

Hazard Elimination Project Evaluation

Project Information

Order ID: 41000027536

Project ID: W-5102

Location: SR 1711 (Worthington Rd) from SR 1700 (Tar Road) to NC-43

County: Pitt

City: Winterville

Division: 2

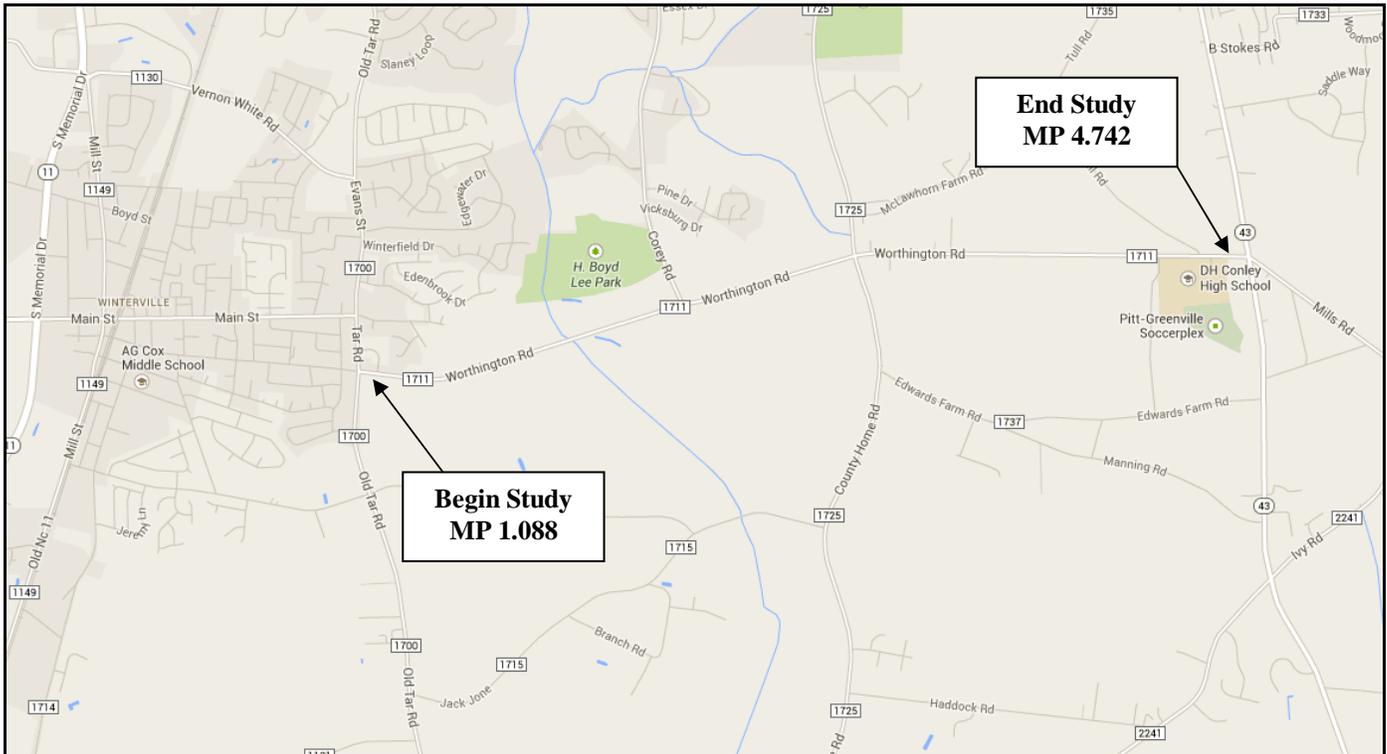
Signal ID: N/A

Countermeasure: Widen for 2-foot paved shoulders on both sides, pavement overlay, restripe using thermoplastic pavement markings, and add raised reflective pavement markers

Project Completion: November 12, 2010

Project Cost: \$1,430,000

Location Map (from Google Maps)



Naive Before and After Analysis

Before Period: September 1, 2007 through August 31, 2010 (3 years)

Const. Period: September 1, 2010 through December 31, 2010

After Period: January 1, 2011 through December 31, 2013 (3 years)

Analysis Criteria: Treatment data consisted of all crashes within the subject milepost range on SR 1711 (Worthington Rd) with a 0-foot y-line. All crashes from 150’ east of SR 1700 (Tar Rd) to 150’ west of NC-43 were included (MP 1.088 – 4.742).

