



STAFF REPORT TO COUNCIL

Council Meeting: APRIL 23, 2019
500 Matterson Drive, Ucluelet, BC V0R 3A0

FROM: WARREN CANNON, MANAGER OF PUBLIC WORKS

FILE NO: 5230-20

SUBJECT: SCHOOL ZONE SAFETY REVIEW

REPORT NO: 19-45

ATTACHMENT(S): PENINSULA ROAD TRAFFIC SAFETY STUDY – MCELHANNEY CONSULTING SERVICES

RECOMMENDATION(S):

1. **THAT** Council direct Staff to engage School District 70 (Alberni) to improve drop-off options on school property.
2. **THAT** Council direct Staff to purchase and install removable rubber speed humps in the school zone in time for the start of the 2019/2020 school year utilizing funds from the Gas Tax Reserve Fund estimated at \$20,000.

PURPOSE:

The purpose of this report is to provide Council with the findings of an engineering study regarding the road safety in the school zone area of Peninsula Road and provide background work completed by the District of Ucluelet within the school zone area.

BACKGROUND:

In 2014 a staff report was provided for Council with recommendations for improvements within this area. At the time staff was asked by Council to review traffic control and signage between the school zone area from Matterson Drive to Marine Drive along Peninsula Road.

As part of an initiative program at the time the Insurance Cooperation of British Columbia (ICBC) offered to undertake a comprehensive review of traffic signs and road markings within the District. The area of concern was reviewed in this report and recommendations given.

Two Joint Traffic Safety Working Sessions also took place. The sessions had representatives from Council, Staff, Parent Advisory Councils (PACs), RCMP, Ucluelet Elementary School (UES) and Ucluelet Secondary School (USS). The purpose of these meetings was to discuss the school zone area and collectively decide best options to address the issues of this area.

As a result of the meetings in 2014 District staff were asked to pursue:

- New gateway signage: Change existing signage from school zone signs to an increased size playground zone signs and position them on either side of the road at Matterson/Peninsula and Alder/ Peninsula forming a gateway in the area and change existing school zone signage on all the collector roads to playground zone signage. This will change the existing school

zone to playground zone reducing the amount of signs along Peninsula rd. and enforce 30km/h speed limits seven days a week from dawn to dusk.

- Remove crosswalk: the crosswalk adjacent to the Elementary School was identified as a risk as it directs pedestrians to cross the road where there is no walking path provided for them.
- Reader Boards: A reader board to be installed between the area from the high school entrance to the high school band room along peninsula rd.

Since the 2014 report District staff have completed the new gateway signs and signage improvements and Reader Board installation and brought them into operations. Council later decided to keep the crosswalk.

DISCUSSION:

Following receipt of letters from PAC and concerned parents, Council requested Staff investigate improved traffic safety solutions for the USS and UES school traffic zones. Staff contracted the services of McElhanney Consulting Services Ltd. to review the current status of safety measures implemented, options for additional safety measures, and the potential implications of implementing new measures (Attachment A).

The report provides both short- term and long- term options with the initial discussions and Council directive to focus on the possibility of the installation of speed bumps in an effort to reduce the number of speeding vehicles through the study area.

There are four short-term options and five long-term options proposed, including estimated costs:

Short-term:

- Permanent concrete raised cross-walk.
- Permanent asphalt speed humps.
- Removable rubber speed humps.
- Overhead pedestrian crossing signs with flashing lights.

Long-term:

- Reconfiguration of the elementary school parking lot, complete with a pick-up and drop-off zone.
- Reconfiguration of the elementary school parking lot, with pick-up and drop-off lane adjacent to Peninsula Road.
- Concrete sidewalk bulb-outs at intersections.
- Remodel of Peninsula Road to reduce the road width and increase the sidewalk/shoulder area. (design work budgeted for 2019).
- Roundabout.

The long-term recommendation by the consultant was to develop a concept plan to redesign Peninsula Road. This is currently budgeted for in the District's 2019 budget as part of a larger concept design for a large portion of Peninsula Road. Staff also consider the long-term option for reconfiguring the school property parking area an important discussion. The School District has reduced the available parking in the drop-off area which leaves no available designated parking for parents or visitors to the school. This is directly impacting the congestion in the area and increasing the number of drop-offs occurring on Peninsula Road.

The consultant's recommendation for the short-term is to install rubber speed humps at four locations along Peninsula Road. There are some potential concerns with adding speed humps highlighted in the report that must be noted:

- Increased potential for rear-end collisions.
- Potential for increased congestion that could increase traffic on Pine, Helen, and Victoria roads.

TIME REQUIREMENTS – STAFF & ELECTED OFFICIALS:

In further discussions with the consultant, it was identified that larger raised rubber speed humps as the best solution to improve safety related to speed.

The need to order new speed humps and communicating with the community on the proposed changes puts a preferred timeline at September 2019. It is preferred to allow for time to notify the community well in advance before implementing changes to traffic systems. It is also beneficial to time the change as part of the new school year messaging.

Staff will also consult the School District and RCMP for feedback on the report as they have a role to play.

