INNOVATIVE USE OF A CORPORATE SURVEY TOOL FOR PUBLIC CONSULTATION FOR THE SUSTAINABLE RURAL ROADS MASTER PLAN FOR STRATHCONA COUNTY, ALBERTA

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INTRODUCTION

Strathcona County, situated east of Edmonton is Alberta's fourth largest municipality with a population of over 88,000. Its status as one of the five Specialized Rural Municipalities in the province allows it to include a large Urban Service Area (Sherwood Park, population 62,000, which would be the fifth largest city in Alberta if it were an incorporated "city" in its own right), as well as a Rural Service Area (population 26,000) comprising farms, numerous country residential subdivisions, eight rural Hamlets, and a large industrial zone for heavy industrial development mainly related to heavy oil refining and upgrading. In addition to the usual transportation functions of a typical rural municipality provided to rural residents (such as access to employment, shopping, medical, educational, and farming and other services, and social interaction needs of the residents), Strathcona County must also look after special transportation needs of, to give two examples, the extensive medium and heavy industries in the County, and the daily commuters to/from Sherwood Park, Edmonton and Fort Saskatchewan.

The management (improvement, rehabilitation and maintenance) of the County's 1,300 km rural road network has been guided by the County's Council-approved Rural Roads Master Plan (RRMP) 1995

(Strathcona County, 1995), as updated by the various administrative reviews by County staff. In June 2009, the County retained the services of EBA Engineering Consultants Ltd. to develop the Sustainable Rural Roads Master Plan (SRRMP) 2010. (Note that the roads within the Urban Service Area of Sherwood Park were not part of the study.) The County's three overarching guidelines for the development of the SRRMP 2010 were: 1) Environmental sustainability (with respect to the environmental footprint of rural road works); 2) Budget sustainability (reallocation within existing budget levels); and 3) Feedback from the County's rural residents, in that the plan must take into account the needs, preferences, and opinions of the County's rural residents. Meaningful public consultation was therefore an integral part of the plan development.

The SRRMP 201 was completed in April 2010, and its salient technical aspects and findings have been reported elsewhere (Hassan et al, 2010). This paper presents highlights of the design, conduct and results of the public consultation process that made an innovative use of a survey tool normally used by EBA for internal staff surveys.

RELEVANT BACKGROUND INFORMATION ABOUT STRATHCONA COUNTY RURAL ROAD NETWORK

Road Classification and Standards

The rural road network of Strathcona County totalling 1,304 km is functionally classified into six classes: four classes of grid roads, Country Residential Subdivision (CRS) roads, and rural Hamlet roads. The main characteristics of each class are described below.

Class I Grid Roads: length 79 km; typical traffic volume greater than 1,000 vehicles per day (vpd); current standards: top width 9.0 m, Right of Way (ROW) 40 m; hotmix asphalt surface,.

Class II Grid Roads: length 491 km; typical traffic volume 250 vpd to 1,000 vpd; current standards: top width 7.5 m; ROW 40 m (minimum 30 m); coldmix asphalt surface.

Class III Grid Roads: length 135 km; typical traffic volume less than 100 vpd; current standards: top width 7.5 m; ROW 30 m; gravel surface.

Class IV Grid Roads: length 233 km; typical traffic volume 100 vpd to 250 vpd; current standards: top width 7.5 m; ROW 30 m; oil-based dust- suppressed surface.

Rural Hamlet Roads: length 31 km; varying traffic volume; current standards: roads in "high density parcel development" 9.0 m gutter-to-gutter width, and 18 m ROW; roads in "low density parcel development" 8.5 m top width, and 30 m ROW; hotmix asphalt surface.

Country Residential Subdivision (CRS) Roads: length 333; varying traffic volume; current standards: top width 8.5 m; ROW 30 m; hotmix asphalt surface.