Target Crashes: Lane Departure – Ran-Off Road (Left, Right, Straight), Sideswipe (opposite Direction), Fixed Object, and Head-On.
 ** NOTE: Three-Leg Intersection Run-Thru NOT counted as “Lane Departure”

<u>Treatment Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	86	69	- 19.8 %
Total Severity Index	5.45	3.04	- 44.2 %
Target Crashes – Lane Departure	15	17	13.3 %
Target Crash Severity Index	14.07	4.05	- 71.2 %
Volume (2009, 2012)	7,000	6,800	- 2.9 %

<u>Injury Crash Summary</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal injury Crashes	1	0	- 100.0 %
Class A injury Crashes	2	0	- 100.0 %
Class B injury Crashes	2	5	150.0 %
Class C Injury Crashes	19	14	- 26.3 %
Property Damage Only	62	50	- 19.4 %

<u>Additional Information</u>	Before	After	Percent Reduction (-) Percent Increase (+)
Night Crashes	33	35	6.1 %
Wet Roadway Crashes	16	12	- 25.0 %
Alcohol / Drug Involvement Crashes	6	6	0.0 %
Animal Crashes	23	18	- 21.7 %

Overall Summary Results

Total Crashes:	- 20 %	(reduction)
Total Crash Severity:	- 44 %	(reduction)
Target Crashes:	13 %	(increase)
Target Crash Severity:	- 71 %	(reduction)
Volume:	- 3 %	(reduction)

Items for Discussion/Concerns

Referencing the *GIS Collision Diagrams*, the overall roadway crash patterns are very similar in the before and after periods. The curve east of SR 1700 (Tar Road) experienced two lane departure crashes in the before period (including an A-injury) and increased to four (4) after period lane departure crashes with no severe injury crashes.

Since the crash pattern increased dramatically between milepost 1.85 and 2.45, *Microstation Collision Diagrams* are provided for this segment. This 0.6-mile segment increased from 13 to 25 total crashes and lane departure crashes increased from two (2) to seven (7). This section is a straight roadway with many residential driveways, a bridge, and the SR 1709 (Corey Road) 3-leg intersection.

The significant benefit observed from this evaluation is the elimination of severe injury crashes in the after period. Since the before period presented both a Fatal and an A-injury lane departure crash, the project yielded a 71 percent reduction in the target severity index.

From the charts above, notice that there were not significant changes in crash characteristics throughout the study period; including night, wet roadway, or alcohol involvement.