FINANCIAL IMPACTS:

The consultant has estimated the cost for an individual speed hump to be \$2,500 per unit. Staff are requesting funds to implement up to four locations on both sides of road for a total cost of \$20,000.

The 2019-2024 Financial plan does not include any improvements within the school zone.

Gas Tax funds are an eligible option to fund the proposed improvements.

POLICY OR LEGISLATIVE IMPACTS:

There are no direct policy or legislative impacts with the options being recommended.

OPTIONS REVIEW:

1. **THAT** Council direct Staff to engage School District 70 (Alberni) to improve drop-off options on school property. **(Recommended)**
2. **THAT** Council direct Staff to purchase and install removable rubber speed humps in the school zone in time for the start of the 2019/2020 school year utilizing funds from the Gas Tax Reserve Fund estimated at \$20,000. **(Recommended)**
3. **THAT** Council provide alternative direction to staff.

Respectfully submitted: Warren Cannon, Manager of Public Works
Bruce Grieg, Manager of Planning
Mark Boysen, Chief Administrative Officer

April 18, 2019
Our File: 2711-19003-00

Appendix A

John Towgood
District of Ucluelet
200 Main Street
Ucluelet, BC V0R 3A0

Attention: John Towgood

Peninsula Road Traffic Safety Study

1. Study Purpose and Objective

The District of Ucluelet (District) is proposing to implement new traffic safety and road calming measures along Peninsula Road, between Matterson Drive and Alder Street, located within the municipality of Ucluelet.

McElhanney Ltd. (McElhanney) has been commissioned to prepare a road safety study for the proposed study area. The objectives of the road safety study are to examine the existing conditions of the road (traffic operations, geometry, crash history, etc.), review of traffic calming measures and propose short-term and long-term strategies to improve the safety of the users at the study location.

2. Introduction

2.1. Location

The study location is located within the District of Ucluelet, along Peninsula Road, which is the main road through the municipality. The study area is limited to the stretch of Peninsula road between Matterson Drive and Alder Street. The study area includes three intersections:

- Matterson Drive / Peninsula Road;
- Otter Street / Peninsula Road;
- Alder Street / Peninsula Road.

Figure 1 outlines the project location.



Figure 1: Study Area





2.2. Existing Roads

Peninsula Road

Peninsula Road is north-south road that extends from the junction with Highway 4 to its terminus at the southern end of the Ucluelet Peninsula where it intersects with Elina Road. Through the study location, Peninsula Road has a paved width of 6.5 meters (3.25 m lanes) with a gravel shoulder on the east side of the road and a mixture of gravel, grass and sidewalk shoulders on the west side of the road.

The posted speed along Peninsula Road is 50 km/h, however there are two schools located within the study area, an elementary school with a playground and a secondary school. The speed limit throughout the entire study area has been reduced to 30 km/h.

3. Background

3.1. Geometric Review

The study area of Peninsula Road is approximately 400 meters in length. A review of the geometry indicates that the road is straight, with no significant horizontal curves to obstruct sight lines. Throughout the study area, there is a vertical curve, with an elevation change of approximately 6 meters, with the high end beginning at Matterson Drive continuing to the low end near Alder Street. Upon review, the vertical curve does not impede sight lines for the road users.

Turning Sight Distance

Turning Sight Distance (TSD) for this review is a measure of how far down the road a vehicle stopped on an approach can see. This sight distance should allow enough time for the driver to see oncoming traffic, decide whether it's safe to enter the intersection, then proceed and accelerate to a speed that does not interfere with through traffic. Per guidance provided by the TAC *Geometric Design Guide*, TSD should be measured from the stopped driver's height of eye to the top of an approaching vehicle. Acknowledging the different design vehicles that will likely use the proposed development, TSD was measured for stopped vehicle driver eye heights of 1.05 m (car), and 2.1 m (truck) per guidance from the TAC *Geometric Design Guide*.

Though a driver turning left onto a roadway needs to gauge traffic approaching from both directions, vehicles approaching from the right require the greatest sight distance and are therefore used as the desired minimum sight distance for left-turn movements in this analysis. In contrast, vehicles turning right onto a roadway only need to gauge traffic approaching from the left. *Table 1* presents the desirable TSD for each intersection, alongside the measured TSD for appropriate design vehicles and description of any restrictions.

Sight lines were compared at the speed limit of 30 km/h as well as 50 km/h to ensure that they are adequate for those vehicles that have not yet reduced their speed through the study area.



Table 1: Turning Sight Distance for Vehicles Accessing Peninsula Road

Intersection	Vehicle	Speed (km/h)	Desired (m)		Measured (m)		Notes
			Left Turn	Right Turn	Left Turn	Right Turn	
Matterson Drive	Single Unit Truck/Bus	30	80	71	280	216	TSD meets requirements
		50	132	119	280	216	TSD meets requirements
Otter Street	Single Unit Truck/Bus	30	80	71	230	280	TSD meets requirements
		50	132	119	230	280	TSD meets requirements
Alder Street	Single Unit Truck/Bus	30	80	71	140	180	TSD meets requirements
		50	132	119	140	180	TSD meets requirements

3.2. Signage Review

Existing traffic signs and calming measures along Peninsula Road were reviewed via google maps and per conversations with John Towgood from the District of Ucluelet.