Historical Expenditures and Overlay Policies

In 2009 the rural roads were allocated $13.5 million (5.8%) of the County's total budget of $232.0 million. The County's budget allocations for the various work types (capital overlays, capital reconstruction, and maintenance) and functional road classes have been guided mainly by the recommendations in the 1995 RRMP, which required overlaying of Class II and CRS roads on a fixed rehabilitation cycle. Reviewing the expenditures on rural roads by functional classification and work type over the four years 2006 to 2009 indicated that:

- Nearly 80% of the County's rural roads expenditure was allocated to Class II (43.6%) and CRS roads (35.6%).
- In contrast, for various policy and historical reasons, Class I roads have been under-funded.
- In terms of budget allocations for various work categories, 31% was spent on maintenance (operating budget) and 69% on capital works. It should be noted that vast majority of the capital budget was spent on overlays of Class II and CRS

roads, and there was very little allocation for improvement or reconstruction of Class I roads.

The policy of overlaying a fixed number of kilometres per year of Class II and CRS roads has created some unwanted effects:

- Repeated overlays may improve the road surface condition, but they create or exacerbate the narrow road-top width problems because they produce a permanent loss in width.
- Given that the total capital budget for rural roads in a given year is fixed, Class II and CRS roads overlays on the basis of a fixed number of km per year mean that insufficient funds are available for relatively high traffic volumes Class I roads.

INNOVATIVE USE OF A CORPORATE SURVEY TOOL FOR PUBLIC CONSULTATION

Survey Methodology

Since the SRRMP 2010 would potentially bring about significant changes in the County's policies and practices for rural roads, the County required that all of its 8,780 rural residences be directly consulted. Public consultation for the SRRMP 2010 study consisted of two phases:

- A mail out questionnaire survey of all 8,780 rural residences in the County was conducted in September 2009; and
- Three open houses were held in October 2009 to present the results of the questionnaire survey and obtain additional feedback.

The County's previous survey methods had produced a low response rate around three percent. The challenges for EBA were several and significant: the survey tool needed to be low cost (given the constrained budget for the study), and flexible and adaptable to the County's requirements for the analysis of survey results, e.g. sorting, summarizing, filtering, tabulation, graphic presentation. Purchasing a customized survey tool would have been too expensive; and adapting

Microsoft Excel too cumbersome and not fully satisfactory. For several years EBA has successfully utilized the SurveyMonkey software available by subscription http://www.surveymonkey.com/ for a wide range of internal staff surveys. EBA's transportation planning and human resources staff assessed SurveyMonkey and concluded that it could effectively meet the Transportation Master Plan's survey requirements.

The purpose of the questionnaire mailed to all 8,780 rural residences was to gauge the degree of satisfaction of the rural residents with the state of the various classes of the rural road network, and to obtain their priorities and suggestions regarding future budget priorities and selected major issues related to the network.

The three-page questionnaire, along with the two-page explanatory sheet sent with the questionnaire, is included at the end of this paper. Note that the definitions of roads/factors/measures and of the rating scales are included in each question.

Specifically, the questionnaire asked the respondents to provide ratings, rankings and comments on:

- Rating by frequent users of satisfaction with the state of roads in each functional road class
- Ranking of priority-setting factors
- Ranking of road improvement types
- Ranking of budget and environment sustainability measures.
- Narrative comments in each of the above categories, and in a separate question on any aspects of the County's rural road system.

The respondents were given three options for returning the questionnaires:

1. Complete the questionnaire **online** at the Strathcona County's website **www.strathcona.ab.ca**. Links on the website home page led the respondents to the questionnaire survey and also to representative pictures of the various classes of rural roads in the County.

2. **Drop off** at any of the four designated locations around the County. Or,
3. **Fax** the questionnaire to EBA.

Of the 8,780 questionnaires delivered, 755 (8.6%) were completed; the approximate breakdown of the method of return was: 50% online, 25% by fax, and 25% dropped off. The faxed and dropped off responses were manually entered into the SurveyMonkey database, and the entire survey inputs were analyzed electronically.