Data Prepared For

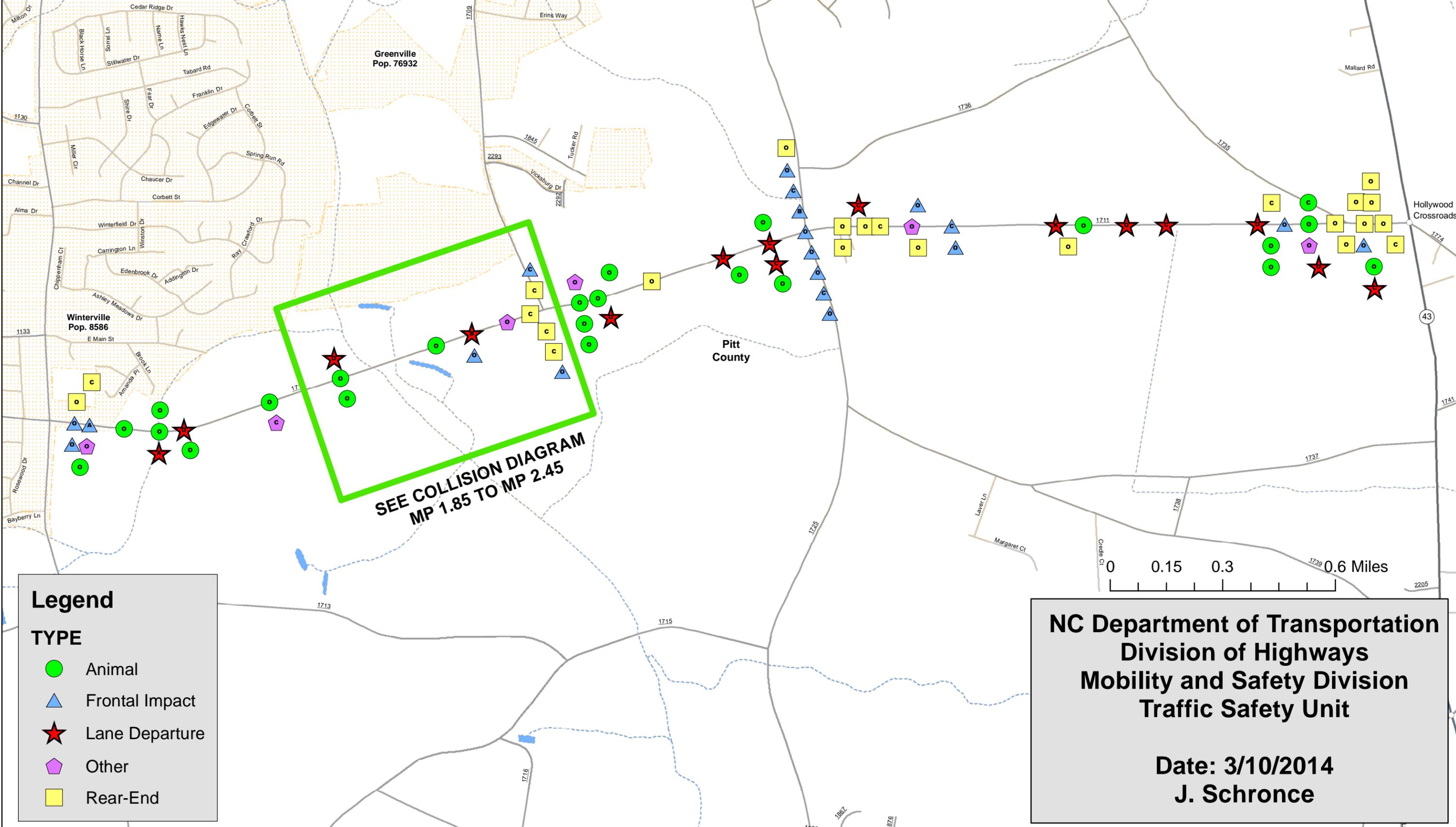
The Traffic Safety Unit *of the*
Transportation Mobility and Safety Division *of the*
Division of Highways *of the*
North Carolina Department of Transportation

Data Prepared By

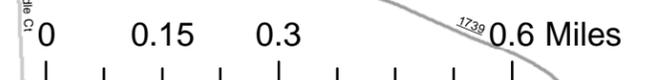
Principal Investigator: Jason B. Schronce, EI
Work Group/Consultant: NCDOT - Safety Evaluation Group
Date: March 11, 2014

PITT COUNTY

SR 1711 (Worthington Rd) From 150' east of SR 1700 (Tar Rd) to 150' west of NC-43 (MP 1.088 - 4.742) BEFORE PERIOD - 9/1/2007 to 8/31/2010 (3.0 Yrs)



