Benchmarking Municipal Roads – the Ontario Experience

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Summary

The Ontario Good Roads Association (OGRA) has for the past several years been encouraging municipalities to adopt performance measurement as a management tool for their roads program. To accomplish this task OGRA has championed a team of road practitioners to undertake the development of activity maps, corresponding definitions and for the past four years gather and report data regarding municipal roads operations.

From the annual data collection and the resulting report, trend lines showed after the four years of review that one municipality was consistently delivering winter control services at a lower cost per lane kilometre than other similar municipalities. To determine why this municipality was consistently lower in cost a case study was undertaken with another municipality who was consistently delivering winter control services at a higher cost per lane km. Both municipalities were similar in that they both provide service on high volume arterial road systems, both have a bare pavement standard and both have similar terrain and received approximately the same amount of snow in the same number of snow events per year. The case study mapped each municipality's policies, practices and procedures to determine what policies, practices or procedures may require improvement in order that the higher cost municipality could achieve the same level of expenditure as the lower cost municipality should they so desire. This case study identified six main factors which could be attributed to driving up the cost to deliver winter control service for the high cost municipality. The case study also points out which of these six factors should be the subject of a future benchmarking initiative between the two municipalities.

This paper will summarize:

- the activity map and definitions developed
- the use of this mapping by other measurement and benchmarking projects
- the results of the ORC's annual questionnaire
- the performance measures used to analyze the data
- the comparisons made
- the resulting case study
- the process map used to identify service delivery gaps and set the scope for a benchmarking initiative
- what's next for the process map

The work in Ontario to date, on performance measurement, has given municipal road departments an opportunity for realistic comparison within their peer group. The work ahead for benchmarking is significant but success is within the public sectors grasp. Ontario's efforts to date have proven that benchmarking can be done. Information gathered from a local performance measurement program can be used to find an appropriate benchmarking partner(s) to learn why that benchmarking partner is providing similar service better than your own. However, the work to date has also shown that, benchmarking is not necessarily a one-way street. Every municipality involved in a benchmarking initiative may be able to learn from each other.

To attain benchmarking success the most important next step is to complete the process mapping and make the results of this effort available to municipalities across the province. Municipalities then will need to identify the various policies, practices and procedures mapped to an activity and determine the cost these policies, practices and procedures have on the mapped processes.

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Glossary of Terms

UT—Upper tier municipality
LT—Lower tier municipality
Art—Arterial road
CCI—Collector, commercial/industrial road
CR—Collector, residential road
LCI– Local, commercial/industrial road
LR—Local, residential road
HV—High traffic volume
LV—Low traffic volume
HCB—High class bituminous pavement
LCB—Low class bituminous pavement
HCC—High class concrete pavement
A/C—Asphalt/concrete composite pavement
Loosetop—a road with a gravel, stone or other loose traveling surface
Lane km—lane kilometre, is the continuous lane of road that conveys traffic in one direction.
MPMP—Municipal Performance Measurement Program
OMBI—Ontario Municipal CAO's Benchmarking Initiative
ORC—Ontario Roads Coalition, on performance measurement, benchmarking and best practices
TAC—Transportation Association of Canada
V.km—vehicle kilometre, is a measure of the use of the system by a vehicle traveling a kilometre of distance.
Vehicle kilometre traveled—is a measure of the use of the system by a vehicle traveling a kilometre of distance x 365.

1.0 Performance Measurement a Cooperative Effort

The goal of the Ontario Good Roads Association (OGRA) in the development of a performance measurement tool for municipal road departments is to provide its membership with a management tool. To achieve this goal a group of road professionals was formed to map and define the roads program for both operating and capital (figure 1.1). The map divided operations into seven service areas as follows:

The *ORC* consists of representatives from

1. **Hardtop surface maintenance** including frost heave repair, base repair, utility cut repair, hot and cold mix patching, shoulder maintenance, surface maintenance, surface sweeping and surface flushing;
2. **Loosetop surface maintenance** including spot and continuous grading, dust control, gravelling, spot base repair and wash out repair;
3. **Winter control** including spot and continuous snowplowing, combination plowing/ice control, ice control, winging back, snow fencing, snow removal, standby, winter patrol, spring clean-up, sidewalk plowing and de-icing;
4. **Traffic operations** including pavement markings, illumination, signals, signs, safety devices, bike path maintenance, railroad crossing maintenance, traffic studies and data reports.
5. **Roadside** including roadside mowing, weed control, tree planting and removal, tree trimming; sidewalk repair, debris collection, curb and gutter maintenance, guiderail maintenance, fence maintenance;
6. **Structures** including concrete and steel culvert maintenance, bridge maintenance, pedestrian bridge maintenance;
7. **Stormwater management** including roadside ditching, entrance culvert maintenance, maintenance and cleaning of maintenance holes, storm sewers and catchbasins, and video camera inspection.

The capital program was also mapped, but to date, most of the emphasis has been placed on operational performance measures.