As there are two schools located within the study area, playground signs are installed along Peninsula Road. These signs indicate that the speed limit is 30 km/h at all times through the study area.

The other signs that were noted in the study area include typical white cross-walk signs, high-visibility school cross-walk signs,

Additionally, there are paint markings located on the pavement along Peninsula Road. The following is a list of paint markings found within the study zone:

- “30 km/h” speed limit paint markings;
- “Slow” paint markings;
- “X” cross-walk paint markings;
- White stop lines and rainbow painted cross-walks; and,
- “Stop” with stop line paint markings at intersections.

Upon review, all signs appear to be in good condition, however the some of the images analyzed are over 5 years old. The District should ensure that these signs are checked on a yearly basis and replace those showing signs of wear and damage.

The placement of the signs are appropriate and clearly identify the school, playground, cross-walks and stop locations. The addition of the paint markings helps drivers be aware of the surroundings. There are no noted issues with the sign locations or type of signs used.

3.3. Collision History

The Insurance Corporation of British Columbia (ICBC) keeps statistics on collisions throughout the province of BC. Collisions statistics and locations for the District of Ucluelet are available from 2013 to 2017 via ICBC’s website.

Upon review, there has been one collision from 2013 to 2017 located within the study zone, which occurred in 2015 and was located in front of the elementary school. The collision is listed as a casualty, meaning one of the parties involved was injured.



Due to the low posted speeds and adequate sight lines, it is reasonable to assume large volumes of vehicle-vehicle collisions will not occur within the study area.

3.4. Traffic Calming Review

The District has indicated that speeding is an issue within the study area, with vehicles regularly travelling around 60-70 km/h and some as high as 80 km/h. With two schools located in the study area, pedestrian crossing is a high priority safety concern, which is at a large risk with speeding. Currently, zebra striped paint marks out the crosswalks, as well as appropriate signage for the crossings. The District has installed a roadside speed reader at Otter Street and Alder Street in an effort to make drivers aware of their speed and have them drive the speed limit. Feedback received from the speed readers indicates that they have been semi-effective. Overall the vehicles have slowed down in the area, however the odd vehicle still speeds through the zone at 80 km/h.

Congestion has become problematic at the elementary school during pick-up and drop-off times. At one time, this activity could be done in the parking lot of the school, however the school has blocked this off and confined it to staff parking only. This leaves the only option for pick-up and drop-off along the gravel shoulders of the road lining either side of the street. School buses for the elementary school are designated to pick-up and drop-off on Peninsula Road, adjacent to the south parking lot. This provides other users limited space for pick-up and drop-off on the west side of the road. The east side of Peninsula Road has numerous driveways and alleys occupying spaces due to the residences lining this side of the road, providing even less space for parking.

With congestion and speeding factors during school hours, pedestrian safety is a high concern. There are no additional signs at the crosswalks or crossing guards before or after school hours to assist children crossing the street.

4. Traffic Safety Options

Ultimately there are a few separate issues along Peninsula Road, speed being one, parking and congestion another. Attempts to address the speeding issue have begun with the installation of speed readers, however the District would like to find additional ways to ensure speeding is limited.

The District has indicated that they would like to move forward with an initiative to increase safety within the study area. Initial internal discussions include the installation of speed humps in an effort to reduce the number of speeding vehicles through the study area. Prior to moving forward with this initiative, the District would like to look at other options, both short and long term to provide a safe experience for everyone utilizing the roadway within the study area.

4.1. Short-term Options

The District has already begun investigations on short term traffic calming measures for the area. The use of roadside speed-readers is a good starting point. Based on the existing infrastructure, additional options that can be implemented in the short-term include:

- Permanent concrete raised cross-walk;
- Permanent asphalt speed humps;
- Removable rubber speed humps;



- Overhead pedestrian crossing signs with flashing lights, and;
- Intelligent speed bumps.

Figure 2 through *Figure 6* illustrate the above-mentioned options.

Figure 2: Raised Concrete Crosswalk



Cars will be required to slow down at a raised crosswalk, allowing pedestrians to cross Peninsula Road in a safe manner. These would be a permanent fixture and lost if any upgrades or resurfacing was done to Peninsula Road.

Figure 3: Asphalt Speed Hump



Asphalt speed humps can be installed along Peninsula Road to prevent speeding through the study area. Ideally, these would be placed near crosswalks or intersections to protect pedestrians. These would be a permanent fixture and lost if any upgrades were done to the Peninsula Road.



Figure 4: Rubber Speed Hump



A rubber speed hump will work in the same manner as an asphalt speed hump, however these are bolted into the road surface. As such, maintenance is easier since they can be removed once they are worn out or damaged. They can also easily be removed and reinstalled if Peninsula Road needs to be resurfaced.

Figure 5: Overhead Pedestrian Crossing Signs



These signs will alert drivers when pedestrians are crossing the street. However, vehicles may still speed through the study area when the lights aren't flashing.

