PROPOSED BY: Public Works - Engineering
INTRODUCTION DATE: 11/22/2022

ORDINANCE NO. _____

INSTALLATION OF STOP SIGNS ON BAY ROAD AT THE INTERSECTION WITH VALLEY VIEW ROAD

WHEREAS, in compliance with RCW 36.32.120 and 46.61.200, it is found necessary and expedient to install traffic control signs on certain County Roads; and

WHEREAS, the County Engineer has determined that a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and

WHEREAS, the County Engineer has agreed that it is necessary to formally establish the new stop signs; and

NOW, THEREFORE, BE IT ORDAINED by the Whatcom County Council that stop signs be established for:

1) Westbound traffic on Bay Road at the intersection with Valley View Road in sections 34 and 35, Township 40 North, Range 1 East, W.M., and sections 2 and 3, Township 39 North, Range 1 East, W.M.

2) Eastbound traffic on Bay Road at the intersection with Valley View Road in sections 34 and 35, Township 40 North, Range 1 East, W.M., and sections 2 and 3, Township 39 North, Range 1 East, W.M.

BE IT FURTHER ORDAINED, by the Whatcom County Council that the following be added to the Whatcom County Code Section 10.16.1705:

Road Name	**Direction-Stopping**	**Cross Street**
Bay Road	Westbound	Valley View Rd
Bay Road	Eastbound	Valley View Rd

BE IT FURTHER ORDAINED, that the County Engineer is hereby directed to install the appropriate signs and the Whatcom County Sheriff and the Washington State Patrol be notified by a copy of this ordinance.

ADOPTED this _____ day of _____, 2022.

ATTEST:

WHATCOM COUNTY COUNCIL
WHATCOM COUNTY, WASHINGTON

_____
Dana Brown-Davis, Clerk of the Council

_____
Todd Donovan, Council Chair

APPROVED AS TO FORM:

WHATCOM COUNTY EXECUTIVE
WHATCOM COUNTY, WASHINGTON

Electronically Approved by C. Quinn/JJA 10-31-2022
Christopher Quinn,
Sr. Deputy Prosecuting Attorney,
Civil Division

_____
Satpal Singh Sidhu, County Executive

( ) Approved ( ) Denied

Date Signed: _____

WHATCOM COUNTY
PUBLIC WORKS DEPARTMENT

Jon Hutchings
Director

ENGINEERING SERVICES
JAMES P. KARCHER, P.E.
County Engineer
322 N Commercial St
Bellingham, WA 98225
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Bay Rd Intersection Traffic Study –Valley View Rd

10/11/2022

Vicinity Map

Bay Rd/Valley View Rd Intersection Map

Background and Roadway Information

Collision history, along with interest from concerned citizens of Whatcom County, are the basis for this study. This study will cover the intersection of Bay Rd (MP 4.25) and Valley View Rd (MP 1.01).

Bay Road is classified as a Rural Major Collector from MP 1.26 (SR-548/Blaine Rd) to MP 5.00 (intersection with Vista Dr and Bruce Rd). The road is a major east-west connector that connects the City of Ferndale, I-5 and Custer area to Birch Bay. The characteristics of Bay Rd within the study area are 11-foot BST (chipseal) lanes with 3-foot gravel shoulders.

Valley View Rd is classified as Rural Local Access, both south and north of Bay Rd. The road characteristics south of Bay Rd are 9-foot BST (chipseal) lanes with 4-foot gravel shoulders. The road characteristics north of Bay Rd are 9-foot BST (chipseal) lanes with 2-foot gravel shoulders.

Traffic Count Data

Traffic counts were conducted from June 17th to June 23rd, 2022 on all 4-legs of the intersection and are shown below. The counts consist of vehicle volumes, speeds, and percentage of truck traffic.

