



MEMO

To: Don MacLeod, Chief Administrative Officer
From: Aden Corcoran, Director of Public Works
Subject: Roads Condition Study
Council Meeting Date: January 17, 2017

Date: January 10, 2017
Number: 2017-010
File: C11 - Council Reports
Agenda Item: **7.4(a)**

RECOMMENDATION:

For Council's information.

BACKGROUND:

To provide Council with information on the current condition of Township Roads.

COMMENTS:

The purpose of this study was to inventory the road system and rate the condition, geometric elements and surface type. The rating of Township of Zorra roads was completed with input from Public Works Staff. This is a tool to integrate with the Asset Management Plan to develop priorities on a needs basis for future budget allocation.

Roads were rated on Connectivity, Traffic Volumes, Drainage Condition, Number of Households, Road Safety Issues, Summer Maintenance Issues, Readiness for Paving if a Gravel Surface, Winter Maintenance Issues, Geography, Proximity to Hard Surfaced Road if a Gravel Surface and Equipment Routing Efficiency. The Rating System Factor and Point Ranges are attached.

This study does not make recommendations for future hard surfacing of gravel roads. Some existing hard surfaced roads are nearing the end of their useful life and should be resurfaced or pulverized with a new hard surface treatment.

Many of these ratings are subjective and not based on an engineering study. Some of the traffic counts are actual counts and some are estimated based on other counts in the area.

Township bridges and culverts were not assessed as part of this study. As mandated, these are inspected on a biennial basis and is performed by a consultant.

FINANCIAL IMPLICATIONS

This study had no direct financial implications.

An analysis by the Director of Finance and myself have determined the cost to maintaining a hard surfaced road to be \$3,834.96 per kilometre per year while a gravel surfaced road has a cost of \$1,929.26 per kilometre per year.

LINK TO STRATEGIC PLAN

This Road Conditions Study will be the foundational study for preparing a financial master plan for sustainability of the Township's existing road system. This links up with the following action and direction in the Strategic Plan.

Goal: We are a *prosperous* community that provides opportunities to work and shop in our community and to grow in a sustainable manner.

Action: By improving our infrastructure

P3.3: Preparation of long-term financial master plan for sustainability of existing road system

ATTACHMENTS

- a. Road Rating Study
- b. Rating System Criteria

Submitted by:

Approved by:



Aden Corcoran
Director of Public Works



Don MacLeod
Chief Administrative Officer

**Township of Zorra
Road Improvement Rating System**

NAME:

