



The Corporation of the County of Wellington

Roads Committee

Agenda

June 9, 2015

9:00 am

County Administration Centre

Keith Room

Members: Warden Bridge; Councillors Williamson (Chair), Breen, Driscoll, Linton

Pages

1. **Call to Order**
2. **Declaration of Pecuniary Interest**
3. **Delegation:**
 - 3.1 Mayor Allan Ails and Mr. Larry Van Wyck, Road Superintendent, Town of Erin
Northbound Sidewalk at Ross Street, Town of Erin
4. **Financial Statements and Variance Projections as of May 31, 2015** 2 - 8
5. **Tender Award - Rehabilitation of Wyandot Bridge Structure B010024** 9 - 11
6. **Tender Award - Asphalt and Shoulder Gravel - Parts A and B** 12 - 15
7. **Tender Cancellation - Rehabilitation of Culvert C111020 Located on WR 11** 16 - 17
8. **Brisbane Public School Update Report** 18 - 23
9. **Wellington Road 46 Request for Early Tender and Partial Approval** 24 - 24
10. **Roundabouts: The Sustainable Intersection Choice** 25 - 30
11. **Correspondence from the Ministry of Transportation** 31 - 32
12. **Closed Session**
13. **Rise and Report**
14. **Adjournment**

Next meeting date September 8, 2015 or at the call of the Chair.



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Ken DeHart, County Treasurer
Date: Tuesday, June 9, 2015
Subject: **Financial Statements and Variance Projections as of May 31, 2015**

Background:

This report is respectfully submitted in accordance with the County's Budget Variance Reporting policy, and provides a first projection to year-end based on expenditures and revenues to May 31, 2015 for the Roads Division.

Operating

- User fees and charges are at 20% to the end of May; however, the aggregate fee revenue will be received later in the year.
- Sales revenue from the sale of equipment will be received later in the year.
- Purchased services are on budget at this time, any variances will depend on road maintenance needs through the winter months
- Internal charges are tracking ahead of budget as a result of winter control costs incurred earlier in the year, this is offset by internal recoveries line
- Net operating expenditures for Roads Maintenance activities are 55% expended to the end of May, all other maintenance activities are in line with budget, given that the majority of winter control expenditures are incurred in the first three months of the year
- Insurance and financial expense appears to be high relative to this point in the year; however, the insurance payment has been completed, no variance is anticipated
- All other activities are within budget (27% spent to date in total) and will pick up over the summer with maintenance activities.

Winter Control

- Municipal recoveries have exceeded the budget (102%) at this point. Additional invoices will be sent later in the year to municipalities for work completed on boundary roads and winter control. The magnitude of the positive variance (which will be offset by higher costs), will be dependent on the severity of the weather in the last two months of the year.
- There is approximately \$1.5 million of winter control budget remaining, although some costs for work done by other municipalities on the County's behalf have yet to be processed. Costs in the last five years for winter control for the period from October to December have ranged from a low of \$867,000 in 2012 to a high of \$2.17 million in 2013, with the overall (inflated) average at just under \$1.43 million. Depending on the severity of winter a variance of +/- \$200,000 is possible given past experience. Any savings or overages will be transferred to or from the Winter Control reserve which currently has a balance of \$1.1 million.

The final roads variance will depend on the severity of the weather in the last two months of the year.

Capital

- Wellington Road 7 passing lanes project remains open for deficiencies to be completed this spring. Staff anticipates minimal additional costs to complete this work.
- Work on Wellington Road 29 – Wellington/Halton boundary will be completed this season. Staff expects this project to remain within budget.
- Two road resurfacing projects have carried forward from 2014 construction season; both will be completed this season with a negative variance that will be funded from the roads capital reserve.
- Several projects have gone to tender this spring which have resulted in adjustments to the original scope of the work. Recommendations to deal with these variances have been submitted to committee and council and are summarized below:
 - Sidewalk repairs on Badley Bridge in Elora - Cancel the tender and complete basic repairs to the sidewalk, review the scope of the work and adjust the budget in a future year.
 - Wellington Road 11 Culvert 111020 - Cancel the tender and reissue in a future year. Redirect Ontario Community Infrastructure Funds (OCIF) of \$250,000 to WR 32 resurfacing.
 - Resurfacing of Wellington Road 32 - Large variance is a result of geotechnical investigation requiring a more extensive treatment than in the original scope. Variance will be addressed by shifting the OCIF funding from Culvert 111020 and drawing from the Roads Capital reserve. A transfer will be budgeted in 2016 to replenish the reserve.
 - Wyandot Bridge – Construction in this project will span a two year period, funding adjustments will be addressed through the 2016 budget process.

Recommendation:

That the Financial Statements and Variance Projections as of May 31, 2015 for the Roads Division be approved.

Respectfully submitted,



Ken DeHart, CPA, CGA
County Treasurer



County of Wellington
Roads and Engineering
Statement of Operations as of
31 May 2015

	Annual Budget	May Actual \$	YTD Actual \$	YTD Actual %	Remaining Budget
Revenue					
Municipal Recoveries	\$715,000	\$300,736	\$731,107	102%	\$(16,107)
User Fees & Charges	\$210,000	\$9,394	\$41,708	20%	\$168,292
Sales Revenue	\$400,000	\$158,746	\$158,746	40%	\$241,254
Internal Recoveries	\$1,750,000	\$66,228	\$963,778	55%	\$786,222
Other Financing	\$0	\$26,822	\$26,822	0%	\$(26,822)
Total Revenue	\$3,075,000	\$561,926	\$1,922,162	63%	\$1,152,838
Expenditures					
Salaries, Wages and Benefits	\$4,870,400	\$313,041	\$2,442,653	50%	\$2,427,747
Supplies, Material & Equipment	\$3,749,500	\$267,647	\$2,586,828	69%	\$1,162,672
Purchased Services	\$1,389,700	\$74,067	\$571,289	41%	\$818,411
Insurance & Financial	\$293,400	\$(1,318)	\$292,098	100%	\$1,302
Minor Capital Expenses	\$713,200	\$17,734	\$84,249	12%	\$628,951
Debt Charges	\$226,500	\$0	\$96,820	43%	\$129,680
Internal Charges	\$1,655,300	\$64,550	\$959,540	58%	\$695,760
Total Expenditures	\$12,898,000	\$735,722	\$7,033,476	55%	\$5,864,524
NET OPERATING COST / (REVENUE)	\$9,823,000	\$173,796	\$5,111,315	52%	\$4,711,685
Transfers					
Transfers from Reserves	\$(226,500)	\$0	\$0	0%	\$(226,500)
Transfer to Capital	\$8,819,900	\$0	\$8,819,900	100%	\$0
Transfer to Reserves	\$2,264,200	\$0	\$1,734,200	77%	\$530,000
Total Transfers	\$10,857,600	\$0	\$10,554,100	97%	\$303,500
NET COST (REVENUE)	\$20,680,600	\$173,796	\$15,665,415	76%	\$5,015,185



County of Wellington

01-June-2015

Roads and Engineering Capital Work-in-Progress Expenditures By Departments All Open Projects For The Period Ending May 31, 2015

