

# SKAGIT COUNTY PUBLIC WORKS DEPARTMENT

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## Rhodes Road, #62300 Skagit County

### Operational Analysis May 2018

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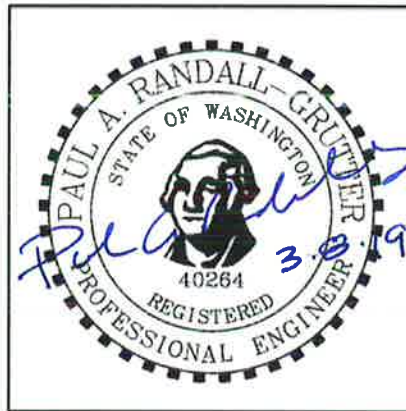
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# Operational Analysis

62300 Road, Skagit County

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The engineering material and data contained in this report were prepared under the supervision and direction of the County Engineer as prescribed in RCW 36.80.030 .



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# Road Operational Analysis

## DESCRIPTION / EVALUATION

Rhodes Road is located in the central area of Skagit County southwest of the City of Sedro-Woolley. Rhodes Road begins at the intersection with State Route 20 (SR20) and travels south then east towards State Route 9 (SR9). The land adjacent to Rhodes Road is zoned agricultural to the south and is both rural and urban residential to the north. The road is mostly used to access single-family residential areas and commuter traffic between SR20 and SR9.

Skagit County has received complaints and requests from the public regarding recent increases in traffic volumes and excessive speeds on Rhodes Road. In the summer of 2016, the City of Sedro-Woolley and WSDOT installed a roundabout at the intersection of SR9 and Rhodes Road, which directly linked SR 9 and SR 20 via Rhodes Road. In 2017 the City of Sedro-Woolley opened the Winnie Houser Park and Playfields. Both of these changes have led to increased traffic volumes.

To better determine the concerns and experiences of residents and road users of Rhodes Road, an online community survey was commissioned and promoted via the Skagit County website, the City of Sedro-Woolley website, social media, and directly to complainants and other interested parties.

This study involves two segments of Rhodes Road. Segment 1, between SR 9 and the 90-degree turn (East to West). Segment 2, between the 90-degree turn and SR 20 (South to North).

- Segment 1: Milepost 0.000 to milepost 0.619 (SR 9 west to 90-degree turn)  
(Milepost 0.000 to 0.130 lies within Sedro-Woolley city limits)
- Segment 2: Milepost 0.619 to milepost 0.920 (90-degree turn north to SR 20)  
(Milepost 0.820 to 0.920 lies within Sedro-Woolley city limits)

The evaluation will provide information regarding the makeup and flow of traffic and address volume and speed factors with regard to these two Segments of Rhodes Road.

County staff performed site visits on Rhodes Road, which included traffic studies, geometric reviews, access review, MUTCD signing and striping standards, and general observations. Rhodes Road traffic in general is operating within the level of service standards as defined in the Skagit County Comprehensive Plan with some light pedestrian and bicycle traffic. .



**Figure 1 – Rhodes Road**

## **OPERATIONS**

### **Background / Research**

The roadway data was secured with the following observations made:

Segments 1 and 2 of Rhodes Road # 63200 share the following features: Two 10-foot traveled lanes with a paved width of 20 feet. The shoulders are 1-foot in width and are gravel or earthen. The road wearing course is chip seal in good condition with an average Pavement Surface Condition rating of 89 and both segments were last chip sealed in 2013. The posted speed limit for both segments is 25 miles per hour. Rhodes Road is not a truck route.

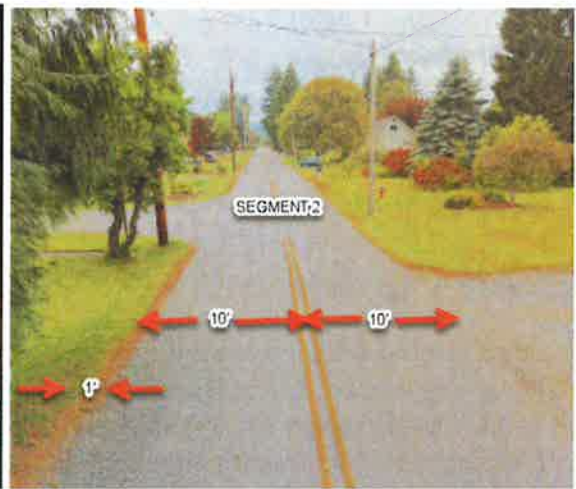
There is a 90-degree turn located approximately at the mid-point of the road connecting the two segments signed with an advanced warning and advisory speed of 15 mph. The road is striped with a double yellow no pass centerline for the entire length of the road and no edgeline. The road is classified as an Urban Major Collector and stop controls are located on intersecting side streets. There have been no noted parking issues but some indication of light pedestrian and bicycle use as noted by local residents.

Segment 1 of Rhodes Road between SR9 and the 90-degree turn includes an adjacent 6 to 10 foot drop slope on its south side with no guardrail protection and residential on the north side. The Segment is predominately residential with some agriculture access to the south. Access density is medium with the majority being on the north side of the segment (15).

