

# APPENDIX A



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## MEMORANDUM

**To:** Dana Graves – City of West Kelowna  
**Copy:** Allen Fillion – City of West Kelowna  
Rob Hillis – City of West Kelowna  
Stephen Sargeant – Watt Consulting Group  
**From:** Tom Baumgartner, M.Sc., P.Eng.  
**Our File #:** 2638.B01  
**Project:** Casa Loma  
**Date:** June 6, 2019  
**RE:** Traffic Calming Review

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Watt Consulting Group was retained by the City of West Kelowna to assess collected traffic volume and speed counts for traffic calming warrants on Campbell Road. The City received a petition from 36 homes along Campbell Road meeting the Traffic Calming Policy requirements to investigate further.

The following provides a review of the 2015 *Casa Loma Neighbourhood Traffic Calming Study* by ISL Engineering and Land Services, review of data collected from April 11-23, 2019, and recommendations on proceeding in consideration of collected data, the City's Traffic Calming Policy, and current practices.

### 1.0 ROADWAY CONTEXT

Campbell Road is classified as a minor collector and serves as the only vehicular access to the Casa Loma Neighbourhood (connecting via Highway 97). The first 870 metres (approx.) of Campbell Road from Highway 97 passes through the Westbank First Nation I.R. No.10. This is largely a rural cross-section with limited access and property frontages. Once in West Kelowna, this largely continues with predominantly low density residential and setback property frontages for another ~820 metres. The neighbourhood then transitions to more fronting residential at Casa Rio Drive / Casa Grande Drive where properties on the west side are setback and have no fronting access for another 230 metres (approx.). The long and largely uninterrupted distances a major route contributes to higher speeds. Campbell Road has limited lighting, no fronting pedestrian facilities, and limited shoulder space for vulnerable road users. As the only access to the neighbourhood, Campbell Road is critical to emergency response and care must be taken that traffic calming devices are not unacceptably detrimental to essential services.

## 2.0 BACKGROUND

The 2015 *Casa Loma Neighbourhood Traffic Calming Study* by ISL Engineering and Land Services recommended a phased approach to traffic calming. Phase 1, which has been implemented, included the installation of:

- 50km/h regulatory speed signage and radar speed signage; and
- Painted centre lines and stop bars to neighbourhood street intersections.

**Figure 1** shows the existing radar speed sign on Campbell Road for southbound traffic in advance of the Casa Rio Drive / Casa Grande Drive intersection. Note the straight sightline to the crest of the roadway with an apparent uninterrupted frontage on the west side of the road.



**Figure 1: Existing Radar Speed Sign (Southbound Campbell Rd)**

The ISL Study recommended that if speeds remained above 10km/h then additional phases should be sought out. Additional recommendations for future phases included a speed hump gateway entry or a median island gateway feature. The speed hump gateway feature had more support from residents than the median.



**Figure 2: ISL Proposed Gateway Treatments with Speed Hump (Left) and Median (Right)**

Source: 2015 *Casa Loma Neighbourhood Traffic Calming Study* by ISL Engineering and Land Services

### 3.0 DATA COLLECTION

The City of West Kelowna collected traffic volume and speed data on Campbell Road at the locations shown in **Figure 3** on April 11-23, 2019. A summary of the collected data is provided in **Table 1**. The counter installed on the north end of Campbell Road measured an operating (85<sup>th</sup> percentile) speed of 62 kilometres per hour. This exceeds the “10 kilometre-per-hour speed in excess of the posted speed” threshold from the Traffic Calming Policy. The southern counter on Campbell Road had an operating speed of 55 kilometres per hour, which does not meet the threshold. Therefore, the north end of Campbell Road is warranted for traffic calming.



Figure 3: Traffic Counter Locations

Table 1: Summary of April 11-23, 2019 Traffic Speed Statistics

	Posted Speed Limit	Mean Speed	85 <sup>th</sup> Percentile Speed
Campbell Rd North	50 km/h	53 km/h	62 km/h
Campbell Rd South	50 km/h	47 km/h	55 km/h

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## 4.0 TRAFFIC CALMING DEVICES

Traffic calming devices should be implemented with care as they can create other unintended consequences. Forced reductions to vehicle speeds on neighbourhood roads with no alternate routes will have impacts to emergency services and response times.

