT #1 AN
2110714	526529	12/18/201	2017	17	Property Dam	0	3 V1, V2
2132295	422070	2/9/2017, 8	2017	8	Property Dam	0	2 V1
2137972	509212	10/16/201	2017	15	Property Dam	0	2 CRASH
2161879	528705	12/12/201	2017	16	Property Dam	0	2 WB HWY
2163884	508940	10/13/201	2017	7	Property Dam	0	2 V1 AND
2163944	505050	9/29/2017,	2017	16	Property Dam	0	2 Driver # 2 \
2183611	414405	1/11/2017,	2017	11	Property Dam	0	2 LOCATION
2185413	499050	9/5/2017, 1	2017	10	Property Dam	0	1 Crash
2211339	506226	10/3/2017,	2017	17	Property Dam	0	2 SB HWY
2213817	526350	12/19/201	2017	7	Property Dam	0	2 UNIT #2 W.
2236282	433344	3/29/2017,	2017	14	Property Dam	0	2 BOTH UNIT
2239329	512848	10/23/201	2017	12	Property Dam	0	2 UNIT #1 AN
2261785	448071	4/27/2017,	2017	11	Property Dam	0	2 THE TOW
2262534	504464	9/21/2017,	2017	17	Property Dam	0	2 WB HWY
2262584	475217	7/7/2017, 1	2017	7	Property Dam	0	2 Unit 1 was
2264620	503868	9/25/2017,	2017	14	Property Dam	0	2 Vehicle 1 w
2265112	521360	11/22/201	2017	8	Property Dam	0	2 V#2 WAS II
2287831	447742	4/20/2017,	2017	7	Property Dam	0	2 DRIVER OF
2290694	511903	10/27/201	2017	7	Property Dam	0	3 V4 rearend
2292834	516426	11/7/2017,	2017	9	Property Dam	0	2 LOCATION
2341895	495479	8/20/2017,	2017	12	Property Dam	0	3 UNIT #1, U
2361417	412235	1/6/2017, 1	2017	7	Property Dam	0	2 NB MNTH
2361922	444992	4/12/2017,	2017	7	Property Dam	0	2 LOCATION
2388596	506225	10/3/2017,	2017	16	Property Dam	0	2 NB HWY
2390698	512850	10/24/201	2017	7	Property Dam	0	2 UNIT #1 AN
2410162	452083	5/14/2017,	2017	12	Property Dam	0	2 On 05-14-
2410263	487246	7/15/2017,	2017	12	Property Dam	0	2 LOCATION
2423657	487247	7/15/2017,	2017	14	Property Dam	0	2 LOCATION
2424188	500702	9/11/2017,	2017	16	Property Dam	0	2 SB MNTH
2426296	528686	12/27/201	2017	16	Property Dam	0	2 Crash
2448766	414131	1/11/2017,	2017	14	Property Dam	0	2 BOTH
2448903	430058	3/17/2017,	2017	17	Property Dam	0	2 VEHICLES
2449038	425233	2/25/2017,	2017	6	Property Dam	0	1 Crash occu
2449433	472728	6/26/2017,	2017	16	Property Dam	0	2 VEHICLE'S
2452198	523515	12/4/2017,	2017	22	Property Dam	0	1 LOCATION
2454174	413989	1/11/2017,	2017	14	Property Dam	0	0 UNIT #1 W.
2475552	487702	7/16/2017,	2017	18	Property Dam	0	2 - CRASH
2503650	525445	12/14/201	2017	16	Property Dam	0	3 SB MNTH
2525954	425572	2/27/2017,	2017	7	Property Dam	0	2 UNIT #1 AN
2526809	475082	7/6/2017, 4	2017	16	Property Dam	0	2 UNIT 1,
2528848	515213	11/6/2017,	2017	18	Property Dam	0	2 EB MNTH