Average Daily Volume (ADT):

Bay Rd/Valley View Rd
261 ADT (North of intersection)
291 ADT (South of intersection)
2967 ADT (West of intersection)
3267 ADT (East of intersection)

Speeds:

Bay Rd/Valley View Rd

North of intersection	Average speed	39.7 MPH	85th percentile 46.6 mph (Speed Limit 35 mph)
South of intersection	Average speed	42.2 MPH	85th percentile 49.0 mph (Speed Limit 35 mph)
West of intersection	Average speed	51.3 MPH	85th percentile 56.5 mph (Speed Limit 50 mph)
East of intersection	Average speed	50.3 MPH	85th percentile 55.8 mph (Speed Limit 45 mph)

The 85th percentile speed is widely used by traffic engineers, along with other factors, to set speed limits. It quantifies the speed at which 85 percent of traffic is going at or below. The 85th percentile speeds on Bay Rd are high, but not surprising, given Bay Road is a major collector designed for a 50 MPH speed limits. The 85th percentile speeds on Valley View Rd are more concerning, and could be a factor in failure to stop at stop collisions, as this road was not designed for these speeds which is reflected by its 35 MPH speed limit.

Truck Traffic:

North of intersection	9.9%
South of intersection	8.7%
West of intersection	8.5%
East of intersection	8.9%

Collision History

A 5-year review of collisions that have been received from the Washington State Patrol from January 1, 2017 to September 30, 2022 shows the following collisions:

1. 1/21/2017 12:52 PM E634487 2 Vehicle, property damage only collision. Northbound vehicle failed to completely stop and proceeded north through the intersection, collided with westbound vehicle in a “T-bone” collision.

2. 4/22/2018 3:00 PM E791202 3 Vehicle, property damage only collision. Northbound vehicle failed to yield after stopping, collided with a westbound vehicle, pushing it into a southbound vehicle stopped at the stop sign.
3. 8/17/2018 9:32 PM E832498 Single vehicle, run off the road collision, property damage only. Eastbound vehicle attempted to turn south on Valley View Rd, was likely going too fast and slide off the roadway and hit an embankment. Driver fled the scene.
4. 9/10/2018 1:24 PM E837250 2 Vehicle, property damage only collision. Southbound vehicle failed to stop at stop, collided with eastbound vehicle in a "T-bone" collision and then fled the scene.
5. 6/11/2019 5:10 PM E937810 2 Vehicle collision, 3 minor injuries. Southbound vehicle failed to yield after stopping and proceeded south through the intersection, collided with westbound vehicle in a "T-bone" collision.
6. 12/3/2021 12:00 PM EB98745 2 Vehicle, property damage only collision. Northbound vehicle failed to yield after stopping and proceeded north through the intersection, collided with westbound vehicle in a "T-bone" collision.
7. 6/8/2022 5:35 PM EC54187 2 Vehicle collision, 1 possible injury. Eastbound vehicle failed to yield the right of way, turning left in front of a westbound vehicle, causing a near head-on collision.
8. 8/3/2022 4:51 PM EC71117 2 Vehicle collision, 1 minor injury. Southbound vehicle failed to yield after stopping and proceeded to turn east, colliding with a westbound vehicle in a right-angle collision.

Previous collision data from 2020 Traffic Study and 2021 update:

Collision at Intersections 2015-2019	
MP and Intersecting Road Name	MP4.25 Valley View Rd
Total Collisions	5
Injury Collisions	1
Property Damage Collisions	4
Collision at Intersections 2020-2021	
Total Collisions	0
Injury Collisions	0
Property Damage Collisions	0

Signs and Markings

Signs

Southbound Valley View Rd:
W3-1A Stop Ahead Sign – 30"x30"
R1-1 Stop Sign – 30"x30" with W4-4P Cross Traffic Does Not Stop Warning Plaque 24"x18" and Street Name signs for Valley View Rd 7300 Block and Bay Rd 3300 Block
R2-1 Speed Limit Sign: 35 MPH – 24"x30"
Northbound Valley View Rd:
W3-1A Stop Ahead Sign – 30"x30"
R1-1 Stop Sign – 30"x30" with W4-4P Cross Traffic Does Not Stop Warning Plaque 24"x18"
R2-1 Speed Limit Sign: 35 MPH – 24"x30"
Westbound Bay Rd:
W2-1 Crossroad Warning Sign – 30"x30" with W16-8 Advance Street Name Plaque: Valley View Rd – 36"x9"