**SEE COLLISION DIAGRAM
MP 1.85 TO MP 2.45**



Legend

TYPE

- Animal
- Frontal Impact
- Lane Departure
- Other
- Rear-End

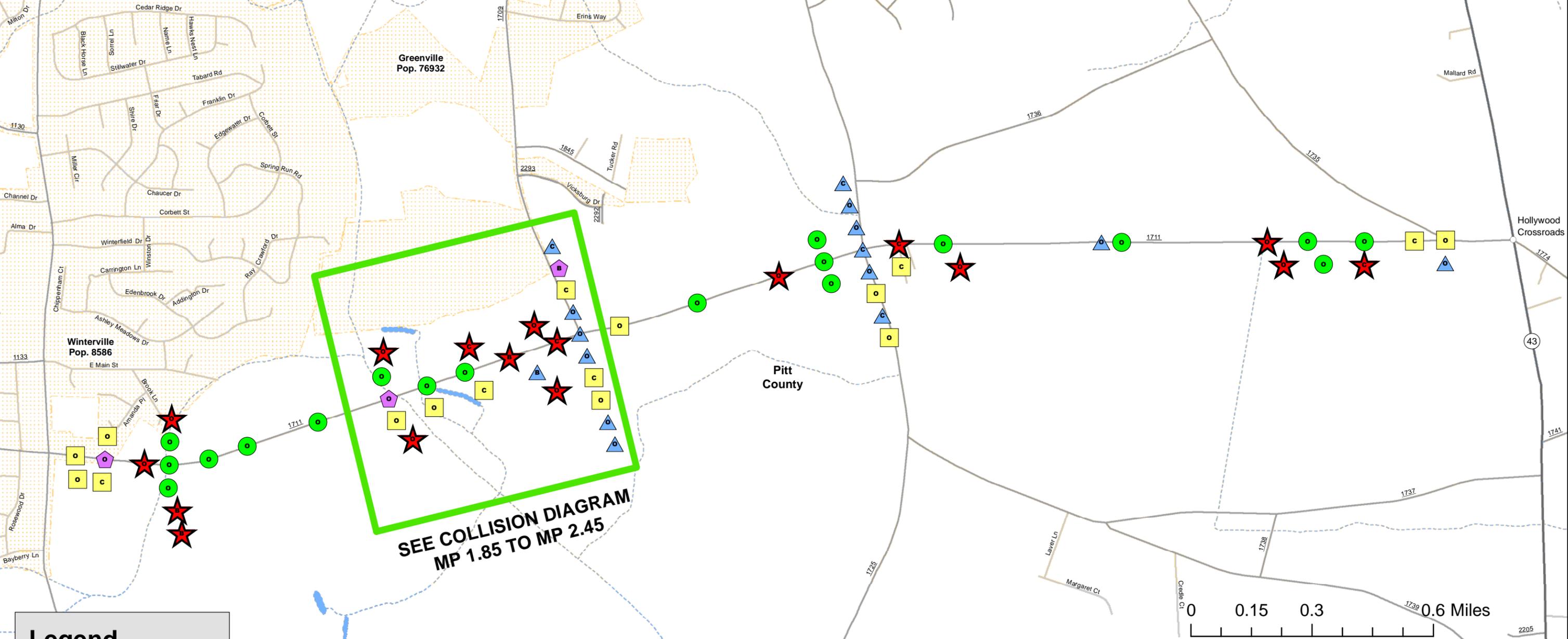
**NC Department of Transportation
Division of Highways
Mobility and Safety Division
Traffic Safety Unit**

**Date: 3/10/2014
J. Schronce**

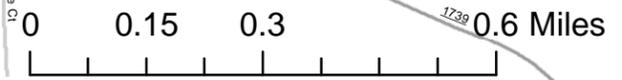
PITT COUNTY



SR 1711 (Worthington Rd) From 150' east of SR 1700 (Tar Rd) to 150' west of NC-43 (MP 1.088 - 4.742) AFTER PERIOD - 1/1/2011 to 12/31/2013 (3.0 Yrs)



**SEE COLLISION DIAGRAM
MP 1.85 TO MP 2.45**



Legend

TYPE

- Animal
- ▲ Frontal Impact
- ★ Lane Departure
- ◆ Other
- Rear-End

COUNTERMEASURES:
**Widen 2-Ft Paved Shoulders, Pavement Overlay,
Thermoplastic Pavement Markings, & Raised Pavement Markers**