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Kil	Number of Officer Nar
2551795	456112	5/31/2017,	2017	6	Property Dam	0	4 All Units w
2554770	511930	10/23/201	2017	7	Property Dam	0	3 LOCATION
2556389	413308	1/10/2017,	2017	6	Property Dam	0	2 UNIT #1 AN
2576868	421103	2/6/2017,	2017	20	Property Dam	0	2 VEHICLE'S
2578265	471764	6/15/2017,	2017	16	Property Dam	0	3 All three
2578380	470607	6/9/2017,	2017	18	Property Dam	0	2 -CRASH
2580721	522595	12/6/2017,	2017	6	Property Dam	0	1 N/B HWY 1
2582631	496360	8/24/2017,	2017	5	Property Dam	0	3 Crash
2582652	497477	8/29/2017,	2017	6	Property Dam	0	2 LOCATION
2605976	513711	10/31/201	2017	8	Property Dam	0	2 BOTH VEHI
2608161	495810	8/22/2017,	2017	12	Property Dam	0	2 Crash
1809049	634365	9/12/2018,	2018	21	Property Dam	0	2 Veh 2 was
1830782	586186	3/15/2018,	2018	11	Property Dam	0	2 BOTH VEHI
1875944	591625	4/16/2018,	2018	6	Property Dam	0	1 On
1889415	653749	10/22/201	2018	16	Property Dam	0	1 VEHICLE 1
1914896	539406	1/22/2018,	2018	11	Property Dam	0	2 UNIT #1 AN
1921994	634861	9/14/2018,	2018	15	Property Dam	0	2 VEHICLES
1928290	629016	8/20/2018,	2018	12	Property Dam	0	2 Both units
1928515	667572	12/5/2018,	2018	8	Property Dam	0	2 Both vehicl
1934695	569940	2/14/2018,	2018	8	Property Dam	0	3 N/B 35W @
1958779	620217	7/11/2018,	2018	16	Property Dam	0	2 Crash
1960353	532924	1/5/2018,	2018	9	Property Dam	0	3 LOCATION
2026474	632331	8/25/2018,	2018	12	Property Dam	0	1 E/B 13 AT I
2026973	649517	9/27/2018,	2018	17	Property Dam	0	2 SB NTH 13
2026978	653254	10/5/2018,	2018	7	Property Dam	0	2 UNIT #1 AN
2052945	647506	9/26/2018,	2018	10	Property Dam	0	2 V1/ Yared i
2075000	540659	1/23/2018,	2018	10	Property Dam	0	1 Single vehi
2075524	589093	4/4/2018,	2018	5	Property Dam	0	2 BOTH
2077079	600659	5/29/2018,	2018	17	Property Dam	0	2 Crash
2078132	652653	10/17/201	2018	20	Property Dam	0	2 v1 was on
2078478	648203	9/29/2018,	2018	3	Property Dam	0	1 At the time
2099508	629955	8/22/2018,	2018	12	Property Dam	0	2 S/B 13 AT \
2112966	588765	4/4/2018,	2018	15	Property Dam	0	2 Crash
2136680	568220	2/21/2018,	2018	16	Property Dam	0	2 NB MNTH
2139604	654767	10/26/201	2018	16	Property Dam	0	2 VEHICLE'S
2139849	665081	11/29/201	2018	18	Property Dam	0	2 - CRASH
2140011	659248	10/23/201	2018	8	Property Dam	0	2 Both vehicl
2162599	536282	1/15/2018,	2018	6	Property Dam	0	2 Veh 1 was
2162733	569730	2/26/2018,	2018	8	Property Dam	0	2 UNIT #1 AN
2165058	605491	6/19/2018,	2018	17	Property Dam	0	2 V1
2187880	540657	1/23/2018,	2018	13	Property Dam	0	2 Two vehicl
2190377	591503	4/16/2018,	2018	7	Property Dam	0	3 All vehicle
2191118	661220	11/16/201	2018	13	Property Dam	0	3 - CRASH
2215792	598660	5/21/2018,	2018	8	Property Dam	0	2 V1 AND
2216286	591502	4/16/2018,	2018	5	Property Dam	0	2 Both vehicl
2216387	625072	8/2/2018,	2018	16	Property Dam	0	2 V1 was tra

