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Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Jim Lynch, Director
Brian Schweitzer, Governor

August 6, 2007

RECEIVED
AUG 09 2007
Ravalli County Commissioners

Who will make comments?

Ravalli County
215 South Fourth, Suite A
Hamilton, MT 59840-2853

Subject: Change in Highway 93 Speed Limits
Proposed speed changes

Commissioners,

The 2007 legislature passed a bill changing the speed limits on Highway 93 effective October 1, 2007. This bill raised the current 65 mph limit to match the statewide limit of 70 mph on non-interstate highways.

This change effects:

- Sections of 93 that have been posted at 65 mph to comply with the old law.

This change does not effect:

- The section of highway 93 north of Whitefish that was changed to 70 mph in 2003.
- Sections of the highway that have had special speed zones set by the Transportation Commission. Examples of these would **include** cities, towns, and areas such as the Stevensville Wye, Elmo,Big Arm and Lakeside.

In anticipation of this change we have looked at sections of Highway 93 and propose to have the Transportation Commission take action establishing speed zones shown in the attached memo. To make the August 30, 2007 meeting we need comments back in the next two weeks. Please send them to Dwane Kailey, our Missoula District Administrator or me.

Sincerely,

Loran Frazier, PE
Chief Engineer

copies have been sent to the following:

copies: Dwane Kailey, Missoula District Administrator
Duane Williams, Traffic and Safety Engineer

Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

Memorandum

To: Loran Frazier, P.E. – Chief Engineer, Highways and Engineering Division

From: Duane E. Williams, P.E. – Traffic and Safety Engineer

Date: July 26, 2007

Subject: Speed Limit Recommendations
US 93 – Internally Selected Segments

Recent legislation, Senate Bill 302 removing the daytime 65 mph speed limit on US 93 is scheduled to go into effect October 1, 2007. In preparation for the upcoming changes we reviewed the corridor internally by segment, evaluating accident rates, roadway age & design features and traffic volumes to identify which portions of US 93 were in need of an engineering and traffic investigation. Following is a summary of our findings and speed limit recommendations in response to the 2007 Legislation.

Sula to Conner (mp 16.25 - mp 23.25) The accident rate along this segment is more than 3-times greater than the statewide average for rural NHS routes. It is a curvilinear segment located in steep terrain with characteristics that are below modern design standards. Retain the 65 mph speed limit beginning at the end of project NH 7-1(58) (100 feet north of the intersection with Deadwood Lane) and continuing north to milepost 23.4 (400' north of the intersection with Secondary 473), an approximate distance of 7.15 miles.

Hamilton to Victor (mp 50.0 - mp 59.0) There is an over representation of rearend accidents between Hamilton and Victor. In addition to the communities of Corvallis and Pinesdale there is a substantial amount of residential development located near US 93 and in the outlying areas. Traffic volumes can impede motorists from attaining speeds of 70 mph. The trend in the speed statistics lends support for a daytime speed limit of 65 mph.

Victor to Stevi "Y" (mp 59.4 – mp 66.1) Conflicts with animals (43 %) are the single greatest contributor to accidents along the segment. The typical travel speeds are a little higher along this segment of US 93. We attribute this to that there is less development in the outlying areas and fewer major access points. The speed statistics are slightly biased toward a 70 mph speed limit. However, from a continuity standout point we recommend a 65 mph speed limit on this older 2-lane segment.

St. Ignatius to Ronan (mp 33.2 – mp 45.9) There is an accident cluster along the 0.9 mile segment just south of Ronan. The remainder of the segment is functioning with fewer conflicts per million vehicle miles traveled than the statewide average safety record. Extend the existing 55 mph speed limit south to milepost 45.0 to encompass the high conflict area.

Northwest of Whitefish (mp 129.9 – 133.0) The speed statistics indicate that the travel speeds between milepost 129.9 to milepost 133 are definitely lower than 70 mph and from those observed west of milepost 133. We recommend extending the special speed limit configuration northwest of Whitefish to include a special 60 mph speed limit.

