

**ORDINANCE NO. 2022 - 1**

**ROAD SPEED LIMITS**

**AN ORDINANCE TO ESTABLISH A SPEED LIMIT ON RIMINI ROAD, LEWIS AND CLARK COUNTY, MONTANA, AND TO PROVIDE PENALTIES FOR A VIOLATION THEREOF.**

**WHEREAS**, the Lewis and Clark County Board of County Commissioners requested a review of the speed limit on Rimini Road (6.6 miles, located south of Highway 12); and

**WHEREAS**, the Lewis and Clark County Public Works Department requested that Abelin Traffic Services of Helena, Montana, perform a speed study on this road to determine if the posted speed limit is appropriate for the existing road conditions and travel patterns; and

**WHEREAS**, Mont. Code Ann. § 7-14-2113 allows a board of county commissioners to establish, by ordinance, a special speed limit in accordance with 61-8-310 on any county road; and

**WHEREAS**, Rimini Road is a County Road established in accordance with Mont. Code Ann. § 7-14-2101(4(b)<sup>3</sup>); and

**NOW, THEREFORE, BE IT ORDAINED BY THE COUNTY COMMISSION OF LEWIS AND CLARK COUNTY, STATE OF MONTANA:**

**SECTION 1. SPEED LIMIT ESTABLISHED.**

The speed limit shall be increased from the posted 35 miles per hour, to 50 miles per hour, beginning at mile 1.1 to mile 6.3, pursuant to attached "Exhibit A – Abelin Rimini Road Speed Limit Study" and "Exhibit B – Abelin Rimini Road Speed Limit Study Update." The existing speed limit of 35 miles per hour from mile 0 to mile 1.1 shall remain unchanged. The existing speed limit of 25 miles per hour through the community of Rimini shall remain unchanged.

**SECTION 2. SPEED LIMIT SIGNS.**

Upon receiving notice of the regulatory speed limit established by this Ordinance, and after the passage of at least 30 days from the date this Ordinance is adopted, the Public Works Department shall erect the appropriate signs giving drivers notice of the regulatory speed limit established by the Ordinance.

**SECTION 3. SEVERABILITY.**

Should any court declare any part of this Ordinance unconstitutional or invalid, the Ordinance as a whole or any part thereof, other than that part so declared to be unconstitutional or invalid, shall remain in effect.

**SECTION 4. EFFECTIVE DATE.**

This Ordinance shall take effect thirty days after the date of the Second Reading and approval of this Ordinance by the County Commission.

**SECTION 5. MODIFICATION.**

This Ordinance may be modified by formal action by the County Commission in the same manner as required in the adoption of the Ordinance.

**SECTION 6. DURATION.**

This Ordinance shall remain in effect until repealed or suspended by other legislative or judicial action.

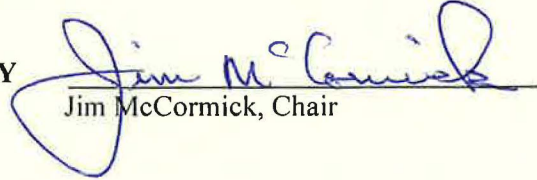


READ and adopted at first reading this 22<sup>nd</sup> day of March, 2022 by the Lewis and Clark County Board of County Commissioners, State of Montana.


FOR LEWIS AND CLARK COUNTY  
BOARD OF COUNTY COMMISSIONERS

(Seal)

BY

  
Jim McCormick, Chair

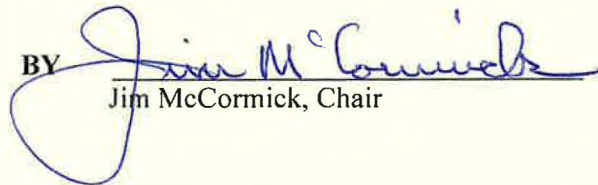
Attest:

  
\_\_\_\_\_  
Amy Reeves, Clerk of the Board

READ and adopted at second reading this 7<sup>th</sup> day of April, 2022 by the Lewis and Clark County Board of County Commissioners, State of Montana.


FOR LEWIS AND CLARK COUNTY  
BOARD OF COUNTY COMMISSIONERS

BY

  
Jim McCormick, Chair



Attest:

  
\_\_\_\_\_  
Amy Reeves, Clerk of the Board

Attachments:

“Exhibit A”

“Exhibit B”



October 1, 2019

Eric Griffin  
Lewis & Clark County  
3402 Cooney Drive  
Helena, MT 59601

RE: Rimini Road Speed Limit Study

Dear Eric,

Per your request Abelin Traffic Services (ATS) has performed an engineering review of the existing speed limit on Rimini Road from Highway 12 to the community of Rimini (6.6 miles). The current posted speed limit on Rimini Road is 35 MPH and decreases to 25 MPH in the community of Rimini. Rimini Road has a paved surface from Highway 12 up to the community of Rimini, which was chip sealed and restriped in August of 2019. Rimini Road follows a curvilinear path to the southwest along Tenmile Creek. Lewis & Clark County requested that ATS perform a speed study to determine if the posted 35 MPH speed limit is appropriate for the existing road conditions or if the speed limit should be changed to match the current road characteristics and driving patterns.