objectid	Incident ID	Date and T	Year	Hour	Crash Severity	Number Kil	Number of Officer Nar
2242930	661147	11/13/201	2018	7	Property Dam	0	2 N/B HWY 1
2265401	536199	1/15/2018,	2018	0	Property Dam	0	2 Driver 1
2265504	533818	1/7/2018, !	2018	17	Property Dam	0	2 DRIVER
2265618	536280	1/15/2018,	2018	6	Property Dam	0	1 Vehicle/Dr
2265896	592543	4/20/2018,	2018	15	Property Dam	0	2 UNIT 1 &
2317738	670620	12/17/201	2018	17	Property Dam	0	2 EB HWY
2339483	538228	1/13/2018,	2018	17	Property Dam	0	1 WB
2339871	538561	1/19/2018,	2018	17	Property Dam	0	2 VEHICLE'S
2341610	537142	1/15/2018,	2018	6	Property Dam	0	2 Crash
2343551	669791	12/20/201	2018	7	Property Dam	0	3 E/B HWY 1
2369269	650080	10/7/2018,	2018	17	Property Dam	0	2 The driver
2369355	664525	11/21/201	2018	13	Property Dam	0	2 Both vehicl
2391154	535496	1/12/2018,	2018	9	Property Dam	0	2 UNIT #1 W.
2392953	599164	5/10/2018,	2018	8	Property Dam	0	3 Three vehi
2393515	598169	5/16/2018,	2018	17	Property Dam	0	2 Both units
2395064	665543	11/26/201	2018	15	Property Dam	0	2 WB 13 @
2415755	569378	2/26/2018,	2018	7	Property Dam	0	2 Crash occu
2415775	569088	2/20/2018,	2018	7	Property Dam	0	2 Two vehicl
2416279	620542	7/13/2018,	2018	10	Property Dam	0	1 Vehicle
2427243	567370	2/7/2018, '	2018	7	Property Dam	0	2 Two vehicl
2428945	633412	9/7/2018, !	2018	17	Property Dam	0	2 HWY 13 /
2430276	664329	11/15/201	2018	18	Property Dam	0	2 UNIT#1 AN
2452643	567827	2/19/2018,	2018	15	Property Dam	0	2 Both vehicl
2452788	567968	2/19/2018,	2018	12	Property Dam	0	2 UNIT #1 AN
2454668	593575	4/4/2018, !	2018	5	Property Dam	0	1 Single vehi
2455417	623491	7/24/2018,	2018	12	Property Dam	0	5 V1
2455809	657278	11/6/2018,	2018	6	Property Dam	0	2 Both units
2480264	593794	4/24/2018,	2018	7	Property Dam	0	2 UNIT #1 W.
2480792	569379	2/26/2018,	2018	8	Property Dam	0	2 Crash occu
2504032	534318	1/5/2018, !	2018	9	Property Dam	0	4 LOCATION
2504331	543054	2/5/2018, (	2018	6	Property Dam	0	1 V1 was
2504495	566245	2/4/2018, :	2018	3	Property Dam	0	2 UNIT 1
2506227	590167	4/3/2018, !	2018	21	Property Dam	0	1 - CRASH
2506539	583901	2/20/2018,	2018	9	Property Dam	0	1 LOCATION
2506752	601896	6/4/2018, '	2018	7	Property Dam	0	2 Crash occu
2506881	636146	9/20/2018,	2018	7	Property Dam	0	2 N/B HWY 1
2532235	631101	8/17/2018,	2018	19	Property Dam	0	2 SB HWY
2557090	593577	4/5/2018, :	2018	14	Property Dam	0	2 Two vehicl
2557092	591527	4/16/2018,	2018	6	Property Dam	0	2 UNIT #1 AN
2558258	665431	12/3/2018,	2018	16	Property Dam	0	2 VEHICLE'S
2609397	601592	6/2/2018, :	2018	0	Property Dam	0	2 WHILE ON
2610147	668858	12/12/201	2018	20	Property Dam	0	1 INTERSEC
2163032	361674	6/13/2016,	2016	14	Serious Injury	0	2 VEHICLE
2363510	330590	2/20/2016,	2016	8	Serious Injury	0	2 V1 stated h

