

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE
MEETING OF WEDNESDAY, SEPTEMBER 16, 2020**

SUBJECT Hartland Traffic Study – Follow Up

ISSUE SUMMARY

To report back on the cost analysis of a shorter passing lane on Willis Point Road, the impacts of changing the commercial vehicle access to Hartland Landfill in the near future, and current season traffic study results.

BACKGROUND

On July 15, 2020, the Environmental Services Committee (ESC) received the Bunt & Associates *Hartland Landfill Alternate Access Transportation Impact Analysis* and the Stantec *Opinion of Probable Cost* for the Willis Point Road truck passing lane for information. The ESC recommended to the Capital Regional District (CRD) Board that staff report back to the ESC on the following items:

1. the cost estimate of a shorter passing lane on Willis Point Road
2. operational reasons for relocating commercial vehicle road access to the landfill
3. additional consulting plan for the residents of Willis Point Road and Highlands; and
4. a current season traffic study as an update to the Bunt & Associates report.

On August 12, 2020, the CRD Board approved items 1,2, and 4 and tabled item 3 for consideration at its September 9 meeting.

In response to this direction, staff retained Stantec Consulting Ltd. (Stantec) to develop high-level cost estimates for a shorter passing lane on Willis Point Road and retained Bunt & Associates to evaluate the impacts for vehicle movement through the landfill site and compare to changing the commercial vehicle access to the Willis Point route, and also to conduct current seasonal traffic studies on Willis Point Road and Hartland Avenue.

ALTERNATIVES

Alternative 1

The Environmental Services Committee recommends to the Capital Regional District Board:

1. That the revised Stantec *Opinion of Probable Cost* for the Willis Point Road truck climbing lane options and the revised Bunt & Associates *Hartland Landfill Alternate Access Transportation Impact Analysis* be received for information; and
2. That these materials be incorporated into future public consultation for the draft Solid Waste Management Plan.

Alternative 2

That staff be directed to provide additional information.

IMPLICATIONS

Financial Implications

The Stantec report breaks down the previous cost estimate to determine an estimate for a shorter passing lane on Willis Point Road between Wallace Drive and the north access point to the landfill. There are two locations that can accommodate a passing lane at a lower cost per metre. The Opinion of Probable Cost can be found in Appendix A and the concept drawings can be found in Appendix B. The two locations are shown in Appendix C. Stantec's revised Opinion of Probable Cost for passing lane option 1 is \$1,524,922 and for option 2 is \$920,417.

Currently, the CRD pays approximately \$80,000 annually for snow removal service on Hartland Avenue and a similar cost for this service would be expected on Willis Point Road.

Operational Implications

Within the landfill footprint, the location of the active face (where waste is disposed) has been shifting progressively northwestward, within the existing property, for a number of decades. In 1985, when the CRD took over operations of the landfill, the location of the active face was in the southeast corner of the property, close to Hartland Avenue. The near future filling area is approximately 1.4 km northwest from this original filling location. As the active face moves within the property, vehicle access and onsite operations must also shift in order to maintain safe and efficient operations.

Figures 1 to 5 in Appendix D present the long-term conceptual filling plan for the landfill. The landfill will be developed in stages, called cells. Currently, active landfilling is occurring in Cell 3. A further three cells need to be developed over the course of the landfill life to 2048. The critical issue impacting traffic movement onsite is the elevation of Cell 3, versus that of Cells 4, 5 and 6. Cell 3 will reach a maximum elevation of 200 m, whereas the starting elevation of Cell 4 will be at 135 m. Commercial traffic will need to access this new filling elevation, which requires approaching the area from the north, as it is not possible to build an access road from the top of Cell 3 to the bottom of Cell 4 due to the 65 m (213 ft) elevation difference.

Traffic access, road infrastructure and the long-term filling plan must be planned cohesively to ensure safe and efficient operations. As the landfill is developed, if traffic does not approach from the north, the following safety and operational issues are created:

- safety concerns due to loaded trucks travelling excessively steep grades and sharp turns, increasing the probability for truck roll-overs and accidents
- no ability to create runaway lanes for trucks that lose breaking ability
- rebuilding of roadways to accommodate future blasting
- internal roads from the south will be buried in garbage and need to be rebuilt
- approaching from the south exposes traffic to higher risk activities and increases the potential for safety incidents on the site for patrons, contractors and landfill staff
- wide two-way, safe roadways are not possible to build from the south due to the location of other critical underground landfill gas and leachate infrastructure
- roadways from the south will have numerous areas that are out-of-sight and staff will not be able to monitor traffic as it moves through the site, leading to issues such as lost customers, U-turns, trespassing onto unsanctioned areas of the landfill and accidents
- access from the south would have to be partially constructed under the BC Hydro right of way and upgrades to this section may be limited based on the location of the BC Hydro infrastructure