Intelligent Speed Bumps

Intelligent speed bumps are a relatively new technology which have been introduced in some European countries. These speed bumps have speed detectors that will trigger the speed bump in one of two ways:

- It will stay down for those that are driving the speed limit, or;
- It will raise up for those that are speeding to warn them to slow down.



In this way, those that are going the speed limit aren't forced to slow down further to go over the speed bump, while those speeding get a rough reminder to slow down. As this technology is relatively new, it is unknown if there have been any installed in North America and what the associated costs are. Thus, further they were not explored further within this report. Should the District wish to find more information on this technology, McElhanney can investigate further.

4.2. Short-term Option Considerations

Peninsula Road was analyzed to determine the ideal locations for installation of the short-term options. Speed humps or raised cross-walks could be installed at four different locations, typically near crosswalks. The District may elect to install speed humps at all four locations, or as few as two locations in an effort to curb speeding habits through the study area. Overhead cross-walk lights would be installed at the crosswalk locations; however, it could be limited to one single location at the elementary school where there is likely a higher volume of pedestrians crossing the street. *Figure 6* identifies ideal locations for each option.

It should be noted that while speed humps will likely curb speeding along Peninsula Road, they may also deter vehicles from utilizing Peninsula Road. Those vehicles that have a destination that can be reached via Pine Street, Helen Road or Marine Drive may start to utilize these roads instead to avoid using Peninsula Road. Those that have a destination that takes them through Ucluelet will likely still take Peninsula Road, as taking a side street will ultimately still be a longer detour than navigating speed humps on Peninsula Road.



Figure 6: Short-term Option Locations





4.3. Long-term Options

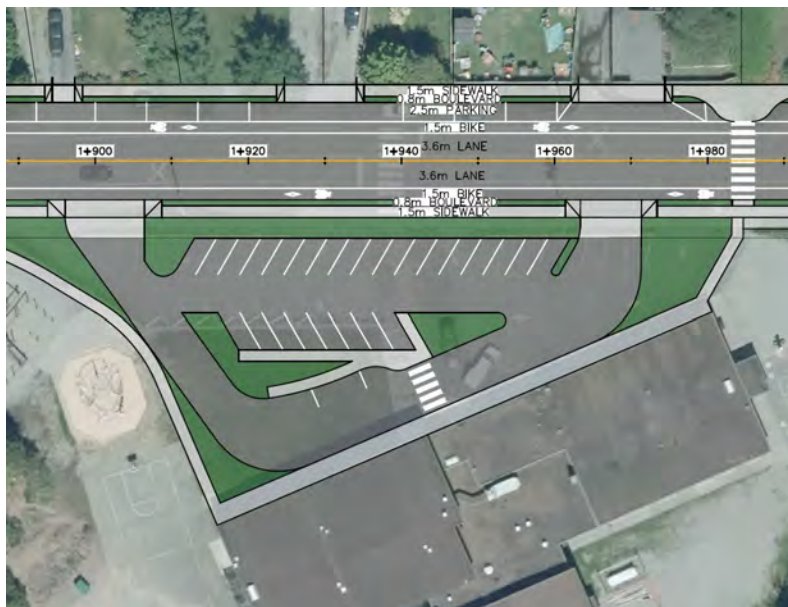
Parking and congestion in front of the elementary school is ultimately a school problem that has spilled onto the road owned by the District. Long term recommendations that have been explored, attempt to alleviate these problems, however they should be coordinated between the school district and the District of Ucluelet to come up with the best option for all stakeholders.

Long-term options that have been explored include those that would have a higher capital cost and require additional infrastructure in order to be implemented. These are options that the District can assess and propose into their future capital budget 5 – 10 years in the future. These options include the following:

- Reconfiguration of the elementary school parking lot, complete with a pick-up and drop-off zone;
- Reconfiguration of the elementary school parking lot, with pick-up and drop-off lane adjacent to Peninsula Road;
- Concrete sidewalk bulb-outs at intersections;
- Remodel of Peninsula Road to reduce the road width and increase the sidewalk/shoulder area;
- Roundabout

Figure 7 through Figure 11 illustrates the above-mentioned options.