During the same timeframe that OGRA was developing the activity map and definitions in the mid 90s another group of regional engineers saw the benefit of performance measurement and began gathering their own data. Their initiative quickly grew and was amalgamated with the Ontario Municipal CAO's Benchmarking Initiative (OMBI). Also in

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the late 90s the province of Ontario through the Ministry of Municipal Affairs and Housing (MMAH) began developing a mandatory performance measurement program for nine of the services provided by municipalities. What became clear was that all three initiatives, while varied in scope had the same goal in mind: the use of performance measurement to manage service delivery and identify best practices. To that end, for roads, it was clear that a harmonization of effort was required. To accomplish this task the Ontario Roads Coalition on performance measurement, benchmarking and best practices (ORC) was formed in 1999. This new group also asked and has received participation from the Municipal Engineers Association, the Association of Ontario Road Supervisors and the Ministry of Transportation. The ORC is championed by OGRA. The objective of this new group was to bring together the various municipal roads associations to form a peer group of road professionals to discuss and recommend appropriate performance measures for a municipal road programs and:

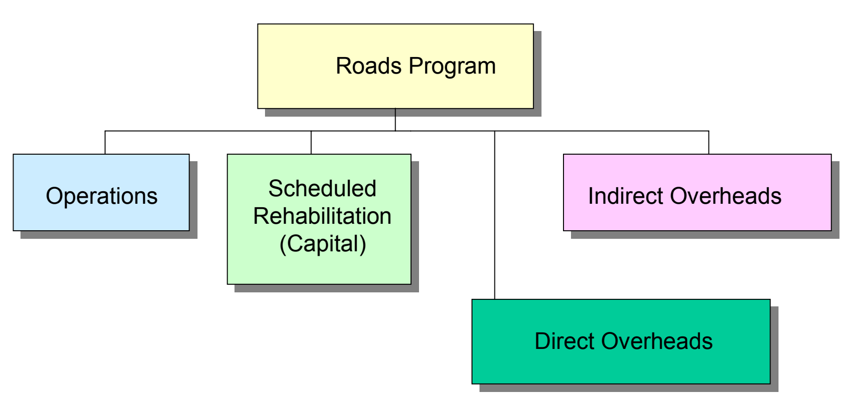
1. To annually review and initiate a questionnaire to gather data from municipalities across Ontario
2. To analyze the data from the responses received to the questionnaire and annually report on performance measures and where possible benchmarks and best practices.
3. To continue to meet on a regular basis to update the information already published and recommend additional measures and indicators.
4. To promote the value of collecting accurate data and reporting of consistent measures in an effort to normalize the measures and reduce the variables for comparison purposes.
5. To provide information that will assist municipalities with the justification of maintenance and infrastructure improvement expenses and programs.
6. To demonstrate a model for other service areas (outside of roads) to follow in the development of performance measurement programs within these other service areas.

The result is the adoption of the OGRA activity map and definitions by all the municipal associations involved and by MMAH for the Municipal Performance Measurement Program (MPMP).

To remain within the limits for length of this paper set by TAC, the balance of this paper will focus on the success of the ORC in measuring winter control activities; review of the case study undertaken of behalf of OMBI; the lessons learned; and next steps.

Figure 1.1

Municipal Road Program - Activity Map



2.0 Measuring Winter Control

This section of the paper will provide a synopsis of the data gathered and the level of detail available for the winter of 2001. This section of the paper will also identify the performance measures used and the information provided to Ontario municipalities for comparison by road system type.

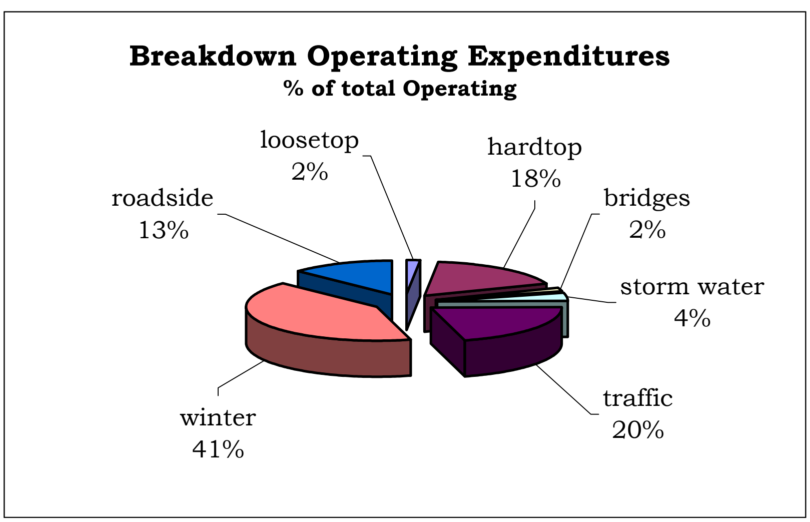
For the past four years, ORC has been sending out an annual questionnaire in the spring of each year requesting data on road system length, condition and costs. The response to the questionnaire has been low to this point as there is nothing to compel municipalities to respond other than producing a useful report. While the report provides information on all of the seven service areas of the ORC activity map as well as other parameters, the balance of this paper will discuss winter control.

The performance measures used to analyze winter control of the responding municipalities in 2001 are as follows:

- Average percent operating budget allocated to winter control
- Operating $/lane km by system type
- Median operating $/lane km by system type
- Median operating $/equivalent lane km by system type
- Average cm of snowfall/season
- Average days with freezing rain/season
- Average tonnes of abrasive/system km
- Average tonnes of salt/system km
- Average # of lane km/snow plow by road system type

Categorizing municipalities for analysis was a challenge with the limited number of responses. While the MPMP program focused on population as the main determinant for categorization, ORC determined that there is a need for analysis by road system type. Therefore six main system types were used: high traffic volume rural arterial system; low traffic volume rural arterial system; high traffic volume urban local residential; low traffic volume urban local residential; high traffic volume rural local residential; and low traffic volume rural local residential. The cut-off between high and low traffic volume was set at 5M vehicle kilometres per day.

Figure 2.1



On average, 41% of the responding municipalities, operating budgets is spent on winter control (figure 2.1) to provide manpower, equipment (both in-house and contract) and materials to spot and continuous snowplow, combination plowing/ice control, ice control, winging back, snow fencing, snow removal, standby, winter patrol and spring clean-up (figure 2.2). While sidewalk plowing and de-icing are part of the winter control activity map these activities for sidewalks are analyzed separately.