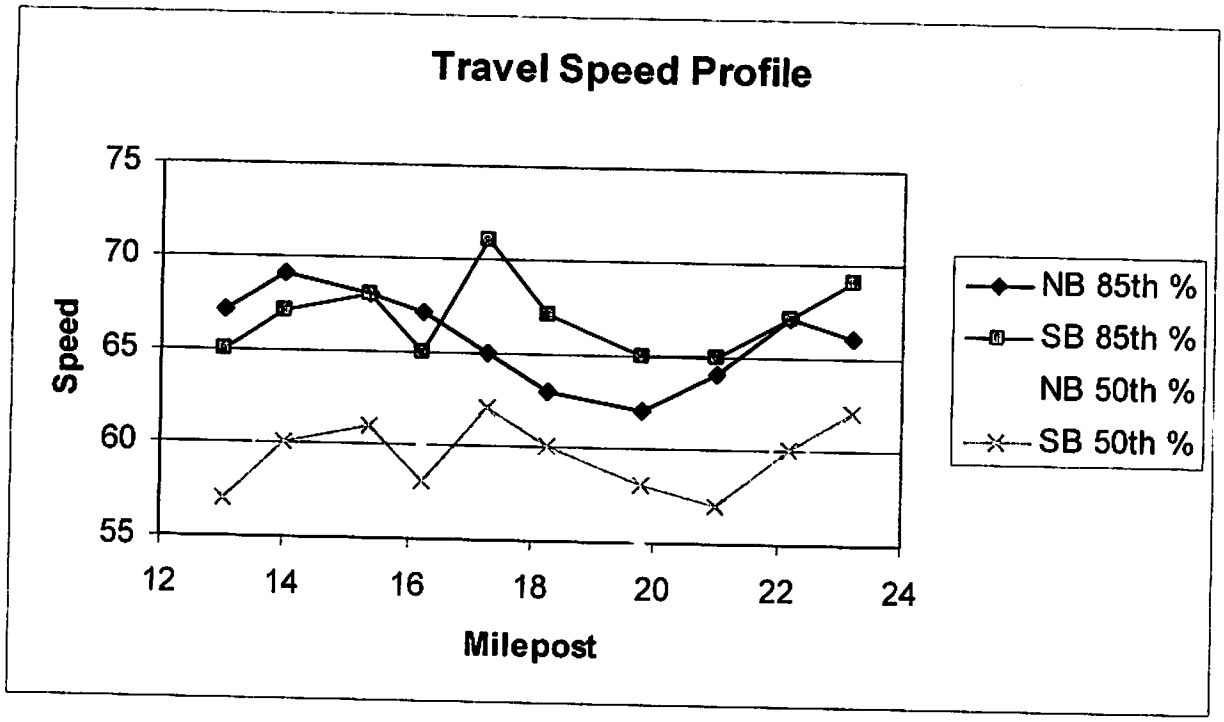
In closing we recommend re-evaluating the above speed limit recommendations in the future with the intent that traffic operation on newly reconstructed segments may support the need to increase the speed limit back to 70 mph, as established by Legislature.

Sula to Conner

The first portion of this investigation began at milepost 13.0 just north of Sula and continued north to milepost 23.3 at Conner. The majority of this segment of US 93 (mp 16.0 to mp 23.3) was constructed under projects FHP 19 D & E in 1936 with improvement being made in 1939. The roadway consists of two 12-foot travel lanes with little or no surfaced shoulder area. The alignment is curvilinear in character as it follows along the East Fork of the Bitterroot River with steep mountainous terrain on both sides of the roadway. The average annual daily traffic volume is 1200.

Travel Speeds

Location	85th Percentile Speed	10 mph Pace & Percentage
Milepost 13.0	67 mph Northbound 65 mph Southbound	(59 mph – 69 mph) 36% (53 mph – 63 mph) 50%
Milepost 14.0	69 mph Northbound 67 mph Southbound	(59 mph – 69 mph) 55% (56 mph – 66 mph) 58%
Milepost 15.35	68 mph Northbound 68 mph Southbound	(56 mph – 66 mph) 53% (59 mph – 69 mph) 53%
Milepost 16.22	67 mph Northbound 65 mph Southbound	(59 mph – 69 mph) 56% (53 mph – 63 mph) 55%
Milepost 17.26	65 mph Northbound 71 mph Southbound	(53 mph – 63 mph) 55% (59 mph – 69 mph) 49%
Milepost 18.25	63 mph Northbound 67 mph Southbound	(50 mph – 60 mph) 57% (56 mph – 66 mph) 49%
Milepost 19.79	62 mph Northbound 65 mph Southbound	(53 mph – 63 mph) 56% (53 mph – 63 mph) 58%
Milepost 21.0	64 mph Northbound 65 mph Southbound	(53 mph – 63 mph) 54% (53 mph – 63 mph) 53%
Milepost 22.19	67 mph Northbound 67 mph Southbound	(56 mph – 66 mph) 56% (56 mph – 66 mph) 58%
Milepost 23.17	66 mph Northbound 69 mph Southbound	(53 mph – 63 mph) 48% (59 mph – 69 mph) 51%