#### Existing Conditions

The study roadway is a 6.6 mile segment of Rimini Road which begins at the intersection of MT Highway 12, six miles west of Helena. The road has a variety of curved and straight sections and has a continuous rise of 700 feet from Highway 12 to the community of Rimini. The Landmark residential subdivision connects to Rimini Road at MP 0.4 and provides access to 20 rural residential homes. The remaining sections of Rimini Road have a variety of widely spaced residential lots and public access areas. See **Figure 1** for a map of the study roadway.

Rimini Road was fully reconstructed in 2017 from Highway 12 to the community of Rimini with a new road surface and new bridges across Tenmile creek. The road was recently chip sealed and restriped in August of 2019. From Highway 12 to MP 1.1 the road has a paved width 28 feet. The road then narrows slightly to 26 feet from MP 1.1 to the end of pavement at MP 6.3. Entering the community of Rimini the road surface changes to gravel and the road narrows to a width of 24 feet. The posted speed limit on the paved section is 35 MPH with speed limit signs at the beginning of the section and at MP 4.1. The speed limit decreases to 25 MPH in the community of Rimini. There is no passing allowed on the road with solid double yellow center lines throughout the paved section.

Historic traffic data for Rimini Road was obtained from Lewis & Clark County. The historic data for this location is presented in **Table 1**. The Average Annual Daily Traffic

(AADT) data indicates that traffic volumes along the roadway have remained consistent over the last 10 years at approximately 300 VPD near Highway 12.

Figure 1 - Vicinity Map

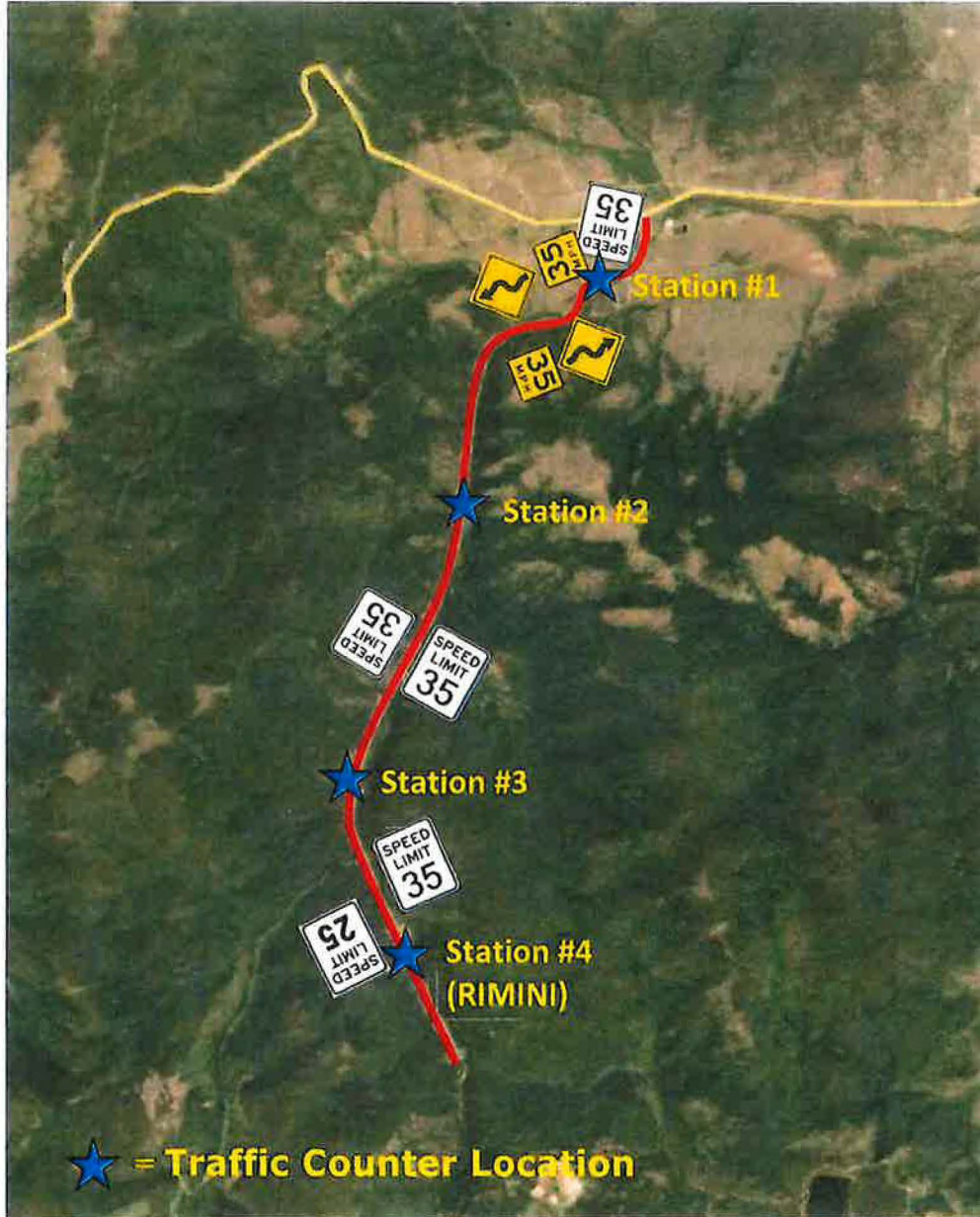


Table 1 – Historic Traffic Data

Location	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Rimini Road South of Highway 12	550	x	390	380	310	310	x	360	x	234

Rimini Road has three curves in the first mile of the road which are marked with 35 MPH curve warning signs. The curves on the remaining section of the road are unmarked. ATS performed a ball-bank study on the roadway to determine the recommended speeds for the existing curves. A ball bank study determines the sideways acceleration experienced by a vehicle traversing a curve and allows for the evaluation of recommended vehicle speeds for a given curve radius and road superelevation. Factors such as road surface condition can also affect recommended vehicle speeds for a given curve. The ball-bank test indicated that the three curves in the first mile can be taken at 45 MPH (less than 12 degrees on the ball bank indicator). The rest of the curves on the road can be taken at over 55 MPH.