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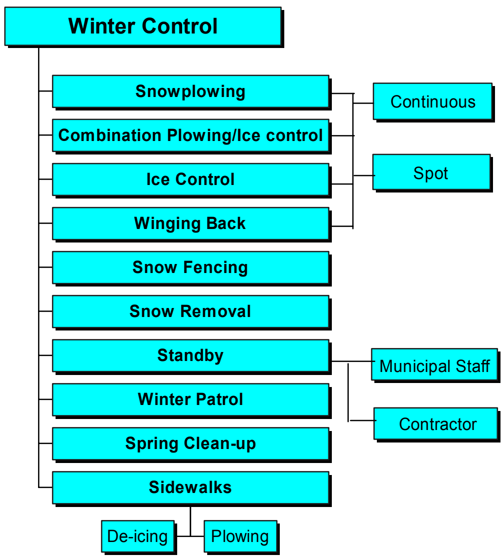
Figure 2.2



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For the winter of 2001, respondents provided information on the cost to deliver winter control services, the level of service provided, the equipment used, the quantity of de-icing agent used and other pertinent information. From the ranges shown in in figures 2.3 and 2.4 a median cost per road system type was calculated as well as the cost per capita for winter control. All three analysis are summarized in table 2.1 on page 8. Table 2.1 also contains analysis by equivalent lane kilometre. Equivalent lane kilometres are calculated based on a 3.65 m (12 feet) lane width. For example, a section 10 lane km long with a lane width of 4.0 m would have an equivalent lane km of 10*4/3.65 = 10.96 equivalent lane km. This calculation was requested by OMBI and added to the questionnaire for the first time in 2001. It is envisioned that this analysis will normalize any additional cost a municipality may incur in the maintenance of a road system with a lane width that is wider (or narrower) than the norm. For the urban high traffic volume, local residential and rural high traffic volume arterial, costs went down, indicating that these municipalities maintained a road system with a wider lane width than 3.65m; the rural low traffic volume arterial costs went up, which show the opposite for a road system with a narrower width. Both direct and indirect overheads are dealt with separately for the purpose this analysis.

Cost analysis using various denominators and calculation methods, exhibits for municipalities the alternatives available for their review. While cost is important, it is equally important to look beyond the numbers to determine what factors contributed to the cost. Some of these factors will be discussed here.

On average, there was 17.4% less snow in 2001. Weather information was provided in 1999, 2000 and 2001 from Environment Canada weather monitoring stations. For 2001, 15 of 17 Environment Canada weather monitoring stations reported fewer days with measurable snowfall than

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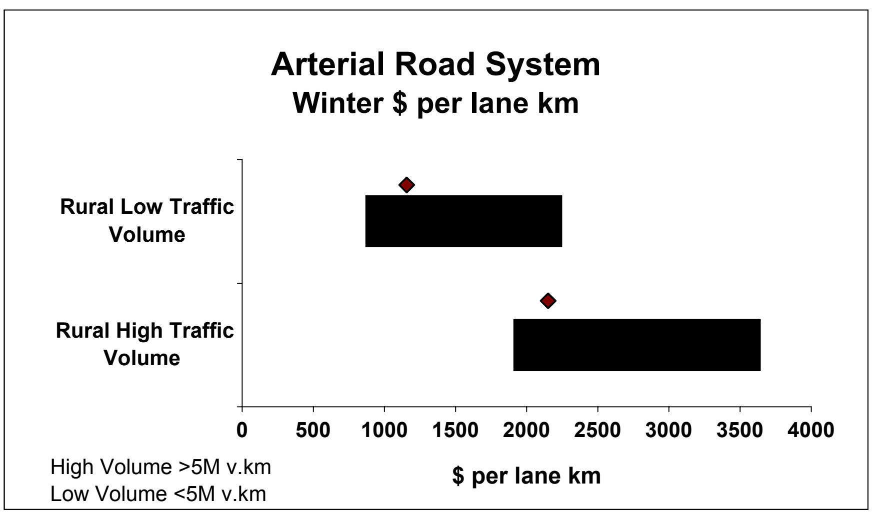
Figure 2.3