MnDOT Metro District

Highway Safety Plan

May 2012

Prepared for:

Minnesota Department of Transportation

CH2MHILL

TABLE 4-1
Potential Freeway Run Off Road Projects—Embedded Wet Reflective Edge Marking

Priority	Location	Crash Density*	No. of Crashes**	Length in Miles	Unit Cost per Mile	Total Project Cost
1	Inside I-494/694 Ring	0.09	67	143	$8,500	$1,216,000
2	I-494/694 Ring	0.08	31	76	$8,500	$646,000
3	Outside I-494/694 Ring	0.06	56	182	$8,500	$1,547,000
TOTAL				401		$3,409,000

*Severe run off road crashes per mile per year **Severe run off road crashes

4.1.2 Rear End Crashes

Analysis of severe rear end crashes suggests that they are correlated with congestion. The average severe rear end crash density is greatest (0.05) on segments that are over capacity and lowest (0.02) on segments that are under capacity. No common characteristics were revealed after study of rear end crash sites. Given that these types of crashes seem to be associated with congestion, and that there are no low cost strategies were identified in either the safety literature or at the Metro District's safety workshop, it was concluded that this type of crash is not a good candidate for HSIP funding.

4.1.3 Cross Median Crashes

These severe crashes are the most noteworthy from the perspective of generating public comment and questions about why countermeasures were not deployed before the crashes occur. The challenge to a proactive deployment involves a very low density of crashes, the lack of any high crash locations, few common characteristics among the locations with crashes, combined with the fact that there are 118 miles of freeway in the Metro District without any type of barrier.

The potential high priority safety strategy is installing cable barrier in the freeway medians at an installation cost of approximately $210,000 per mile. Figure 4-2 provides an example of cable median barrier installation. To cover the remaining 118 miles of freeway without barrier would require an investment of nearly $25,000,000.

Figure 4-2
Cable Median Barrier Example

Metro District staff's long-term goal is to install barrier along every mile of freeway. There are a variety of approaches to prioritize the remaining roadway segments. One potential strategy for adding barrier is to extend the barrier from current termini. The analysis of the cross median crashes found one characteristic common to almost 70% of the locations with a crash—proximity to an interchange. A prioritized ranking of the remaining major freeway segments was then developed using interchange density as the risk factor. The resulting ranking and the description of approximately $19,000,000 of cable barrier installation projects are identified in Table 4-2.

TABLE 4-2
Potential Freeway Cross Median Projects – Corridor Ranking

Segment	Description	Interchange / Length Ratio	Road Length	Existing Cable Length	New Cable Length	Estimated Cost in Millions $
ISTH 94	494/694 to MN/WIS Border	0.54	9.19	-	*9.19*	*$1.94*
ISTH 35	CSAH 2 to CSAH 50	0.35	8.481	-	*8.481*	*$1.79*
ISTH 35E	I-694 to North Junction I35/35W	0.30	13.43	6.93	*6.5*	*$1.37*
ISTH 35	N. Junction of I35E/I35W to PINE County Line	0.20	35.71	16.71	*19.0*	*$4.01*
TOTAL:			66.81	23.64	*43.17*	*$9.11*

4.2 Conventional Roads—Pedestrian/Bicycle Crashes

The second most common type of severe crash on the Metro District's roadways is the pedestrian-related crash. The majority of these crashes occurred at intersections along conventional roadways (not freeways) and almost 80% of those occurred at intersections with traffic signals. As a result, the safety project identification effort focused on intersections in general and in particular on signalized intersections.

