



# CITY OF RAPID CITY

RAPID CITY, SOUTH DAKOTA 57701

## Public Works Department Engineering Services Division

300 Sixth Street

Telephone: (605) 394-4154 FAX: (605) 355-3083

Web: [www.rcgov.org](http://www.rcgov.org)

### MEMORANDUM

TO: Mayor Sam Kooiker  
Public Works Committee/Common Council

FROM: John Less  
Traffic Engineer

THRU: Dale Tech  
City Engineer

SUBJECT: Red Dale Drive Traffic Study

DATE: 31 October 2012

#### Introduction/Background

- This study was completed at the direction of the Common Council (see 1 October 2012 meeting minutes, item #43). The need for a study arose during the Council's consideration and discussion of the need for sidewalks on portions of Red Dale Dr.
- Red Dale Dr. and Hillsview Dr. form a one-way pair of streets that are part of one of the primary routes to/from Stevens High School.
- Red Dale Dr. is a 16 foot wide asphalt pavement with 30 inch wide curb and gutter. The pavement is in fair condition and parking is prohibited on both sides of the street.
- The posted speed limit is 20 MPH versus the statutory 25 MPH speed limit on the majority of residential streets in the City (SDCL 32-25-12, Rapid City Ordinance 10.12.310 B (8)). No background information could be located on the establishment of the lower speed limit.



31 October 2012

Page 2 of 5

Crash History

SD Department of Public Safety data for 2009 to present was queried for any State reportable crashes (property damage greater than \$1,000 or involving injuries) that occurred along Red Dale Dr. The following is a summary of all crashes:

- 03/1/2009, 0017 hours – DUI hit parked vehicle off the roadway.
- 04/27/2009, 0753 hours – vehicle backing up the wrong on Red Dale Dr. hit a vehicle legally backing out of a driveway.
- 01/21/2011, 1118 hours – vehicle purposefully swerving lost control and hit mailbox.

Pedestrian Activity

A video pedestrian count was conducted on 10/16/2012 between 0700 and 1900 hours. The weather was clear and sunny with a high temperature of 72° F.

<b>HOOR BEGINNING</b>	<b>PEDESTRIANS</b>	<b>COMMENTS</b>
0700	6	
0800	6	
0900	2	
1000	0	
1100	1	w/baby stroller
1200	1	w/baby stroller
1300	1	
1400	0	
1500	0	
1600	5	
1700	5	
1800	2	
<b>TOTAL</b>	<b>29</b>	

31 October 2012

Page 3 of 5

Speed Data

Speed data was collected between 10/03/2012, 1400 hours and 10/05/2012, 1000 hours. Data collection was via a pneumatic tube counter and a total of 2,817 data points were collected. The following table summarizes the data and presents a comparison to other similar streets:

<b>ROAD</b>	<b>POSTED SPEED (MPH)</b>	<b>50<sup>th</sup> Percentile Speed (MPH)</b>	<b>85<sup>th</sup> Percentile Speed (MPH)</b>	<b>% of Traffic over Posted Speed</b>
Red Dale Dr. (2012)	20	25.6	29.8	90%
Red Dale Dr. (2008)	20	26.2	30.1	92%
Hillsview Dr.	20	24.2	29.0	85%
Elm Ave. (2700 block)	25	27.0	29.7	78%
Enchantment Rd. (near Dan Christy Ln.)	25	28.3	33.4	77%
Enchantment Rd. (near US-16)	25	26.3	32.5	54%
Cliff Dr. (near Wonderland Dr.)	25	30.4	34.7	86%

## NOTES:

The 50<sup>th</sup> Percentile Speed reflects the average speed.

The 85<sup>th</sup> Percentile Speed is generally accepted as the prevailing speed.

31 October 2012

Page 4 of 5

### Conclusions/Observations

1. There are not a significant number of crashes or a crash pattern occurring on Red Dale Dr.
2. The overwhelming majority of observed operating speeds were over the posted speed limit of 20 MPH.
3. The speed data's key percentile values correlated well with results from other residential streets signed for 25 MPH. Although no record could be found explaining how the speed limit for Red Dale Dr. came to be 20 MPH, anecdotal evidence suggests that it was lowered when Stevens High School opened, in an effort to "slow down" traffic. The speed data illustrates well the fallacy of effecting behavioral changes simply by adding road signs.
4. The travelled way width of 16 feet combined with the absence of on-street parking creates a comfortable environment, conducive to travelling faster than the posted 20 MPH. Accordingly, Red Dale Dr. is a candidate location for traffic calming measures. A schematic plan of one possible layout is attached. Implementation of any measures would need to include discussions with residents and all affected stakeholders. One of issue of concern that must be addressed is the anticipated behavior of young drivers (to/from Stevens High School) and how they would interact with speed humps.
5. Absent other pedestrian counts in similar neighborhoods, an objective assessment of the need or appropriateness of sidewalks along Red Dale Dr. cannot be provided. It should be noted however that the lack of sidewalks forces southbound pedestrians to have to walk *with* the flow of traffic contrary to walking against traffic, the mode traffic safety professional cite as the correct behavior (in fact, South Dakota Codified Law 32-27-5 generally makes walking on a roadway *with* the flow of traffic a petty offense).

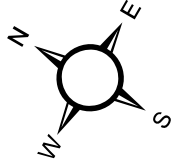
31 October 2012

Page 5 of 5

### Recommendations

1. Reliance on voluntary compliance with the 20 MPH speed limit has not been a successful strategy. The operating speeds on Red Dale Dr. will only be lowered through enforcement or roadway geometric changes (traffic calming).
2. Sidewalk on at least one side of the street would be beneficial from a traffic safety perspective. (Of the 29 pedestrians observed in our count, 21 used the east side of the street and 8 used the west side.)





1 inch = 80 feet

# CONCEPT PLAN

## Red Dale Drive Traffic Calming

(estimated cost = \$75,000)