ATS also reviewed the available intersection sight distance at the major approaches to Rimini Road. The only major intersection within the study area is the intersection of Rimini Road with the Landmark Subdivision at MP 0.4. The intersection sight distance from this approach is 450 feet to the northeast and 1,000 feet to the southwest. According to the MDT road design manual, 450 feet of intersection sight distance is appropriate for passenger vehicles at speeds of 40 MPH.

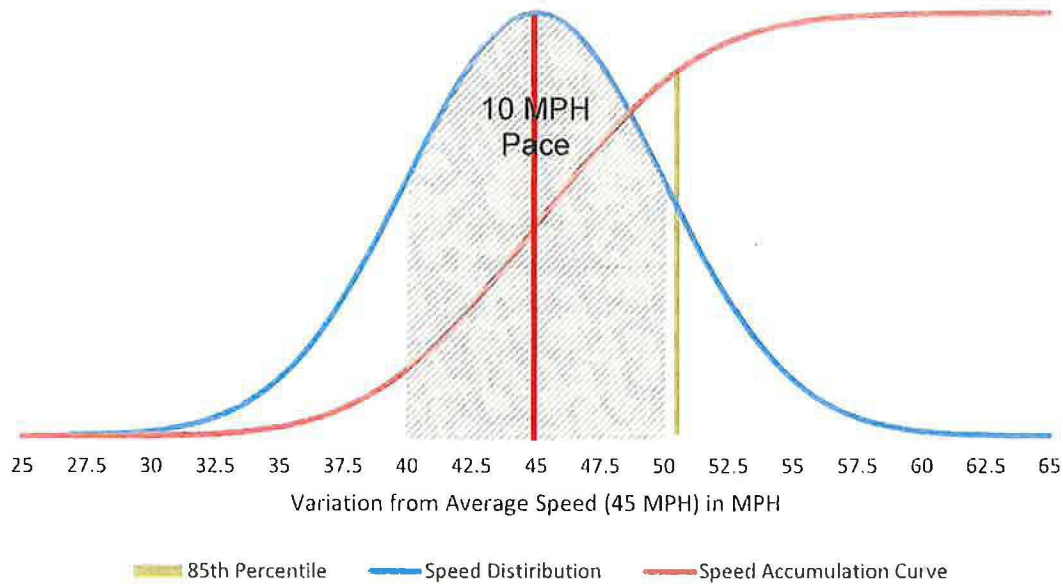
#### **Crash Data**

ATS obtained vehicle crash data for the study roadway from the MDT vehicle crash database. This data indicated that 10 vehicle crashes have occurred along Rimini Road over the past five years. Of these 10 crashes, only two occurred after the roadway reconstruction was completed in 2017. The vehicle crash rate for Rimini Road is 3.0/MVMT, which is in line with current averages for rural roadways. No vehicle crash concentrations were identified.

#### **Speed Data**

In order to analyze vehicle speed data, engineers calculate a variety of operational characteristics based on vehicle speed distribution data. The significant data includes average vehicle speed, 85<sup>th</sup> percentile speed, and pace speeds. **Figure 2** shows a standard vehicle speed distribution with a 45 MPH average speed (red line). The 85<sup>th</sup> Percentile speed is the point at which 85% of traffic falls below on the cumulative speed line (green line). The pace is the 10 MPH increment that has the highest number of observed vehicle speeds.

**Figure 2 – Standard Speed Profile**  
Speed Distribution



Vehicle speed data was collected at four locations along Rimini Road on two separate occasions. Data was collected for less than 24 hours from August 14 to August 15, 2019, just prior to the chip sealing and restriping project on the roadway. After the construction project was completed, speed data was once again collected between September 24 and September 26, 2019. A full 48-hours of data was collected on the gravel section at Station 4 in the August and therefore was not collected again in September.

The speed stations were located near MP 0.5 (Station 1), MP 2.8 (Station 2), MP 5.0 (Station 3) and MP 6.6 (Station 4). The traffic count locations are shown on **Figure 1**. The weather conditions during the traffic study were warm and dry with very good driving conditions throughout the data collection period. The data was collected continuously using Diamond Unicorn Limited traffic counters to record the individual speed data from every vehicle using the road. The results of the data collection are shown in **Table 2**. The raw speed data is included with this letter.

The observed traffic data indicates that the vehicle speeds along Rimini Road are reasonably consistent. The most commonly used road operations characteristic for posting a speed limit is the 85<sup>th</sup> percentile speed. However, it is reasonable to set a posted speed limit below the 85<sup>th</sup> percentile speeds if the road conditions and roadside environment are inconsistent with the observed vehicle speeds. The 85<sup>th</sup> percentile

speeds on Rimini Road varied from 52 to 57 MPH. Station 1 was located in the more winding section of road near Highway 12 and observed lower vehicle speeds than Stations 2, 3, and 4. Overall compliance with the posted speed limit was very low, (less than 15% on most sections). Vehicle speeds through the community of Rimini were in line with the posted speed limit of 25 MPH and had a good rate of compliance with the speed limit.