Discussion

The use of the on-line survey utilizing the SurveyMonkey software for public consultation was evidently successful, in that it:

- Improved the response rate from the County's usual 3% (considered a minimum) to a much more representative 8.6%.
- Reduced the cost of conducting and analyzing the survey by an estimated 50 %.
- Enabled EBA to exceed the client's expectations: we were able to respond quickly to the client's requests for various summaries and sorts regarding the survey results.
- Demonstrated an unprecedented collaboration between disparate organizational units in EBA (transportation planners and human resource specialists) who normally don't work together on "technical" projects.
- Allowed the respondents unlimited scope to provide comments which would not have been possible in a paper-only survey. In fact, more than 1,000 narrative comments were received from 487 respondents, a summary of which is presented below.

Summary of general comments received from 487 respondents	
Themes/Issues Raised	**No. (%) of Respondents**
Complaints and criticism about narrow road widths covering all classes of rural roads.	105 (21.6%)
Expressed satisfaction and positive comments regarding the state of existing rural roads.	67 (13.8%)
Spoke to the importance of the Class I network (improving the un-improved and further improvements to the existing improved).	63 (12.9%)
Comments and suggestions regarding the Provincial (two-digit and three-digit) highway network in the County.	56 (11.5%)
Questioned the money being spent (e.g. needless overlays, etc.).	36 (7.4%)
Suggested the need for right-of-way brushing.	13 (2.7%)
Miscellaneous comments, mostly regarding specific rural roads and particular locations.	Various

Public Open Houses

Three public open houses were held to present the results of the questionnaire survey to rural residents and to get additional feedback and input.

The gist of the feedback comments at the open houses is presented below. The percentage comparisons indicated below are with respect to the responses in the questionnaire survey.

- 88% of the Open House respondents confirmed the factors to consider when setting priorities.
- 79% of the Open House respondents confirmed the priorities for determining road improvement.

- 92% of the Open House respondents confirmed the importance of budget and environment sustainability measures.
- The general comments in the Open House feedback form were generally similar to the questionnaire survey responses (e.g. narrow road widths, safety, the need to improve high traffic volume roads).

MAJOR RESULTS FROM PUBLIC CONSULTATION

Among the many issues identified in the analysis of the ratings provided in answers to specific items in the survey questionnaire, the more than one thousand narrative comments and suggestions in Question 11, and the feedback received at the three public open houses, the following four issues are considered to be the top priorities for the rural residents who use the County's rural roads.

Widen narrow roads. Narrow road-top width is the top concern of Strathcona County rural residents. While the rural residents like the smooth riding quality provided by frequent overlays, they are very concerned with the narrowing effect of the overlays on road width. In the narrative comments, there were many that alluded to: the roads becoming narrow pyramids if we keep overlaying them without widening; money "being wasted on overlaying roads that are in good condition"; etc.

Complete improvements to the higher traffic volume Class I network. The public's high priority for completing the improvements to the Class I network is not surprising because most rural residents end up on the high traffic volume Class I roads as they travel to and from Sherwood Park, Fort Saskatchewan and Edmonton, or connect to the provincial highways.

Make roads with high traffic volumes and/or safety issues a priority. This reflects the public's priority for safety, which is rightly perceived to be more of a problem on high traffic volume roads (and, per the width issue raised above, also with narrow roads).

Keep maintenance levels high. In terms of sustainable budgets, the public is aware that capital investments (reconstructions, overlays) are expensive, and that a high level of maintenance is a cost-effective alternative. Also, in general the public wants the County to keep up with the routine maintenance, such as crack filling, pothole repairs, snow clearing, etc.

The ranking of the budget and environmental sustainability measures from public consultations was:

1. Schedule maintenance and pavement overlay decisions based on annual road condition assessments rather than on a fixed cycle.
2. Establish road surface type and/or width based on safety, type of use and traffic volumes.
3. Increase the recycling of existing pavements to reduce the narrowing effect of successive overlays.
4. Increase spot repairs (e.g., crack filling, seal coats) rather than full road resurfacing.

The public's ratings of the sustainability measures in the questionnaire, their narrative comments, and their top priority issues all indicate recognition of the importance of managing the County's rural roads within a sustainable budget and in an environmentally responsible manner.