	LIFE-TO-DATE ACTUALS						
	Approved	May	Current	Previous		% of	Remaining
	Budget	Actual	Year	Years	Total	Budget	Budget
Roads General							
Roads Equipment 2015	\$1,781,000	\$680,371	\$1,179,667	\$0	\$1,179,667	66 %	\$601,333
Various Shop Repairs 2015	\$100,000	\$0	\$0	\$0	\$0	0 %	\$100,000
Rebuild Drayton Shop	\$500,000	\$2,575	\$2,575	\$0	\$2,575	1 %	\$497,425
Rebuild/Renovate Erin Shop	\$125,000	\$0	\$0	\$20,667	\$20,667	17 %	\$104,333
Subtotal Roads General	\$2,506,000	\$682,945	\$1,182,242	\$20,667	\$1,202,908	48 %	\$1,303,092
Engineering							
WR18 @ WR26 Intersection Imprv	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR18 Geddes St Elora, Strm Swr	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR18 Geddes St Elora, RtnngWall	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR21, Inverhaugh, Storm Sewer	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR29 @ WR22, Intersection Impr	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR32 Puslinch Lake, Struct Des	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR35 N of 401, Struct Design	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
Asset Management	\$35,000	\$1,977	\$15,054	\$0	\$15,054	43 %	\$19,946
Subtotal Engineering	\$385,000	\$1,977	\$15,054	\$0	\$15,054	4 %	\$369,946
Growth Related Construction							
WR 30 at Road 3, Signals & L	\$120,000	\$0	\$30	\$38,937	\$38,967	32 %	\$81,033
WR 46, WR 34 to 401	\$1,800,000	\$29,457	\$84,033	\$113,327	\$197,360	11 %	\$1,602,640
WR 124, Passing Lane N of 125	\$200,000	\$0	\$0	\$32,010	\$32,010	16 %	\$167,990
WR7 Psng Lanes Elora/Ponsonby	\$2,950,000	\$0	\$10,879	\$3,023,211	\$3,034,090	103 %	-\$84,090
WR7 PL Design Salem to Tev	\$150,000	\$2,352	\$8,165	\$5,838	\$14,004	9 %	\$135,996
WR109 @ WR5 Intersection	\$50,000	\$0	\$3,744	\$10,074	\$13,819	28 %	\$36,181
WR124 @ Whitelaw Intersection	\$50,000	\$0	\$0	\$7,410	\$7,410	15 %	\$42,590
WR124 @ Guelph Rd 1 Inter	\$50,000	\$0	\$0	\$6,283	\$6,283	13 %	\$43,717
WR 46 Maltby to WR 34 2 km	\$1,100,000	\$2,839	\$3,825	\$236,886	\$240,710	22 %	\$859,290
Subtotal Growth Related Constructi	\$6,470,000	\$34,648	\$110,677	\$3,473,976	\$3,584,653	55 %	\$2,885,347



County of Wellington

01-June-2015

Roads and Engineering Capital Work-in-Progress Expenditures By Departments All Open Projects For The Period Ending May 31, 2015

	Approved Budget	May Actual	LIFE-TO-DATE ACTUALS				Remaining Budget
			Current	Previous	Total	% of Budget	
			Year	Years			
Roads Construction							
WR 50, 3rd Line to WR 24	\$2,425,000	\$175	\$977	\$488,024	\$489,001	20 %	\$1,935,999
WR14, Eliza & Frederick Arthur	\$3,070,000	\$37,937	\$59,417	\$781,797	\$841,213	27 %	\$2,228,787
WR 29, Wellington/Halton Bound	\$1,956,500	\$0	\$3,618	\$1,891,290	\$1,894,909	97 %	\$61,591
WR 10, McGivern St Moorefield	\$150,000	\$0	\$0	\$25,688	\$25,688	17 %	\$124,312
WR109 AT WR7 Int Improvmnts	\$100,000	\$0	\$0	\$18,359	\$18,359	18 %	\$81,641
WR109, HWY89 S to end of curb	\$2,725,500	\$22,138	\$46,041	\$10,230	\$56,271	2 %	\$2,669,229
WR109 WR7 Traffic Imp Study	\$50,000	\$1,498	\$8,451	\$19,680	\$28,131	56 %	\$21,869
WR123, WR109 Traffic Imp Study	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR12 @ WR8 Intersection Improv	\$990,000	\$9,792	\$21,949	\$14,999	\$36,948	4 %	\$953,052
WR86, COG to WR9 Traffic Study	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR86 @ WR12 Intersection	\$100,000	\$0	\$0	\$0	\$0	0 %	\$100,000
WR109 @ WR16 Intersection	\$50,000	\$0	\$0	\$17,450	\$17,450	35 %	\$32,550
WR51, WR7 @ Hwy 6 2.3km	\$100,000	\$0	\$0	\$0	\$0	0 %	\$100,000
WR124, Concept Plan	\$35,000	\$1,743	\$3,365	\$23,100	\$26,464	76 %	\$8,536
WR8 Main St Drayton Strm Sewer	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR50, Hwy 7 to railway tracks	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR25 - WR52 to WR42 7.0km	\$850,000	\$0	\$0	\$267,122	\$267,122	31 %	\$582,878
Subtotal Roads Construction	\$12,802,000	\$73,285	\$143,817	\$3,557,738	\$3,701,556	29%	\$9,100,444



County of Wellington

01-June-2015

Roads and Engineering Capital Work-in-Progress Expenditures By Departments All Open Projects For The Period Ending May 31, 2015

	LIFE-TO-DATE ACTUALS						
	Approved	May	Current	Previous		% of	Remaining
	Budget	Actual	Year	Years	Total	Budget	Budget
Bridges							
WR87, Maitland O'flow B87137	\$645,000	\$7,272	\$35,158	\$42,226	\$77,384	12%	\$567,616
WR87, Maitland R Bridge 87138	\$1,280,000	\$2,729	\$36,577	\$75,158	\$111,736	9%	\$1,168,264
WR124, Bridge 124135	\$200,000	\$0	\$15,954	\$61,810	\$77,764	39%	\$122,236
WR36, Bridge 36122	\$100,000	\$308	\$13,277	\$39,151	\$52,428	52%	\$47,572
WR109, Bridge 109132	\$225,000	\$0	\$0	\$0	\$0	0%	\$225,000
WR35, Paddock Bridge 35087	\$200,000	\$0	\$181	\$32,909	\$33,091	17%	\$166,909
WR6, B006010, design rehab	\$450,000	\$6,747	\$21,032	\$73,886	\$94,917	21%	\$355,083
WR7, Bosworth Bridge 07028	\$150,000	\$4,670	\$7,603	\$30,251	\$37,854	25%	\$112,146
WR8, Main St Bridge 008089	\$50,000	\$6,480	\$14,017	\$18,166	\$32,183	64%	\$17,817
WR10, Moorefield Bridge 010023	\$425,000	\$2,108	\$29,017	\$43,705	\$72,722	17%	\$352,278
WR10, Wyandot Bridge 010024	\$575,000	\$77,832	\$172,464	\$48,392	\$220,856	38%	\$354,144
WR16, Penford Bridge 16038	\$100,000	\$567	\$6,993	\$21,208	\$28,201	28%	\$71,799
WR30, Bridge 030124	\$200,000	\$0	\$206	\$11,701	\$11,907	6%	\$188,093
WR21,Badley Bridge,021057 sdwk	\$725,000	\$89,456	\$89,456	\$0	\$89,456	12%	\$635,544
WR36 Bridge36086, design and	\$50,000	\$0	\$0	\$0	\$0	0%	\$50,000
WR86 Conestogo Bridge 86125	\$1,200,000	\$68,237	\$71,915	\$0	\$71,915	6%	\$1,128,085
2015 Various Bridge & Culvert	\$200,000	\$0	\$0	\$0	\$0	0%	\$200,000
WR109 Mallet River Brdg 109129	\$50,000	\$0	\$0	\$0	\$0	0%	\$50,000
WR27, Bridge 27106 1km S of WR	\$565,000	\$2,436	\$7,323	\$26,243	\$33,565	6%	\$531,435
Subtotal Bridges	\$7,390,000	\$268,841	\$521,173	\$524,806	\$1,045,979	14%	\$6,344,021