When the vast majority of vehicles (85-95%) are traveling above the posted speed limit, it suggests that the speed limit is not appropriate. Without significant speed enforcement measures on Rimini Road, it will be difficult to make drivers comply with the existing 35 MPH speed limit.

**TABLE 2 – Vehicle Speed Data**

	Station 1 Summer	Station 1 Fall	Station 2 Summer	Station 2 Fall	Station 3 Summer	Station 3 Fall	Station 4 Summer
Average Speed (MPH)	42.8	44.8	47.2	47.2	44.4	47.5	19.0
85% Percentile Speed (MPH)	52.3	52.5	57.5	54.4	53.3	57.1	27.3
10 MPH Pace Speeds (MPH)	40-50	40-50	40-50	42-52	41-51	40-50	21-31
Percent in Pace	48%	52%	44%	51%	48%	49%	56%
Observed Daily Traffic (VPD)	394	437	339	384	257	336	79
Percent at or below Speed Limit	13%	7%	9%	4%	10%	5%	78%

### **Recommendations**

It is recommended that the posted speed limit on Rimini Road be increased to more closely match the observed vehicle speeds and roadway geometrics. In this instance it may be desirable to maintain the existing 35 MPH speed limit through for the first 1.1 miles through the 35 MPH curves and the approach to the Benchmark subdivision. This would match the curve design speeds and the intersection sight distance at the Benchmark subdivision. Past MP 1.1 the speed limit should be increased to 50 or 55 MPH to match the vehicle speeds currently on the roadway. Raising the speed limit to match the existing vehicle speeds will not likely change driver behavior on the road, but would match the speed limit to the existing vehicle speeds and overall improve the

consistency of vehicle speeds along the roadway. The posted 25 MPH through the community of Rimini is appropriate and should remain unchanged. It may be appropriate to move the beginning of the 25 MPH speed zone to the start of the gravel section at MP 6.3 and include a 'pavement ends' (MUTCD #W8-3) sign at the gravel transition. It may also be appropriate to perform a passing zone review and include passing zones along the route were appropriate. If you have any questions about these results please feel free to call me at 406-459-1443.

Sincerely,

A handwritten signature in cursive script, appearing to read "Bob Abelin".

Bob Abelin, P.E. PTOE  
Abelin Traffic Services, Inc.



# Basic Speed Class Summary: RIMINI1

(DEFAULTX)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16		
		0.0 - 19.9	20.0 - 24.9	25.0 - 29.9	30.0 - 34.9	35.0 - 39.9	40.0 - 44.9	45.0 - 49.9	50.0 - 54.9	55.0 - 59.9	60.0 - 64.9	65.0 - 69.9	70.0 - 74.9	75.0 - 79.9	80.0 - 84.9	85.0 - 89.9	Other	Total	
<b>TOTAL COUNT :</b>	#1.	12	3	3	16	42	54	29	18	4	0	0	0	0	0	0	0	181	
	#3.	0	1	1	9	20	41	41	32	14	4	1	0	0	0	0	0	164	
		<u>12</u>	<u>4</u>	<u>4</u>	<u>25</u>	<u>62</u>	<u>95</u>	<u>70</u>	<u>50</u>	<u>18</u>	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>345</u>	
<b>Percents :</b>	#1.	7%	2%	2%	9%	23%	30%	16%	10%	2%	0%	0%	0%	0%	0%	0%	0%	52%	
	#3.	0%	1%	1%	5%	12%	25%	25%	20%	9%	2%	1%	0%	0%	0%	0%	0%	48%	
		<u>3%</u>	<u>1%</u>	<u>1%</u>	<u>7%</u>	<u>18%</u>	<u>28%</u>	<u>20%</u>	<u>14%</u>	<u>5%</u>	<u>1%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	
<b>Average :</b>	#1.	1	0	0	1	2	3	1	1	0	0	0	0	0	0	0	0	9	
	#3.	0	0	0	0	1	2	2	2	1	0	0	0	0	0	0	0	8	
		<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>3</u>	<u>5</u>	<u>3</u>	<u>3</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>17</u>	
<b>Days &amp; ADT :</b>	#1.	0.8	206																
	#3.	0.8	187																
		<u>0.8</u>	<u>394</u>																
<b>Avg,50,67,85%:</b>	#1.	39.8	41.7	43.6	48.0	36.2	-46.1	53%											
<b>Pace (pace %)</b>	#3.	46.2	46.9	48.5	53.1	41.2	-51.1	50%											
		<u>42.8</u>	<u>43.1</u>	<u>47.2</u>	<u>52.3</u>	<u>40.0</u>	<u>-49.9</u>	<u>48%</u>											