The first three spot speed samples were collected along a segment that was recently reconstructed in 2003 and having 7-foot shoulders in each direction. The remainder of the data set was gathered on the older portion of the roadway. On the short tangent segments the 85th percentile speeds and the upper limit of the pace on the narrower roadway hover around 65 mph. Statistically, less than 5 percent of the traffic stream is attempting to maintain travel speeds at the 70 mph level.

Accident History

The accident history was reviewed for a three-year period from January 1, 2004 to December 31, 2006. During this period there were 37 accidents reported between milepost 16.0 and 23.5. The accident rate is 3.83 accidents per million vehicle miles traveled. The statewide average for rural NHS routes is 1.17 accidents per million vehicle miles traveled.

The accident experience consisted of 31 single vehicle accidents, three sideswipe accidents, a rearend accident, a head-on accident and one other multiple vehicle accident. Other statistics include that 30 percent of the accidents occurred at night, 25 percent involved conflicts with animals, 16 percent had alcohol listed as a contributing factor and 11 percent occurred on adverse roadway conditions. Seventy percent of the accidents occurred during the 6 month period for July through December with July being the high accidents month with 10 reported accidents.

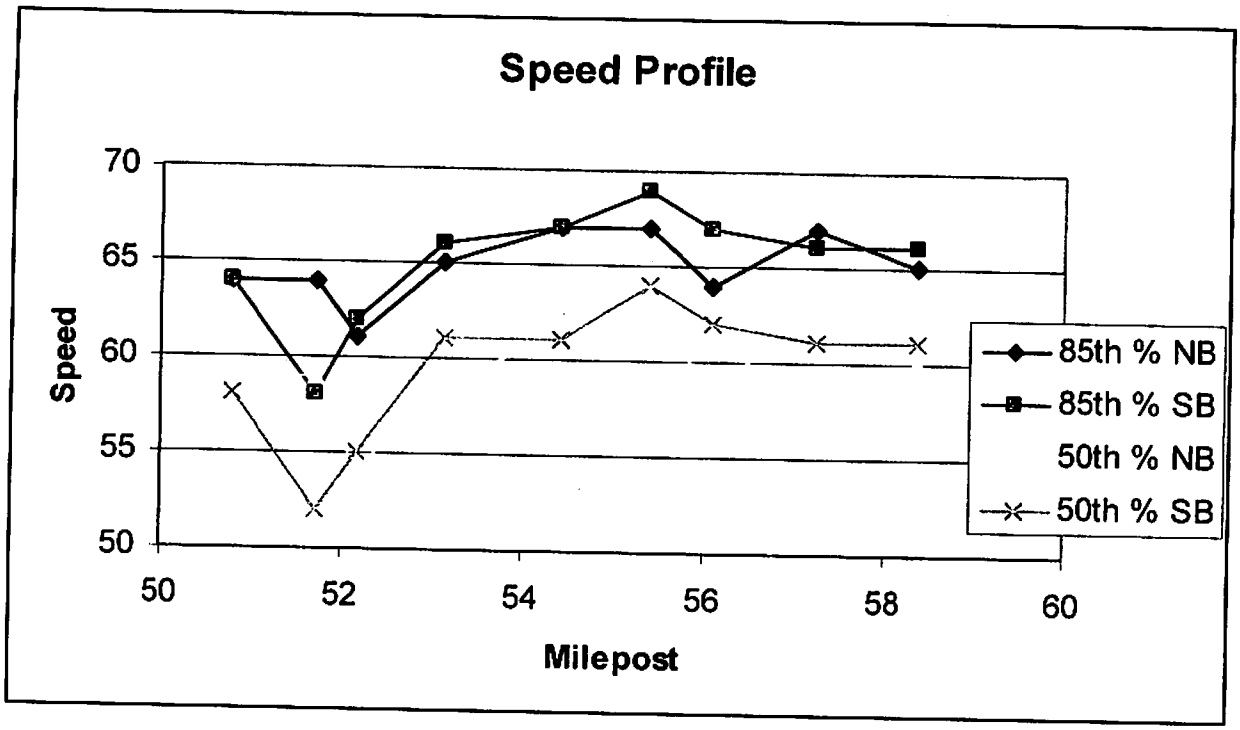
There is an over representation of daytime single vehicle accidents. They are concentrated in the areas having the restrictive horizontal alignment features and an unforgiving roadside.