County of Wellington

01-June-2015

Roads and Engineering Capital Work-in-Progress Expenditures By Departments All Open Projects For The Period Ending May 31, 2015

	LIFE-TO-DATE ACTUALS						
	Approved	May	Current	Previous	Total	% of	Remaining
	Budget	Actual	Year	Years		Budget	Budget
Culverts							
WR18, Culvert 18021, D & Liner	\$350,000	\$0	\$326	\$45,072	\$45,398	13 %	\$304,602
WR6, Culvert 06081 replace	\$75,000	\$0	\$0	\$2,211	\$2,211	3 %	\$72,789
WR11 Culvert, 1.7km S of 6th L	\$50,000	\$502	\$543	\$18,522	\$19,064	38 %	\$30,936
WR22, Culvert east of WR23	\$710,000	\$10,894	\$21,314	\$94,835	\$116,149	16 %	\$593,851
WR5, Culvert 0.9km s 7th line	\$200,000	\$1,273	\$1,697	\$6,118	\$7,815	4 %	\$192,185
WR11, Culvert 111020	\$400,000	\$3,466	\$8,006	\$20,085	\$28,091	7 %	\$371,909
WR12, Culvert 12086	\$25,000	\$262	\$1,021	\$3,499	\$4,520	18 %	\$20,480
WR12, Culvert 12087	\$50,000	\$0	\$0	\$7,633	\$7,633	15 %	\$42,367
WR5 Culvert 050780, Design and	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR7 Culvert 071270, design and	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR7 Mncpl Drain Clvrt, 330 m E	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR11, Clvrt 11092, design and	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
WR109 Clvrt 109142, design and	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
Subtotal Culverts	\$2,110,000	\$16,398	\$32,907	\$197,974	\$230,882	11%	\$1,879,118
County Bridges on Local Roads							
E-W Luther TL Bridge 000101	\$600,000	\$870	\$3,934	\$48,310	\$52,244	9 %	\$547,756
E/W Luther TL,Hays Brdg 000001	\$50,000	\$0	\$0	\$0	\$0	0 %	\$50,000
Subtotal County Bridges on Local R	\$650,000	\$870	\$3,934	\$48,310	\$52,244	8%	\$597,756
Roads Resurfacing							
WR16, WR15 to Hwy89 5.4km	\$647,300	\$0	\$0	\$764,377	\$764,377	118 %	-\$117,077
WR124, COG to Era pvmt preserv	\$912,600	\$0	\$0	\$1,019,354	\$1,019,354	112 %	-\$106,754
WR32, WR124 to hwy 7, 5.3 km	\$1,500,000	\$0	\$0	\$0	\$0	0 %	\$1,500,000
WR87, Hwy23 to Minto/Howick	\$100,000	\$0	\$0	\$0	\$0	0 %	\$100,000
WR124, Guelph to Reg. Waterloo	\$150,000	\$0	\$0	\$0	\$0	0 %	\$150,000
WR10, Conc 8 to 4 5.4km	\$1,300,000	\$7,807	\$7,807	\$0	\$7,807	1 %	\$1,292,193
Subtotal Roads Resurfacing	\$4,609,900	\$7,807	\$7,807	\$1,783,731	\$1,791,538	39%	\$2,818,362
Total Roads and Engineering	\$36,922,900	\$1,086,771	\$2,017,611	\$9,607,201	\$11,624,812	31 %	\$25,298,088



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Mark Bolzon, Manager Purchasing and Risk Management Services
Date: Tuesday, June 9, 2015
Subject: **Tender Award – Rehabilitation of Wyandot Bridge Structure B010024**

Background:

Staff recently issued Project No. CW2015-009, a tender for the rehabilitation of the Wyandot Bridge, Structure No. B010024 on Wellington Road 10 in the Township of Mapleton.

The structure rehabilitation of Wyandot Bridge includes the removal of the asphalt and granular fill, removal of concrete curb and post and railing barrier, removal of deck (roof) slab and top of rigid frame abutment walls, reconstruction of the tops of rigid frame abutment walls and deck (roof) slab, parapet wall with railing, approach slabs, concrete slope paving, bridge deck waterproofing and asphalt paving. Repair of the substructure includes CFRP bar strengthening, sawcut and removal of problem areas and patching using a form and pump method. Miscellaneous road works are also included such as concrete curb and gutter on grade, curb outlets and rip rap spillways, steel beam guide rail, steel beam guiderail connection to structure, full depth asphalt pulverizing and asphalt (binder course only) paving, temporary (line tape) pavement markings on the binder course asphalt, and site restoration.

On Friday May 29, 2015, six (6) submissions were received as follows, with pricing shown exclusive of HST @13%

COMPANY	BID AMOUNT (excluding HST)
Finnbilt General Contracting Ltd, Stratford, Kitchener	\$1,139,864.52*
Clearwater Structures Inc, Ajax	\$1,275,419.00*
McLean Taylor Construction Limited, St. Mary's	\$1,347,108.56
Xterra Construction Inc, Kitchener	\$1,427,597.41
Toronto Zenith Contracting Limited, Concord	\$1,439,079.00*
Maloney & Pepping Construction Ltd., Stratford	\$1,446,720.00*

Note – Mathematical correction were made to the submission as noted (*).

The submissions were all in order and staff are recommending awarding the contract to Finnbilt General Contracting Ltd. of Stratford, at the tendered amount of \$1,139,864.52, exclusive of HST @ 13%.

The funding for this project is provided in detail in the attached Funding Summary.

The main reason that the project is over budget is that under the original budget it was suggested that the bridge deck only required a patch, waterproof and pave. It was since been determined that the deck requires a full replacement. In conjunction with the full deck replacement it was decided that the road work between Concession 4 and 5 would be better severed to be completed under this project once the bridge deck was in place. This way the new guiderail through the causeway and the road grade approaching the bridge would be correct. The road works were originally budgeted for under Part A of the Asphalt Paving and Shoulder Gravel project on Wellington Road 10.

The work will commence in the fall and be completed in 2016. This schedule will allow for the extra funding required to complete the project to be budgeted for in 2016.

Recommendation:

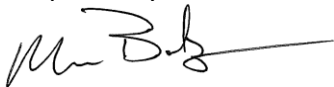
That County of Wellington Project No CW2015-009, a tender for the rehabilitation of the Wyandot Bridge, Structure No. B010024 on Wellington Road 10 in the Township of Mapleton be awarded to Finnbilt General Contracting Ltd., of Stratford, at the tendered amount of \$1,139,864.52, exclusive of HST @ 13%; and

That the funding for this project be approved as set out in the attached Funding Summary; and

That the additional funding required to complete the project be included in the 2016 Budget; and

That the Warden and Clerk be authorized to sign the construction agreements.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark Bolzon', with a long horizontal stroke extending to the right.

Mark Bolzon

Manager, Purchasing and Risk Management Services

COUNTY OF WELLINGTON CAPITAL PROJECT EXPENDITURE AND FINANCING SCHEDULE

Project name: WR10, Wyandot Bridge
Project number : 21140181

PROJECT COSTS

	Total
Tendered Construction Cost*	\$1,160,000
Previously Incurred Professional Fees	\$156,500
Professional Fees	\$43,500
Previously incurred operating supplies	\$65,000
County Labour & Materials	\$10,000
Contingency	\$60,000
Project total	\$1,495,000

* includes net cost to County of HST

PROJECT BUDGET APPROVALS AND FINANCING

	Gross cost	Tax Levy	Federal Gas Tax
2014 Capital Budget	\$ 75,000	\$ 75,000	
2015 Capital Budget	\$ 500,000	\$ 125,000	\$ 375,000
	\$ 575,000	\$ 200,000	\$ 375,000
2016 Capital Budget Request	\$ 920,000	\$ 92,000	\$ 828,000
Revised cost and sources of financing	\$ 1,495,000	\$ 292,000	\$ 1,203,000



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Mark Bolzon, Manager Purchasing and Risk Management Services
Date: Tuesday, June 09, 2015
Subject: Roads Committee – Tender Award Asphalt and Shoulder Gravel – Parts A & B

Background:

Staff recently issued County of Wellington Project No. CW2015-030 a tender for Hot Mix Asphalt and Shoulder Gravel (Supply and Place). The contract is for the supplying and placement of approximately 29,200 tonnes of HL-8, HL-4 Modified and HL-3 asphalt and the supply and placement of approximately 9,975 tonnes of shoulder gravel on County Roads in the County of Wellington.