By having traffic approach from the north, the following operational advantages are created:

- this route has the lowest grades, both internal and external to the landfill
- this route has the most appropriate turns and intersections
- this is the most direct route to the working face, which minimizes the potential interactions with the numerous on-site operational vehicles
- the main access route to the future cells will be maintained and won't be buried by garbage at any point in the future

Further to the operational and safety issues highlighted above, future relocation of the main entrance facilities at the north, in approximately 2040, would provide an opportunity to design a purpose built recycling facility at the north end of the site that would provide better access and customer service than the existing location. This relocation of the main entrance will remove all traffic from the south of the landfill, which would provide an opportunity to create a significantly enhanced gateway and user experience for mountain bikers and hikers accessing the trail network on Mount Work.

Transitioning the primary access to the north side of the landfill (Willis Point Road entrance) is critical for ensuring the safety of staff, contractors, and customers, the efficient movement of vehicles on-site, and for maximizing the lifespan of Hartland Landfill. Furthermore, if access is moved to Willis Point Road, the CRD will coordinate with the District of Saanich to reclassify Willis Point Road as a priority one service road (same designation as schools) for additional maintenance, snow removal and salting. Currently Hartland Avenue is cleared on a priority basis due to steep grades and heavy truck traffic accessing the landfill.

Social Implications

In addition to the onsite operational impacts of moving the access in the long-term, the offsite implications are addressed in the Bunt & Associates analysis in Appendix E. If commercial vehicle access is shifted to Willis Point Road, the average Willis Point Road driver could expect to see on average:

- 14 additional trucks per hour accessing the landfill between 7 am and 4 pm weekdays
- 5 additional trucks per hour accessing the landfill between 7 am and 2 pm Saturdays

Blasting contracts to create airspace at the landfill, as well as production of aggregate for use on site, have taken place for many years. The resulting rock has been stored on site until it is used in the landfilling process. In the next 3-4 years, a large amount of rock needs to be removed to create cells 4, 5 and 6. This large quantity, combined with the loss of the previous storage area to the Residuals Treatment Facility project, has presented a challenge to provide sufficient storage space on site. Staff have identified a new storage location within the Hartland site boundary that will provide sufficient storage for this large amount of rock. Planning to develop this location is underway and will involve clearing of up to 5 hectares of land within the next year. Completion of this new rock storage area in a timely manner will eliminate the need to remove surplus rock from the site and will provide the required aggregate for use in the landfilling process through to the year 2050.

As directed by the ESC, staff retained Bunt & Associates to complete a current season traffic study on Willis Point Road and Hartland Avenue. The hourly vehicle profiles for Willis Point Road and Hartland Avenue during summer 2020 show that the COVID-19 pandemic has significantly reduced the number of "travel to work and school" trips but has increased the number of recreational trips. The total number of vehicles using Hartland Avenue was 40% higher in

July 2020 compared to March 2019, primarily due to increased use mid-day, and 42% higher for Willis Point Road in July 2020 compared to April 2019. The Bunt & Associates analysis recommends that the overall impact of relocating the landfill's vehicle access be based on non-summer period counts, as this represents 10 out of the 12 months of the year and is consistent with transportation planning best practices. However, even with the higher volumes, Willis Point Road still has less than 75% of the vehicles of a typical rural collector road and is forecast to remain below capacity, even if all landfill access is relocated to Willis Point Road.

Figures 1 and 2 below illustrate the portion of summer traffic on Hartland Avenue and Willis Point Road on the peak summer Saturday during COVID-19 for three scenarios:

- Scenario 1: all traffic uses Hartland Avenue
- Scenario 2: commercial traffic uses Willis Point and residential traffic uses Hartland Avenue
- Scenario 3: all traffic uses Willis Point

It is clear from the data that Hartland Avenue is currently over capacity and that Willis Point remains well below capacity under all scenarios, including the potential addition of periodic trucking for surplus rock removal.