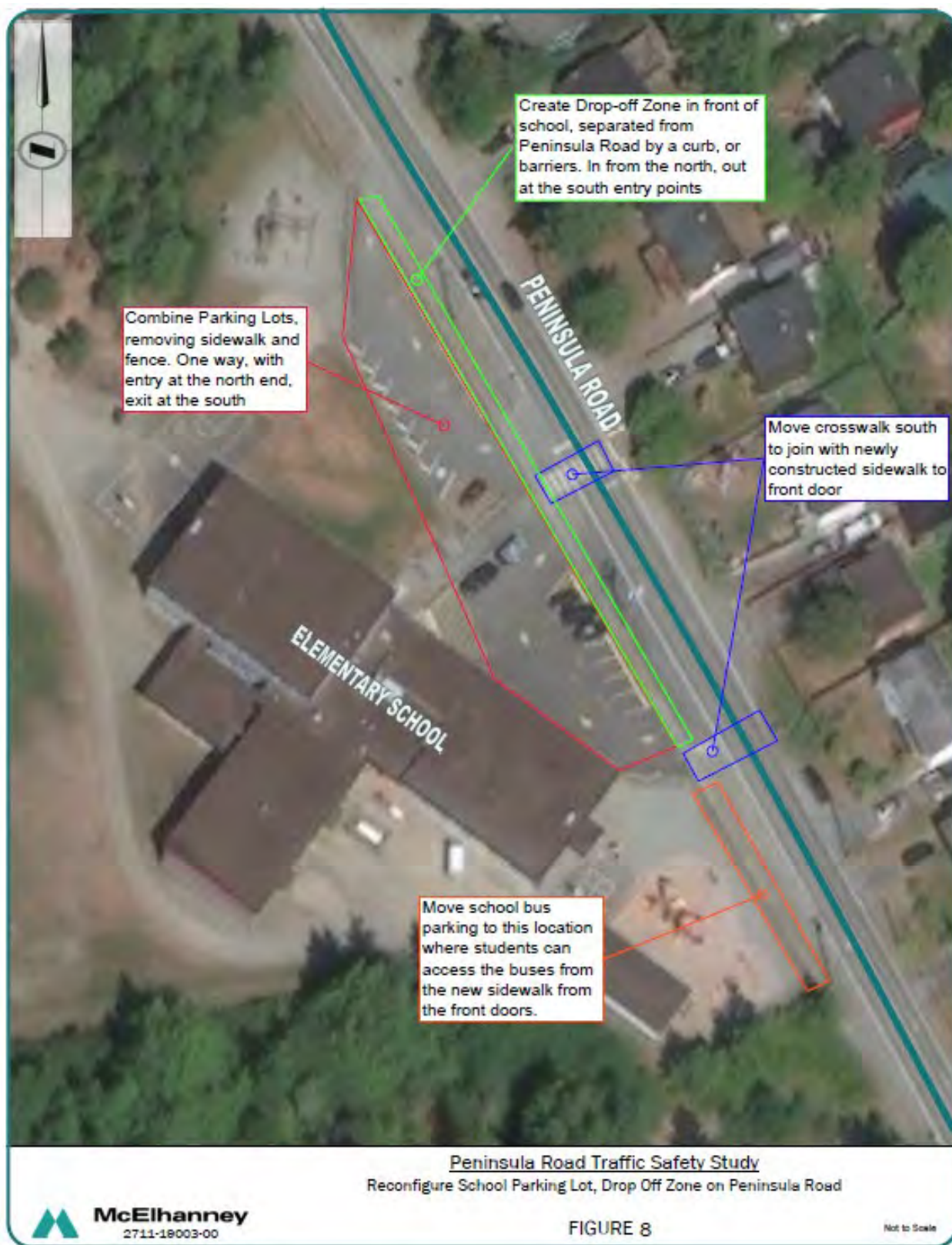
Figure 7: Reconfiguration of Elementary School Parking Lot, Drop Off Zone Located on School Property.



This option provides a drop off zone on school property, creating a safer drop point. Pedestrians won't be adjacent to Peninsula Road, removing potential contact points between vehicles and pedestrians. This option will need to be negotiated between the District and the School Board as it is outside of the District property.



Figure 8: Reconfiguration of Elementary School Parking Lot, Drop Off Zone Located on Peninsula Road.





This option reconfigures the parking lot as a drive through for staff of the school, combining the two parking lots, and allowing for one entrance and one exit. The road shoulder of Peninsula Road can be turned into two drop off zones. One zone will be designated for buses, while the other will be for parents dropping off students. A curb or barrier will separate the drop off zone from Peninsula Road, preventing multiple cars from leaving at the same time. This will allow for one point of entry and exit for the drop off lane.

Figure 9: Concrete Bulb-outs



Concrete bulb-outs provide narrower access along the driving lanes, encouraging drivers to slow down. While vehicles may slow down, it also causes conflicts with larger vehicles such as buses, when trying to make a turn around the bulbs.

Figure 10: Remodel of Peninsula Road



Remodeling Peninsula Road will allow for designated parking spaces, and a wider road width. Concept plans have been developed by McElhanney and presented to the District. This will include additional sidewalks, bike lanes and increased driving lanes. This design will not provide any additional safety measures but will



provide better access for active transportation along Peninsula Road. Incorporating this concept with others, such as overhead crossing signs, or raised crosswalks will increase the driver experience along this road.

Figure 11: Roundabout



Roundabouts will deter speeding through intersections as vehicles will be forced to slow down to navigate the roundabout. Roundabouts do require a larger footprint to install and may be too large to incorporate into the road ROW on Peninsula Road. Collisions increase at roundabouts as those drivers no familiar with them, may have difficulty navigating through the roundabout.

4.4. Costs

An important factor for each option is the capital cost involved with the construction or installation of the safety control. *Table 2* outlines the approximate costs for the short-term options while *Table 3* provides cost estimates for the long-term options.