On Tuesday, May 12, 2015 seven (7) tender submissions were received for Parts A and B (Asphalt and Gravel). Attached is a spreadsheet summarizing the various sections of the tender submissions. The pricing shown is exclusive of HST @ 13%. (Parts C & D of the tender closed on Tuesday, May 12 and were awarded at the May Committee/Council meetings).

Based on the submissions received staff are recommending the award of the contract based on the lowest overall qualified bid, by section, as per the summary table below –

PART	ROAD	RECOMMENDED COMPANY/FIRM	TOTAL AMOUNT (excluding HST)
A	Wellington Road 10 - 120 m south of Concession 5 to the South side of the Moorefield Bridge - 4.51 km	The Murray Group Limited, Moorefield	\$ 859,849.57
B	Wellington Road 32 – Wellington Road 124 to Highway 7- 5.5 km	Cox Construction Limited, Guelph	\$2,058,744.05
		TOTAL AMOUNT	\$2,918,593.62

Summary of Bid Results

COMPANY	PART A Excluding HST	PART B Excluding HST
Cox Construction Limited, Guelph	No bid	\$2,058,744.05
The Murray Group Limited, Moorefield	\$859,849.57	No bid
E & E Seegmiller Ltd., Kitchener	\$918,846.19	\$2,242,020.70
Capital Paving Inc., Guelph	\$893,774.63	\$2,255,302.96
Steed and Evans Limited, St. Jacobs	\$913,106.25	\$2,367,069.25
Coco Paving Inc., Petersburg	No bid	\$2,692,000.00
Ekum-Sekum Incorporated o/a Brantco Construction	\$913,931.50	\$2,309,810.68

Part A was originally to include the section of Wellington Road 10 between Concession 4 and 5. The section in question was removed from the Part A contract and will be included in the Wyandot Bridge tender as the road work cannot proceed until the bridge work is completed.

Part B was budgeted in the fall with the anticipation that the same treatment that was completed on Wellington Road 7 last year to construct the passing lanes would be acceptable for Wellington Road 32. A geotechnical investigation was completed and the results indicate that a more extensive treatment (thicker asphalt and recycling) was required to construct a road that should last for 20 years based on current and projected traffic loading. The project was tendered with the new information from the geotechnical report and the associated thicknesses of asphalt and recycling. Pricing received is competitive for the amount and type of work required to complete the contract.

It is staff's recommendation that the project proceed in 2015 based on the known tender prices received in May and that the 2016 budget reflect the additional funds required to pay back the Roads Capital Reserve. The timing and amounts of projects in the 2016 budget will be adjusted so that it doesn't create an additional burden on the 2016 tax levy. In addition, Ontario Community Infrastructure Funding of \$250,000 will be applied to this project rather than the WR 11 Culvert project, for which the tender is being cancelled in a separate report on this agenda.

The submissions were all in order. Staff are recommending awarding the supply and application of asphalt and gravel on County roads to the lowest bidders meeting the specifications as indicated in the table above. Complete tender results are attached with prices shown exclusive of HST @ 13%.

Refer to "Schedule A – 2015 Paving and Recycling Tender Results" for a summary of project budgets, tender awards and budget adjustments for the tender reports to award Asphalt and Gravel; and Asphalt Recycling, Supply and Applied on Various County Roads.

Recommendation:

That County of Wellington Project No. CW2015-030 a tender for Hot Mix Asphalt and Shoulder Gravel (Supply and Place), Part A & B for the supply and placement of asphalt and gravel be awarded as follows -

Part A - The Murray Group Limited, Moorefield, at the tendered amount of \$859,849.57.

Part B – Cox Construction Limited, Guelph at the tendered amount of \$2,058,744.05.

with prices shown exclusive of HST @ 13%; and

That the Warden and Clerk be authorized to sign the contract documents with the lowest bidders for the completion of the proposed works; and

That the County Treasurer be authorized to apply \$250,000 of Ontario Community Infrastructure Funding to WR 32, WR 124 to Highway 7 that was originally earmarked for the WR 11 Culvert 111020 project; and

That the County Treasurer be authorized to transfer the funds to cover the variances from the projects from the Roads Capital Reserve; and

That the project overage of \$650,000 be included in the 2016 budget as a transfer to reserve to replenish the funds in the Roads Capital Reserve; and

That staff make the necessary adjustments to the timing and amounts of projects in the 2016 capital budget so that it does not create an additional burden on the 2016 tax levy.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark Bolzon', with a long horizontal stroke extending to the right.

Mark Bolzon

Manager, Purchasing and Risk Management Services

Schedule A - 2015 Paving and Recycling Tender Results

			ROUNDED TO THE NEAREST \$100			
Road Length & Code No.	Item	Budget Inc Lab & Equip	Low Tender	County Labour, Equip, Rd Works and Contingency	Total	Budget Difference
Asphalt Resurfacing						
WR10, Conc 8 to Conc 4 21150271	Contracted Construction*	1,300,000	875,000			
	Professional Fees		35,000			
	Culvert Extension		110,000			
	County Labour and Equipment			175,000		
	Contingency			105,000		
	Total	1,300,000	1,020,000	280,000	1,300,000	0
WR32, WR124 to Highway 7 21150111	Contracted Construction*	1,500,000	2,095,000			
	Professional Fees		35,000			
	County Labour and Equipment			50,000		
	Contingency			220,000		
	Total	1,500,000	2,130,000	270,000	2,400,000	(900,000)
	GRAND TOTAL		2,800,000	3,150,000	550,000	3,700,000

* includes net cost to County of HST



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Mark Bolzon, Manager Purchasing and Risk Management Services
Date: Tuesday, June 9, 2015
Subject: **Tender Cancellation - Rehabilitation of Culvert C111020 located on Wellington Road 11**

Background:

Staff recently issued Project No. CW2015-036, a tender for the rehabilitation of Culvert C111020 located on Wellington Road 11, approximately 100 m south of Concession Road 14 in the Township of Mapleton.

The structure rehabilitation of Culvert C111020 includes concrete removals, cast-in-place concrete headwall and curtain walls, reinforcing steel bars, dowels into concrete, welded wire fabric, galvanic anodes, concrete repairs to the roof slab and walls, mechanically stabilized earth wall systems, topsoil, erosion control blankets, landscaping with native seed mixes / live plantings, earth excavation and granular backfill to structure and hot mix asphalt paving. Miscellaneous road works are also included such as removals, rip-rap spillways, steel beam guide rail, asphalt paving, pavement markings and site restoration.

On Tuesday, June 2, 2015, two (2) submissions were received as follows, with pricing shown exclusive of HST @13% -

COMPANY	BID AMOUNT (excluding HST)
Moorefield Excavating Ltd, Harriston	\$969,510.10
Drexler Construction Ltd., Rockwood	\$984,956.25

The submissions were all in order however they were well over the approved capital budget of \$400,000.00.