# Basic Speed Class Summary: RIMINI2

(DEFAULT)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16		
		0.0 - 19.9	20.0 - 24.9	25.0 - 29.9	30.0 - 34.9	35.0 - 39.9	40.0 - 44.9	45.0 - 49.9	50.0 - 54.9	55.0 - 59.9	60.0 - 64.9	65.0 - 69.9	70.0 - 74.9	75.0 - 79.9	80.0 - 84.9	85.0 - 89.9	Other	Total	
<b>TOTAL COUNT :</b>	#1.	2	2	2	4	12	35	29	28	14	9	3	1	2	0	0	0	143	
	#3.	8	0	1	7	10	33	35	30	14	9	5	2	0	0	0	0	154	
		10	2	3	11	22	68	64	58	28	18	8	3	2	0	0	0	297	
<b>Percents :</b>	#1.	1%	1%	1%	3%	8%	24%	20%	20%	10%	6%	2%	1%	1%	0%	0%	0%	48%	
	#3.	5%	0%	1%	5%	6%	21%	23%	19%	9%	6%	3%	1%	0%	0%	0%	0%	52%	
		3%	1%	1%	4%	7%	23%	22%	20%	9%	6%	3%	1%	1%	0%	0%	0%		
<b>Average :</b>	#1.	0	0	0	0	1	2	1	1	1	0	0	0	0	0	0	0	6	
	#3.	0	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0	6	
		0	0	0	0	1	4	3	2	2	0	0	0	0	0	0	0	12	
<b>Days &amp; ADT :</b>	#1.	0.8	163																
	#3.	0.8	176																
		0.8	339																
<b>Avg,50,67,85% :</b>	#1.	47.7	47.5	52.2	57.5	41.4	- 51.3	45%											
<b>Pace (pace %)</b>	#3.	46.7	47.5	52.1	57.5	41.4	- 51.3	44%											
		47.2	47.5	51.8	57.5	40.4	- 50.3	44%											

# Basic Speed Class Summary: RIMINI3

(DEFAULTX)		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16		
		0.0 - 19.9	20.0 - 24.9	25.0 - 29.9	30.0 - 34.9	35.0 - 39.9	40.0 - 44.9	45.0 - 49.9	50.0 - 54.9	55.0 - 59.9	60.0 - 64.9	65.0 - 69.9	70.0 - 74.9	75.0 - 79.9	80.0 - 84.9	85.0 - 89.9	Other	Total	
<b>TOTAL COUNT :</b>	#2.	5	0	2	5	18	36	25	14	7	3	1	0	0	0	0	1	117	
	#4.	2	0	6	3	15	24	23	16	11	5	2	1	0	0	0	0	108	
		<u>7</u>	<u>0</u>	<u>8</u>	<u>8</u>	<u>33</u>	<u>60</u>	<u>48</u>	<u>30</u>	<u>18</u>	<u>8</u>	<u>3</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>225</u>	
<b>Percents :</b>	#2.	4%	0%	2%	4%	15%	31%	21%	12%	6%	3%	1%	0%	0%	0%	0%	1%	52%	
	#4.	2%	0%	6%	3%	14%	22%	21%	15%	10%	5%	2%	1%	0%	0%	0%	0%	48%	
		<u>3%</u>	<u>0%</u>	<u>4%</u>	<u>4%</u>	<u>15%</u>	<u>27%</u>	<u>21%</u>	<u>13%</u>	<u>8%</u>	<u>4%</u>	<u>1%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>		
<b>Average :</b>	#2.	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	5	
	#4.	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	5	
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>10</u>	
<b>Days &amp; ADT :</b>	#2.	0.8	133																
	#4.	0.8	123																
		<u>0.8</u>	<u>257</u>																
<b>Avg,50,67,85%:</b>	#2.	43.1	43.1	47.5	52.6	41.4	-51.3	52%											
<b>Pace (pace %)</b>	#4.	45.8	47.0	48.2	57.3	41.8	-51.7	44%											
		<u>44.4</u>	<u>44.1</u>	<u>48.2</u>	<u>53.3</u>	<u>40.6</u>	<u>-50.5</u>	<u>48%</u>											

# Basic Speed Classification Report: RIMINI4

**Station ID : RIMINI4**

Info Line 1 : ATS

Info Line 2 : UNICORN 1

GPS Lat/Lon :

DB File : RIMINI4.DB

Last Connected Device Type : Unic-L

Version Number : 1.41

Serial Number :

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

## Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.	SB		Ax-Ax	8.0 ft	6.0 ft	
3.	NB		Ax-Ax	8.0 ft	6.0 ft	

## Basic Speed Classification Data From: 00:00 - 08/14/2019 To: 23:59 - 08/16/2019

(DEFAULT)			#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16		
Date	Time	Lane	0.0 - 19.9	20.0 - 24.9	25.0 - 29.9	30.0 - 34.9	35.0 - 39.9	40.0 - 44.9	45.0 - 49.9	50.0 - 54.9	55.0 - 59.9	60.0 - 64.9	65.0 - 69.9	70.0 - 74.9	75.0 - 79.9	80.0 - 84.9	85.0 - 89.9	Other	Total	
08/14/19	00:00	1.	38	27	13	1	1	0	1	0	0	0	0	0	0	0	0	0	0	81
Wed		3.	26	36	13	3	0	0	1	0	0	0	0	0	0	0	0	0	0	79
<b>Daily Total :</b>			64	63	26	4	1	0	2	0	0	0	0	0	0	0	0	0	0	160
<b>Percent :</b>			40%	39%	16%	3%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
<b>Average :</b>			64	63	26	4	1	0	2	0	0	0	0	0	0	0	0	0	0	79

Speeds - Average: 19.0    50% : 21.6    67% : 23.2    85% : 27.3    10mph Pace: 20.6 - 30.5 (55.6%)