♦ Median Cost/ lane km

Figure 2.4

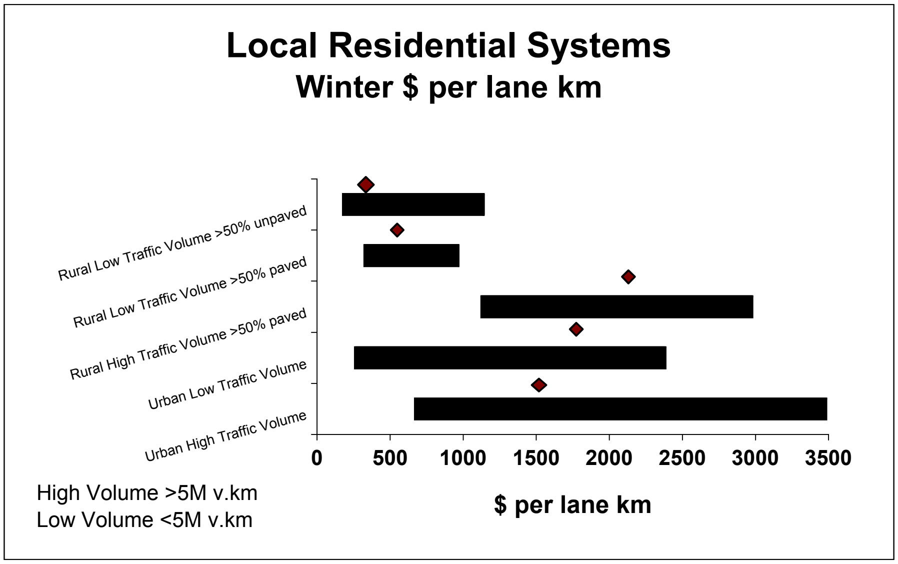


Table 2.1

	Range of operating $/ lane km	*Median $/lane km*	*Median $/ equivalent lane km*	*Average $/ capita*
Urban High Volume LR	*672 to 3482*	*$1521*	*$1335*	*$17.82*
Urban Low Volume LR	*261 to 2381*	*$1764*	*NA*	*$13.35*
Rural High Volume Arterial	*1911 to 3625*	*$2191*	*$2053*	*$6.89*
Rural Low Volume Arterial	*870 to 2230*	*$1278*	*$1408*	*$27.47*
Rural High Volume LR	*1126 to 2977*	*$2051*	*$2051*	*$58.32*
Rural Low Volume LR > 50% paved	*326 to 965*	*$577*	*NA*	*$25.12*
Rural Low Volume LR > 50% unpaved	*180 to 1138*	*$233*	*NA*	*$51.56*

(Continued from page 7)
in 2000 having an average accumulation of 222.14 cm of snow. Also, 15 of 17 weather monitoring stations reported more days with freezing rain in 2001—a total of 141 days or 86 more days than 2000 (figure 2.5). Unfortunately, figure 2.5 is not an indication of the total effort required to maintain roads in winter. The chart does not include days when plows and salters were out responding to wind blown snow, frost, black ice, etc, and the work required to push back snow in preparation for the next storm.

Level of service has a significant impact on cost to deliver service. The level of service provided by respondents is summarized in table 2.2 and compiled to reflect the most frequently reported level of service in terms of outcome after the end of the storm plus the average target hours that respon-

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Figure 2.5

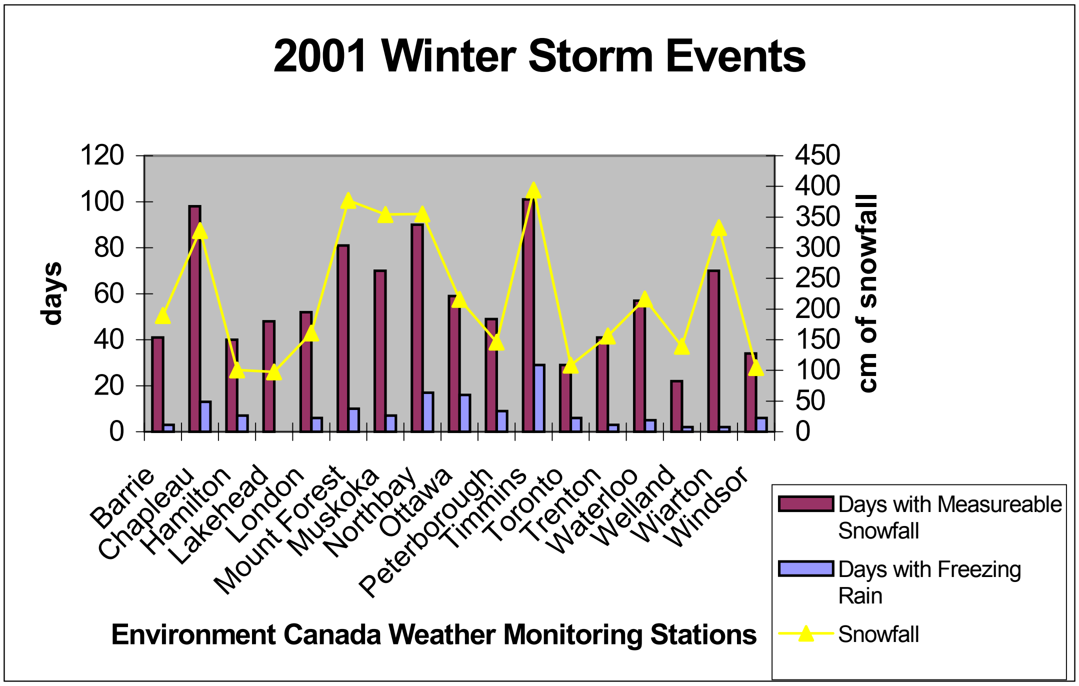

Table 2.2

	High Volume Arterial		Low Volume Arterial		High Volume Urban LR		Low Volume Urban LR		High Volume Rural LR		Low Volume Rural LR		Low volume Rural unpaved	
	Condition	Average hours	Condition	Average hours	Condition	Average hours	Condition	Average hours	Condition	Average hours	Condition	Average hours	Condition	Average hours
Class 1	B	4.5	B	4.5	B	5								
Class 2	B	5.3	B	4.5	B	7.5	B	13	TB	4	TB	3		
Class 3	B	7	B	4.5	B	8	B	13	TB	6	TB	3		
Class 4	B	8	B	5	B	34	B	13	TB	8	TB	3		
Class 5			SP	10.5	B	48	B	13	SP	12			SP	9
Class 6			SP	10.5	B	48	SP	13	SP	24			SP	9

B = Bare Pavement
TB = Track Bare Pavement
SP = Snow Packed

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dents indicated they required to achieve that level of service. While level of service varied from municipality to municipality; generally municipalities with classes one to four arterial and urban roads achieved a bare pavement standard. Rural local residential class one to four roads received track bare service and class five and six roads were most often provided with a snow packed level of service. Respondents who have within their system both rural and urban road sections provided the same level of service in terms of outcome on rural and urban roads for all road classes. All respondents indicated that they achieved the level of service in the same or fewer number of hours than their target hours as set by policy.