Hamilton to Victor

The next segment begins north of Hamilton near milepost 50 and continues north to Victor, an approximate distance of nine miles. This portion of US 93 was reconstructed under project F 259(7) in 1953 and improved in 1982. The typical section consists of two 12-foot travel lanes with 4-foot shoulders in each direction. Special features in the area include the communities of Corvallis and Pinesdale located a relatively short distance east and west of US 93. Both communities are served by Secondary 373 (mp 52). This intersection is signalized. In addition there is a substantial amount of residential development located near US 93 and in the outlying areas. The average annual daily traffic volume is 9650.

Travel Speeds

Location	85th Percentile Speed	10 mph Pace & Percentage
Milepost 50.80	64 mph Northbound 64 mph Southbound	(56 mph – 66 mph) 64% (53 mph – 63 mph) 63%
Milepost 51.71	64 mph Northbound 58 mph Southbound	(53 mph – 63 mph) 61% (47 mph – 57 mph) 59%
Milepost 52.16	61 mph Northbound 62 mph Southbound	(50 mph – 60 mph) 52% (50 mph – 60 mph) 62%
Milepost 53.11	65 mph Northbound 66 mph Southbound	(56 mph – 66 mph) 64% (56 mph – 66 mph) 65%
Milepost 54.40	67 mph Northbound 67 mph Southbound	(56 mph – 66 mph) 66% (59 mph – 69 mph) 67%
Milepost 55.38	67 mph Northbound 69 mph Southbound	(59 mph – 69 mph) 70% (59 mph – 69 mph) 68%
Milepost 56.10	64 mph Northbound 67 mph Southbound	(56 mph – 66 mph) 64% (59 mph – 69 mph) 62%
Milepost 57.25	67 mph Northbound 66 mph Southbound	(59 mph – 69 mph) 69% (56 mph – 66 mph) 67%
Milepost 58.38	65 mph Northbound 66 mph Southbound	(56 mph – 66 mph) 71% (56 mph – 66 mph) 66%



There is a definite reduction in the travel speeds associated with the operation of the intersection with Secondary 373. Along the remainder of the study area the 85th percentile speeds and the upper limit of the pace vary between 65 mph and 70 mph. The variations in the travel speeds are associated with presence of nearby development as well as access to and from the roadway. The typical travel speeds are also governed or restricted by the volume of the traffic. Large platoons were observed and passing opportunities are limited during much of the day.

Accident History

There were 182 accidents reported during the three year period from January 1, 2004 to December 31, 2006. The accident rate 1.92 accidents per million vehicle miles traveled.

	Single Vehicle	Rearend	Angle	Other M.V.
Intersection	8	23	12	4
Non-Intersection	100	22	4	9