Segment 2 of Rhodes Road between the 90-degree turn and SR20 does not include adjacent ditches on either the west or east side of the road. The Segment is predominately residential with medium to high access density (20).



TYPICAL CROSS SECTION SEGMENT 1



TYPICAL CROSS SECTION SEGMENT 2

Note, on both segments where residential properties exist, the yards/grass typically come out to the edge of pavement and are being maintained by residents.

	Paved Lane Width	Shoulder Width	Striping	Pavement Type	Right of Way Width
Current Road Features	10'	1' Gravel	No Pass	BST	60' E-W 30' N-S
Road Standards Rural Local Access	10'	6'	No Pass	ACP or BST Acceptable	60'
Urban Collector (No Curb)	12'	8'	No Pass	ACP	60'

**Data Collection / Research**

Traffic volumes taken from January of 1994 up to September of 2018 and recorded in the County Road Inventory System, (Mobility) show the following Average Annualized Daily Traffic (AADT):

Site & Date	SEGMENT 1 - Rhodes W of SR9 (MP 0.23)					SEGMENT 2 - Rhodes S of SR20 (MP 0.810)					
	AADT	Peak Hr Vol	Truck %	85% Speed	Ave. Speed	AADT	Peak Hr Vol	Truck %	85% Speed	Ave. Speed	
Jan-94	No Data					340	No Data				
Feb-16	432	48	5	32.9	28.4	561	69	6	30.6	26.7	
Dec-16	762	86	4	34.7	29.9	1192	132	4	30	26	
May-17	1290	149	5	35.3	30.5	No Data					
Sep-18	2055	228	5	33.6	29.7	2313	340	7	29.3	25.8	

Speed Data collected and logged into Mobility, are also shown in the above table and defined below with the following computed statistical results:

Segment 1: 85th percentile speed 32.9 mph to 35.3 mph - Posted 25 mph  
Average speed 28.4 mph to 30.5 mph

Segment 2: 85th percentile speed 29.3 mph to 30.6 mph - Posted 25 mph  
Average speed 25.8 mph to 26.7 mph

(Institute of Transportation Engineers, Traffic Engineering Handbook)

*The primary measure computed for spot speed data for establishing speed zones is the 85<sup>th</sup> percentile speed of the free-floating traffic. The 85<sup>th</sup> percentile speed is that speed at which 85 percent of free-flowing vehicles are traveling at or below. Use of the 85<sup>th</sup> percentile speed is based on the theory that the large majority of drivers are reasonable and prudent, do not want to have a crash, and desire to reach their destination in the shortest time possible.*

**Collision History** on County road portions only:

According to collision records maintained by Skagit County, there has been one reported collision along Segments 1 & 2 of Rhodes Road in the previous 10 years of complete records from January 1, 2009 to December 31, 2018. This collision involved a local resident leaving her home on Heather Lane and running into a utility pole while using her cell phone. There were no injuries reported.

On February 2, 2019 there was an abandoned-vehicle non-injury collision report filed involving an unknown driver leaving the roadway and coming to rest near a driveway.

According to local residents, there was also an unreported non-injury crash in November of 2018 on Rhodes Road north of the 90-degree turn that involved a trailer coming unhitched from a pickup truck. The trailer rolled into landscaping along the west side of the road.



Photo of 2018 unreported collision

- **Online Community Survey Concerns**The main question of the aforementioned Online Rhodes Road Survey was: “What concerns, if any, do you have about Rhodes Road?” The top four answers of the 112 respondents that answered that question were: Lack of Shoulders – 35%
- Speed of Traffic – 29%
- Amount of Traffic – 19%
- Truck Traffic – 9%

Other questions included; Where do you live? What is your interest in Rhodes Road? How frequently do you drive Rhodes Road? What time of day are your concerns most prevalent? While these questions provide background as to the responders’ location and use of the roadway, the question about safety concerns is the most useful and informative for this Report.

## **Evaluation of Community Survey Results**

### **Concern 1 – Lack of Shoulders**

As stated above, Rhodes Road has a nominal shoulder width of 1 foot on either side of the road for its entire length. As the County portion of the roadway was recently reclassified by the State as an Urban Major Collector road from a Rural Local Access road, the current shoulder width is considered substandard and would have to be brought up to current standards should the road be rebuilt or reconstructed. Also, additional right of way would have to be acquired in Segment 2 to address shoulder issues or reconstruct the roadway to current standards.

Currently, there are no adequate shoulders for pedestrian use or for motor vehicle recovery in the event one would leave the roadway. Pedestrians are forced to use residents front lawns (albeit in the County right of way) when encountering vehicular traffic. In addition, a good portion of Segment 1 includes a drop slope along the south side giving pedestrians little room to escape.

### **Concern 2 – Speed of Traffic**

As can be seen above in the Traffic Study data, speeds have remained relatively stable over the past few years. There have been some slight increases and decreases from study to study but the 85% speeds have stayed mostly within a 2-mph range from before the Roundabout installation and after.