**NC Department of Transportation
Division of Highways
Mobility and Safety Division
Traffic Safety Unit**

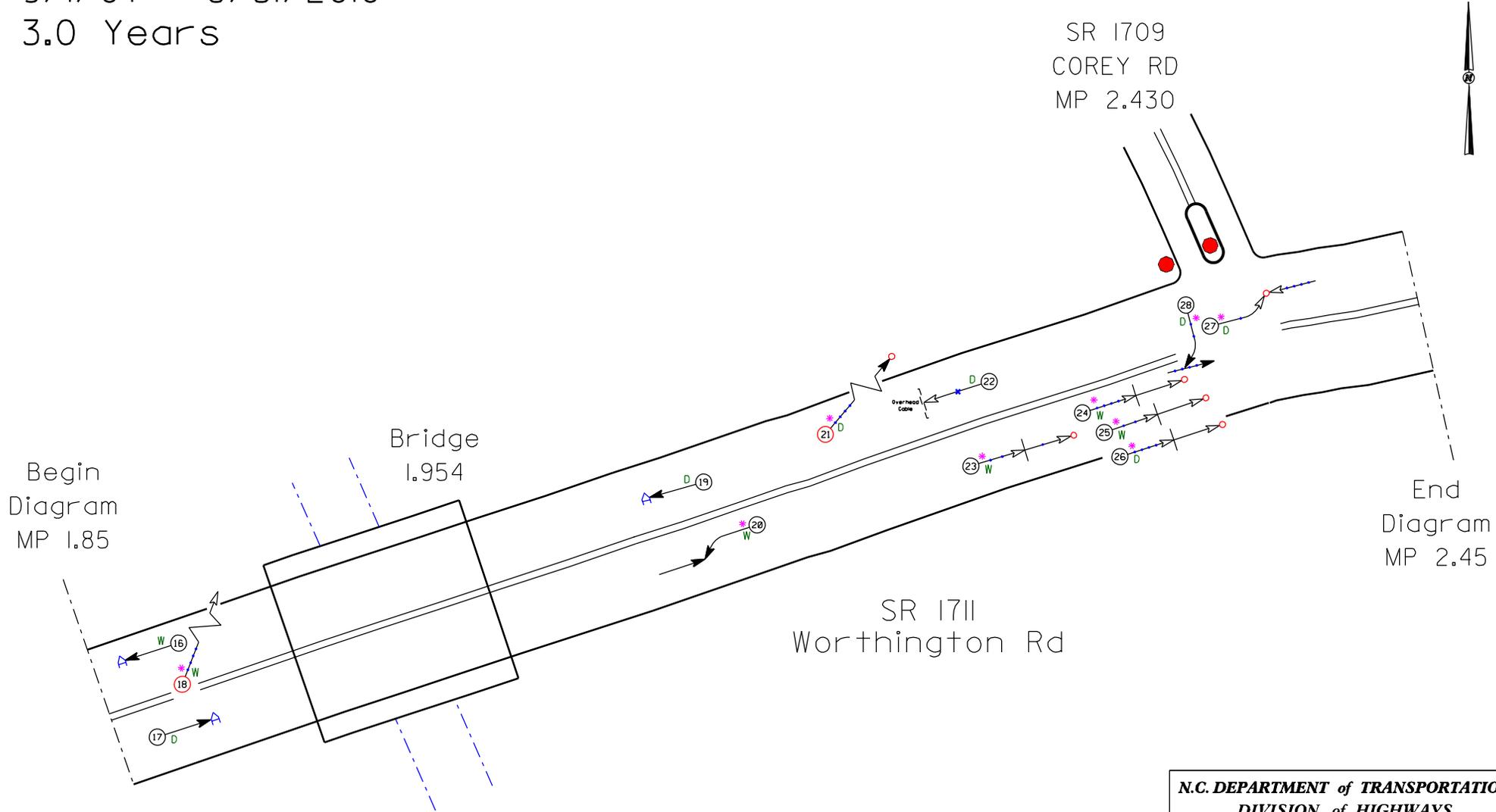
**Date: 3/10/2014
J. Schronce**

Hazard W-5102
 Order# 41000027536
 Pitt County
 BEFORE Period
 9/1/07 - 8/31/2010
 3.0 Years

Only Crashes between
 MP-1.85 and MP-2.45 Plotted

BEFORE Period Crashes
 #16 through #28 Plotted

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PARKING VEHICLE		TURNING		10 MPH TO 19		TRAIN
	PARKING VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	FIXED OBJECT		SIDEWIDE		30 MPH TO 39		DRY
	HEAD ON		REAR ENDE		40 MPH TO 49		WET
	HEAD ON		REAR ENDE		50 MPH TO 59		ICY OR SNOWY
	HEAD ON		REAR ENDE		60 MPH TO 69		OTHER
	HEAD ON		REAR ENDE		70 AND UP		
	RAN OFF ROAD		FATALITY		SPEED UNKNOWN		



N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRANSPORTATION MOBILITY and SAFETY DIVISION