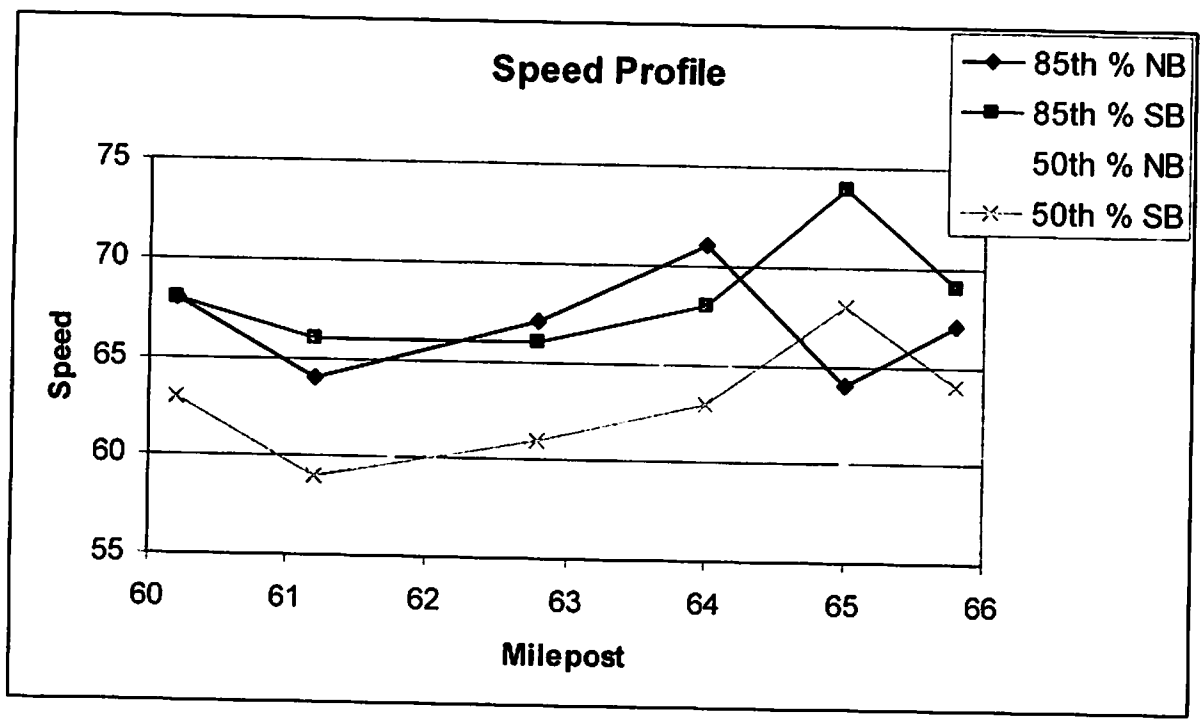
One of the single vehicle accidents resulted in a fatality. In comparison to statewide averages there is an over representation of rearend accidents between Hamilton and Victor. There are concentrations of rearend accidents just north of Hamilton, at the signalized intersection with Secondary 373 (mp 52), at the intersection with Sheafman Creek Road (mp 54) and at the intersection with Beaver Creek Road (mp 56). Other accident statistics are consistent with statewide averages for rural NHS routes.

Victor to Stevi "Y"

This portion of US 93 from milepost 59.4 to 66.1 is similar to the previous segment. It also was last reconstructed under project F 259 (9) in 1956 with some improvements being made in 1961. The typical section is the same consisting of two 12-foot travel lanes with 4-foot shoulders. The alignment is generally flat and tangent. There is some scattered residential development in the outlying areas and a major intersection with Secondary 370 near milepost 61. The average annual daily traffic volume is 8240.

Travel Speeds

Location	85th Percentile Speed	10 mph Pace & Percentage
Milepost 60.20	68 mph Northbound 68 mph Southbound	(59 mph – 69 mph) 68% (59 mph – 69 mph) 67%
Milepost 61.20	64 mph Northbound 66 mph Southbound	(56 mph – 66 mph) 58% (56 mph – 66 mph) 52%
Milepost 62.80	67 mph Northbound 66 mph Southbound	(59 mph – 69 mph) 67% (56 mph – 66 mph) 64%
Milepost 64.00	71 mph Northbound 68 mph Southbound	(62 mph – 72 mph) 69% (59 mph – 69 mph) 70%
Milepost 65.00	64 mph Northbound 74 mph Southbound	(56 mph – 66 mph) 76% (65 mph – 75 mph) 62%
Milepost 65.80	67 mph Northbound 69 mph Southbound	(59 mph – 69 mph) 68% (59 mph – 69 mph) 63%



