

REPORT OF ENGINEERING and TRAFFIC INVESTIGATION and PROPOSED SPEED LIMIT CHANGE

ROAD NAME and NUMBER: So. Jacob Miller Road, County Road No. 625319
TERMINI: From Hastings Avenue, Mile Post (M.P.) 0.00 to So. Discovery Road, M.P. 2.00
EXISTING MAXIMUM SPEED LIMIT: 40 Miles per Hour (MPH)
PROPOSED MAXIMUM SPEED LIMIT: 35 MPH
DATE OF STUDY: June 2010:

The reason for this engineering and traffic investigation that considers lowering the speed limit on Jacob Miller Rd. was due to public complaints about the intersection of the Landfill Road, the narrowness of the roadway north of intersection, and the continued development adjacent to the roadway.

RCW 46.61.400, Basic Rule and Maximum Limits, specifies the maximum speed limit on county roads to be fifty miles per hour. This section also states that the maximum speed limits set forth in this section may be altered as authorized in RCW 46.61.405, 46.61.410 and 46.61.415. RCW 46.61.415, when local authorities may alter maximum limits, allows local authorities to increase the limit but not to more than sixty miles per hour or decrease the speed limit to no lower than 20 miles per hour. Local authorities in their respective jurisdictions shall determine by an engineering and traffic investigation the appropriate speed for all roadways.

The Manual on Uniform Traffic Control Devices (MUTCD) states the main criteria for determining the proper speed limit on public roads is the 85th Percentile speed. Also, consideration should be given to roadway characteristics, roadside development, safe speed on curves and reported accident history for a recent 12-month period. The following analysis has been completed for this roadway segment.

ANALYSIS

85TH PERCENTILE SPEED

The 85th percentile speed is as follows:

M.P.	Northbound	Southbound	
0.300	45.1 MPH	43.6 MPH	
1.110	39.0 MPH	38.4 MPH	Note: Southbound enters Landfill Rd Int.
M.P.	Westbound	Eastbound	
1.400	46.9 MPH	43.7 MPH	Note: Westbound enters Landfill Rd Int.

ROADWAY CHARACTERISTICS

This road is characterized by three horizontal 90 degree curves in the southerly portion and a horizontal straight or tangent section in the northerly portion. The southernmost horizontal curve is a “sharp” bend that is posted with an advisory speed of 15 MPH. The other two curves are gentler with northern most posted with an advisory speed of 30 MPH, because of some limited sight distance due to roadside vegetation and the intersection of County Landfill Road at the southerly end of the northern most curve. Vertical alignment is generally rolling and does affect passing sight distance in the northerly portion of the road. The roadway has twenty-eight driveways, three private roadways and three county road intersections. The Average Annual Daily Traffic (AADT) is 1,442 vehicles per day with 3% truck traffic between Hastings Ave. West and County Landfill Rd. and 2,299 vehicles per day with 4% truck traffic between County Landfill Rd and South Discovery Rd.

The pavement width for the road is 20 feet with 1 ft gravel shoulders from M.P. 0.00 to 1.09 / from 1.09 to 1.76, the pavement width is 24 feet and 3’ paved shoulders and from 1.76 to 1.92 the pavement width is 11feet with 2’ gravel shoulders.

ROADSIDE DEVELOPMENT

Roadside development consists of mostly residential and one main fire station. The county landfill and the animal shelter are also accessed off of Jacob Miller Road via the County Landfill Rd. The fire station has developed into the East Jefferson Fire and Rescue department’s main station and has shown an increase in use over the last few years. Additionally, residential development adjacent to the roadway and those accessing off of the intersecting roads has been on the increase over time.

SAFE SPEED ON CURVES

On 10/19/09 Ball bank readings were conducted in the field on curve on the northern most curve (curve 1). The south to eastbound ball bank readings conducted at 40 mph was 14 degrees, 12 degrees at 35 mph and 9 degrees at 30 mph. The west to northbound ball bank readings conducted at 40 mph was 9 degrees. Ball bank readings less than 12 degrees are considered safe by traffic standards. The readings on curve 1 and past readings on the southern most curve (curve 2) indicate that the warning signs in place at both these curves meet the standards of the Manual on Uniform Traffic Control Devices.

Using the ball bank method, the safe speed on the horizontal curves is as follows:

Curve No.	From M.P.	To M.P.	Posted Speed	Safe Speed
1	1.02	1.18	40 mph	30 mph
2	1.78	1.79	40 mph	15 mph

CRASH HISTORY

The five year crash history (2005 to 2009, inclusive) is as follows:

MP	DATE	CRASH TYPE	SEVERITY	SURFACE CONDITION	LIGHT CONDITION	TIME	ALCOHOL RELATED	CITATION
0.190	12/16/05	LEFT ROADWAY / HIT MAILBOX	PDO	WET	DAYLIGHT	13:33	YES	YES
0.547	03/18/05	LEFT ROADWAY / RE-ENTERED / HIT FENCE	INJURY	DRY	DAYLIGHT	9:35	NO	YES
0.558	05/18/05	SWERVING BACK AND FORTH / LOST CONTROL	INJURY	WET	DAYLIGHT	20:34	NO	YES
1.023	01/13/07	CURVE / ICE / LOST CONTROL / CROSSED C/LINE / LEFT ROADWAY	PDO	ICE	DAYLIGHT	9:35	NO	NO
1.157	06/04/09	HEAD ON / ONE LEFT TURN / ONE STRAIGHT (MOTORCYCLE)	INJURY	DRY	DAYLIGHT	16:07	NO	YES
1.590	09/04/05	LEFT ROADWAY / HIT POLE / DRIVER FLED SCENE	PDO	DRY	DAYLIGHT	12:08	YES	YES
1.665	09/15/08	REAR END / ONE SLOWING FOR DRIVEWAY / ONE MOTORCYCLE	INJURY	DRY	DAYLIGHT	13:45	NO	YES

The history shows no pattern or clusters of crashes that would indicate a specific problem with the roadway at any one location. The crash rate indicates that the roadway is operating below the county average, 1.07 crashes per million miles per year for So. Jacob Miller Road vs. 1.22 average Jefferson County and 2.20 for the average of county roads nationally. However, three crashes in the northerly portion where the roadway is straight may indicate that the combination of narrowness and speed may have contributed to those crashes. The horizontal curves in the southern portion of the road may have contributed to the three crashes in that portion. The one remaining crash, weather (ice) was a contributing factor.

CONCLUSIONS

The 85th percentile for the majority of the road is at or above the posted speed limit of 40 MPH indicating that motorists perceive no safety concern, nor “uncomfortable” ride quality. Other considerations that must be taken into account include the lane width, the shoulder width, the AADT, the horizontal and vertical alignment, the number of road approaches, the sight distance of the approaches, the horizontal sight distance on the inside of curves, and roadside development that affects the motorists ability to be prepared for possible conflicts. These are all factors that cumulatively affect the decision to consider lowering the maximum posted speed limit. Also comparison of speed limits on other roads with similar characteristics, and the speed limits of connecting roads

needs to be considered. South Jacob Miller Rd. intersects South Discovery Rd. on the southerly section at M.P. 1.92 which is currently posted 35 mph. This change will bring more consistency to the speed limits in the area.

RECOMMENDATION

It is recommended that the maximum speed limit be lowered to 35 MPH for the entire length of South Jacob Miller Rd. based on the roadway characteristics (narrowness) in the straight section, the horizontal curves with advisory speeds already posted and the intersection with Landfill Rd. in the southerly section, and the roadside development (fire station, residential).