. *Table 2: Cost Estimates for Short-Term Options*

Option	Unit	Quantity	Unit Price	Total
Concrete Raised Cross-walk	EA	4	\$8,000	\$32,000
Asphalt Speed Hump	EA	4	\$5,500	\$22,000
Rubber Speed Hump	EA	8	\$2,500	\$20,000
Overhead Pedestrian Crossing Signs (w/ Flashing Lights)	EA	3	\$35,000	\$105,000



Table 3: Cost Estimates for Long-Term Options

Option	Unit	Quantity	Unit Price	Total
Concrete Sidewalk Bulbs	LS	1	\$15,000	\$15,000
Reconfigure Elementary School Parking Pick-up, Drop-Off in Parking Lot	LS	1	\$255,000	\$255,000
Reconfigure Elementary School Parking Pick-up, Drop-Off on Peninsula Road	LS	1	\$242,000	\$242,000
Remodel Peninsula Road	LS	1	\$1,100,000	\$1,100,000
Roundabout	EA	3	\$725,000	\$2,175,000

4.5. Evaluation of Options

Due to the number of options and the variance in cost, each option was analyzed based on four factors: cost, safety, footprint impact and traffic performance. *Table 4* outlines the short-term options while *Table 5* provides the analysis on the long-term impacts.



Table 4: Evaluation of Short-term Options

Factor	Concrete Raised Crosswalk	Asphalt Speed Humps	Rubber Speed Hump	Pedestrian Cross-walk Signals
Cost	<ul style="list-style-type: none"> Medium Cost 	<ul style="list-style-type: none"> Low Cost 	<ul style="list-style-type: none"> Low Cost 	<ul style="list-style-type: none"> High Cost
	4	4	4	4
Safety	<ul style="list-style-type: none"> Will force drivers to slow down over the crosswalk table 	<ul style="list-style-type: none"> Will force drivers to slow down at the humps 	<ul style="list-style-type: none"> Will force drivers to slow down at the humps 	<ul style="list-style-type: none"> Will alert drivers of pedestrians crossing the road. Not guaranteed to slow vehicles down
	4	4	4	4
Footprint Impact	<ul style="list-style-type: none"> Does not require extra roadway space. Will require additional effort to remove if Peninsula Road is reconstructed. 	<ul style="list-style-type: none"> Does not require extra roadway space. Will require additional effort to remove if Peninsula Road is reconstructed. 	<ul style="list-style-type: none"> Does not require extra roadway space. Easy to remove if Peninsula Road is reconstructed. 	<ul style="list-style-type: none"> Does not require extra roadway space. Can be easily incorporated into Peninsula Road reconstruction if required.
	4	4	4	4
Traffic Performance	<ul style="list-style-type: none"> Will reduce speeds at crosswalks, possibly causing congestion at peak pick-up and drop-off times. May cause more re-end collisions from unaware drivers 	<ul style="list-style-type: none"> Will reduce speeds at crosswalks, possibly causing congestion at peak pick-up and drop-off times. May cause more re-end collisions from unaware drivers 	<ul style="list-style-type: none"> Will reduce speeds at crosswalks, possibly causing congestion at peak pick-up and drop-off times. May cause more re-end collisions from unaware drivers 	<ul style="list-style-type: none"> Will reduce speeds only when pedestrians are crossing.
	4	4	4	4

LEGEND

4 – Little or no impact

4 – Neutral

4 – High or significant impact



Table 5: Evaluation of Long-term Options

Factor	Concrete Sidewalk Bulbs	Reconfigure Parking Lot Pick-up/Drop Off in Parking Lot	Reconfigure Parking Lot Pick-up/Drop Off on Peninsula Rd	Remodel Peninsula Road	Roundabout
Cost	<ul style="list-style-type: none"> Low Cost <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Medium Cost <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Medium Cost <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> High Cost <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> High Cost <p style="text-align: center;">4</p>
Safety	<ul style="list-style-type: none"> Will reduce speeds at crosswalks and intersections. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Will prevent pick-ups and drop offs from occurring along Peninsula Road, providing safety for children. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Will provide a safe zone for pick-ups and drop offs for children to exit vehicles. Children are still adjacent to roadway. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Will provide extra parking for pick-ups and drop offs along Peninsula Road. Children are still adjacent to roadway. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Will reduce speeds at intersections. May cause additional read-end collisions from users unaware of roundabout configuration. <p style="text-align: center;">4</p>
Footprint Impact	<ul style="list-style-type: none"> No impact to existing intersections. May require additional infrastructure for sidewalk installation. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> No additional impact to existing ROW for Peninsula Road. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Requires additional space along the shoulder of Peninsula Road. The space is still located within the road ROW. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Requires additional space within the road ROW to install all feature outlined in the concept plan. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Requires additional space at each intersection to accommodate a roundabout. The additional space may be outside of the road ROW. <p style="text-align: center;">4</p>
Traffic Performance	<ul style="list-style-type: none"> May cause turning issues for larger vehicles such as buses. Vehicles should slow down, but congestion should not be an issue. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Will alleviate congestion on Peninsula Road with a dedicated pick-up and drop off zone on school property. Peninsula Road will be free flow. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Congestion will be limited to the entry and exit of the drop off zone along Peninsula Road. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> With designated parking spaces, congestion should be limited along Peninsula Road. Additional width to the lanes will allow for higher free flow speeds. <p style="text-align: center;">4</p>	<ul style="list-style-type: none"> Intersections will operate at acceptable level of service. Congestion will be limited along Peninsula Road. <p style="text-align: center;">4</p>



5. Conclusions & Recommendations

The purpose of this report was to provide a safety analysis of Peninsula Road between Matterson Drive and Alder Street. The conclusions and recommendations are summarized below:

- There has only been one collision in the last 5 years in front of the Elementary school;
- Current signage is appropriate, and signs are in good condition;
- Sight lines at all intersections located within the study area meet requirements.