W14-4 Impaired Sight Distance Warning Sign – 30”x30” with W13-1 Advisory Speed Plaque: 30 MPH – 18”x18”
R2-1 Speed Limit Sign: 50 MPH – 24”x30”
S3-1A School Bus Stop Ahead Sign 36”x36”
Eastbound Bay Rd:
W14-4 Impaired Sight Distance Warning Sign – 30”x30” with W13-1 Advisory Speed Plaque: 30 MPH – 18”x18”
W2-1 Crossroad Warning Sign – 30”x30” with W16-8 Advance Street Name Plaque: Valley View Rd – 36”x9”
R2-1 Speed Limit Sign: 45 MPH – 24”x30”

Markings
No pass markings painted for a minimum of 500 feet on all legs of the intersection for entering traffic

Sight Distance

The table below summarizes the operational intersection sight distance measured 10 feet from the traveled way, from an eye height of 3.5 feet to an object height of 3.5 feet. Deficient numbers are marked in **bold**.

Sight Distance Bay Rd/Valley View Rd Intersection			
Date	10/10/2022	Technician:	JJA/DEH
Operational Intersection Sight Distance Measured 10 ft from the traveled way			
Eye Height	3.5 ft	Object Height	3.5 ft
Direction of Travel (Valley View Rd)/ Direction Looking	Speed Limit (Bay Rd)	Measured Distance	Intersection Sight Distance
SB/East	WB 45 MPH	**345 ft**	500 ft
SB/West	EB 50 MPH	**439 ft**	555 ft
NB/East	WB 45 MPH	**337 ft**	500 ft
NB/West	EB 50 MPH	1189 ft	555 ft

Operationally, there is insufficient sight distance for the road users, after stopping, to see conflicting traffic at this location and they are unable to negotiate the intersection unless conflicting cross traffic is also required to stop.

Warrant Analysis for Multi-Way Stop at Bay Road and Valley View Road

A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
Traffic control signal justified: NO

B. Five or more reported crashed in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.
Collision warrant met: NO

C. Minimum Volume:
    1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and
    Criterion met: NO
    2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but
    Criterion met: NO
    3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.
    Criterion met: NO

Minimum Volume Warrant Met: NO

D. Where no single criterion is satisfied, but where Criteria B, C.1 and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.
    i. ***Criteria B met by 80%: NO***
    ii. ***Criteria C.1 met by 80%: NO***
    iii. ***Criteria C.2 met by 80%: NO***

80 Percent Warrant Met: NO

Option:

Other criteria that may be considered in an engineering study include:

A. The need to control left-turn conflicts
1 collision involved left-turning vehicles from the major road (Bay Road)

B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes
No conflicts between vehicles and pedestrians at this location

C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop
It is clear through engineering judgement, sight distance review and the 5-year collision history, that road users, after stopping, cannot see conflicting traffic at this location and are unable to negotiate the intersection unless conflicting cross traffic is also required to stop. This is supported by the fact that sufficient intersection sight distance was unable to be achieved at 10 feet from the traveled way and the posting of impaired sight distance warning signs with 30 MPH advisory speeds has not helped to solve the collision problem. 5 of the 8 collisions in the 5-Year collision history involved failure to yield after stopping or failure to yield the right-of-way. 2 collisions involved failure to stop at stop. 1 collision involved left turn movement but was likely caused by speed too fast for conditions or exceeding the posted speed limit.
Conflicting Traffic Warrant Met: YES

D. An intersection of two residential neighborhood collector (through) streets of similar design and operation characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.
Not applicable: Bay Road is a Rural Major Collector and Valley View Road is a Rural Local Access Road.

Conclusion

The conflicting traffic warrant for multi-way stop application was met at this location. Whatcom County Public Works will install an All-Way Stop, as an interim measure, until such time as ***Project R40 – corridor Intersection Alternatives Analysis*** is completed and the preferred alternative from that study is implemented. This study is scheduled for 2024 in the Whatcom County Six Year Transportation Improvement Program (2023-2028).