Road Sections	Characteristics, Comments	Connectivity	AADT (See Chart)	Drainage Condition	# Households Major Commercial	Road Safety	Summer Maintenance Issues	Readiness	Winter Maintenance Issues	Geography	Parallel Hard Surface Roads	Equipment Routing	Total
West to East													
11th Line (CHR)		0-10	0-17	0-10	0-25	0-5	0-15	0-15	0-15	0-5	0-5	0-5	0
**** 116874	LCB	9	17	5	15	2	1	3	6	1	0	3	62
**** 117478	LCB	9	17	6	14	1	1	3	6	1	0	3	61
**** 117884	LCB	9		3	3	5	1	3	10	1	0	3	38
** 118488	LCB-HCB	9	17	5	8	1	1	7	5	1	0	3	57
118892	HCB	9	17	6	2	1	1	7	7	1	0	3	54
119296	HCB	9	17	6	9	1	1	6	9	1	0	3	62
119698	HCB	9	17	7	1	1	1	6	12	1	0	3	58
													0
13th Line													0
136874	GRV	2	2	6	5	3	9	10	5	1	1	2	46
137478	GRV	2	2	5	8	3	9	10	5	1	1	2	48
137884	GRV	2	2	5	11	3	9	10	5	1	1	2	51
138488	GRV	2	2	5	8	3	9	10	5	1	1	2	48
138892	GRV	2	2	5	10	3	9	10	5	1	1	2	50
139296	GRV	2	2	4	1	3	9	10	8	1	1	2	43
139698	GRV	2	2	7	8	3	9	10	10	1	1	2	55
													0
13thLine (Hunt Rd)			2										2
** 13DE60	GRV	1	2	3	1	0	0	10	0	1	0	0	18
**** 136062	GRV	1	2	4	1	0	0	10	0	1	0	0	19
**** 136264	GRV	1	2	4	1	0	0	10	0	1	0	0	19
136466	GRV	1	2	5	2	7	9	10	7	1	0	3	47
136668	GRV	1	2	6	1	7	9	10	7	1	0	3	47
													0
15th Line													0
156874	LCB	9	17	4	7	2	5	0	8	1	1	1	55
157478	GRV	7	7	6	14	2	10	5	4	1	1	1	58
157884	GRV	6	2	5	2	2	8	10	4	1	1	1	42
158488	GRV	5	2	6	11	2	8	10	4	1	1	1	51
158892	GRV	5	2	6	4	2	8	10	4	1	1	1	44
159296	GRV	5	2	6	6	2	8	10	6	1	1	1	48
159698	GRV	5	2	7	10	2	8	5	8	1	1	1	50
													0
15th Line													0
156062	GRV	1	2	4	5	6	10	9	8	2	3	5	55
156264	GRV	3	2	5	2	4	7	8	6	2	3	4	46
156466	HCB	10	17	5	7	13	2	0	12	3	0	3	72
156668	HCB	10	17	6	4	0	0	0	5	1	0	3	46
													0
21st Line													0
2168DE	GRV	0	1	5	6	4	4	7	3	2	1	5	38
21st Line													0
216062	GRV	1	2	2	2	9	9	7	6	1	1	4	44
216264	GRV	1	2	5	5	4	5	4	5	1	1	4	37
216466	GRV	1	2	6	1	5	5	4	5	1	1	4	35
216668	GRV	1	2	6	1	9	7	8	10	4	3	4	55
													0
23rd Line													0
236874	GRV	2	2	6	8	12	7	2	7	4	2	2	54

Road Sections	Characteristics, Comments	Connectivity	AADT (See Chart)	Drainage Condition	# Households Major Commercial	Road Safety	Summer Maintenance Issues	Readiness	Winter Maintenance Issues	Geography	Parallel Hard Surface Roads	Equipment Routing	Total
237478	GRV	3	2	6	9	11	9	2	9	4	2	2	59
237884	GRV	3	2	4	15	3	6	2	2	5	2	2	46
238488	GRV	3	3	5	3	3	6	2	2	5	2	2	36
238892	GRV	3	3	4	10	3	3	2	2	5	2	2	39
239296	GRV	3	3	4	17	3	6	2	2	5	2	2	49
239698	GRV	7	3	4	10	6	8	2	6	5	2	2	55
25th Line													0
256874	GRV	4	3	5	4	1	6	2	4	5	4	3	41
257478	GRV	2	3	4	2	1	5	4	2	5	4	3	35
258488	GRV	2	3	9	1	1	5	4	2	5	4	3	39
258892	GRV/HCB	7	3	7	1	7	10	4	6	3	4	3	55
259296	GRV	2	3	4	12	1	3	2	2	5	4	3	41
2596DE	GRV	0	1	4	1	1	1	1	2	5	1	3	20
25th Line													1
25BR60	GRV	8	3	2	6	6	6	6	4	4	0	4	49
256062	GRV	1	3	4	6	2	6	6	4	4	3	4	43
256264	GRV	1	3	3	2	2	6	6	4	4	3	4	38
256466	GRV	1	3	4	13	2	6	6	4	4	3	4	50
256668	GRV	1	3	6	1	2	6	6	4	5	3	4	41
27th Line													0
27DE74	GRV	0	1	3	3	2	1	1	5	5	0	3	24
277478	GRV	2	2	4	7	2	7	7	5	2	0	3	41
277884	GRV	2	2	4	7	2	5	7	5	4	3	3	44
278488	GRV	2	2	6	4	2	5	7	5	4	3	3	43
278892	GRV	2	2	6	3	2	5	7	5	4	3	3	42
279296	GRV	2	2	6	2	2	5	1	5	4	3	3	35
2796DE	GRV	2	2	4	1	2	2	1	5	2	3	3	27
27DE98	GRV												0
27th Line													0
276062	GRV	1	2	2	4	9	3	5	8	2	0	4	40
276264	GRV	1	2	3	8	4	3	4	4	5	0	4	38
276466	GRV	1	2	6	2	3	3	3	4	5	0	4	33
276668	GRV	1	2	7	0	7	3	8	4	5	0	4	41
29th Line													0
296874	GRV	1	3	4	20	2	8	8	4	5	0	3	58
297478	GRV	1	3	2	5	6	7	8	6	3	0	3	44
297884	GRV	1	3	4	7	4	6	8	5	4	0	3	45
298488	GRV	1	3	3	15	3	6	8	5	4	0	3	51
298892	GRV	1	3	4	1	3	6	8	5	5	0	3	39
299296	GRV	3	3	4	1	3	11	2	5	4	1	4	41
299698	GRV	3	3	4	8	5	11	2	8	2	4	5	55
31st Line													0
316874	LCB	8	17	3	8	11	1	2	8	2	1	2	63
317478	HCB	8	17	3	16	6	1	5	5	2	1	2	66
317884	HCB	7	17	5	6	12	6	9	6	4	0	2	74
318488	HCB	7	17	4	4	11	8	9	5	4	0	2	71
318892	GRV	7	17	4	7	9	7	5	5	2	0	2	65
319296	GRV	4	14	4	11	8	7	5	4	4	0	3	64
319698	GRV	2	7	4	9	9	6	4	5	4	0	4	54
33rd Line													0
336874	GRV	0	3	5	2	2	1	1	1	4	0	1	20

