

Memorandum

206-3200 Richter Street, Kelowna, BC V1W 5K9 Phone: 866-614-7200

Date:	10 November 2020	Project Number:	2003181
Attention:	Nilton Praticante	Project Description:	DCC Roads Ranking Update
Company:	City of West Kelowna	File Number:	1900
Phone:	778-797-2242	From:	Tom Baumgartner
Fax:		Email:	tbaumgartner@allnorth.com
Email:	Nilton.Praticante@westkelownacity.ca	Revision:	0
Copy To:	Rob Hillis (Rob.Hillis@westkelownacity.ca)		

RE: 2020 DCC Road Priorities

1 INTRODUCTION

Allnorth Consultants Ltd. were retained by the City of West Kelowna to update priorities for development cost charge (DCC) arterial road improvements. In March 2018, Watt Consulting Group provided the *West Kelowna DCC Road Priority Update (2018 Report)* that reprioritized DCC road projects based on ICBC collision data, development projections, and the need for pedestrian and cycling facilities. This memorandum provides an update to each prioritization.

2 ROAD SAFETY

Road safety is assessed based on the latest five years of available ICBC claims data and the cost of those collisions. The claims dataset ranges from 2015-2019. The prioritization of road segments cost of collisions aims to address road safety issues with future design enhancements to the corridor. Therefore, road safety is a key design input and decision factor for corridor improvements. New designs must mitigate existing safety issues and anticipate the impacts that design features would have on road safety. The 2018 Report covered 2012-2016, since then

The cost of collisions is used in the evaluation to weigh the higher cost of collisions due to higher severity. The ICBC Road Improvement Program 2015 Program Evaluation Report provides the cost of collisions for property damage only (PDO) and casualty (injury or fatal) collisions. These values inflated to today's dollars at an average 1.6% per year and rounded are as follows:

- PDO Collisions: \$3,300
- Casualty Collisions: \$36,000

Table 1 shows the ranked summary of collision costs per road segment. Old Okanagan Highway from Butt Road to Reece Road is the highest at \$1.17 million over the five years. Gellatly Road from Carrington Road to Boucherie Road has increased to \$1.11 million over the five years from the 2018 Report's analysis of 2012-2016 (\$0.2 million).

**Table 1: DCC Road Segments Ranked by Collision Costs (2015-2019)**

Rank	#	Segment	From	To	PDO	Injury	Collision Cost
1	7b	Old OK Hwy	Butt Rd	Reece Rd	38	29	\$ 1,169,400
2	3a	Gellatly Rd	Carrington Rd	Boucherie Rd	20	29	\$ 1,110,000
3	7a	Old OK Hwy	Dobbin Rd	Butt Rd	18	21	\$ 815,400
4	9	Bartley Rd	Stevens Rd	Highway 97	31	18	\$ 750,300
5	2	Boucherie Rd	Carrall Rd	Gellatly Rd	6	17	\$ 631,800
6	1b	Boucherie Rd	Ogden Rd	Green Bay Rd	27	15	\$ 629,100
7	8a	Shannon Lake Rd	WFN IR#9	Asquith Rd	15	11	\$ 445,500
8	8f	Shannon Lake Rd	1850	Bartley Rd	13	9	\$ 366,900
9	5b	Elliott Rd	Solar Rd	Butt Rd	11	9	\$ 360,300
10	10a	Stevens Rd	Bartley Rd	Ross Rd	13	8	\$ 330,900
11	10b	Stevens Rd	Ross Rd	Westlake Rd	7	8	\$ 311,100
12	8d	Shannon Lake Rd	2750	Golf Course Dr	9	6	\$ 245,700
13	8b	Shannon Lake Rd	Asquith Rd	2835 Shannon Lake Rd	6	5	\$ 199,800
14	1c	Boucherie Rd	Green Bay Rd	WFN IR#9	10	4	\$ 177,000
15	5c	Elliott Rd	Butt Rd	Reece Rd	6	4	\$ 163,800
16	4d	Glenrosa Rd	McGinnis Rd	Gates Rd	8	3	\$ 134,400
17	6a	Smith Creek Rd	Elliott Rd	Wild Horse Dr	4	2	\$ 85,200
18	5a	Elliott Rd	Delray Rd	Solar Rd	3	2	\$ 81,900
19	8e	Shannon Lake Rd	Golf Course Dr	1850	13	1	\$ 78,900
20	3c	Gellatly Rd South	4251	4035	3	1	\$ 45,900
21	6b	Smith Creek Rd	Wild Horse Dr	Copper Ridge Rd	2	1	\$ 42,600
22	3b	Gellatly Rd South	Whitworth Ave	4251	1	1	\$ 39,300
23	4a	Glenrosa Rd	Highway 97	Webber Rd	1	1	\$ 39,300
24	11	Hudson Rd	Guidi Rd	Boucherie Rd	5	0	\$ 16,500
25	3e	Gellatly Rd South	Glen Canyon Dr	Glen Canyon Dr	2	0	\$ 6,600
26	5d	Elliott Rd	Reece Rd	Smith Creek Rd	1	0	\$ 3,300
27	3d	Gellatly Rd South	4035 Gellatly Rd S	Glen Canyon Dr	1	0	\$ 3,300
28	4b	Glenrosa Rd	Webber Rd	Glen Abbey Pl	1	0	\$ 3,300
29	3f	Gellatly Rd South	Glen Canyon Dr	Highway 97	0	0	\$ -
30	8c	Shannon Lake Rd	2835	2750	0	0	\$ -