TRAFFIC SAFETY UNIT

Date: 3-10-2014 Prepared By: J. Schronce

Lane Departure Target Crashes

Hazard W-5102
 Order# 41000027536
 Pitt County
 AFTER Period
 1/1/11 - 12/31/13
 3.0 Years

Only Crashes between
 MP-1.85 and MP-2.45 Plotted

AFTER Period Crashes
 #16 through #40 Plotted

Countermeasures:
 Widen 2-Ft Paved Shoulders,
 Pavement Overlay, Thermoplastic Markings,
 and Raised Pavement Markers

LEGEND							
	MOVING VEHICLE		ANGLE		9 MPH OR LESS		PEDESTRIAN
	PAVED VEHICLE		TURNING		10 MPH TO 19		TRAIN
	PARKING VEHICLE		BACKING		20 MPH TO 29		DRIVER AT FAULT
	FIXED OBJECT		30 MPH TO 39		40 MPH TO 49		DRY
	HEAD ON		50 MPH TO 59		60 MPH TO 69		WET
	REAR END		70 MPH TO 79		80 MPH TO 89		ICY OR SNOWY
	RAN OFF ROAD		90 MPH TO 99		100 MPH TO 109		OTHER
			110 MPH TO 119		120 MPH TO 129		
			130 MPH TO 139		140 MPH TO 149		
			150 MPH TO 159		160 MPH TO 169		
			170 MPH TO 179		180 MPH TO 189		
			190 MPH TO 199		200 MPH TO 209		
			210 MPH TO 219		220 MPH TO 229		
			230 MPH TO 239		240 MPH TO 249		
			250 MPH TO 259		260 MPH TO 269		
			270 MPH TO 279		280 MPH TO 289		
			290 MPH TO 299		300 MPH TO 309		
			310 MPH TO 319		320 MPH TO 329		
			330 MPH TO 339		340 MPH TO 349		
			350 MPH TO 359		360 MPH TO 369		
			370 MPH TO 379		380 MPH TO 389		
			390 MPH TO 399		400 MPH TO 409		
			410 MPH TO 419		420 MPH TO 429		
			430 MPH TO 439		440 MPH TO 449		
			450 MPH TO 459		460 MPH TO 469		
			470 MPH TO 479		480 MPH TO 489		
			490 MPH TO 499		500 MPH TO 509		
			510 MPH TO 519		520 MPH TO 529		
			530 MPH TO 539		540 MPH TO 549		
			550 MPH TO 559		560 MPH TO 569		
			570 MPH TO 579		580 MPH TO 589		
			590 MPH TO 599		600 MPH TO 609		
			610 MPH TO 619		620 MPH TO 629		
			630 MPH TO 639		640 MPH TO 649		
			650 MPH TO 659		660 MPH TO 669		
			670 MPH TO 679		680 MPH TO 689		
			690 MPH TO 699		700 MPH TO 709		
			710 MPH TO 719		720 MPH TO 729		
			730 MPH TO 739		740 MPH TO 749		
			750 MPH TO 759		760 MPH TO 769		
			770 MPH TO 779		780 MPH TO 789		
			790 MPH TO 799		800 MPH TO 809		
			810 MPH TO 819		820 MPH TO 829		
			830 MPH TO 839		840 MPH TO 849		
			850 MPH TO 859		860 MPH TO 869		
			870 MPH TO 879		880 MPH TO 889		
			890 MPH TO 899		900 MPH TO 909		
			910 MPH TO 919		920 MPH TO 929		
			930 MPH TO 939		940 MPH TO 949		
			950 MPH TO 959		960 MPH TO 969		
			970 MPH TO 979		980 MPH TO 989		
			990 MPH TO 999		1000 MPH TO 1009		
			1010 MPH TO 1019		1020 MPH TO 1029		
			1030 MPH TO 1039		1040 MPH TO 1049		
			1050 MPH TO 1059		1060 MPH TO 1069		
			1070 MPH TO 1079		1080 MPH TO 1089		
			1090 MPH TO 1099		1100 MPH TO 1109		
			1110 MPH TO 1119		1120 MPH TO 1129		
			1130 MPH TO 1139		1140 MPH TO 1149		