Road Sections	Characteristics, Comments	Connectivity	AADT (See Chart)	Drainage Condition	# Households Major Commercial	Road Safety	Summer Maintenance Issues	Readiness	Winter Maintenance Issues	Geography	Parallel Hard Surface Roads	Equipment Routing	Total	
47th Line													0	
	476874	GRV	1	3	5	8	2	5	4	2	4	4	4	42
	477478	GRV	1	3	5	1	2	4	4	2	4	4	4	34
	477884	GRV	1	3	3	5	2	8	8	2	2	4	4	42
	** 478488	GRV	1	2	4	4	4	5	5	2	3	4	4	38
	**** 478892	GRV		2		3								5
	**** 479296	GRV		2		6								8
	**** 479698	GRV		2		6								8
														0
SOUTH TO NORTH														0
														0
Road 60														0
	601315	HCB	8	17	3	1	4	4	5	4	4	0	5	55
	601517	HCB	8	17	3	4	7	4	5	4	2	0	5	59
	601721	HCB	9	17	4	10	6	4	6	4	3	0	4	67
	602125	HCB	9	17	5	2	6	4	6	4	3	0	4	60
	602527	HCB	9	17	4	3	5	4	6	4	3	0	4	59
														0
McNab St	HCB	0			12									12
Crandall St	HCB	0			1									1
Ellen St	HCB	0			10									10
														0
Road 62														0
	621315	GRV	5	5	4	4	6	9	6	3	4	1	4	51
	621517	GRV	5	5	6	3	6	9	6	3	4	1	4	52
	621721	GRV	0	3	2	3	5	6	5	3	3	1	4	35
	622125	GRV	0	2	3	5	5	6	5	3	3	1	4	37
	622527	GRV	0	2	5	5	5	6	5	3	3	1	4	39
	622719	GRV	0	3	7	4	10	6	5	3	3	1	4	46
	621931	HCB	8	17	5	3	10	4	5	5	3	0	4	64
	623133	HCB	8	17	2	4	10	4	5	5	3	0	4	62
	623335	GRV	0	1	3	1	2	2	2	4	2	1	3	21
														0
Newton St	HCB				7									7
Hampden St	LCB				3									3
Davy St	LCB				8									8
														0
Road 64														0
	641315	HCB	10	17	8	8	7	6	4	6	3	0	3	72
	641517	HCB	10	17	3	9	7	6	4	7	3	0	3	69
	641721	HCB	8	17	4	0	5	4	3	5	4	0	3	53
	642125	HCB	8	17	3	1	5	4	3	5	4	0	3	53
	642527	GRV	2	2	4	4	3	6	5	3	3	1	3	36
	642731	GRV	2	2	4	3	3	6	5	3	4	2	3	37
	643133	GRV	2	1	6	7	3	6	5	3	4	2	4	43
	6433DE	GRV	0	1	4	1	1	1	1	1	1	2	2	15
														0
Road 66														0
	661315	GRV	2	7	9	5	11	11	8	9	5	1	4	72
	66DE19	GRV	0	1	2	4	2	2	2	7	2	1	4	27
	661921	GRV	1	2	7	3	4	5	4	6	3	1	3	39
	662125	GRV	1	2	8	6	6	5	4	6	3	1	3	45
	662527	GRV	1	2	5	6	4	5	4	6	3	1	3	40
	662731	GRV	1	2	6	4	4	5	4	6	3	1	3	39
	663133	GRV	1	2	6	3	4	5	4	6	3	1	3	38
	663337	GRV	1	3	8	2	4	5	4	6	3	1	3	40