Ultimately there are a few separate issues along Peninsula Road, speed being one, parking and congestion another. Attempts to address the speeding issue have begun with the installation of speed readers, however the District would like to find additional ways to ensure speeding is limited.

Parking and congestion in front of the elementary school is ultimately a school problem that has spilled onto the road owned by the District. Long term recommendations attempt to alleviate these problems, however they should be coordinated between the school district and the District of Ucluelet to come up with the best option for all stakeholders.

Short Term Recommendations

Four options were considered in the short term: raised concrete sidewalks, asphalt or rubber speed humps and overhead crossing signals. Based on the analysis, and with the goal in mind that the District is attempting to force drivers to slow to the 30 km/h speed limit, rubber speed humps are the best option for the short term. These are cost effective, can easily be maintained, and can be removed easily should further improvements be made to Peninsula Road. An overhead crossing should also be considered at the elementary school crosswalk to improve pedestrian safety for children crossing the street at this location.

It is recommended to install rubber speed humps at four locations along Peninsula Road: at Matterson Drive, Otter Street, Alder Street and the crosswalk at the elementary school.

Long Term Recommendations

It is unknown at this time if and when Peninsula Road will be improved via the concept plans McElhanney has presented to the District. This concept plan provides wider lanes, additional parking spaces and a connection for active transportation modes. This plan will revitalize Peninsula Road; however, safety will still be of concern regarding speeding through the study area. Should Peninsula Road be reconstructed, the rubber speed humps installed in the short term can be reinstalled to continue mitigating traffic speeds along Peninsula Road. Reinstalling the speed humps would mean that concrete bulb-outs are not necessary as both the speed humps and bulb-outs would be located at the intersections and attempting to achieve the same goal.

Regarding parking along Peninsula Road, the concept design with a drop-off zone located in the parking lot of the elementary school would be the best option. This option removes conflict points along Peninsula Road and will allow through traffic on Peninsula Road to operate with free flow.

It is recommended to move implement the concept plan for Peninsula Road that McElhanney has provided to Ucluelet for the long-term safety improvements. During detailed design, the District can



decide if they would like to continue with rubber speed humps, or upgrade to raised concrete crosswalks and pedestrian crossing signals.

6. Closing

This Report entitled “Peninsula Road Traffic Safety Study” was prepared by McElhanney Ltd. under the authorization of the District of Ucluelet. The plans, concept designs and recommendations put forward, reflect the Consultants’ best judgement with the available information. Any use of this information in a manner not intended, or with knowledge that situations have changed, shall not be the responsibility of McElhanney Consulting Services Ltd. or the undersigned.

McELHANNEY LTD.