Accident History

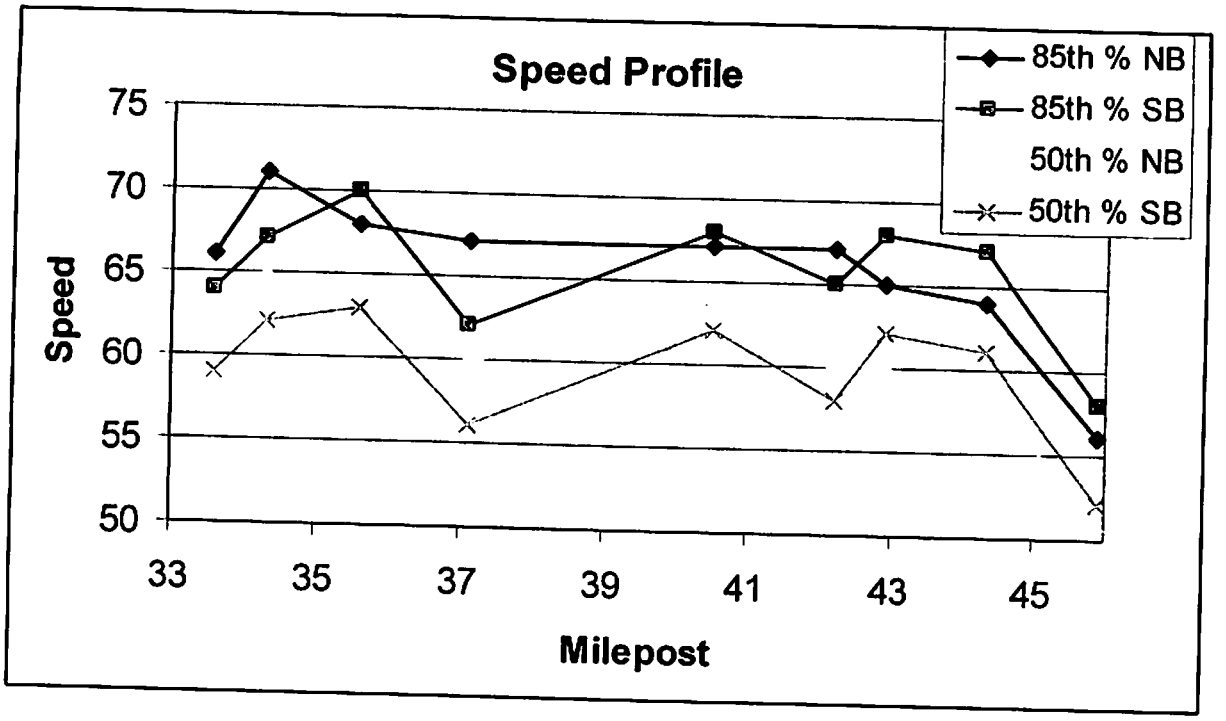
The accident history was reviewed for a three-year period from January 1, 2004 to December 31, 2006. There were 96 accidents reported along this portion of the route. Two of the accidents resulted in fatalities. The accident rate is 1.59 accidents per million vehicle miles traveled.

	Single Vehicle	Rearend	Angle	Other M.V.
Intersection	3	8	4	0
Non-intersection	67	8	4	2

Forty-three percent (41 of 96) of the accident experience involved conflicts with animals.

St. Ignatius to Ronan

Location	85th Percentile Speed	10 mph Pace & Percentage
Milepost 33.60 (just north of St. Ignatius)	66 mph Northbound 64 mph Southbound	(56 mph – 66 mph) 61% (56 mph – 66 mph) 63%
Milepost 34.30	71 mph Northbound 67 mph Southbound	(62 mph – 72 mph) 57% (59 mph – 69 mph) 65%
Milepost 35.60	68 mph Northbound 70 mph Southbound	(59 mph – 69 mph) 67% (59 mph – 69 mph) 63%
Milepost 37.10 (at Red Horn Lane)	67 mph Northbound 62 mph Southbound	(56 mph – 66 mph) 53% (53 mph – 63 mph) 63%
Milepost 40.50 (at Nine Pipe Reservoir)	67 mph Northbound 68 mph Southbound	(56 mph – 66 mph) 59% (59 mph – 69 mph) 66%
Milepost 42.20 (int. w/ Secondary 212)	67 mph Northbound 65 mph Southbound	(56 mph – 66 mph) 55% (56 mph – 66 mph) 58%
Milepost 42.90	65 mph Northbound 68 mph Southbound	(56 mph – 66 mph) 66% (56 mph – 66 mph) 62%
Milepost 44.30	64 mph Northbound 67 mph Southbound	(56 mph – 66 mph) 68% (56 mph – 66 mph) 61%
Milepost 45.90 65 mph to 55 mph transition	56 mph Northbound 58 mph Southbound	(47 mph – 57 mph) 65% (47 mph – 57 mph) 65%



Accident History

There were 126 accidents reported between January 1, 2004 and December 31, 2006. The accident rate is 1.07 accidents per million vehicle miles traveled. Three of the accidents resulted in fatalities.