Road Sections	Characteristics, Comments	Connectivity	AADT (See Chart)	Drainage Condition	# Households Major Commercial	Road Safety	Summer Maintenance Issues	Readiness	Winter Maintenance Issues	Geography	Parallel Hard Surface Roads	Equipment Routing	Total
663741	GRV	1	2	5	1	4	5	4	6	3	1	3	35
6641DE	GRV	1	2	3	2	4	5	2	4	2	1	3	29
Road 74													0
741113	HCB	9	17	5	1	4	4	7	8	3	0	2	60
741315	HCB	9	17	6	0	4	4	7	5	3	0	2	57
741519	HCB	9	17	5	3	4	4	7	6	3	0	2	60
741921	HCB	9	17	4	2	11	6	10	7	0	0	2	68
742123	HCB	9	17	4	10	2	1	1	3	2	0	2	51
742325	HCB	9	17	6	6	2	1	1	3	2	0	2	49
742527	HCB	9	17	5	4	2	1	1	3	2	0	2	46
742729	HCB	9	17	4	1	3	3	5	3	2	0	2	49
742931	HCB	9	17	6	3	6	4	5	3	2	0	2	57
743133	HCB	9	17	3	11	2	1	1	3	0	0	2	49
743335	HCB	9	17	3	4	2	1	1	3	0	0	2	42
7435CR6	HCB	9	17	5	5	2	1	1	3	0	0	2	45
Road 78													0
781113	GRV	2	3	6	2	7	11	8	4	2	2	1	48
781315	GRV	2	3	8	5	7	11	8	4	2	2	0	52
781519	GRV	2	3	8	1	7	11	8	4	2	1	0	47
781923	GRV	6	5	7	2	5	6	2	4	2	1	0	40
782527	GRV	5	5	9	4	3	9	12	4	2	2	0	55
782729	GRV	5	5	9	2	9	9	14	4	2	2	0	61
782931	GRV	5	5	7	9	7	9	12	4	2	2	0	62
783133	HCB	7	5	8	3	4	2	3	3	2	0	1	38
783335	HCB	7	17	5	1	4	2	3	3	2	0	1	45
783537	HCB	7	17	6	3	4	2	3	3	2	0	1	48
Road 80													0
803537	HCB		17	3									20
803741	HCB/GRV		17	6	9								32
804143	GRV		2	7	2								11
Road 82													0
823741	GRV	2	2	6	1	10	5	4	5	1	1	2	39
Road 84													0
843741	HCB	6	17	4	6	11	2	5	4	3	0	2	60
844143	HCB	6	17	5	13	5	2	5	4	2	0	2	61
844345	HCB	6	17	7	11	4	2	5	4	2	0	2	60
844547	HCB	6	17	5	1	9	2	5	4	3	0	2	54
Road 88													0
881113	GRV	1	2	4	4	4	3	3	2	1	1	3	28
881315	GRV	1	2	6	1	3	3	3	2	1	2	3	27
881519	GRV	1	2	6	0	3	3	3	2	1	1	3	25
881923	GRV	2	4	5	4	5	3	3	2	2	1	2	33
882325	GRV	2	4	6	1	5	3	3	4	1	2	2	33
882527	GRV	2	4	5	3	5	3	3	3	1	3	2	34
882729	GRV	2	4	6	0	6	3	3	2	1	3	2	32
882931	GRV	2	4	8	1	8	3	3	2	1	1	2	35
883133	GRV	3	3	6	2	3	1	2	2	1	1	2	26
883335	GRV	3	3	7	2	3	1	2	2	1	2	2	28
883537	GRV	3	11	6	2	3	1	2	2	1	1	2	34
		3											3