The 2015 ISL report recommended implementing gateway feature and assessed two alternatives. Gateway features are a combination of traffic calming devices used to indicate a change in roadway operation due to changes in adjacent land use and access density. One alternative (which had more public support in the 2015 study results) was a speed hump with a raised curb treatment and the other was a raised median treatment.

### 4.1 Speed Hump Gateway Treatment

The speed hump gateway treatment recommended by ISL (**Figure 2**) features one speed hump with two small curbs on either side to restrict vehicles circumnavigating the speed hump. To get reduced speeds, a series of speed humps should be installed. This would typically be three at a spacing of 100-150 metres each. It is noted that the road grade south of the Casa Rio Drive / Casa Grande Drive intersection is in the order of 10% and is too steep for vertical deflection measures such as speed humps. Therefore, if speed humps were to be used, they would have to be placed on Campbell Road in advance of the Casa Rio Drive / Casa Grande Drive intersection. Speed humps are the most effective means of slowing traffic but have some of the most major impacts to emergency service response times.

### 4.2 Median Gateway Treatment

Median treatments are intended to slow traffic by causing horizontal deflection, forcing vehicles to change their path. It is noted that the proposed rendering/design (**Figure 2**) has a small sized island and may result in limited effectiveness. Incorporating a larger median island with trees to provide larger vertical elements are favourable as they enhance traffic calming devices. As driver speeds increase their field of vision narrows. Vertical elements such as street trees (**Figure 4**) can influence driver behaviours by interrupting long straight sight lines with the use of visual framing (i.e. obscuring the horizon, but not the imminent area). This would break up the visually apparent limited activity on Campbell Road associated with limited driveway access on the west side of the road affecting southbound traffic. It is recommended that if this gateway option is pursued, it is enhanced with a larger treed median and 50km/h pavement markings (**Figure 4**) as the City has implemented on Elliott Road and Reece Road.



Figure 4: Landscaped Median (Left) and 50km/h Pavement Marking (Right)

The raised median should be at least 2.0 metres wide and 7.0 metres long with a minimum lane width of 3.3m (no more than 3.5m) wide plus shoulder widening. The cost for the landscaped median gateway including 50km/h pavement marking is estimated at \$50,000.

## 5.0 IMPLEMENTATION CONSIDERATIONS

**Table 2** provides a summary of the advantages and disadvantages of the speed hump and median gateway treatments.

Table 2: Comparison of Speed Hump and Median Gateway Treatments

Treatment	Advantages	Disadvantages
Speed Hump Gateway	<ul style="list-style-type: none"> <li>Forces vehicles to slow down with raised deflection.</li> </ul>	<ul style="list-style-type: none"> <li>Requires two to three speed humps in a series to be effective at 100- to 150-metre spacing. Humps would need to be located to the north of the intersection as south extent is too steep.</li> <li>Impractical to keep speed reader board in current location with speed hump gateway treatment.</li> <li>Would require road widening to accommodate shoulders.</li> </ul>
Median Gateway	<ul style="list-style-type: none"> <li>Would complement existing speed reader board.</li> <li>Deflect vehicles and breaks up sight line to south.</li> </ul>	<ul style="list-style-type: none"> <li>Most effective with tall landscaping in median increasing maintenance and operating costs including irrigation.</li> <li>Would require road widening to accommodate shoulders.</li> </ul>

It is recommended that prior to implementing a treatment, the entire affected neighbourhood be surveyed (in addition to the petition area fronting Campbell Road) along with emergency services to gauge support as Campbell Road is the only access to the neighbourhood.

Traffic calming measures can also be phased in and tested with temporary measures such as on-road flexible delineators (**Figure 5**) to create a temporary median treatment. This allows the City to test certain types of measures before committing to higher capital expenditures. However, these devices typically require a higher level of maintenance for damage and debris. It is understood that these devices are currently not supported by Public Works for these reasons.



**Figure 5: Vertical Centreline Treatment with Flexible Delineator Posts**

## 6.0 RECOMMENDATIONS

It is recommended that the City:

- Pursue the median gateway treatment with landscaped features;
- Assess options with emergency services; and
- Gauge support from neighbourhood.

Please contact me if you have any questions or comments at 778-313-1060. Thank you.

Sincerely,

**Watt Consulting Group**



2019-06-06

Tom Baumgartner, M.Sc., P.Eng.  
Transportation Engineer