To achieve the level of service determined by council, respondents applied 292,815 tonnes of sand and 449,733 tonnes of salt totalling 742,548t, with 548 plow trucks. On average the amount of abrasives applied to the road system decreased in 2001 as compared to 2000 by 26.4%. Three factors contributed to this reduction:

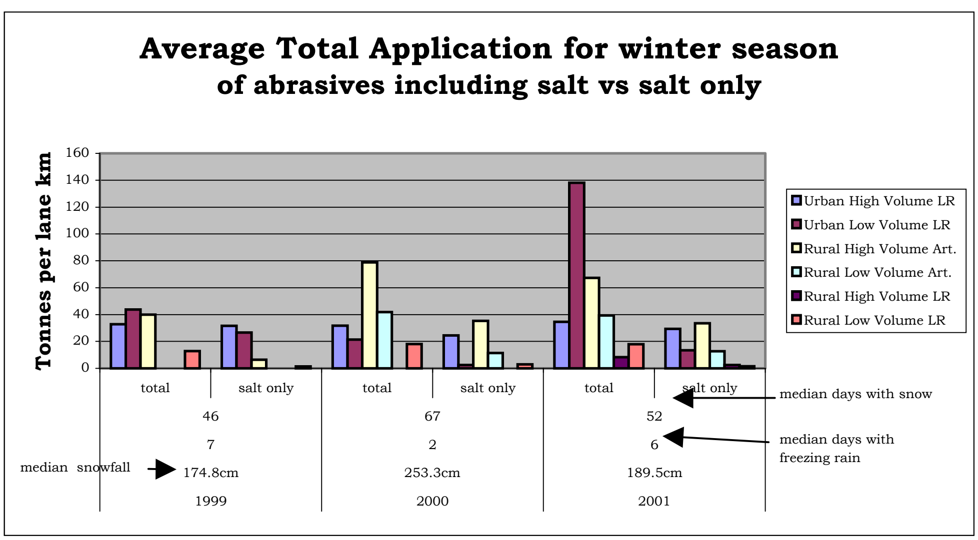
1. 17.4% less snow in 2001
2. New respondents answering the questionnaire in 2001, which may have skewed the result.
3. 23% of respondents are taking advantage of new technologies and are currently pre-wetting salt

Figure 2.6 shows the total tonnes of salt/sand mix used per system kilometre and the tonnes of straight salt used per system kilometre. Rural high volume arterial road systems as expected applied the highest volumes of abrasive with 67.4 t/lane km of total abrasive of which 49.7% of that total is salt. While at the other end of the scale, rural low volume roads applied 17.9 t/lane km of which 8.4% of the mixture is salt. Urban high traffic volume local residential road systems applied the most salt at 84.7% of the sand/salt mixture being salt, which equates to 304,622 tonnes of salt or 28.2t/lane km.

Of the total plow trucks available, 36.2% are contract units and 31% of responding municipalities report that they use a wingperson in the truck. From the information provided, a calculation was made as to the number of kilometres per plow as follows:

- Urban high traffic volume LR— average 55.9 lane km per plow truck
- Urban low traffic volume LR—average 60.7 lane km per plow truck
- Rural high traffic volume arterial— average 38.9 lane km per plow truck
- Rural low traffic volume arterial— average 68.6 lane km per plow truck
- Rural high traffic volume LR—average 40.4 lane km per plow truck

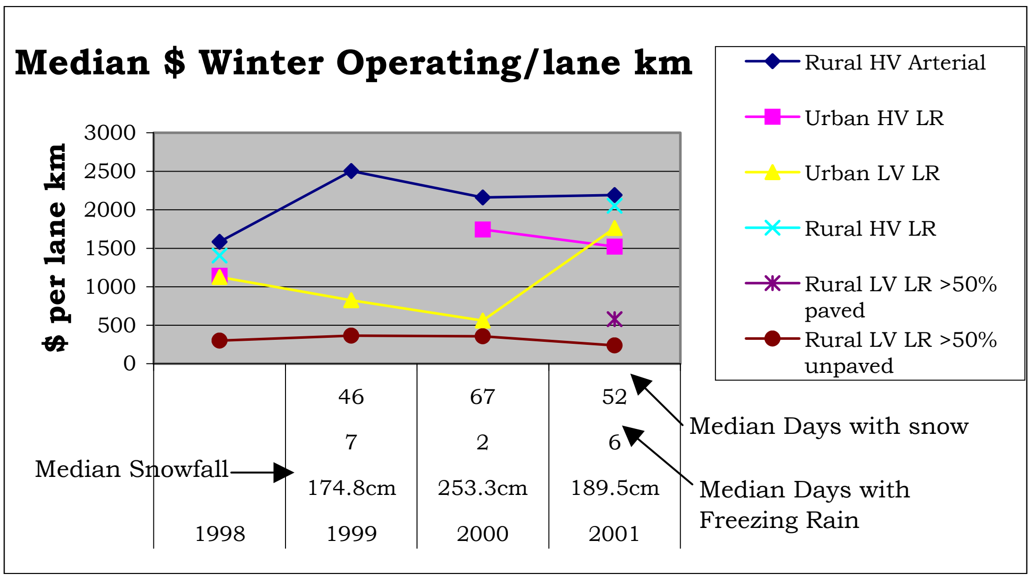
Figure 2.6



- Rural low traffic volume LR—average 89.3 lane km per plow truck

The general information provided in this section, while useful for comparing cost, is a necessary first step in the benchmarking process. To benefit from the cost and service delivery analysis you must establish trend lines by system category (figure 2.7) and then look behind the numbers at the policies, practices and procedures used to complete each activity. These results will be discussed in section 3.0.

Figure 2.7



3.0 Benchmarking Winter Control

You can't benchmark without first doing measurement; therefore the importance of the previous sections of this paper. There are several books regarding the prerequisites to benchmarking (good data is among the top prerequisite), therefore this paper will not discuss these benchmarking prerequisites further.