# Basic Speed Classification Report: RIMINI 1-2

**Station ID : RIMINI 1-2**

Info Line 1 : MDT

Info Line 2 : 445

GPS Lat/Lon :

DB File : RIMINI 1-2.DB

Last Connected Device Type : Unic-L

Version Number : 1.51

Serial Number : 11445

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

## Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.	SB		Ax-Ax	8.0 ft	6.0 ft	
3.	NB		Ax-Ax	8.0 ft	6.0 ft	

## Basic Speed Classification Data From: 00:00 - 09/25/2019 To: 23:59 - 09/25/2019

(DEFAULT)			#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	
Date	Time	Lane	0.0 - 19.9	20.0 - 24.9	25.0 - 29.9	30.0 - 34.9	35.0 - 39.9	40.0 - 44.9	45.0 - 49.9	50.0 - 54.9	55.0 - 59.9	60.0 - 64.9	65.0 - 69.9	70.0 - 74.9	75.0 - 79.9	80.0 - 84.9	85.0 - 89.9	Other	Total
09/25/19	00:00	1.	0	2	5	10	49	68	50	23	6	0	2	0	0	0	0	0	215
Wed		3.	0	1	3	8	29	48	62	49	17	3	2	0	0	0	0	0	222
<b>Daily Total :</b>			0	3	8	18	78	116	112	72	23	3	4	0	0	0	0	0	437
<b>Percent :</b>			0%	1%	2%	4%	18%	27%	26%	16%	5%	1%	1%	0%	0%	0%	0%	0%	
<b>Average :</b>			0	3	8	18	78	116	112	72	23	3	4	0	0	0	0	0	222

Speeds - Average: 44.8    50% : 44.7    67% : 47.9    85% : 52.5    10mph Pace: 40.0 - 49.9 (52.2%)

# Basic Speed Classification Report: RIMINHI 2-2

**Station ID : RIMINHI 2-2**

Info Line 1 : MDT

Info Line 2 : 450

GPS Lat/Lon :

DB File : RIMINHI 2-2.DB

Last Connected Device Type : Unic-L

Version Number : 1.51

Serial Number : 11450

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

## Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.	NB		Ax-Ax	8.0 ft	6.0 ft	
3.	SB		Ax-Ax	8.0 ft	6.0 ft	

## Basic Speed Classification Data From: 00:00 - 09/25/2019 To: 23:59 - 09/25/2019

(DEFAULT)			#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	
			0.0 -	20.0 -	25.0 -	30.0 -	35.0 -	40.0 -	45.0 -	50.0 -	55.0 -	60.0 -	65.0 -	70.0 -	75.0 -	80.0 -	85.0 -		
Date	Time	Lane	19.9	24.9	29.9	34.9	39.9	44.9	49.9	54.9	59.9	64.9	69.9	74.9	79.9	84.9	89.9	Other	Total
09/25/19	00:00	1.	1	1	0	6	19	45	52	46	15	9	1	0	0	0	0	0	195
Wed		3.	0	0	0	5	22	47	53	39	18	3	2	0	0	0	0	0	189
<b>Daily Total :</b>			1	1	0	11	41	92	105	85	33	12	3	0	0	0	0	0	384
<b>Percent :</b>			0%	0%	0%	3%	11%	24%	27%	22%	9%	3%	1%	0%	0%	0%	0%	0%	
<b>Average :</b>			1	1	0	11	41	92	105	85	33	12	3	0	0	0	0	0	189

Speeds - Average: 47.2    50% : 47.3    67% : 50.3    85% : 54.4    10mph Pace: 42.1 - 52.0 (51.3%)

# Basic Speed Classification Report: RIMINI 3-2

**Station ID : RIMINI 3-2**

Info Line 1 : ATS

Info Line 2 : UNICORN 1

GPS Lat/Lon :

DB File : RIMINI 3-2.DB

Last Connected Device Type : Unic-L

Version Number : 1.41

Serial Number :

Number of Lanes : 1

Posted Speed Limit : 0.0 mph

## Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length	Comment
1.	SB		Ax-Ax	8.0 ft	6.0 ft	
3.	NB		Ax-Ax	8.0 ft	6.0 ft	

## Basic Speed Classification Data From: 00:00 - 09/25/2019 To: 23:59 - 09/25/2019

(DEFAULTX)			#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	
			0.0 -	20.0 -	25.0 -	30.0 -	35.0 -	40.0 -	45.0 -	50.0 -	55.0 -	60.0 -	65.0 -	70.0 -	75.0 -	80.0 -	85.0 -		
Date	Time	Lane	19.9	24.9	29.9	34.9	39.9	44.9	49.9	54.9	59.9	64.9	69.9	74.9	79.9	84.9	89.9	Other	Total
09/25/19	00:00	1.	0	0	3	1	13	31	36	36	30	10	1	2	1	0	0	1	165
Wed		3.	0	1	0	12	15	54	45	22	15	4	1	1	0	0	0	1	171
<b>Daily Total :</b>			0	1	3	13	28	85	81	58	45	14	2	3	1	0	0	2	336
<b>Percent :</b>			0%	0%	1%	4%	8%	25%	24%	17%	13%	4%	1%	1%	0%	0%	0%	1%	
<b>Average :</b>			0	1	3	13	28	85	81	58	45	14	2	3	1	0	0	2	171