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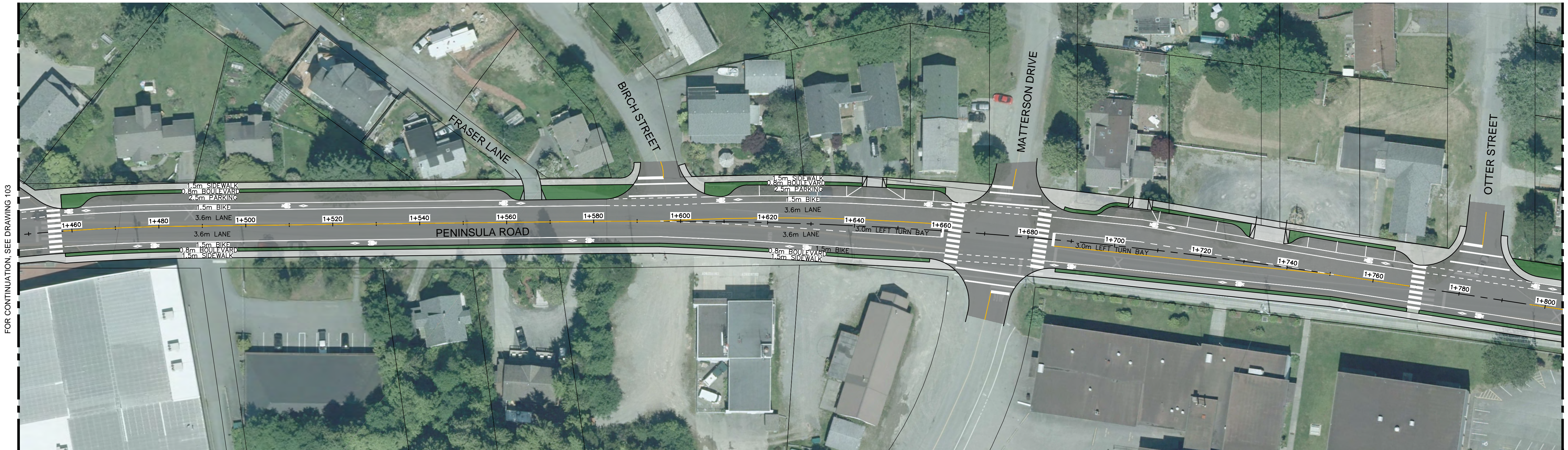
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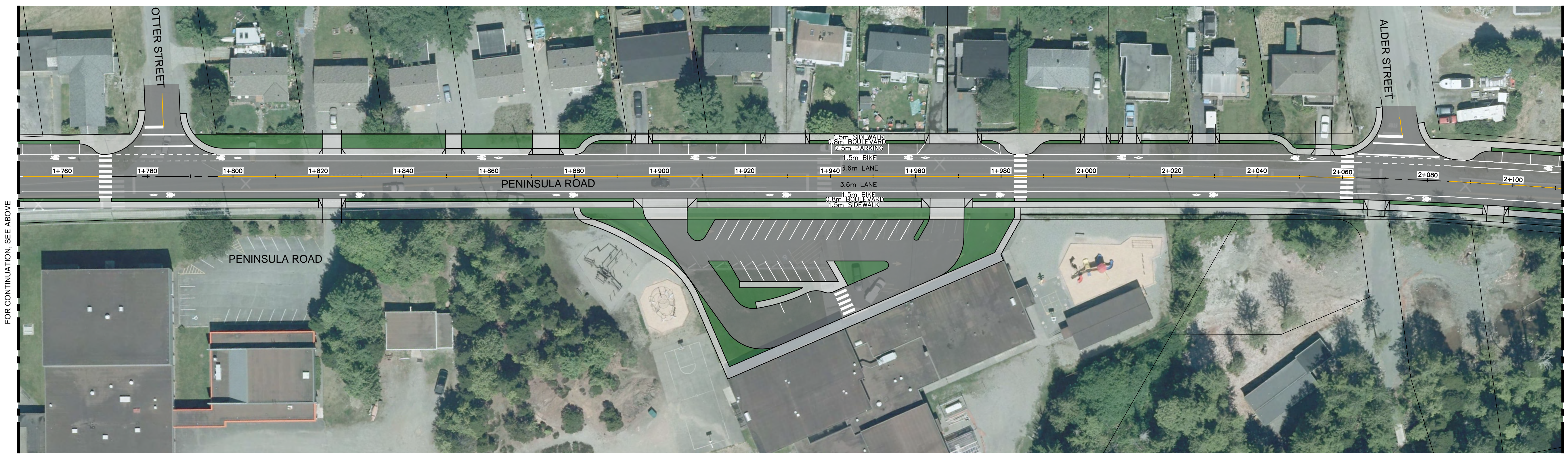
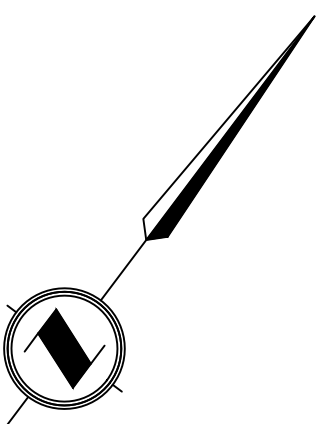


ATTACHMENT A – PENINSULA ROAD CONCEPT PLAN



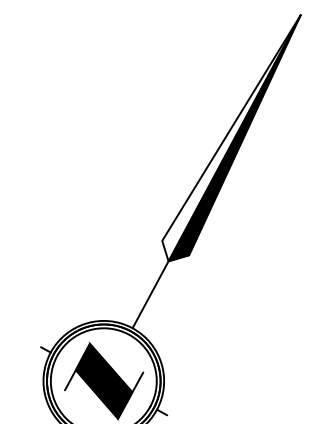
FOR CONTINUATION, SEE DRAWING 103

FOR CONTINUATION, SEE BELOW



FOR CONTINUATION, SEE ABOVE

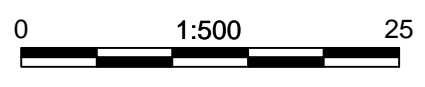
FOR CONTINUATION, SEE DRAWING 107



Rev	Date	Description	Drawn	Design	App'd
PD	19-04-05	ISSUED FOR REVIEW	KB	KB	CP
PC	18-12-20	ISSUED FOR REVIEW	KB	KB	CP
PB	18-11-13	ISSUED FOR REVIEW	SS	SS	ML
PA	18-09-25	ISSUED FOR REVIEW	KB	KB	ML

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ORIGINAL DWG SIZE: ANSI D (22" x 34")



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Approved Sealed

DISTRICT OF UCLUELET
200 MAIN STREET, UCLUELET, BC, V09 3A0
**CONCEPTUAL DESIGN
OF ROAD IMPROVEMENTS
PENINSULA ROAD
FRASER LANE TO ALDER STREET**

Drawing No.	
106	
Project Number	Rev.
2231-46300-01	PD