To undertake benchmarking there are two questions which should be answered:

1. When should my municipality consider benchmarking?
2. Where do I start?

From the charts in section 2, if a municipality is within the range shown for a particular category of road system, is that good enough? Or should my municipality begin benchmarking the winter control program? If your municipality is an upper tier region or county, figure 3.1 may help answer question 1.

To find a comparison other than to the range of cost or the median cost for each road class and

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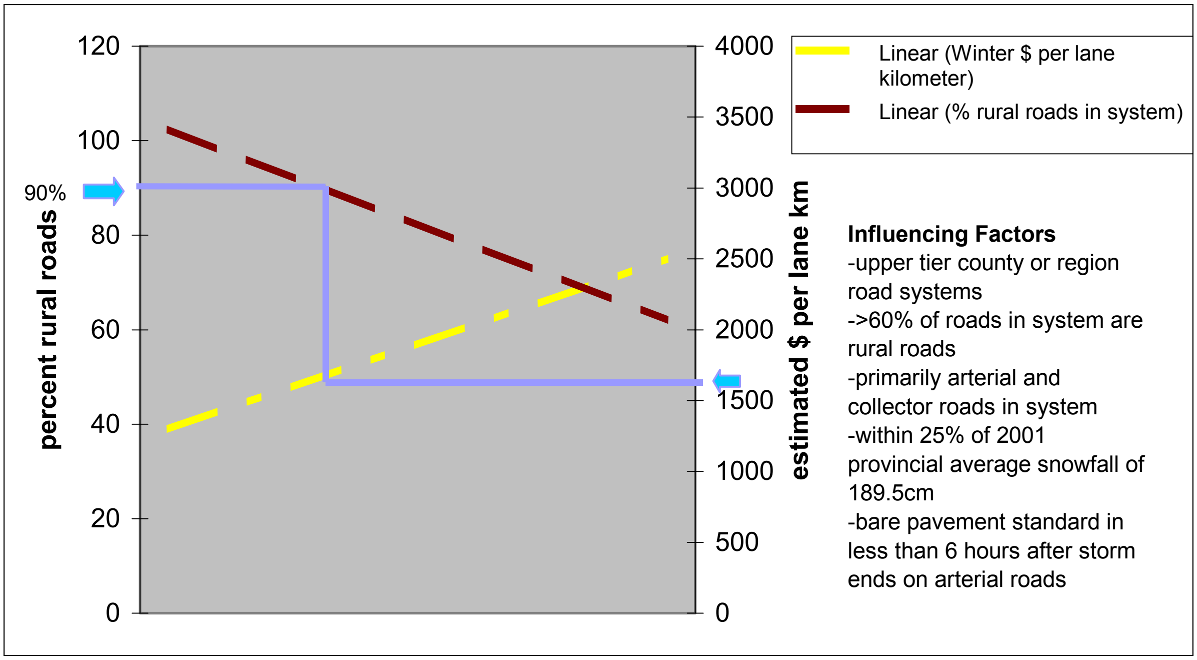
Figure 3.1



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after examining all possible factors relating to winter and attempting to write "what if" formulas and algorithms, the factors were charted. What emerged was [(1)]figure 3.1. This chart is a simple tool to compare your results with those provided by the respondents based on a regression analysis of the respondents' results. If your results are higher (or lower) than what this chart indicates, you may want to consider benchmarking to determine why. Use of this chart is beneficial

Here's how the chart works. If your municipality is an upper tier region or county, first check that all the factors shown in figure 3.1 apply. Secondly determine percent of roads in the system which are in a rural roadside environment. Third, draw a horizontal line from the percent rural roads (left side of chart) to the intersection of the percent rural roads line (dashed line), then vertical to the intersection with the $ per lane km line (dash dot line) and finally, horizontal to the estimated $ per lane km scale (right side of chart). At this point read the cost per lane km and compare to your actual 2001 cost per lane km for winter control. If your actual cost per lane km is within two or three hundred dollars per lane km of the amount plotted (in the case of the above example $1,600), there would be no need to go much further. However, if the actual cost is significantly higher (or lower) than the charted amount, your municipality may want to consider benchmarking. Question 1 answered.

But where to start? There are a number of activities, policies, practices and procedures that are involved in the delivery of winter control services.

(Continued on page 13)

NOTE

[(1)] Figure 3.1 was checked against both the 2000 and 2001 data. While this chart (figure 3.1) is experimental, future years of data collection will verify the accuracy and use of this chart. Figure 3.1 may possibly replace figures 2.3 and 2.4. In future years, an effort will be made to develop similar charts for other road system types.

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To analyze all of these activities in one benchmarking initiative would result in failure. Therefore the first step in benchmarking is to know which process, practice or procedure requires improvement.

To take the first step may involve a case study similar to the one undertaken between two of the OMBI participating municipalities in 2000.

In the case study, the purpose was not to identify one municipality as a better performer than the other. The case study provided an objective review of the influencing both controllable and uncontrollable factors and determine how these influencing factors affect the cost to deliver service as a first step in the benchmarking process.

The municipalities involved in the case study wished to remain anonymous. In the following summary they will be referred to as Municipality A being the lower cost municipality and Municipality B being the higher cost.

For the case study, two municipalities were selected from the OMBI participating municipalities. Both are upper tier municipalities providing service on high volume arterial road systems. Both have a mixture of urban and rural areas and both provide the same service in terms of outcome: bare pavement in less than six hours. Municipality A consistently provides service in winter at a lower cost per lane km. In 2000 this cost was $1,897/lane km while Municipality B consistently provided service at the higher end of the same category and for 2000 was $4,169/lane km. The target cost for improvement based on the 2000 charted cost (2000 chart similar to figure 3.1) is $2,950/lane km for Municipality B.