Speeds - Average: 47.5    50% : 47.4    67% : 51.6    85% : 57.1    10mph Pace: 40.0 - 49.9 (49.4%)



June 21, 2021

Eric Griffin  
Lewis & Clark County  
3402 Cooney Drive  
Helena, MT 59601

RE: Rimini Road Speed Limit Study Update

Dear Eric, per your request Abelin Traffic Services (ATS) has reevaluated the available traffic information for Rimini Road to provide recommendations for the posted speed limit on this roadway from Highway 12 to the community of Rimini (6.6 miles). The current posted speed limit on Rimini Road is 35 MPH and decreases to 25 MPH in the community of Rimini. Speeds on this section of road were previously studied by ATS in 2019 and at that time it was recommended that the posted speed limit on Rimini Road be increased to more closely match the observed vehicle speeds and roadway geometrics. The existing 35 MPH speed limit for the first 1.1 miles through curves and the approach to the Landmark subdivision was recommended to remain at 35 MPH. Past MP 1.1 it was recommended that the speed limit be increased to 50 or 55 MPH to match the vehicle speeds currently on the roadway. Lewis & Clark County did not take formal action on this study and requested an evaluation of the current 2021 road conditions to determine if the 2019 data is still valid and if the same recommendations remain.

ATS performed a drive-thru of the road in May 2021 to determine if any road conditions, roadside environments, or signing has changed since the 2019 study was completed. A comparison of the signing and geometric information did not find any notable changes in the road over the time period. ATS also reviewed the curve ball bank speeds to confirm the appropriate curve travel speeds on the route. The posted 35 MPH curves along the beginning of the route again ball-banked at 35 MPH. ATS did note that the curve approaching Rimini near MP 5.4 ball-banked at 50 MPH.

Updated historic traffic data for Rimini Road was obtained from Lewis & Clark County. The historic data for this location is presented in **Table 1**. The Average Annual Daily Traffic (AADT) data indicates that traffic volumes along the roadway have remained consistent over the last 10 years at approximately 400 VPD near Highway 12 and did not change significantly in 2019 or 2020.

**Table 1 – Historic Traffic Data**

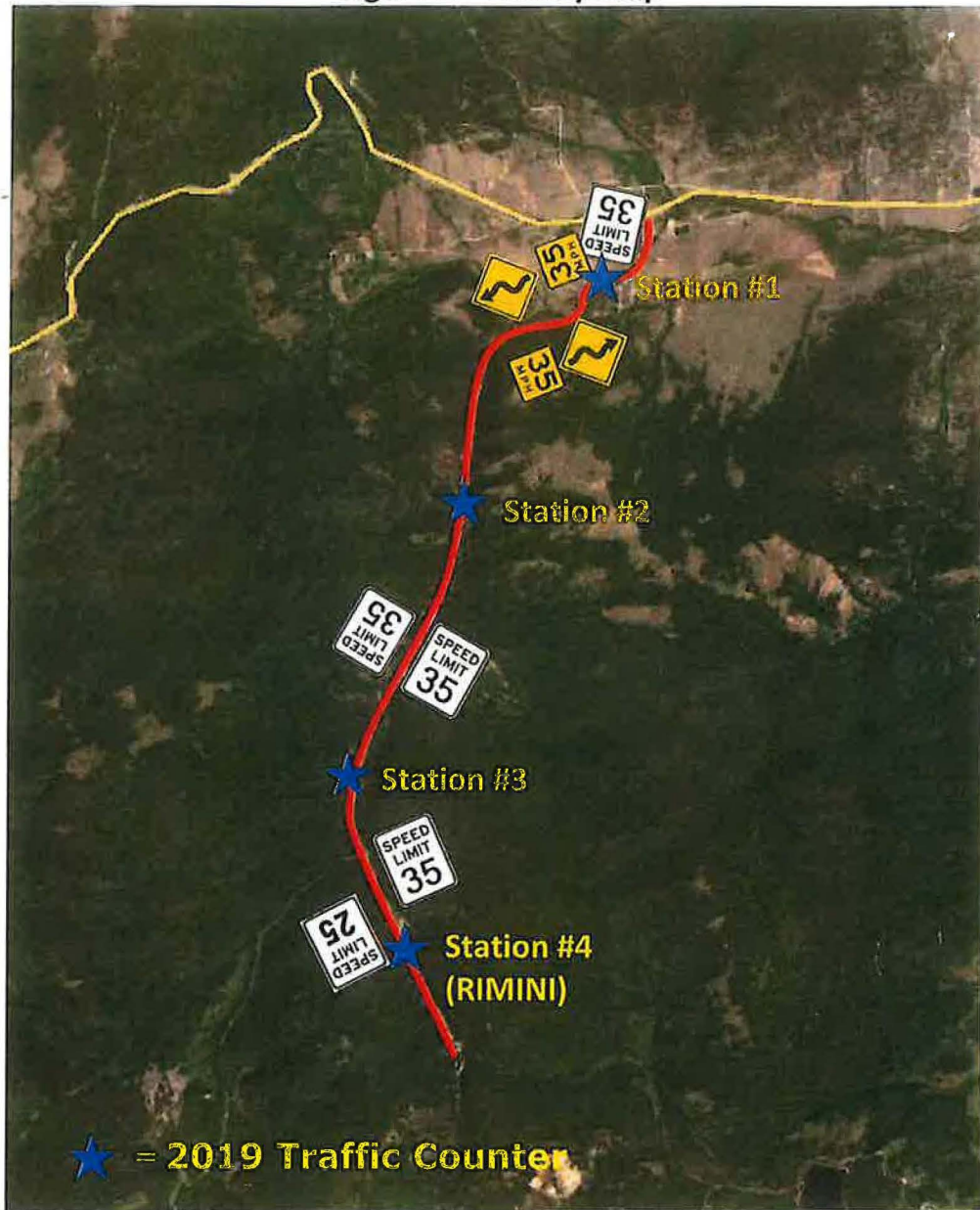
Location	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Rimini Road South of Highway 12	500	466	420	420	470	406	408	404	410	374