It is interesting to note that the public's priorities are in line with the conclusions reached by EBA based on a technical analysis of the rural road network's characteristics.

DISCLAIMER

The opinions expressed in this paper are of the authors and do not necessarily represent the opinions or policies of Strathcona County.

REFERENCES

Hassan, M., Dekker, R., Palsat, D., McGregor, R., and Kennedy, D. (2010), Meeting the Dual Challenge of Budget Constraint and Environmental Sustainability: A Case Study of the Rural Road Network of Strathcona County, Alberta, Proceedings of the 2010 Annual Conference of the Transportation Association of Canada, Halifax, Nova Scotia

Strathcona County (1995), Rural Roads Master Plan Update, Final Report, prepared by ID Engineering Limited, February 1995.

SurveyMonkey http://www.surveymonkey.com/

Appendix: Survey Questionnaire

Sustainable Rural Roads Master Plan - Study 2009

Dear Strathcona County Rural Resident,

The County would like your input to update the existing Rural Roads Master Plan.

As people who depend on the County's rural roads on a daily basis for business, pleasure, recreation, and other uses, the County is seeking your input on a number of key and guiding issues to review the 1995 Rural Roads Master Plan. Your involvement and input is very important to us, and is needed by September 21.

The rural road network includes the range and township (grid) roads, and roads in country residential subdivisions and rural hamlets, with various road surface types (asphalt paved, dust controlled, gravel). Maintenance and improvements to these roads are guided by the 1995 Rural Roads Master Plan. It is time to update the plan. We need to hear from you on how you view the rural roads today and what changes you may see needed in the future.

What does the Sustainable Rural Roads Master Plan study involve?

On behalf of the Strathcona County, EBA Engineering Consultants Ltd. (EBA) of Edmonton will conduct consultation with rural residents, carry out the required technical analyses, and make recommendations to update the current Rural Roads Master Plan in respect to:

- Classification criteria and road standards for the range and township (grid) roads
- Rehabilitation practices and frequencies for grid roads, country residential subdivision roads and rural hamlet roads
- Funding allocations for various program elements: maintenance, overlays, upgrading and reconstruction
- Funding allocations for various road classes
- Priorities for upgrades to Class I (paved hot mix) roads which carry high traffic volumes
- Progression of Class IV (dust suppressed) to a Class II (paved cold mix) standard
- Road safety program
- Sustainability of the County's road network from budget and environmental viewpoints.

How can YOU be involved?

1. Complete the attached questionnaire **by Monday, September 21**. Your responses will help gauge public satisfaction levels of current rural roads and guide direction of County practices for rural road maintenance and improvements.

2. Participate in open houses in mid-October. Results of this questionnaire and preliminary recommendations will be presented for further public feedback. Watch the local newspaper and the County website for details.

Further information
If you have questions about the Sustainable Rural Roads Master Plan study, or the questionnaire, please contact **Mr. Masood Hassan,** Senior Transportation Engineer, EBA Engineering Consultants Ltd. at **780-451-2130, Ext. 325.**

The project manager with Strathcona County is Mr. Richard Dekker, Engineering & Environmental Planning at 780-416-6763.

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About Strathcona County rural roads

The current Rural Roads Master Plan categorizes roads into a slightly more complex system than simply gravel or paved. Here is information about the rural road classification system to help you complete the questionnaire. Photos showing these road types can be found at www.strathcona.ab.ca. Building on the Rural Road Master Plan, the County's current engineering standards define the various classes of roads as:

Class I

Description:	Hotmix asphalt surface, painted yellow centreline and painted white shoulder lines
Traffic volumes:	Typically greater than 1,000 vehicles per day, these are major rural commuter routes in the County
Examples:	Twp. Rd. 514 west of Hwy. 21, Twp. Rd. 530 east of Hwy. 21
Upgrading specs:	9.0m-wide hotmix asphalt surface; two 3.5m lanes; 1.0m shoulders; minimum 4:1 sideslope down into a 3.5m-wide ditch and up at a desired 4:1 (minimum 3:1) backslope to property line, all within a 40.0m right-of-way
Improvements status:	Network approximately 54% improved. Remainder is still in an unimproved coldmix asphalt surface, narrow width, steep ditches, and sightline limitations overtop hills. The Class I network included provincial secondary highways until 2001, at which time the Province re-acquired jurisdiction.