What was found with the data available was that there are at least six main factors (there may be others) which have increased the cost to deliver service in Municipality B. These factors include:

- **Resources**—1) the use of a two shift system; 2) 24/7 patrolperson; 3) the complement of fleet used to provide service.
- **Procedures**—4) the amount of deicing agent used to control snow and ice; 5) no wing zones, which require snow removal.
- **Communications**—6) a 24/7 call center

While the study found a difference in operating parameters between the two municipalities which included higher population and housing density in Municipality B (385% and 330% higher respectively than Municipality A) plus higher traffic volumes and more roads with multiple lanes, the effect these additional operating parameters had on Municipality B's cost could not be determined.

Each of these factors, as bulleted above, plus other influencing factors are discussed as follows:

Resources

While it needs to be mentioned that Municipality A operates out of five yards and B out of two, the cost of operating the yards is not included in the calculation of operating $/lane km. Once OMBI defines a methodology for allocating fixed asset costs, this methodology will be applied and will significantly affect the way in which we look at operations in future reports.

The scheduled night shift, 24/7 patrolmen and standby premium on weekends are the most significant differences in staff resources. Municipality B has all of the above and in all likelihood must provide these staffing levels to meet the demands of a system with higher traffic volumes. The analysis could not proceed further as Municipality A could not provide the necessary data.

Municipality B delivers services in winter with 68 trucks as compared to A's 35 and of the 68 trucks 75% or 51 trucks are contract units compared to A's 17% (6 trucks). The effect of the contract units on cost are: 1) B pays $5981.90 every hour when all trucks are out working responding to a storm as compared with $2765.50/hour in A (unfortunately the number of hours worked for both is unavail-

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able). Of the fleet available to B, 37 units are single purpose plow trucks. When the salt trucks only are out Municipality B is still required to pay for the contract plow only trucks standing by; 2) B paid out $449/lane km more for the season in terms of standby dollars than did A (but it must be remembered that it costs money to own a truck and if that truck sits idle the cost of ownership may be greater than the cost of standby. Here again we need a methodology for allocating fixed asset costs).

Procedures

Both municipalities in responding to a winter event first lay down de-icing agents to prevent the formation of the bond of snow and ice at the road surface interface. If the accumulation of snow is light then this activity will be their only response. Should the storm continue, Municipality B attempts to maintain bare pavement throughout the storm with subsequent applications of de-icing agents. If snow begins to accumulate Municipality B will send the plows out after 5cm of accumulation. Municipality B received approximately 80cm more snow in three additional storms, but both of these, however cannot account for the 120% difference in cost.

The application of de-icing agents, either a straight salt and/or sand/salt mixture, appears to be one of the significant contributors to increasing the cost of Municipality B's winter services. Municipality B used in the winter of 2000, 43.7 tonnes per lane kilometre of de-icing agents as compared to Municipality A's 24.8t/lane km. The end result was that it cost Municipality B $833/lane km more for the supply of de-icing agent for the winter of 2000 than Municipality A.

Communications

Municipality A and B are also at opposite ends of the spectrum when it comes to communicating with the public. Municipality B provides the public with 24-hour-a-day access for the lodging of complaints and/or receive information about municipal services. Public service announcements when required are released to the public via the communications officer. Municipality A is less formal. Calls during regular business hours are forwarded to the appropriate person for response. After hours calls are forwarded via call forwarding to the patrol person providing that person is on duty. Here again the costs could not accurately be determined.

Summary of Case Study

While six factors were attributed to the additional cost to deliver service in Municipality B, sufficient data was available to cost only two of those factors. Unfortunately for one of the two factors, while it cost Municipality B $449/lane km more than A for standby of contract equipment, if fixed asset costs had been determined the result of that analysis would be substantially different.

The recommendation of the case study for Municipality B:

- Benchmarking for Municipality B should begin with a review of the procedures, practices and policies used for the application of de-icing agents. [(1)] If B can reduce the amount of de-icing agent applied to the road surface a cost savings would be realized. If the application of de-icing agents were reduced to the same level as Municipality A then the cost to deliver winter control service could be reduced from $4,169 to $3,336 ($4,169 - $833). Which brings "B" closer to their charted target amount.

The case study has not identified a best-in-class performer due to the fact that the effectiveness (customer satisfaction) of both municipality's operations has not been measured. The case study was written to examine the differences found in service delivery between the two municipalities

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NOTE

[(1)] Municipality B used substantially more de-icing agent than all other municipalities in their peer group.

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studied and determine how those differences affect the cost to deliver service. Undertaking this case study has narrowed the scope of a future benchmarking initiative. To that end the case study was a success.

In order to make a decision about lowering costs or making service delivery changes the partners to this study would need to sit down in face-to-face discussions. These discussions would also provide a forum for determining if a reduction in the application of de-icing agents would meet B's customer expectations or the requirements of a road system with higher traffic volumes and more mutli-lane roads than A.

Benchmarking is not necessarily a one-way street. What was found during the case study was that some of the practices and procedures undertaken in B would be beneficial in Municipality A. If A is considering improvements they may want to learn from B to determine how a 24/7 patrolmen, a two shift system or setting up a call center could be put in place in their municipality.

What the case study revealed about benchmarking is that:

- Ontario road departments are now very close to apples to apples comparison at the activity map level across peer groups. Close enough that we are now comparing "Macintosh" and "Delicious" apples
- The policies, practices and procedures must be mapped and the effects on costs for each of these policies, practices and procedures must be determined.