This project was originally intended to be funded using \$250,000 of Ontario Community Infrastructure Funding (OCIF). The funding is recommended to be applied to the WR 32 – WR 124 to Hwy 7 paving project as a result of the closure of this tender.

Staff is recommending that the tender be cancelled, and that the project as a whole be reviewed and reevaluated for different potential solutions to complete the work in a more cost effective manner. Also, the entire section of the embankment will be considered and included in one tender. Once an acceptable solution has been determined, the project will proceed in a future year with the appropriate budget to cover all costs of the proposed work.

Recommendation:

That staff be authorized to cancel County of Wellington Project CW2015-036, a tender for the rehabilitation of Culvert C111020 located on Wellington Road 11, approximately 100 m south of Concession Road 14 in the Township of Mapleton; and

That the project as a whole be reviewed and reevaluated for different potential solutions to complete the work in a more cost effective manner. Once an acceptable solution has been determined, the project will proceed in a future year with the appropriate budget to cover all costs of the proposed work.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark Bolzon', with a long horizontal line extending to the right.

Mark Bolzon

Manager, Purchasing and Risk Management Services



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee and Police Services Board
From: Gordon J. Ough, P. Eng., County Engineer
Date: Tuesday, June 09, 2015
Subject: **Brisbane Public School**

Background:

Attached for easy reference is the staff report that was considered by the Roads Committee on March 10, 2015 related to the safety concerns associated with parents loading and offloading young students on the shoulders in front of the Brisbane Public School on both sides of Wellington Rd 124 (former Provincial Highway 24).

Gary Cousins and I have met twice with staff at the Upper Grand Public School Board to explore changes that could take place on the school property and we were encouraged by the cooperation and willingness of the staff to consider on site options.

The Committee indicated that it was comfortable moving forward with the designation of a no stopping zone, in the vicinity of the school on the shoulder on the opposite side of road from the school, and that a by law should be in place by the end of June so that the signs could be erected prior to the opening of the school in September.

The other possible options that were still in play but not to be acted on until the results of changes that the school board might be able to do on site are in place and their effectiveness evaluated, include: installing flashing lights to remind motorists that there is a school nearby, piping the ditch and widening the shoulder of the road on the school side of the road, establishing a "Community Safe Zone" as requested by the delegation in February, and, reducing the 60km/hr zone to a 40km/hr zone during the times that children are being picked up from or delivered to school.

At the time this report was prepared the findings or recommendations of the staff at the school board were not yet known.

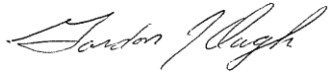
Concerns have been expressed by some, that a no stopping zone without regular enforcement will be of little value. Appointing a County By-law officer to pay special attention to this and perhaps other problem areas is an option that would reduce the dependence on the County OPP to enforce this no stopping zone.

Recommendation:

That a bylaw to prohibit vehicles from stopping on the shoulder of Wellington Road 124 opposite the Brisbane Public School effective August 1, 2015 be prepared and presented to County Council; and,

That a bylaw to appoint a County Bylaw officer be prepared and presented to County Council for consideration.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Gordon J. Ough".

Gordon J. Ough, P. Eng.
County Engineer



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Gord Ough, County Engineer
Date: Tuesday, March 10, 2015
Subject: Elementary Schools on County Roads – Drop off & Pick up on road side

Background:

It is my understanding that several years ago there was an elementary school in Ospringe and an elementary school in Brisbane. The enrolment at the school in Ospringe declined to a level that inspired the school board to close the school in Ospringe and transfer the student population to the school in Brisbane. The increase of students at the school in Brisbane presumably resulted in an increase in bus traffic, staff and staff parking, as well as additional play and sports field development.

The Brisbane School was built as a bused school and no on site accommodations were protected for parents to drop off or pick up students either when it was originally built or when the students that were attending the school in Ospringe were moved over to the school in Brisbane.

Two additional grade levels (Junior Kindergarten and Senior Kindergarten) were added to the Brisbane School in recent years with busing being the officially designated method of accessing the school.

It is my understanding from the delegation that attended the County Roads Committee in February that many parents of the younger students have chosen to drive their children to school and that due to the limited vehicular space on site are choosing to park on both shoulders of former Hwy 24, now known as Wellington Road 124, to drop off their children in the morning and to pick up their children in the afternoon.

The parents are reportedly expressing concern for the safety of their children and themselves during these daily loading and unloading activities and are asking the County of Wellington to lower the speed limit in front of the school to 40km/hr from the existing 60km/hr and to install lights on the speed limit signs that flash during the peak student loading and unloading times as well as for "school events."

In addition to the speed reduction with the flashing light option, a second option of filling in the roadside ditch to accommodate the loading and unloading of the junior and senior kindergarten students was discussed briefly.

No one at the February Roads Committee Meeting seemed to consider either of these two options as safe options, whether one or both options were to be implemented.

There was some discussion regarding who was responsible for causing the problems being discussed and who should be responsible for fixing or at least improving the situation.

At the February Committee Meeting staff committed to look at the schools on other County Roads to determine whether the Brisbane issue was the tip of an iceberg or more or less one of a kind and to bring that information to the March Roads Committee Meeting. I can report that the Brisbane School seems to be unique.

The estimated cost of the purchase and the installation of the signage and flashing lights is \$10,000.00, and the estimated cost of piping and filling in the ditch to widen and pave the shoulder on one side is \$ 40K – \$50K.

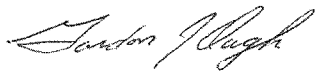
The option of doing whatever it takes to accommodate the loading and unloading of the junior and senior Kindergarten children on school property, which may well involve the elimination of some outside student activity space, was not prepared for this report.

Copies of the letters from the Upper rand District School Board and from the Brisbane Public School Parent Council that were presented to the County of Wellington Roads Committee at its February committee meeting are attached for easy reference.

Recommendation:

That this report be received for information.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Gord Ough".

Gord Ough,
County Engineer



UPPER GRAND DISTRICT SCHOOL BOARD

Mark Bailey

Trustee, City of Guelph (Wards 1 & 5), Upper Grand District School Board

Board Office: 500 Victoria Road N. Guelph, ON N1E 6K2

Email: mark.bailey@ugdsb.on.ca

Tel: 519-822-4420 ext. 735 or Toll Free: 1-800-321-4025

December 17, 2014

George Bridge, Warden
The Corporation of the County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9

Dear Mr. Bridge:

On behalf of the Upper Grand District School Board, I am asking for the County's consideration in a matter of student safety along Country Road 24 in front of Brisbane Public School ("BPS"), Town of Erin.

On October 7, 2014 members of BPS Parent Council and a concerned group of Brisbane parents attended a meeting with the school principal their School Board Trustee and representatives from the OPP, Wellington County and the School Board regarding road safety issues on highway 24, particularly during school drop off and pick up times.

At drop off and pick up times and school events, parents are required to park on the shoulder along both sides of Highway 24 in front of the school. Highway 24 is a County road and is a designated truck route. The speed limit in front of the school is 60 kmh (reduced from 80 kmh), but anecdotal evidence from parents of Brisbane students (and reports from the OPP who have ticketed in the area) indicate that there are violators who exceed the speed limit by more than 25 km/hr. The high traffic volume and speeds make it dangerous for children and their families. There has been at least one vehicular accident at the site this school year.

We are asking that the section of Highway 24 in front of the school be designated a school safety zone with a reduced speed limit of 40 kmh during drop off and pick up times and school events. This should include the installation of a flashing amber school safety zone sign.

We would very much appreciate your timely support and assistance with this matter.