Intersections were then analyzed by corridors since treating a spot location along a corridor would not be as effective as treating all intersections that have the same characteristics in a similar fashion. Deploying countermeasures on a corridor basis would also provide pedestrians with a more consistent message as to what they can expect for amenities.

The suggested pedestrian mitigation strategies were selected based on their cost and effectiveness. The data prove that severe pedestrian crashes are scattered around the Metro District's system. This places a priority on low cost strategies that can be widely implemented. A decision tree (Figure 4-3) indicates the process used to develop the suggested projects for particular intersection types.

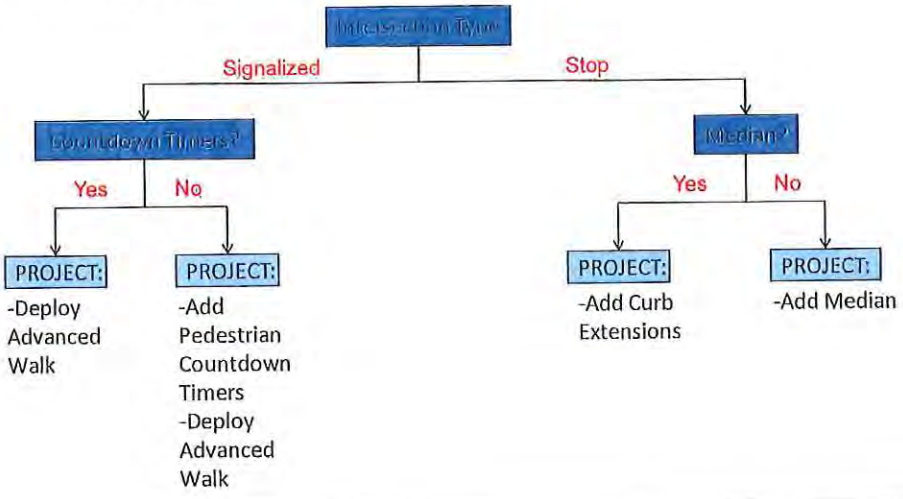


Figure 4-3
Pedestrian Project Decision Tree

Minnesota

STRATEGIC HIGHWAY SAFETY PLAN

2014-2019

Fatal and Serious Injury Crashes:

Lane Departure

Cable Median Barrier

Fatal and serious injury crashes
3,199 severe crashes
640 severe crashes per year
45.5% of all severe crashes

Crashes of all severities
86,902 crashes
17,380 crashes per year
24.0% of all crashes

On Minnesota roadways, there were 3,199 severe lane departure crashes (including run-off-road, head-on, and sideswipe opposing crashes) between 2008 and 2012. This is an average of 640 severe crashes per year and accounted for 45.5% of all severe crashes during the five-year period.

Statewide Crash Statistics

Jurisdiction and area type distribution of severe crashes involving lane departure

	Rural		Urban		Other		Statewide	
State Trunk Highways	859	27%	337	11%	18	1%	1214	38%
County Roads	1011	32%	350	11%	42	1%	1403	44%
City	33	1%	335	10%	15	<1%	383	12%
Township	159	5%	3	<1%	24	1%	186	6%
Other	5	<1%	0	0%	8	<1%	13	<1%
All Jurisdictions	2067	65%	1025	32%	107	3%	3199	100%

Severe lane departure crashes primarily occur in rural areas (2067 of 3199; 65%).

These crashes occur primarily on two roadway jurisdictions: County (1403 of 3199; 44%) and State (1214 of 3199; 38%).

