

MEMO

DATE: February 24, 2021
PROJECT NO: 04-20-0448
PROJECT: **Gower Point Road Traffic Calming**
SUBJECT: **Traffic Calming Options - DRAFT**

TO: Mr. Ji Yan
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SUMMARY

- As part of the Gospel Rock Village development project, Bunt & Associates identified traffic calming measures for Gower Point Road with the objectives of reducing vehicle speeds (to 30 km/h) and improving the comfort of westbound cyclists.
- Appropriate traffic calming measures include installing centre line rumble strips, creating a short single-lane road segment, considering alternative barrier designs, a textured road surface, and placing a curb on the north edge of the street.
- Multiple traffic calming measures can be considered for increased effectiveness.
- Creating an on-street westbound bicycle lane is not feasible due to road widening constraints.

1. INTRODUCTION

Bunt & Associates Engineering Ltd. (Bunt) was retained by Greenlane Homes Ltd. to identify context-appropriate traffic calming measures on Gower Point Road in the Town of Gibsons (Town). Gower Point Road will be upgraded from STA 0+185 to 0+675 as part of the adjacent Gospel Rock Village development project. This memo outlines the street's existing conditions, the currently proposed design, the Town's design goals, and potential traffic calming options.

2. EXISTING CONDITIONS

Figure 1 illustrates the segment of Gower Point Road under evaluation. Gower Point Road connects Gibsons Landing (to the east) and Elphinstone (to the west). The western extent of the study segment is the boundary between the Town and the Sechelt Regional District. The street alignment is governed by its location near the coast with steep slopes down to the water. The resulting road

profile features multiple horizontal curves and a rolling vertical profile. The topography causes road widening to be constrained due to practical limitations and environmental impact.



Figure 1: Gospel Rock Village Site Plan

Gower Point Road currently has a 40 km/h advisory speed limit. Vehicles were observed typically travelling at speeds of 40 to 50 km/h. Some vehicles were able to maintain their speed through the horizontal curves by crossing over the centre line.

The existing paved width is typically 6.0 to 6.4 m which provides two travel lanes. No space is currently designated to accommodate active transportation; however, a dirt walking path has developed on the south side due to frequent use. No street lighting exists on the road segment being evaluated.

A previous study from 2012 indicated that the peak hour vehicle volume on this segment of Gower Point Road was 150 vehicles per hour which would translate to a daily volume of approximately 1,500 vehicles per day. The data collection period included a ferry arrival and departure from the Langdale Ferry Terminal just north of Gibsons.

ICBC reports that this road segment had one collision for the most recent five-year period (2015 - 2019). The collision only caused property damage (no injuries) and no additional information was available.

3. BASE DESIGN

Webster Engineering prepared the base design for Gower Point Road which includes a two-lane cross-section with a multi-use path (MUP) on the south side. **Table 1** outlines the typical cross-sections dimensions from north to south.

Table 1: Typical Cross-section Dimensions

ELEMENT	STA 0+100 TO 0+300	STA 0+300 TO 0+500	STAT 0+500 TO 0+535	STA 0+535 TO 0+815
Gravel Shoulder	0.5 m	0.5 m	0.5 m	0.75 m
Paved Roadway (two travel lanes)	6 m	6 m	6 m	6.4 m
Travel lane / Multi-use Path Divider	0.6 m concrete barrier	0.6 m concrete barrier	0.6 m concrete barrier	0.15 m curb
Multi-use Path	3.0 m paved surface	3.0 m wooden boardwalk	3.0 m paved surface	3.0 m paved surface
	(1)			

Notes: 1 - MUP from STA 0+100 to 0+180 to be constructed by others.

The MUP would consist of a 200 m long elevated wooden boardwalk in the middle due to a significant elevation drop towards the water. The MUP will be 3 m wide and is planned to accommodate eastbound cycling and walking in both directions. Although this width could accommodate two-way cycling (and walking), the Town prefers allowing only eastbound cycling on the path to reduce conflicts on the path and at the path’s access points. Consequently, westbound cyclists would be required to share the road with vehicles.

Crosswalks/bikes are planned near the eastern and western termini of the MUP, connecting to off-street trails north of Gower Point Road.

4. DESIGN OBJECTIVES

Based on input from Town staff, modifications to the base design are desired to reduce vehicle speeds to 30 km/h and provide additional comfort for westbound cyclists.

5. TRAFFIC CALMING OPTIONS

Considering the design objectives and street context, Bunt identified the following traffic calming measures. These options can either be pursued independently or combined for a more significant impact.

5.1 Centre Line Rumble Strips

Description: Rumble strips provide an audible and tactile warning to drivers that they are leaving their lane. They are created by cutting grooves into paved roadways, either on the centre line or edge line. Rumble strips are typically used as a safety measure to reduce head-on-collisions (centre line rumble strips) and run-off-road collisions (edge line rumble strips). For this study, only centre line rumble strips are suggested as edge line rumble strips would be uncomfortable for people cycling on the edge of the road.

Impact: While not typically implemented to do so, rumble strips are anticipated to reduce vehicle speeds by encouraging drivers to stay within their travel lane. By causing unpleasant feedback, drivers will be encouraged to drive at a speed whereby they can navigate through the horizontal curves within the 3 m width provided. Rumble strips would also reduce the risk of collisions caused by vehicles leaving their lane.