Yours very truly,

Mark Bailey
Chair

Upper Grand District School Board

• Mark Bailey, Chair
• Martha MacNeil

• Marty Fairbairn, Vice-Chair
• Susan Mozlar

• Linda Busuttil
• Bruce Schieck

• Kathryn Cooper
• Lynn Topping

• Barbara Lustgarten Evoy
• Barb White

BRISBANE PUBLIC SCHOOL PARENT COUNCIL



February 6, 2015

County of Wellington Roads Committee Members
The Corporation of the County of Wellington
74 Woolwich Street
Guelph, ON N1H 3T9

Dear Sirs:

On behalf of Brisbane Public School ("BPS") Parent Council and parent community, I request your consideration in a matter of student safety along Highway 24 in front of BPS in the Town of Erin.

At school morning drop off, afternoon pick up times and school events, parents are required to park on the shoulder along both sides of Highway 24 in front of the school. Highway 24 is a County road and is a designated truck route. The speed limit in front of the school is 60kmh (reduced from 80kmh), but abundant anecdotal evidence from parents of BPS students (and reports from the OPP who have ticketed in the area) indicate that there are violators who exceed the speed limit by more than 25km/hr. The high traffic volume and speeds make it dangerous for children and their families who must cross the road to reach their vehicles or load small children into vehicles. There has been at least one vehicular accident at the site this school year. As a lawyer by profession, I recognize the liability issues that may arise for the County in the tragic event of injury to a child or parent.

The addition of junior kindergarten and then the further addition of all day/every day kindergarten, has resulted in an increase in the size of the student body at BPS. The school parking lot is insufficient to accommodate the increased number of cars that require access to the school. We have explored with the UGDSB several options to address this issue, including increasing the size of the parking lot and imposing staggered entry/exit times. It is our understanding that any increase in the size of the parking lot would result in the infringement of the current playground area and require the removal of the baseball diamond which BPS students use on a daily basis during recess and physical education class. In addition, access to an expanded parking lot would be restricted during bus times, thus limiting flexibility in terms of coming and going, effectively trapping cars for certain periods. Staggered entry and exit times would result in staff being required to provide supervision in excess of the time periods permitted under the teachers' union collective agreement, and therefore is not feasible either.

The BPS community has rallied around this issue and we respectfully submit a petition signed by 320 parents/guardians whose children attend BPS. The petition urges you to act now to designate the section of Highway 24 in front of BPS a school safety zone with a reduced speed limit of 40kmh during drop off and pick up and times and school events, and install a flashing amber school safety zone sign.

Sincerely,


Rachel Ingram

Chair - BPS Parent Council



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Mark Bolzon, Manager Purchasing and Risk Management Services
Date: Tuesday, June 9, 2015
Subject: Roads Committee – Wellington Road 46 Request for Early Tender and Partial Approval

Background:

Staff have been working with Triton Engineering Services Limited on the design of Wellington Road 46 (Brock Road) from Wellington Road 34 to Highway 401. The design will be ready in early July to tender the first phase of the project from Highway 401 to 400 m north of McLean Road. The intent is to tender the entire project as one tender with a Part A to be completed in 2015 and a Part B to be completed in 2016.

Part A includes all of the storm sewer within Phase 1. The main storm line is under the west shoulder and should be able to be installed with only reducing the 4 lane road to 3 lanes. Catch basin laterals will also be installed across the road and traffic will have to be managed to complete this work. The benefits of completing this work in the late summer or early fall of 2015 would allow any settlements over the new storm sewer to occur over the winter before paving operations in 2016. Completing the storm sewer in 2015 will also speed up the process to complete the remaining work in 2016.

To allow the above mentioned to occur, Committee and Council approval is required to tender the project as two parts with Part A proceeding with approval by the CAO, County Treasurer and County Engineer and Part B receiving Committee approval in September. Part A would have to be less than \$500,000 as per County policy for approval without Committee and Council.

Tendering in July will also allow for the work to be available for contractors in the fall of 2015 when they are currently looking for work and competitive pricing to complete the project in 2016 when the contractor knows they have a project to start on at the beginning of the year. Also, the actual cost of construction would be known and budgeted for correctly in the 2016 budget.

Recommendation:

That staff proceed with the tendering of the Wellington Road 46 reconstruction project in July as indicated in two Parts, A and B.

That CAO, County Treasurer and County Engineer be authorized to award Part A to the overall lowest bidder of Parts A and B meeting all requirements for the completion of the proposed works; and

That Part B be taken to Committee in September for approval.

Respectfully submitted,

Mark Bolzon
Manager, Purchasing and Risk Management Services



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: [Gordon J. Ough, P.Eng.], [County Engineer]
Date: Tuesday, June 09, 2015
Subject: **Roundabouts: The Sustainable Intersection Choice – Article from the APWA Reporter, May 2015**

Background:

In the May 2015 edition of the American Public Works Association magazine, APWA Reporter, an article was included about roundabouts. **Roundabouts: The Sustainable Intersection Choice**, Marshall Elizer, P.E., PTOE, APWA Reporter, May 2015.

The author has included information about the history of roundabouts, safety concerns at stop controlled intersections, use of roundabouts to prevent fatalities, sustainability benefits of roundabouts, selection of roundabouts and public acceptance. Much of the information within the article is applicable to the roundabouts already constructed in Wellington County and the roundabouts scheduled to be constructed in the future. Included on the last page of the article are two tables of information that demonstrate the improvement of safety and how public acceptance of roundabouts changes after construction.

Staff believes that the article should be shared with Committee and members of Council as it is relevant to Wellington County's continued use of roundabouts for improved safety at intersections and is from a third party source that has experienced the same challenges.

Recommendation:

That the Article, Roundabouts: The Sustainable Intersection Choice, Marshall Elizer, P.E., PTOE, APWA Reporter, May 2015 be accepted for information.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Gordon J. Ough'.

Gordon J. Ough, P. Eng.
County Engineer

Roundabouts: The sustainable intersection choice

Marshall Elizer, P.E., PTOE

Executive Vice President

Gresham, Smith and Partners, Nashville, Tennessee

Member, APWA Center for Sustainability

While there is no national database of intersections in the U.S. or Canada, it is estimated that there are well over three million roadway intersections in the United States alone, with about 300,000 of those being signalized. Further estimates are that approximately 0.001 percent (3,000) of those intersections are designed as modern roundabouts, with installations present in all 50 U.S. states and Canadian provinces. With so few roundabouts currently in use, there are tremendous opportunities to apply this proven intersection design to thousands, if not hundreds of thousands, of intersections in North America.

About half of all crashes and half of all injury crashes in the U.S. occur at intersections according to the Federal Highway Administration (FHWA). Most fatalities and injuries are due to right-angle crashes that occur at signalized and stop-controlled intersections. In the United States, over the last several years an average of approximately 21% of the fatalities and roughly 50% of the serious injuries have been attributed to intersections. Beyond the crash statistics, traditional signalized or stop-controlled intersections can also become very congested when traffic volumes are high, creating inefficiency that results in user delay, frustration, economic loss and environmental impacts.

Modern roundabouts are a type of intersection design that can be effectively used at all types of intersections, particularly those controlled by traffic signals and stop signs, and will aid in greatly reducing fatalities and injuries while improving traffic flow and the environment. The widespread use of roundabouts will bring a host of sustainable benefits to communities.

In addition to safety concerns, traffic congestion is also a growing and widespread problem in North America, especially in urban areas. Opportunities to improve traffic flow and safety are often missed when traffic signals or stop signs continue to be installed at locations that are suitable for roundabouts. Studies have shown that if many newly signalized intersections had been constructed as modern roundabouts, intersection crashes, vehicle stops and delay, and emissions would all have been greatly reduced at those locations.