Class II

Description:	Coldmix asphalt surface, no painted lines
Traffic volumes:	Typically 250 to 1,000 vehicles per day
Examples:	Twp. Rd. 542, Rge. Rd. 212
Upgrading specs:	7.5m-wide coldmix asphalt surface; two 3.75m lanes; minimum 4:1 sideslope down into a 2.5m-wide ditch and up at a minimum 3:1 backslope to property line, all within a 40.0m right-of-way
Improvements status:	Network is approximately 6% improved. Remainder is still narrow width, with steep ditches, and numerous sightline limitations overtop hills. Currently re-paved on an approximate 15-year cycle to maintain the surface, which further narrows the road surface.

Class III

Description:	Gravel surface, typically dusty, dust suppressant only at residences
Traffic volumes:	Typically less than 250 vehicles per day
Examples:	Twp. Rd. 552, primary highway service roads
Upgrading specs:	7.5m-wide gravel surface; two 3.75m lanes; similar sideslope, ditch, and backslope requirements as per a Class II road, but all within a 30.0m right-of-way
Improvements status:	Network has had minor localized sightline improvements. Currently receives only re-gravelling on a seven-year cycle plus localized dust-suppressant applications to minimize dust at residences.

Class IV

Description:	Dust-suppressed gravel roads, ranges from brownish gravel to a nearly fully-bound surface resembling coldmix pavement with loose gravel at the road edges
Traffic volumes:	Typically 100 to 250 vehicles per day
Examples:	Twp. Rd. 510, Twp. Rd. 534
Upgrading specs:	7.5m-wide dust-suppressed gravel surface, with all other elements as per a Class III road
Improvements status:	Network has had minor localized sightline improvements. Currently receives dust-suppressant applications up to two times per season and re-gravelling on a seven-year cycle. (After many years of successive applications, dust suppression may skip one year if the road remains fully bound). In a fully-bound state, it can be hard to differentiate between a Class IV and Class II coldmix road.

New country residential subdivision roads

Description/specs:	Developer-constructed. 8.5m-wide hotmix asphalt surface; two 3.5m lanes; 0.75m shoulders; minimum 5:1 sideslope down into a 0.5m-wide ditch and up at a minimum 5:1 backslope to property line, all within a 30.0m right-of-way
Improvements status:	Country residential subdivision roads built between the late-'50s to the mid-'90s were constructed at a lesser standard. Receive overlays with hot mix asphalt in conjunction with base stabilization work within an annualized program cycle. No improvements in width are foreseen.

Additionally: Rural hamlet roads vary in surface, and receive hot mix asphalt surfacing within an annualized program cycle, funded in part by a provincial grant.

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Strathcona County

Sustainable Rural Roads Master Plan

Questionnaire - Sustainable Rural Roads Master Plan

The County values your participation in the Sustainable Rural Roads Master Plan - Study 2009. Please complete this questionnaire and return it by **September 21, 2009** by ***one*** of the following methods:

Online: Complete the questionnaire online at www.strathcona.ab.ca

Drop off at:
- County Hall at 2001 Sherwood Drive, Sherwood Park, either in the 24-hour drop off slot at the south door, or at Engineering & Environmental Planning's counter, 8:30 a.m. to 4:30 p.m., Monday to Friday
- Heartland Hall Contact Office, 55305 – Range Road 213, 1 p.m. to 4 p.m., Monday to Thursday
- South Cooking Lake, #2 Fire Station, 22138 South Cooking Lake Road, South Cooking Lake, in the mail slot
- Ardrossan, #3 Fire Station, 8 Main Street, Ardrossan, in the mail slot

Fax to: **780-454-5688**, EBA Engineering Consultants Ltd. (24hrs)

For questions 1 to 6, on a scale of zero to 10, circle your rating of the overall state of the Strathcona County rural roads **that you use on a daily basis**. (Circle Do Not Use if you do not use the road regularly.)