EXHIBIT

\_\_\_\_\_

Figure 1 - Vicinity Map



### Crash Data

ATS obtained vehicle crash data for the study roadway from the MDT vehicle crash database. This data indicated that 8 vehicle crashes have occurred along Rimini Road over the past five years. Of these 8 crashes, only two occurred after the roadway reconstruction was completed in 2017. The vehicle crash rate for Rimini Road is 2.4/MVMT, which is in line with current averages for rural roadways. No vehicle crash concentrations were identified.

## Speed Data

Vehicle speed data was collected at four locations along Rimini Road on two separate occasions. Data was collected for less than 24 hours from August 14 to August 15, 2019, just prior to the chip sealing and restriping project on the roadway. After the construction project was completed, speed data was once again collected between September 24 and September 26, 2019. A full 48-hours of data was collected on the gravel section at Station 4 in the August and therefore was not collected again in September. Based on the 2021 field review of Rimini Road, there is no reason to believe that the vehicle speed profiles have changed significantly on this roadway in the last two years.

The speed stations were located near MP 0.5 (Station 1), MP 2.8 (Station 2), MP 5.0 (Station 3) and MP 6.6 (Station 4). The traffic count locations are shown on **Figure 1**. The weather conditions during the traffic study were warm and dry with very good driving conditions throughout the data collection periods. The data was collected continuously using Diamond Unicorn Limited traffic counters to record the individual speed data from every vehicle using the road. The results of the data collection are shown in **Table 2**. The raw speed data is included with this letter.

The observed traffic data indicates that the vehicle speeds along Rimini Road are reasonably consistent. The most commonly used road operations characteristic for posting a speed limit is the 85<sup>th</sup> percentile speed. However, it is reasonable to set a posted speed limit below the 85<sup>th</sup> percentile speeds if the road conditions and roadside environment are inconsistent with the observed vehicle speeds. The 85<sup>th</sup> percentile speeds on Rimini Road varied from 52 to 57 MPH. Station 1 was located in the more winding section of road near Highway 12 and observed lower vehicle speeds than Stations 2, 3, or 4. Overall compliance with the posted speed limit was very low, (less than 15% on most sections). Vehicle speeds through the community of Rimini were in line with the posted speed limit of 25 MPH and had a good rate of compliance with the speed limit.

When the vast majority of vehicles (85-95%) are traveling above the posted speed limit, it suggests that the speed limit is not appropriate. Without significant speed enforcement measures on Rimini Road, it will be difficult to force drivers to comply with the existing 35 MPH speed limit.

**TABLE 2 – Vehicle Speed Data**

	Station 1 Summer 2019	Station 1 Fall 2019	Station 2 Summer 2019	Station 2 Fall 2019	Station 3 Summer 2019	Station 3 Fall 2019	Station 4 Summer 2019
Average Speed (MPH)	42.8	44.8	47.2	47.2	44.4	47.5	19.0
85% Speed (MPH)	52.3	52.5	57.5	54.4	53.3	57.1	27.3
10 MPH Pace (MPH)	40-50	40-50	40-50	42-52	41-51	40-50	21-31
Percent in Pace	48%	52%	44%	51%	48%	49%	56%
Observed Traffic (VPD)	394	437	339	384	257	336	79
%at or below Speed Limit	13%	7%	9%	4%	10%	5%	78%

**Recommendations**

It is recommended that the posted speed limit on Rimini Road be increased to more closely match the observed vehicle speeds and roadway geometrics. In this instance it may be desirable to maintain the existing 35 MPH speed limit for the first 1.1 miles through the 35 MPH curves and the approach to the Landmark subdivision. This would match the curve design speeds and the intersection sight distance at the Landmark Subdivision. Past MP 1.1 the speed limit should be increased to 50 or 55 MPH to match the vehicle speeds currently on the roadway. Raising the speed limit to match the existing vehicle speeds will not likely change driver behavior on the road, but would match the speed limit to the existing vehicle speeds and improve the consistency of vehicle speeds along the roadway. The posted 25 MPH through the community of Rimini is appropriate and should remain unchanged. The curve approaching Rimini at MP 5.4 should be posted with a 50 MPH curve warning sign (MUTCD #W1-2 + W13-1).

It may be appropriate to move the beginning of the 25 MPH speed zone to the start of the gravel section at MP 6.3 and include a 'pavement ends' (MUTCD #W8-3) sign at the gravel transition. It may also be appropriate to perform a passing zone review and include passing zones along the route were appropriate. If you have any questions about these results please feel free to call me at 406-459-1443.

Sincerely,



Bob Abelin, P.E. PTOE  
Abelin Traffic Services, Inc.