For example, a study that examined ten signalized intersections in northern Virginia that were newly constructed or recently modified estimated that roundabouts would have reduced vehicle delays by 62-74 percent, depending on the intersection, thus eliminating more than 300,000 hours of vehicle delay on an annual basis. Annual fuel consumption would have been reduced by more than 200,000 gallons, with commensurate

reductions in vehicle emissions. And, based on previous research on crash risk, it is estimated that use of roundabouts in place of traffic signals could have prevented 62 crashes, 41 with injuries, over four years at just five of the intersections for which crash data were available. These results show the magnitude of the traffic flow and safety costs when traffic signals are installed at locations where roundabouts are suitable alternatives.

Roadway Safety – A National Challenge

Motor vehicle crashes are the leading cause of death for age four and every age 11 through 27 in the U.S. according



A modern roundabout in Roswell, Georgia
(Source: Gresham, Smith and Partners)

to the National Highway Traffic Safety Administration (NHTSA). In 2012 (the latest reporting year for NHTSA), 33,561 people were killed on U.S. roadways in the estimated 5,615,000 police-reported motor vehicle traffic crashes; 2,362,000 people were injured in those crashes; and 3,950,000 crashes resulted in property damage only. An average of 92 people died each day in motor vehicle crashes in 2012—one every 16 minutes.

With over 21% of these fatalities and roughly 50% of the serious injuries attributed to roadway intersections, FHWA has identified modern roundabout intersections (as opposed to larger traffic rotaries or smaller traffic circles) as one of nine proven life-saving roadway safety strategies. Modern roundabouts have consistently been proven to be substantially safer than traditional signalized and stop-controlled intersections, where appropriate for traffic needs and properly designed. They also typically operate more efficiently, have lower

life-cycle costs, increase fuel efficiency and lower vehicle emissions. Overall, for many intersections, modern roundabouts are clearly the most sustainable intersection choice that a roadway designer can make.

Roundabout History

Traffic circles have been part of the roadway system in the United States since the early 1900s when one of the first circles, known as the Columbus Circle, was installed in New York City (*Roundabouts: An Informational Guide*, NCHRP Report 672, 2010). After that installation a number of large circles or rotaries were built in the United States that allowed for high-speed merging and weaving of vehicles. In those designs priority was given to entering vehicles, facilitating high-speed entries. Examples of high crash experience and congestion in the traffic circles led to many fewer rotaries being designed after the mid-1950s. Internationally, the experience with large traffic circles was equally negative, with many countries experiencing circles that became congested as traffic volumes increased.

While traffic circles were falling out of favor, the “modern” roundabout was developed in the United Kingdom in the 1960s to rectify problems associated with these traffic circles. In 1966, the United Kingdom adopted regulations that required entering traffic to give way, or yield, to circulating traffic at all circular intersections. This rule prevented circular intersections from “locking up” by not allowing vehicles to enter the intersection until there were sufficient gaps in circulating traffic. In addition, smaller radius circular intersections were proposed that required smaller horizontal curve features which achieved slower entry and circulating speeds.

These design changes significantly improved the safety characteristics of the circular intersections by reducing the number and the severity of crashes. The modern roundabout represents a significant design and operations improvement over rotaries and traffic circles. As a result many countries including the U.S. and Canada have adopted the modern roundabout as a common intersection form, and many agencies have developed extensive design guides and operational analysis methods for modern roundabouts.

Modern roundabouts have several distinguishing characteristics and benefits, setting them apart from other intersection types. Traffic can typically move more freely through roundabouts which makes them more efficient than signalized or stop-controlled intersections. Unlike other types of intersections, roundabouts are designed to slow the speed of vehicles entering by deflecting them from a straight-line path into the roundabout. Drivers approaching the roundabout have time to judge for gaps in the circulating traffic and either yield or adjust their speed before entering the intersection, thus allowing for safer entries into circulating traffic.

Roundabouts are also considered the “greenest” intersection alternative and not only because of their landscaping opportunities and aesthetic appeal. Reduced vehicle idling means fewer emissions and less wasted fuel. Less acceleration and fewer sudden “hard stops” means quieter, more peaceful transportation through communities. Landscaping in the central island, approach splitter islands, and along the approaches can further benefit and enhance community livability.

A common concern for people who have not experienced driving through



a properly designed roundabout is that they won't be able to get used to the new traffic pattern. But studies consistently show just the opposite—the public overwhelmingly supports roundabouts after they are constructed. Older Americans, in particular, are supportive of roundabouts.

By 2025, a quarter of all legal drivers in the United States are projected to be over the age of 65. Intersections are the single most dangerous traffic environment for drivers of any age with left-hand turns being the single most dangerous traffic maneuver that any of us can make. Forty percent of all crashes that involve drivers over the age of 65 occur at intersections. This is nearly twice the rate of experienced younger drivers.

Despite their benefits, roundabouts may not be the best solution at all locations. Roundabouts may not be feasible at locations where topographic or site constraints limit the ability to provide appropriate geometry. Also, intersections with very unbalanced traffic flows (i.e., very high traffic volumes on the main street and very light traffic on the side street) may preclude roundabouts for reasons of traffic flow. However, as the proportion of minor street traffic volumes increase, roundabouts typically become more feasible and provide greater reductions in vehicle delays compared with traffic signals.

Sustainability Benefits of Roundabouts

There are numerous benefits of modern roundabouts which contribute to a community's sustainability.

Safety. As noted above, roundabouts have been proven to typically be far safer than traditional stop sign or signal-controlled intersections. In

a number of documented studies roundabouts reduced injury crashes by 75 percent at intersections where stop signs or signals were previously used for traffic control, according to the Insurance Institute for Highway Safety (IIHS). Studies by the IIHS and Federal Highway Administration have shown that roundabouts achieved these safety benefits:

- A 37 percent reduction in overall collisions
- A 75 percent reduction in injury collisions
- A 90 percent reduction in fatality collisions
- A 40 percent reduction in pedestrian collisions

There are several reasons why roundabouts help reduce the likelihood and severity of collisions:

- **Lower travel speeds** – Drivers are required to slow down and yield to traffic before entering a roundabout. Speeds in the roundabout are typically in the 15 to 20 miles per hour range. The collisions that occur in roundabouts are typically minor and cause few injuries since they occur at such low speeds.
- **No traffic signal to speed through or cause sudden stops** – Roundabouts are designed to promote a continuous, circular flow of traffic. A driver's primary obligation is to yield to traffic before entering a roundabout; if there is no traffic in the roundabout, drivers are not required to stop. Because traffic is constantly flowing through the intersection, drivers don't have the need to speed up or come to a stop quickly when a signal cycles to yellow or red.

- **One-way movement** – Roads entering a well-designed roundabout have slight curves to direct drivers into the intersection at the correct angle and help them travel counterclockwise around the roundabout. This movement eliminates the possibility for right-angle or head-on collisions that occur at traditional intersections.

Roundabouts are also generally safer for pedestrians. Pedestrians walk on sidewalks around the perimeter and cross only one direction of traffic at a time. Crossing distances are relatively short, and traffic speeds are lower than at traditional intersections.

Reduce delay, improve traffic flow. Contrary to some perceptions, roundabouts normally move traffic through an intersection more quickly, and with less congestion on approaching roads. Roundabouts promote a continuous flow of traffic whereas intersections with traffic signals and stop signs have to wait for a green indication or come to a full stop before proceeding through the intersection. Traffic is only required to stop or yield when necessary so many roundabouts usually process more traffic in the same amount of time.

Studies by Kansas State University measured traffic flow at intersections before and after conversion to roundabouts. In each case analyzed, installing a roundabout led to at least a 20 percent reduction in delay. Additional studies by the IIHS of intersections in three states found that roundabouts contributed to an overall 89 percent reduction in vehicle delays and 56 percent reduction in vehicle stops.