Proportion of severe lane departure crashes along curves by jurisdiction and area type

	Rural		Urban		Other		Statewide	
State Trunk Highways	284 of 859	33%	107 of 337	32%	5 of 18	28%	396 of 1214	33%
County Roads	**465 of 1011**	**46%**	93 of 350	27%	13 of 42	31%	571 of 1403	41%
City	11 of 33	33%	100 of 335	30%	3 of 15	20%	114 of 383	30%
Township	45 of 159	28%	2 of 3	67%	10 of 24	42%	57 of 186	31%
Other	4 of 5	80%	0 of 0	0%	4 of 8	50%	8 of 13	62%
All Jurisdictions	809 of 2067	39%	302 of 1025	29%	35 of 107	33%	1146 of 3199	36%

36% of all severe lane departure crashes occur along a curve.

46% of severe lane departure crashes on rural county roads occur along a curve, compared to only 33% of those on rural state trunk highways.

DEPARTMENT OF TRANSPORTATION

Date: June 25, 2020

Subject: CMF Justification for TH 13 from Lynn Ave to Nicollet Ave – Cable Median Barrier

The CMFs for installing Cable Median Barrier were chosen because they most closely match the construction planned at this location. These CMFs were from one of the only studies that broke down the CMFs by severity. The results also closely match results of an internal study MnDOT Metro conducted on the I-94 cable median barrier installation.

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 5235

Install cable median barrier (high tension)

Description:

Prior Condition: No Cable Median Barrier

Category: Roadside

Study: *In-Service Performance Evaluation (ISPE) for G4 (1S) Type of Strong-Post W-Beam Guardrail System and Cable Median Barrier: Volume II*, Alluri, P., K. Hallem, and A. Gan., 2012

Star Quality Rating:	★☆☆☆☆ [View score details]

Crash Modification Factor (CMF)	
Value:	0.578
Adjusted Standard Error:	
Unadjusted Standard Error:	0.265

Crash Reduction Factor (CRF)	
Value:	42.2 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	

Unadjusted Standard Error:	26.5

Applicability

Crash Type:	Other
Crash Severity:	K (fatal)
Roadway Types:	Principal Arterial Other Freeways and Expressways
Number of Lanes:	
Road Division Type:	Divided by Median
Speed Limit:	
Area Type:	
Traffic Volume:	37429 to 74191 *Annual Average Daily Traffic (AADT)*
Time of Day:	

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	2003 to 2010
Municipality:	
State:	FL

Country:	
Type of Methodology Used:	Simple before/after
Sample Size Used:	Crashes
Before Sample Size Used:	13 Crashes
After Sample Size Used:	9 Crashes

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec-02-2013
Comments:	Median Related Crashes

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF / CRF Details

CMF ID: 5236

Install cable median barrier (high tension)

Description:

Prior Condition: No Cable Median Barrier

Category: Roadside

Study: *In-Service Performance Evaluation (ISPE) for G4 (1S) Type of Strong-Post W-Beam Guardrail System and Cable Median Barrier: Volume II*, Alluri, P., K. Hallem, and A. Gan., 2012

Star Quality Rating:	★★☆☆☆ [View score details]

Crash Modification Factor (CMF)	
Value:	0.799
Adjusted Standard Error:	
Unadjusted Standard Error:	0.215

Crash Reduction Factor (CRF)	
Value:	20.1 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	

Unadjusted Standard Error:	21.5

Applicability

Crash Type:	Other
Crash Severity:	A (serious injury)
Roadway Types:	Principal Arterial Other Freeways and Expressways
Number of Lanes:	
Road Division Type:	Divided by Median
Speed Limit:	
Area Type:	
Traffic Volume:	37429 to 74191 *Annual Average Daily Traffic (AADT)*
Time of Day:	

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	2003 to 2010
Municipality:	
State:	FL

Country:	
Type of Methodology Used:	Simple before/after
Sample Size Used:	
Before Sample Size Used:	31
After Sample Size Used:	30

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec-02-2013
Comments:	Median Related Crashes

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center