	Angle	Rearend	Single Vehicle	Other
Intersection	3	9	6	4
Non-intersection	5	13	77	9

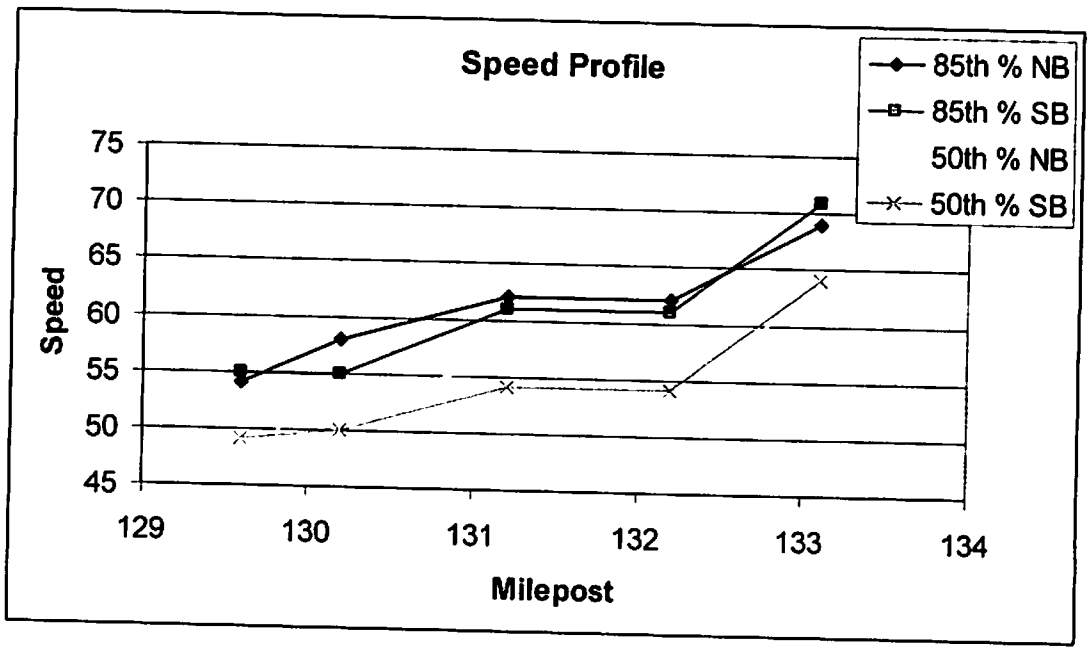
Thirty percent (38 of 126) of the accidents involved conflicts with animals. There were 29 accidents reported just south of Ronan outside the existing special speed limit configuration between milepost 45.0 and 45.9. There is a definite increase in both multiple vehicle and animal related conflicts in this short section than that observed within the remainder of the study area.

Northwest of Whitefish

The final segment of concern is located northwest of Whitefish between milepost 129.9 and milepost 133. Milepost 133 is where the statutory speed limit for US 93 changes from 65 mph to 70 mph. It was reconstructed in 1936 under project NRH 98 A. Typical section consists of two 12-foot travel lanes with 1-foot shoulders. The terrain is rolling in character with much of the adjacent roadside being forested. At milepost 132.4 is the intersection with Secondary 424. Secondary 424 and other local roads within this segment serve the rural residential areas located west of Kalispell and Whitefish. The average annual daily traffic volume is 4130. There is a substantial drop in traffic volume west of the intersection with Secondary 424.

Travel Speeds

Location	85th Percentile Speed	10 mph Pace & Percentage
Milepost 129.6 45 mph zone	54 mph Northbound 55 mph Southbound	(44 mph – 54 mph) 68% (44 mph – 54 mph) 67%
Milepost 130.2 65 mph zone	58 mph Northbound 55 mph Southbound	(47 mph – 57 mph) 66% (47 mph – 57 mph) 63%
Milepost 131.2 65 mph zone	62 mph Northbound 61 mph Southbound	(53 mph – 63 mph) 61% (50 mph – 60 mph) 57%
Milepost 132.2 65 mph zone	62 mph Northbound 61 mph Southbound	(50 mph – 60 mph) 59% (50 mph – 60 mph) 50%
Milepost 133.1 70 mph zone	69 mph Northbound 71 mph Southbound	(59 mph – 69 mph) 60% (59 mph – 69 mph) 58%



The speed statistics indicate that the travel speeds between milepost 129.9 to milepost 133 are definitely lower than 70 mph and from that observed west of milepost 133. Based on the 85th percentile speeds and the upper limit of the pace associated with this environment a speed limit of 60 mph is desirable.