Cost. A roundabout may need more property within the actual



West Sandtown Road, Cobb County, Georgia (Source: Gresham, Smith and Partners)

intersection, but often takes up less space on the streets approaching the roundabout. Because roundabouts can handle greater volumes of traffic more efficiently than signals, where drivers may need to line up to wait for a green light, roundabouts usually require fewer lanes approaching the intersection.

The cost difference between building a modern roundabout and a traffic signal is often comparable depending on right-of-way conditions. Where long-term costs are considered, roundabouts have the benefit of eliminating signal hardware, maintenance and electrical costs.

Roundabouts also remain effective during power outages. Unlike traditional signalized intersections, which must be treated as a four-way stop or require police to direct traffic, roundabouts continue to work in their normal condition.

Pedestrians and Bicyclists. In general, pedestrians face less risk crossing roundabouts than traditional intersections, primarily because of the slower speeds and the elimination

of left turns across the pedestrian crosswalks. Entry “splitter” islands both shorten the crossing distance for pedestrians and allow them to cross one direction of traffic at a time. Bicyclists can dismount and use the pedestrian crosswalk, or experienced bicyclists can ride through the roundabout.

There is ongoing research to determine the most effective strategies for making roundabouts accessible for visually impaired pedestrians. The U.S. Access Board has been active in the development of design guidelines for roundabouts. The National Cooperative Highway Research Program (NCHRP) also continues to research a range of geometric designs, traffic control devices, and other treatments to make roundabouts more accessible to pedestrians with vision impairments.

Trucks, Buses and Other Large Vehicles. Roundabouts can be designed to accommodate the turning radii of large trucks, trailers and buses just like any other intersection. Roundabouts generally are designed with truck “aprons”—a slightly raised

area around the inner circle that provides trucks, buses, and other large vehicles additional room to navigate the roundabout.

Emergency Responders.

Roundabouts can be designed such that emergency service providers are able to navigate through roundabouts with their largest vehicles. In emergency call situations, roundabouts can be safer and more efficient for an emergency vehicle than traveling through traditional intersections.

Good locations for roundabouts

Roundabouts are safe and efficient, but as noted earlier they are not the ideal solution for every intersection. Several factors should be evaluated when deciding to build a modern roundabout at a specific intersection. Designers typically consider these characteristics when determining the best design solution for a particular intersection:

- **Crash history** – data about the number and types of crashes, speeds, and other contributing factors are analyzed.
- **Intersection operation** – the level of current and projected travel delay being experienced, and backups on each leg of the intersection.
- **Types of vehicles and users traveling through the intersection** – the vehicle mix and number and type of pedestrians and bicyclists that use the intersection. This is especially important for intersections frequently used by large trucks or buses.
- **Cost** – this includes the societal cost of accidents, right-of-way (land purchase) requirements, and long-term maintenance and operations requirements.

The importance of proper design cannot be overstated. Good design is critical to the success of a modern roundabout. Other keys to success include public involvement and stakeholder support. FHWA through its Safety website offers numerous resources, including a one-day informational workshop for state and local transportation agencies.

Public Acceptance

While not necessarily an indicator of sustainability, public acceptance is a critical element of an effective

approach to implementing modern roundabouts in a jurisdiction. Good design and good public involvement throughout the entire planning and design process will ensure the best chance of success at starting and growing a roundabout program in a community. The information below illustrates just how effective roundabouts can be and how supportive the public can become once they actually experience effectively located and designed modern roundabouts.

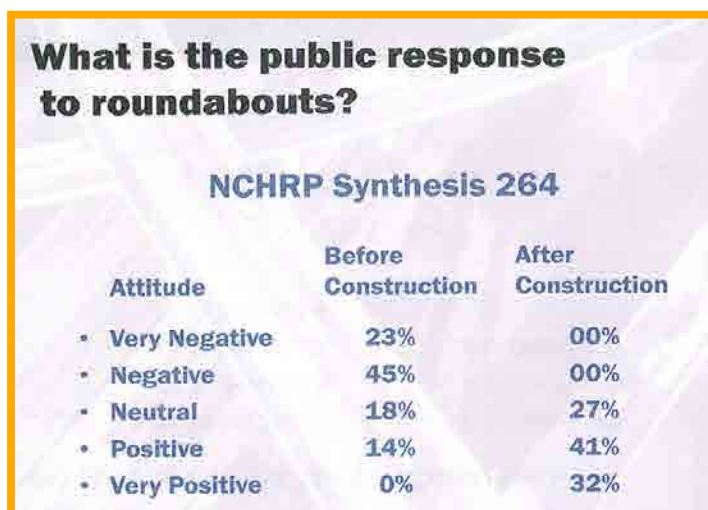
Summary

Every agency should routinely consider the use of modern roundabouts for any new or retrofitted intersections in their jurisdiction. It will often be the most sustainable choice and provide much greater long-term safety and other benefits than a traditional stop-controlled or signalized intersection.

Marshall Elizer is a member of APWA's Center for Sustainability and the AASHTO Committee on Geometric Design, and is a former member of APWA's Board of Directors. He can be reached at (615) 604-6721 or meliz@gspnet.com.

Question	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Did the roundabout improve safety?	54%	23%	14%	4%	4%
Did the roundabout improve traffic operations?	70%	18%	5%	4%	3%
Do you view this roundabout as successful?	68%	19%	6%	4%	3%
Agreeable with other roundabouts in City?	67%	18%	4%	3%	7%

Source: City of Roswell, GA Survey via e-mail newsletter, Twitter and Facebook. 742 responses – 99% had driven through the roundabout.



NCHRP Synthesis 264, Modern Roundabout Practice in the United States

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Transportation**

Office of the Minister

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M2015-1860

May 4, 2015

Mr. George Bridge
Warden
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9

COUNTY OF WELLINGTON

MAY 12 2015

ENGINEERING SERVICES
DEPARTMENT

Dear Warden Bridge:

The Auditor General released her report on winter highway maintenance in Ontario on April 29, 2015. We thank her for this thorough and thoughtful review, and her recommendations. While we have already taken action on many of them, we continue to work with our contractors and the OPP to improve highway snow clearing operations.

Being able to travel safely on our highways is very important to Ontarians, and at the Ministry of Transportation (MTO) it's our top priority. Over the past few years, MTO has worked to improve the quality of highway snow clearing by adding more than 100 pieces of equipment. We've also strengthened our oversight and enhanced the way we plow truck climbing and passing lanes, and freeway ramps and shoulders. In the coming months, we'll be doing more to make driving conditions better in winter 2015/16.

The Auditor General's report provides eight recommendations to the ministry. These recommendations identify improvements to how maintenance contracts are awarded; oversight of highway maintenance contractors; the effective use of equipment, sand, salt or anti-icing liquid to achieve the ministry's snow clearing standards; contractors' patrolling and reporting; and improved communications with the public on winter driving conditions and winter maintenance performance.

As a ministry, we have a lot of work to do and so do our contractors. I will be meeting with them in person as soon as possible to determine how we can work together to improve this program and their performance.

.../2

Further, I have directed ministry staff to provide me with an action plan within 60 days that outlines ways to further strengthen and improve winter maintenance, while addressing the Auditor's recommendations, to ensure that we are doing everything possible to provide Ontarians with safe highway conditions. I will make that action plan public.

I have heard from some municipalities regarding how winter maintenance has improved this past winter season but there is more we need to do. I look forward to reporting back on our action plan, our progress implementing the Auditor's recommendations and the additional steps we will be taking to enhance winter maintenance in Ontario.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Steven Del Duca', with a stylized, cursive script.

Steven Del Duca
Minister