			1150 MPH TO 1159		1160 MPH TO 1169		
			1170 MPH TO 1179		1180 MPH TO 1189		
			1190 MPH TO 1199		1200 MPH TO 1209		
			1210 MPH TO 1219		1220 MPH TO 1229		
			1230 MPH TO 1239		1240 MPH TO 1249		
			1250 MPH TO 1259		1260 MPH TO 1269		
			1270 MPH TO 1279		1280 MPH TO 1289		
			1290 MPH TO 1299		1300 MPH TO 1309		
			1310 MPH TO 1319		1320 MPH TO 1329		
			1330 MPH TO 1339		1340 MPH TO 1349		
			1350 MPH TO 1359		1360 MPH TO 1369		
			1370 MPH TO 1379		1380 MPH TO 1389		
			1390 MPH TO 1399		1400 MPH TO 1409		
			1410 MPH TO 1419		1420 MPH TO 1429		
			1430 MPH TO 1439		1440 MPH TO 1449		
			1450 MPH TO 1459		1460 MPH TO 1469		
			1470 MPH TO 1479		1480 MPH TO 1489		
			1490 MPH TO 1499		1500 MPH TO 1509		
			1510 MPH TO 1519		1520 MPH TO 1529		
			1530 MPH TO 1539		1540 MPH TO 1549		
			1550 MPH TO 1559		1560 MPH TO 1569		
			1570 MPH TO 1579		1580 MPH TO 1589		
			1590 MPH TO 1599		1600 MPH TO 1609		
			1610 MPH TO 1619		1620 MPH TO 1629		
			1630 MPH TO 1639		1640 MPH TO 1649		
			1650 MPH TO 1659		1660 MPH TO 1669		
			1670 MPH TO 1679		1680 MPH TO 1689		
			1690 MPH TO 1699		1700 MPH TO 1709		
			1710 MPH TO 1719		1720 MPH TO 1729		
			1730 MPH TO 1739		1740 MPH TO 1749		
			1750 MPH TO 1759		1760 MPH TO 1769		
			1770 MPH TO 1779		1780 MPH TO 1789		
			1790 MPH TO 1799		1800 MPH TO 1809		
			1810 MPH TO 1819		1820 MPH TO 1829		
			1830 MPH TO 1839		1840 MPH TO 1849		
			1850 MPH TO 1859		1860 MPH TO 1869		
			1870 MPH TO 1879		1880 MPH TO 1889		
			1890 MPH TO 1899		1900 MPH TO 1909		
			1910 MPH TO 1919		1920 MPH TO 1929		
			1930 MPH TO 1939		1940 MPH TO 1949		
			1950 MPH TO 1959		1960 MPH TO 1969		
			1970 MPH TO 1979		1980 MPH TO 1989		
			1990 MPH TO 1999		2000 MPH TO 2009		
			2010 MPH TO 2019		2020 MPH TO 2029		
			2030 MPH TO 2039		2040 MPH TO 2049		
			2050 MPH TO 2059		2060 MPH TO 2069		
			2070 MPH TO 2079		2080 MPH TO 2089		
			2090 MPH TO 2099		2100 MPH TO 2109		
			2110 MPH TO 2119		2120 MPH TO 2129		
			2130 MPH TO 2139		2140 MPH TO 2149		
			2150 MPH TO 2159		2160 MPH TO 2169		
			2170 MPH TO 2179		2180 MPH TO 2189		
			2190 MPH TO 2199		2200 MPH TO 2209		
			2210 MPH TO 2219		2220 MPH TO 2229		
			2230 MPH TO 2239		2240 MPH TO 2249		
			2250 MPH TO 2259		2260 MPH TO 2269		
			2270 MPH TO 2279		2280 MPH TO 2289		
			2290 MPH TO 2299		2300 MPH TO 2309		
			2310 MPH TO 2319		2320 MPH TO 2329		
			2330 MPH TO 2339		2340 MPH TO 2349		
			2350 MPH TO 2359		2360 MPH TO 2369		
			2370 MPH TO 2379		2380 MPH TO 2389		
			2390 MPH TO 2399		2400 MPH TO 2409		
			2410 MPH TO 2419		2420 MPH TO 2429		
			2430 MPH TO 2439		2440 MPH TO 2449		
			2450 MPH TO 2459		2460 MPH TO 2469		
			2470 MPH TO 2479		2480 MPH TO 2489		