Accident History

The accident history was reviewed for a three-year period from January 1, 2004 to December 31, 2006. There were 23 single vehicle accidents, two "Other" in type multiple vehicle accidents and one rearend accident reported between milepost 129.9 and milepost 130. One of the single vehicle accidents resulted in a fatality. The accident rate is 1.84 accidents per million vehicle miles traveled. Alcohol was listed as a contributing factor in six of the accidents. Fifty-eight percent of the accidents (15 of 26) occurred at night.

There is an over representation of single vehicle accidents particularly at night associated with the curvilinear alignment combined with little of no shoulder area and an unforgiving roadside.

DEW:DRB:TRF:us93corridor2_rpt

attachments

copies: D. Kailey
D.E. Williams
D.R. Bailey
File

US 93 Crash data 2002 - 2006

Route	Segment Reference point	Name	AADT	Number of crashes	MP	Year Built	Shoulder width	Number of crashes: Fatal	Incap	Non-Incap and other	PDO	Crash rate	Severity rate
P-7	0 0 - 30	Idaho Border, North	1500	179				1	26	18	134	**2.24**	**5.06**
					0-8.85	1993	3-6ft						
					8.85-16.25	2003	7 ft						
					16.25-23.25	**1937**	**0 ft**						
					23.25-30	1991	8 ft						
P-7	31.7 - 46.1	Darby-Hamilton	5500	250		1980's	8 ft	2	18	32	198	1.76	3.2
P-7	**50 - 59**	**Hamilton-Victor**	**9700**	**347**		**1950's**	**4ft**	**4**	**55**	**67**	**221**	**2.18**	**5.62**
P-7	**59.4 - 66.1**	**Victor-Stevy "y"**	**8200**	**155**		**1950's**	**4ft**	**2**	**6**	**29**	**118**	**1.56**	**2.71**
P-7	67.8 - 73.9	Stevensville "Y"	9800	127		2000"s	8ftshlr-4ln	3	10	18	96	1.16	2.32
P-7	75.6 - 82.8	Florence	14400	114		1990's	8ftshlr-4ln	3	9	12	90	0.59	1.15
P-7	84.2 - 90.1	Lolo	24200	302			8ftshlr-4ln	2	27	67	206	1.16	2.46
P-5	0.6 - 17.1	DeSmet-Arlee	8400	296				8	47	64	177	1.19	3.25
					0-6.5	1980's	4ftshldr-4ln						
					6.5-18	1960's	6ft						
P-5	18.2 - 32.2	Arlee-Ignatius	7100	212				9	25	57	121	1.17	3.11
P-5	33.2 - 45.8	Ignatius-Ronan	8500	196		1950-60's	2-8ft	5	19	58	114	1	2.45
P-5	48 - 56.5	Ronan -Polson	11100	155				10	14	58	73	0.91	2.58
P-5	62.3 - 72.2	Polson-Big Arm	4400	128		1950's&1990'	2to4&8 ft	6	6	37	79	1.6	3.57
P-5	73.9 - 76	Big Arm-Elmo	3800	27		1990's	8ft	1	2	6	18	**1.86**	**4.13**
P-5	78 - 97.1	Elmo-Somers	4400	181				5	14	54	108	1.17	2.73
					78-92.9	1980's	8 ft						
					92.9-97.1	1960's	2ft						
P-5	103.4 - 109.6	Somers-Kalispell	13300	132				2	21	36	73	0.88	2.44
P-5	116 - 125.3	Kalispell-Whitefish	12400	279				10	37	82	150	1.33	3.68
					117.9-119.1	1950's	6 ft						
					119.1-122.7	undercnst							
P-5	**129.9 - 133**	**Whitefish north**	**4300**	**45**		**1930's**	**1 ft**	**1**	**4**	**14**	**26**	**1.84**	**4.42**

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