Considerations:

- Rumble strips create noise to people nearby. Mumble strips could also be considered as they produce less exterior noise by having a different pattern cut into the pavement.
- They could either be placed along the entire street segment or only on horizontal curves where drivers are most likely to leave their lane (e.g., around STA 0+250, 0+440, and 0+600). The noise produced by rumble strips along the curve at STA 0+600 could impact the adjacent residential properties.

5.2 Single-lane Segment

Description: A short single-lane road segment could be implemented which would require drivers in opposing directions to yield to each other and thus slow down. **Figure 2** illustrates an example of this arrangement that was implemented on Prospect Lake Road, a two-lane rural collector road in

Saanich, BC. The road has a 50 km/h speed limit, which reduces to 30 km/h around this 70 m long single-lane segment.



Figure 2a: Temporary Single-lane Road Segment (Prospect Lake Road – Saanich, BC)



Figure 2b: Permanent Single-lane Road Segment (Prospect Lake Road – Saanich, BC)

Impact: A short single-lane yield segment is anticipated to have a noticeable impact on vehicle speeds and be the most impactful traffic calming measure considered in this study.

Considerations:

- The preferred placement of a one-way yield segment would be around STA 0+350 which is not impacted by road curvature or driveways.
- Highly reflective signs and pavement markings would be required.
- Consideration could be given to accommodating westbound cyclists between the north edge line and the road edge.

5.3 Alternate Barrier Design

Description: The proposed design utilizes a standard precast concrete barrier to separate the eastbound travel lane from the MUP between STA 0+100 to 0+500. While this is a typical road construction material, it results in a “highway” driving atmosphere. Alternative barrier designs could be considered which have a more delicate design while still separating eastbound vehicles from the MUP. Potential alternate designs include:

- Modified precast concrete barrier (see **Figure 3**).
- Safety fence (approximately 300 mm wide including curb), (see **Figure 4**).
- MMCD 3 Rail Barrier (or similar) which is currently proposed on the south side of the MUP.
- Curb only (no barrier) as currently proposed from STA 0+540 to 0+815.



Figure 3: Patterned Precast Concrete Barrier – Burrard Street Bridge (Vancouver, BC)



Figure 4: Safety Fence – Stanley Park Causeway (Vancouver, BC)

Impact: The separating device is anticipated to primarily impact the speed of eastbound drivers as they will be adjacent to it. However, westbound drivers could also be impacted if they feel that MUP users are sharing the street with them instead of being separated by a tall concrete barrier. A typical precast concrete barrier may also deter from the otherwise scenic environment.

Considerations:

- A variety of different design treatments are available including, but limited, to those presented above.
- The currently proposed precast concrete barrier is 690 mm wide. If a narrower treatment is desired, the unused width could be reallocated (such as widening the MUP).
- The two examples provided (Burrard Street Bridge and the Stanley Park Causeway) both have vehicles travelling around 50 km/h (or higher). Gower Point Road's desired 30 km/h design speed may not warrant as significant of a barrier between vehicles and path users.

5.4 Textured Road Surface

Description: Textured surfaces contrast typical asphalt pavements. Textured surfaces include stamped asphalt, brushed concrete, or pavers. They can improve aesthetics and the character of the street while signaling to drivers that there is a change in context, encouraging lower driving speeds.

Impact: A textured road surface is anticipated to have a modest effect of reducing vehicle speeds. However, it can be combined with other traffic calming measures for a more substantial effect.

Considerations:

- A textured surface could be implemented on either the entire road segment or at select locations (e.g. around crosswalks).

- Textured surfaces can require more maintenance than typical asphalt surfaces..

5.5 North Side Curb

Description: The proposed design includes a 0.5 m gravel shoulder on the north side of the road. A curb could be constructed on the north side of the road to have a narrowing visual effect on westbound drivers. The travel width would remain the same (3 m), however, the lane edge would appear more prominent.

Impact: Placing a curb on the north side of the road is anticipated to have a modest effect of reducing westbound vehicle speeds while having minimal impact on eastbound vehicle speeds.

Considerations:

- The curb would need to be designed to accommodate stormwater flow into the adjacent ditch.
- The limited anticipated impact on vehicle speed may not warrant the construction costs.

5.6 Not Appropriate/Feasible Traffic Calming Measures

Additional traffic calming measures which were initially considered but considered not appropriate or feasible include:

Reducing lane widths: The lane widths cannot feasibly be narrowed below the proposed 3 m while still accommodating the anticipated vehicle types.

Centre median: There is insufficient available road width.

Vertical traffic calming measures: Vertical traffic calming measures (e.g., speed bumps, raised crosswalks) are generally not preferred by the Town's Fire Department.

Converting to Gower Point Road to One-way: Converting Gower Point Road to only allow vehicle travel in one direction would create ample space to add a westbound cycling facility. Some of the previously described traffic calming measures would need to be incorporated since one-way streets can cause higher vehicle speeds due to less friction with opposing traffic. This change in street configuration would alter travel patterns and may disconnect the communities on either side. The evaluation of these impacts is outside the scope of this study and would require additional consultation if it were to be considered.

Widening the road to accommodate a bicycle lane: While widening the road to accommodate a westbound bicycle lane would be beneficial, it was assumed that widening the road beyond the proposed width was not practical due to constructability and environmental constraints.

Pavement markings and signs: Pavement markings and signs are anticipated to complement the chosen traffic calming measures.