3 DEVELOPMENT PROJECTIONS

Projections for future development build-out are used to estimate intersection capacity needs on the arterial road network. They are prioritized based on the anticipated horizon year for developments to build-out or background traffic to trigger an improvement. **Table 2** provides the priority segments based on intersection capacity needs. The Gellatly Road & Carrington Road intersection is over capacity while additional development is being constructed and occupied. As such, it ranks as number 1. Old Okanagan Highway & Butt Road needs left-turn lanes at the signal. The Old Okanagan Highway & Reece Road intersection is expected to need capacity improvements by 2025 depending on how proposed developments proceed.

**Table 2: DCC Road Segments Ranked by Anticipated Intersection Capacity Needs**

Rank	#	Segment	From	To	Year	Comment
1	3a	Gellatly Rd	Carrington Rd	Boucherie Rd	2020	Capacity needs for several multi-family projects under DP, construction, or recently occupied.
2	7b	Old OK Hwy	Butt Rd	Reece Rd	2020	Old OK Hwy capacity improvements for Butt Rd & Reece Rd
3	10a	Stevens Rd	Bartley Rd	Ross Rd	2025	Bartley Rd & Stevens Rd / Shannon Lake Rd intersection improvements
4	1c	Boucherie Rd	Green Bay Rd	WFN IR#9	2026	Boucherie Rd & Mission Hill Rd intersection depending on development build-out
5	5c	Elliott Rd	Butt Rd	Reece Rd	2027	Improvements related to Reece Rd and Smith Creek developments
6	7a	Old OK Hwy	Dobbin Rd	Butt Rd	2028	Old OK Hwy & Gossett Rd intersection improvement
7	8d	Shannon Lake Rd	2750 Shannon Lake Rd	Golf Course Dr	2028	Tallus Ridge Roundabout with Tallus Ridge Dr extension & Smith Creek Development
8	5d	Elliott Rd	Reece Rd	Smith Creek Rd	2030	Elliott Rd & Smith Creek Rd intersection improvement with Smith Creek development

4 PEDESTRIAN & BICYCLE FACILITIES

The City of West Kelowna's Pedestrian and Bicycle Infrastructure Plan methodology for prioritizing active transportation facilities is used to assess the need for DCC arterial roads. As per the 2018 Report, the road segments are prioritized based on weightings summarized in **Table 3**. The weightings score 5-minute walking (400m) and 10-minute walking (800m) radii from major destinations / trip generators. These trip generators include the transit exchanges, schools, community centres, neighbourhood commercial, major parks and heritage sites, major bus stops, and facilities on the winery or farm route links. These facilities also have the highest latent demand for pedestrian and bicycle travel. Once walking and cycling facilities are built they will attract more users, thereby meeting latent demand. Without boarding and alighting volumes at the bus stops, latent demand is assessed from facilities that will generate active transportation trips. Facilities that generate trips that are most likely to be utilized through active transportation have been broken down and given a corresponding weighting. The amount of weight given to a facility depends on its desirability or need for active transportation facilities. Higher scores are given to projects that fall within the 400m radius and lower scores for those that are between a 400m and 800m radius. Some facilities (Farms, Wineries, and Major Bus Stops) only apply to a project if they lay directly on the same network link as the project. Major bus stops refer to timing points in the transit routes.