1) Class I – hotmix paved roads, painted yellow centreline and white shoulder lines

(bad)	(poor)				(adequate)					(excellent)	Do Not
0	1	2	3	4	5	6	7	8	9	10	Use

2) Class II – coldmix paved roads, no painted lines

(bad)	(poor)				(adequate)					(excellent)	Do Not
0	1	2	3	4	5	6	7	8	9	10	Use

3) Class III – gravel roads, typically dusty with dust suppressant only at residences

(bad)	(poor)				(adequate)					(excellent)	Do Not
0	1	2	3	4	5	6	7	8	9	10	Use

4) Class IV – dust-suppressed gravel roads, ranging from brownish gravel to a nearly fully-bound surface resembling coldmix pavement

(bad)	(poor)				(adequate)					(excellent)	Do Not
0	1	2	3	4	5	6	7	8	9	10	Use

5) Country residential subdivision roads

(bad)	(poor)				(adequate)					(excellent)	Do Not
0	1	2	3	4	5	6	7	8	9	10	Use

6) Rural hamlet roads

(bad)	(poor)				(adequate)					(excellent)	Do Not
0	1	2	3	4	5	6	7	8	9	10	Use

7) For roads that you drive often, circle the degree of importance that should be given to **each** of the following in setting priorities.

Prioritization Factors	Not Important				Very Important
Amount of traffic	1	2	3	4	5
Condition of the road (e.g. bumps, cracks, potholes)	1	2	3	4	5
Number of public complaints	1	2	3	4	5
Number of traffic collisions	1	2	3	4	5
The road as a link in the overall road / highway network	1	2	3	4	5
Number of bad curves and hills	1	2	3	4	5
Road width	1	2	3	4	5
Number of accesses	1	2	3	4	5
Retaining the existing surface condition	1	2	3	4	5
Other (specify): _____	1	2	3	4	5

8) For roads that you drive often, circle the degree of importance that should be given to **each** of the following types of road improvement in rural Strathcona County.

Road Improvement Types	Not Important				Very Important
Completion of improvements to the Class I network	1	2	3	4	5
Sight lines around corners at intersections	1	2	3	4	5
Sight lines around curves	1	2	3	4	5
Sight lines overtop hills	1	2	3	4	5
Widen narrow roads carrying high traffic volumes	1	2	3	4	5
Convert gravel roads to dust-suppressed surfaces	1	2	3	4	5
Other (specify): _____	1	2	3	4	5

9) To help keep road budgets sustainable and reduce environmental impacts, circle the degree of importance that should be given to **each** of the following measures.

Budget and Environmental Sustainability Measures	Not Important				Very Important
Establish road surface type and/or width based on safety and type of use	1	2	3	4	5
Increase the recycling of existing pavements to reduce the narrowing effect of successive overlays	1	2	3	4	5
Increase spot repairs (e.g. crack filling, seal coats) rather than full road resurfacing	1	2	3	4	5
Schedule maintenance and overlay decisions based on annual road condition assessments rather than overlaying a fixed annual number of kilometres	1	2	3	4	5
Other (specify): _____	1	2	3	4	5

10) Circle the Electoral Ward in which you live.

Electoral Ward (Councillor)
Ward 5 (J. Fenske)
Ward 6 (A. Dunn)
Ward 7 (G. Lawrence)

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Questionnaire – Complete and return by **September 21**

Strathcona County

11) Please use the space below to add any other comments and suggestions regarding the County's rural roads.

Thank you for your participation! Your opinions are valued.

Remember to return this survey by September 21.

The information gathered in this survey will be collated and presented as part of the public open houses in mid-October, and will be presented to County Council later in the year as a component of the final report.