However, the 85% speeds are a bit higher than desired for a 25-mph facility. Industry expectations are that those speeds be 30-mph or less instead of the 30 to 35-mph of the past three years. Of course, there are also drivers who grossly disobey speed limits and those skew the numbers upward.

### **Concern 3 – Amount of Traffic**

Since 2016 the traffic volumes on Rhodes Road have risen by more than four times. Both the Roundabout at SR9 and the opening of Winnie Houser Park and Playfields have contributed to these increases, in addition to gps mapping applications such as Waze. While the 85% speeds and Truck Traffic percentages have remained fairly steady, the sheer numbers of trucks and speeding vehicles have risen dramatically.

Though the traffic levels have risen a great deal, the roadway still functions well with a Level of Service of “A” for both segments. A Highway Capacity analysis shows that both County segments of Rhodes Road would operate within levels acceptable to the County Comprehensive Plan standards until the traffic levels again increase by nearly 400% of current levels. Traffic would have to increase 6 times their current levels for the Level of Service to fall to Level of Service F – or complete congestion. It is apparent that this concern has greatly exacerbated the first two concerns.

### **Concern 4 – Truck Traffic**

As stated above, the Truck Traffic percentages have remained stable during this season of increased traffic – between 5-7%. However, the number of trucks has easily quadrupled from prior to 2016 adding to the consternation of those who live along and use the roadway. Given the lack of shoulders and pedestrian proximity to trucks passing by – these trucks can appear more threatening and their speeds faster than average vehicular traffic.

## **Enforcement**

Staff has worked with the Sheriff's Department on increased enforcement along Rhodes Road since the construction of the roundabout on SR 9 at Jameson Road / Rhodes Road. The Sheriff's Department provided the following information:

- Number of Traffic Stops - 504
- Number of Citations issued - 277

## **Conclusion**

Rhodes Road, #63200 is an urban major collector road receiving traffic from local access roads that is then funneled to major collector and arterial roads such as State Route 20 or State Route 9. As such, the roadway facility should provide safe unrestricted traffic flow.

The speed characteristics of the traffic stream in Segments 1 & 2 show that the 85<sup>th</sup> percentile speeds are higher than the current posted speed limit of 25 mph, at 29 mph to 35 mph.

Industry standards accept that a driver will travel at a speed they feel comfortable and safe, regardless of the posted speed limit. This is typically indicated by the 85<sup>th</sup> percentile speed. However, other factors must also be considered when setting speed zones within a road segment. In the case of Rhodes Road, it was determined that the road is in good condition, with narrow travel lanes and narrow shoulders. There is also an embankment adjacent to the majority of the road along segment #1, with no guardrail protection. In addition, there are numerous residential access points along the entire length of the roadway, with 4 intersecting roads.

The concerns expressed by residents and the results of the Online Community Survey are real and valid. The roadway has inadequate shoulders for its current classification and use. The roadway has seen a fourfold increase in traffic levels in the past three years including an accompanying increase in truck traffic.

While Segment 1 has 60 feet of right of way, Segment 2 has only 30 feet of right of way and would require additional right of way in order to bring the road to current standards. Skagit County and the adjacent City of Sedro-Woolley have no immediate plans or funding to reconstruct Rhodes Road to today's standards nor are we obligated to do so.



## Potential Solutions

### High Cost:

Reconstruction of the entire roadway to current urban standards – including sidewalks  
Construct a separated and paved multi-use path for pedestrians and bicyclists

### Low Cost:

Restrict Truck Traffic with signs leaving both SR9 and SR20 (in the city)  
Widen the north shoulder of Segment 1 (away from the drop slope) with gravel to improve pedestrian mobility and safety  
Install an edgeline on the entirety of the roadway to narrow the travelled lanes to 9 feet wide (except at the 90-degree curve) in an effort to slow traffic

Respondents to the Online Community Survey volunteered additional solutions including closing the east end of Rhodes Road at the Roundabout and installing speed bumps, etc. However, none of these solutions are consistent with the operation and classification of Rhodes Road and are not supported by Skagit County or the City of Sedro-Woolley.

## Recommendations

It is the recommendation of the County Engineer to implement all the Low Cost Solutions as described above.

- The city of Sedro-Woolley will install No Truck signage leaving SR9 and SR20 on the city portions of Rhodes Road. Commercial trucks should remain on the State Highway system except for deliveries to locals along Rhodes Road.
- County crews shall pull sod and extend the gravel shoulder along the north side of the Segment 1 providing there is adequate County right of way. This would provide safe access for pedestrians out of the travelled lanes and address the main community concern.
- County crews will install a white edgeline along both lanes of Rhodes Road reducing the lane width to 9 feet (minimum width according to County Striping Policy) to encourage lower speeds along the roadway.
- County crews will chip-seal and fog-seal the roadway. Improve the inside of the 90-degree curve with additional asphalt to improve mobility and safety through the curve.

Public Works, in coordination with the Sherriff's Department and the City of Sedro-Woolley, will continue to monitor the traffic and employ additional engineering and enforcement as needed. The County and City will consider adding long-term projects to our mutual Transportation Improvement Programs for long term improvements to this roadway to bring it up to Collector standards as well as improved non-motorized use.