**Table 3: Prioritization Weightings**

TRIP GENERATOR	5-MINUTE WALK	10-MINUTE WALK
Transit Exchange	10	6
Elementary School	9	6
Middle/Secondary School	8	5
Community Centres	7	4
Neighbourhood Commercial	7	5
Major Parks & Heritage Sites	7	4
NETWORK LINK WEIGHTS		
Connects Links	5	
Extends Link	2	
Major Bus Stop on Link	4	
Winery or Farm Route on Link	2	

The weightings are then aggregated for each segment and then they are evaluated for existing sidewalk facilities (there are few cycling facilities). Segments with full sidewalks existing on either side of the road are factored with a zero, those with three quarter sidewalk coverage are factored by 0.75, half sidewalks by 0.5, and no sidewalks with a factor of 1.0. The 'Connect Link' and 'Extend Link' weightings are aggregated after the total is factored. The priority segments for pedestrian and bicycle facilities are shown in **Table 4**.

Table 4: DCC Road Segments Ranked by Latent Demand

Rank	#	Segment	From	To	Rank
1	8b	Shannon Lake Rd	Asquith Rd	2835 Shannon Lake Rd	30
2	3a	Gellatly Rd	Carrington Rd	Boucherie Rd	25
3	8a	Shannon Lake Rd	WFN IR#9	Asquith Rd	24
4	9	Bartley Rd	Stevens Rd	Highway 97	23
5	5b	Elliott Rd	Solar Rd	Butt Rd	21
6	5c	Elliott Rd	Butt Rd	Reece Rd	20
7	3b	Gellatly Rd South	Whitworth Ave	4251 Gellatly Rd South	18
8	7a	Old OK Hwy	Dobbin Rd	Butt Rd	17
9	5a	Elliott Rd	Delray Rd	Solar Rd	15
10	8c	Shannon Lake Rd	2835 Shannon Lake Rd	2750 Shannon Lake Rd	15
11	3d	Gellatly Rd South	4035 Gellatly Rd S	Glen Canyon Dr	14
12	1c	Boucherie Rd	Green Bay Rd	WFN IR#9	14
13	11	Hudson Rd	Guidi Rd	Boucherie Rd	13
14	8f	Shannon Lake Rd	1850 Shannon Lake Rd	Bartley Rd	12
15	8d	Shannon Lake Rd	2750 Shannon Lake Rd	Golf Course Dr	11
16	3c	Gellatly Rd South	4251 Gellatly Rd South	4035 Gellatly Rd S	10
17	1b	Boucherie Rd	Ogden Rd	Green Bay Rd	8
18	10b	Stevens Rd	Ross Rd	Westlake Rd	8
19	5d	Elliott Rd	Reece Rd	Smith Creek Rd	8
20	3f	Gellatly Rd South	Glen Canyon Dr	Highway 97	8
21	7b	Old OK Hwy	Butt Rd	Reece Rd	7
22	2	Boucherie Rd	3716 Carrall Rd	Gellatly Rd	7
23	4a	Glenrosa Rd	Highway 97	Webber Rd	6
24	4d	Glenrosa Rd	McGinnis Rd	Gates Rd	5
25	3e	Gellatly Rd South	Glen Canyon Dr	Glen Canyon Dr	5



Rank	#	Segment	From	To	Rank
26	8e	Shannon Lake Rd	Golf Course Dr	1850 Shannon Lake Rd	3
27	10a	Stevens Rd	Bartley Rd	Ross Rd	2
28	6b	Smith Creek Rd	Wild Horse Dr	Copper Ridge Rd	2
29	6a	Smith Creek Rd	Elliott Rd	Wild Horse Dr	0

5 SUMMARY

The highest ranking projects vary by each criteria, however, the most urgent projects are as follows:

- Gellatly Road from Carrington Road to Boucherie Road ranks:
 - #2 for road safety;
 - #1 for intersection capacity needs; and
 - #2 for latent demand.
- Old Okanagan Highway from Butt Road to Reece Road ranks:
 - #1 for road safety and
 - #2 for intersection capacity needs.
- Bartley Road from Stevens Road to Highway 97 ranks:
 - #4 for road safety;
 - #3 for Bartley Road & Stevens Road intersection; and
 - #4 for latent demand.
- Old Okanagan Highway from Dobbin Road to Butt Road ranks:
 - #3 for road safety;
 - #6 for Old Okanagan Highway & Gossett Road Intersection capacity; and
 - #8 for latent demand.
- Shannon Lake Road from WFN IR#9 to Asquith Road ranks:
 - #7 for road safety;
 - #3 for latent demand.

Please contact me at 778-738-2960 if you have any questions or comments. Thank you.

Sincerely,

Allnorth Consultants Limited

Tom Baumgartner, MSc, P.Eng., RSP1
Transportation Group Lead