Commission Street in Embro
East of Bridge only

Road Sections	Characteristics, Comments	Connectivity	AADT (See Chart)	Drainage Condition	# Households Major Commercial	Road Safety	Summer Maintenance Issues	Readiness	Winter Maintenance Issues	Geography	Parallel Hard Surface Roads	Equipment Routing	Total
Road 92													0
921923	LCB	7	17	7	10	5	5	3	5	1	0	3	63
922325	LCB	7	17	6	7	5	6	3	5	1	0	3	60
922527	HCB	6	17	4	7	8	12	9	8	3	0	3	77
922729	HCB	6	17	7	0	6	2	2	5	2	0	3	50
922931	HCB	7	17	4	3	7	6	7	5	2	0	3	61
923133	HCB	7	17	5	1	3	2	2	5	2	0	3	47
923335	HCB	7	17	5	4	3	2	2	5	2	0	3	50
923537	HCB	7	17	6	2	3	2	2	5	2	0	3	49
923741	GRV	2	9	4	0	4	5	4	3	2	1	2	36
924143	GRV	2	5	4	2	4	5	4	3	2	2	2	35
924345	GRV	2	5	8	2	4	5	4	3	2	3	2	40
924547	GRV	2	5	8	5	4	5	4	3	2	4	2	44
													0
Road 96													0
961113	HCB	8	17	6	1	11	2	7	12	1	0	4	69
961315	HCB	8	17	5	2	12	4	8	12	3	0	4	75
961519	HCB	8	17	7	6	5	2	5	8	1	0	4	63
													0
**** 962931	HCB				5								5
**** 963133	HCB				5								5
**** 963335	HCB				11								11
**** 963537	HCB				5								5
**** 963741	HCB		17		5								22
**** 964143	HCB				5								5
**** 964345	HCB				1								1
**** 964547	HCB												0
													0
Road 98													0
**** 982931	HCB		11	6	1								18
983133	HCB		11	7	0								18
983335	HCB	6	11	4	1	4	4	0	8	1	0	5	44
983537	HCB	6	11	5	1	4	4	0	8	2	0	5	46
983741	LCB/GRV	4	5	6	1	8	9	8	7	3	1	5	57
984143	GRV	4	4	6	3	8	9	8	7	3	2	5	59
984345	GRV	3	4	6	1	7	7	8	7	3	2	5	53
984547	GRV		7	6	2								15
													0
Wildwood Road	GRV	0	4	6	2	5	9	8	9	2	0	0	45
****	Boundary Road Maintained by others												
**	Boundary Road Maintenance Changes by Boundary Agreement												

Avg 33
Median 38
Max 77
Min 0

Township of Zorra Road Improvement Rating System

Factor	Point Range		Description
	Min	Max	
Connectivity	0	10	0 - little connectivity, 10 high connectivity
Current Traffic Volumes	0	10	see below - use a range, 50 AADT increments
Drainage Condition	0	10	0 for good - 10 for major work
# Households	0	?	1 for each home - 3 for small commercial 5-10 for large commercial - variable
Safety Issues	0	15	0 - minimm defects 15 - major defects - guiderail sightlines etc
Summer Maintenance Issues	0	15	0 - no issues 15 - major issues
Readiness	0	10	0 - ready or good asphalt 10 - related to work required before ashpalt
Winter Maintenance Issues	0	15	0 - no issues 15 - major issues
Geography	0	5	0 - very good conditions - 5 very poor geography (Incl horiz & vert curves)
Parallel Hard Surface Roads	0	5	0 - close proximity to pavement - 5 - far from paved roads (more than 1 block)
Equipment Routing Efficiencies	0	5	0 - no impact on routing efficiencies - 5 negative impact on equipment routing and utilization
Total	0	100	
Current Traffic Volume Ranges			
0 - 50	1		
51-100	2		
101 -150	3		
151-200	4		
201-250	5		
251-300	7		
301-350	9		
351-400	11		
401-450	14		
>450	17		

Formula used for calculation =IF(B35>450, 10,ROUNDUP(B35/50,0))