The Reaction at Municipality B

[2] *"The case study identifies factors, both controllable and uncontrollable, which influence the performance and cost of service delivery by each municipality. Factors such as differences in level of service, performance standards, geography, climate, demographics, customer expectations, rural verses urban cross section, etc. have significant impact on cost and performance. This exercise has been beneficial in pointing out the areas which warrant further discussion and analysis between peer municipalities.*

*The data comparisons and case study indicate several areas in which our municipality should be devoting time and effort in order to ensure the best possible service at the best possible price for our customers. It is important that we build on the benchmarking process, with follow up discussion with our peer municipalities to **flesh** out opportunities for improvement and to find the best practices that meet our unique factors and conditions. We are experimenting with several process changes in this coming winter season to improve performance and cost of service delivery…...*

Public Works staff are proactively investigating opportunities for improving service delivery on an ongoing basis. We will continue to work with our peers and industry experts in our bid for continuous improvement, and the highest service at the best price for our customers while minimizing impact on the environment.

In summation, the case study identifies numerous operational differences and local factors which contribute to differences in performance and cost of service provision. There is no doubt that we can learn to be more efficient and effective from our peers and vice versa.

The dialogue and networking opportunities which take place throughout the benchmarking process are as valuable as the qualitative and quantitative data collected, and go further to improve processes and develop best practices than any other tool to date".

[2] *an excerpt from a Municipality B report to the commissioner*

4.0 Next Steps

The case study, if nothing else, identified the need for detailed micro information regarding policies, practices and procedures and how these policies, practices and procedures affect cost. To that end the road expert panel of OMBI is drafting a process map for winter control which meets their needs and is complementary to the activity map. The process map will identify the main policies, practices and procedures for a winter activity as a guide for respondents to identify how these policies, practices, procedures are undertaken locally and how they affect cost. For example, weather forecasting. Some municipalities will indicate that they rely on RWIS stations and internet forecasts for their weather and road information. Others will say they use the internet and local forecast and some will use their own observation and local forecast. Once complete the ORC will review the process map to determine if any revisions are required before circulating the map province wide.

Other next steps of the Ontario Roads Coalition are:

- Continue the annual review of the activity map and definitions.
- Update the 2002 questionnaire and circulate the questionnaire province wide in May 2003.
- Report the results of the province wide survey by December 2003.
- Review figure 3.1 and update for 2002 and work to confirm the accuracy and use of the chart through process mapping.
- Analyze factors for other road system categories and determine if a chart similar to figure 3.1 can be developed for these other road system types.

5.0 Lessons Learned

Ontario Good Roads Association has been moving forward with performance measurement and benchmarking as a management tool since the early 1990's. Here are some of the lessons OGRA has learned over those years:

- Resistance to implementing a local performance measurement program is a formidable obstacle to overcome. It will take patience, resilience and education to overcome what most think is a program being put in place to punish poor performers.
- Multiple measurement and benchmarking initiatives can be in place across a province or across the nation each one with its own objectives. But these initiatives must work in harmony utilizing the same activity map and definitions that will permit comparison between the various initiatives. The above is one reason why ORC was formed.
- Progress will be in small incremental steps over a period of years. Do not be discouraged, success will come.
- Do not try and find the right performance measure the first time (you probably won't and therefore never start). Make provisions for an annual review to revise the program and/or add new measures.
- A centralized, electronic, web-enabled data warehouse is preferred to hard copy. Develop one early in the process (build it and they will use it).
- Accurate data is the key to success (whether gathered for a local measurement initiative or for a broader provincial project) and a major component of the process. The data cleansing exercise must be completed by someone fa-

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miliar with the service being analyzed.

- Benchmarking must be undertaken by an in-house team with representation on the team by front-line and management staff from the service area being benchmarked. Outside assistance from consultants and staff from other service areas can be used to facilitate the benchmarking project. A benchmarking initiative will have greater acceptance if the change initiative comes from within the organization. Only staff know all the policies and procedures of the organization and will be able to determine how the change initiative will affect those policies and procedures. An external consultant will not be able to gauge the resistance to change that may exist within an organization.

The basic premise of benchmarking is to learn something of value for someone or someplace else.

ORC wishes to offer the following strategy to anyone who is considering undertaking a benchmarking initiative.

Begin by looking for a benchmarking partner performing similar practices/processes better than your own with a similar vision/mission/goal. Then undertake the following steps:

- Determine the purpose and scope of the project.
- Understand your own processes.
- Choose performance measures.
- Collect internal data on performance measurements.
- Collect data from partner organization.
- Conduct gap analysis.
- Adapt and import practices to close performance gaps.
- Monitor results.
- Benchmarking is not static. Continuous improvement of the practices adopted from others must be part of the process.

Once benchmarking experience is gained, look for best-in-class/world class organizations.

6.0 Conclusion

With taxpayers demanding greater results for their tax dollars, the time has come when we must think of performance management in a very positive sense. We need to demonstrate that we are really good; that we do more with less; and that there may be real opportunity to think outside of the box. Starting now, sustainable improvement is no longer a choice. How well public sector agencies deliver services or how fast they can enhance services needing improvement will be how the municipal customer measures operational success. Our challenge, therefore, is to deliver timely, high-quality services that meet customer expectations and to do it at an affordable price with measurable results.

The work in Ontario to date, on performance measurement, has given municipal road departments an opportunity for comparison within their peer group. The work ahead for benchmarking is significant but success is within our grasp. Ontario's efforts to date have proven that benchmarking can be done, information gathered from a local performance measurement program can be used to find an appropriate benchmarking partner(s) to learn why that benchmarking partner is providing similar service better than your own. To attain success the Ontario Roads Coalition must support OMBI's process mapping and costing of the mapped processes and make the results of this effort available province wide.