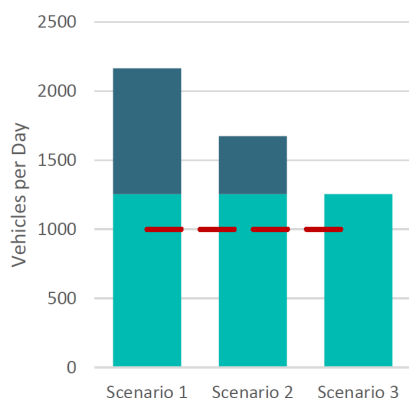


Figure 1 – Hartland Avenue summer 2020 traffic

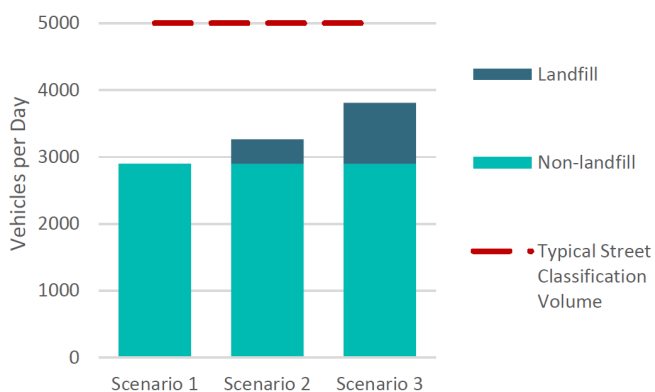


Figure 2 – Willis Point Road summer 2020 traffic

With regards to a potential passing lane on Willis Point Road, based on engineering design guidelines, 2017, 2019 and summer 2020 traffic studies, and concerns around speeding and safety, the revised Bunt & Associates traffic study maintains that a passing lane of any length is not recommended. The District of Saanich, the approving jurisdiction for roadway changes along Willis Point Road, concurs with this recommendation. There is a direct relationship between the width of a street and the speed in which drivers choose to travel. Adding a passing lane on Willis Point Road is anticipated to further increase vehicle speeds where the average speed is already above the speed limit. It is noted that, at this location, over 75% of westbound (uphill) vehicles were observed exceeding the 60 km/h speed limit during the summer traffic study.

With regards to travel time impacts, the Option 1 passing lane would allow westbound through vehicles to pass the landfill 15 seconds quicker. Option 2 allows landfill bound vehicles to exit the westbound lane on Willis Point Road 450 m sooner compared to the existing left-turn lane and would reduce travel times of westbound through vehicles by up to 4 seconds.

Environmental & Climate Implications

Previous vehicle emissions analysis presented at the July 15 Environmental Services Committee meeting did not include emissions associated with vehicle travel within the landfill property. The

revised analysis includes these emissions, and results from modelling indicate that the Willis Point Road access scenarios have marginally lower greenhouse gas emissions (3-5% lower). The difference in emissions was estimated using the SimTraffic traffic analysis model, which considers vehicle volume, speed, driving distances and street grades. The reduction in greenhouse gas emissions is primarily created by commercial vehicles being able to access the landfill's active face using flatter higher speed roads (Wallace Drive and Willis Point Road) compared to steeper lower speed roads (Hartland Avenue and internal landfill roads).

CONCLUSION

In response to the Environmental Services Committee's direction at its July 15 meeting, staff engaged with two engineering firms to obtain cost estimates for shorter passing lane options on Willis Point Road, review the operational impacts of relocating road access to Hartland Landfill longer term, and conduct a current season traffic study. The results from the revised analysis, using both the latest traffic data and pre-COVID-19 data, found that a passing lane is not warranted, would increase speeding, and would cost \$920,417 to \$1,524,922, depending on the option selected. Moving the access to the landfill to the north enables staff, contractors and customers to access the landfill using the safest, and shortest internal route and ensures that operations can continue to follow the long-term filling plan, which maximizes the lifespan of Hartland Landfill. All of this information is recommended to be incorporated into the next stage of public consultation of the draft Solid Waste Management Plan.

RECOMMENDATION

The Environmental Services Committee recommends to the Capital Regional District Board:

1. That the revised Stantec *Opinion of Probable Cost* for the Willis Point Road truck climbing lane options and the revised Bunt & Associates *Hartland Landfill Alternate Access Transportation Impact Analysis* be received for information; and
2. That these materials be incorporated into future public consultation for the draft Solid Waste Management Plan.

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ATTACHMENTS

Appendix A: Willis Point Road Truck Passing Lane Options 1 and 2 Class C – Opinion of Probable Cost (Stantec)
Appendix B: Willis Point Road Truck Climbing Lane Concept Drawings (Stantec)
Appendix C: Willis Point Road Truck Climbing Lane Options 1 and 2 Location Map
Appendix D: Hartland Long-term Conceptual Filling Plan
Appendix E: Hartland Landfill Alternate Access Transportation Impact Analysis (Bunt & Associates)