

RURAL TRANSPORTATION SERIES

No. 3



Ontario's Rural Roads: Where Are We Now? Where Do We Go From Here?

A report sponsored by the Special Research Fund, OMAFRA; The Ontario Federation of Agriculture; and the Canadian Rural Partnership, Government of Canada

by
Todd M. Gordon
Todd Gordon Consulting and Research

August 2001 (Revised February 2002)

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Prepared for:

Canadian Rural Partnership, Government of Canada
Ontario Ministry of Agriculture, Food and Rural Affairs
Ontario Federation of Agriculture

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PREFACE

This is the third in a series of reports on research undertaken on rural transportation in Ontario, 1998-2001.

The **first report** was based on an examination of the rural experience of the Community Transportation Action Program (CTAP), a provincial initiative to stimulate greater coordination of local transportation services. Although short-lived, the CTAP was very effective and provides many insights into how communities can develop their own transportation programs.

Report number two concerns rural youth and a survey of their transportation issues. Rural youth typically have a wide series of problems in “getting around” in rural areas, given their “pre-license” and “pre-access to a car” status. Hearing from rural youth themselves was the purpose of this research and forms the bulk of the report on rural youth transportation issues.

This report (**number three**) is a first look at rural roads and their future given the changes resulting from municipal restructuring and the “export” nature of the rural economy. It consults the views of key stakeholders and reports on an extensive survey with road user groups and municipalities.

Rural roads represent the basic infrastructure of the built environment and as such, reflect the origins of the settled society and the successful economic activities that have followed. It is a matter of some concern to a wide range of users that maintenance of rural roads will become increasingly problematic and expensive in the near future. It is in this light that a scan of perceptions on rural roads was undertaken to open up the issue and to identify the arguments, prospects, and fears that road users have in rural Ontario.

Tony Fuller
Guelph

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- The Special Research Fund at the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA);
- The Ontario Federation of Agriculture (OFA); and
- The Rural Secretariat of Agriculture and Agrifood Canada.

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The research was undertaken by Todd Gordon of Todd Gordon Consulting and Research. However, several people assisted with this project during both the research and report writing stages.

Tony Fuller provided guidance and insight during the entire project and provided editorial comment during the report writing stage.

Michael Barnycz, Peggy Boyd-Sloss, and Marni Herold conducted background research and assisted with editing and proofing. Genevieve Perry compiled survey data and provided preliminary survey analysis. Lynn Knapp of Renaissance Services standardized and improved the report formatting and improved the presentation of the diagrams and tables.

Finally, the survey analysis, which forms a substantial part of this research, would not have been possible without the willingness to participate on the part of respondents from a wide range of rural stakeholder groups. The information provided by these individuals, in response to often demanding survey questions, was invaluable in gaining a sense of rural road issues and concerns in Ontario. A special “thank-you” is owed to all survey respondents.

This research has benefited from the efforts of many. However, any errors, omissions, or inadequacies are the sole responsibility of the author.

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EXECUTIVE SUMMARY

Recent secondary research and anecdotal information has suggested that local rural roads in Ontario have been experiencing decline and deterioration. This document presents the findings of an environmental scan of the current state of affairs with respect to Ontario's rural roads and an overview of the issues facing both rural road users and the municipal governments that provide road services. Employing a scanning methodology, this study has taken a broad look at issues, largely from the perspective of the stakeholders, with the purpose of providing an updated overview for stimulating policy discussion and further research.

In spite of economic and social change resulting from such phenomena as globalization and the transition to the age of information, road transportation remains as important as ever to rural Ontario. However, provincial-municipal realignment in the province, along with economic and demographic change, has resulted in stress on the ability of rural municipalities to provide adequate road service. From the scan, it is evident that the demands placed on many rural roads have significantly increased. In general, one can identify several trends that are having an impact on rural roads. These include the following:

Demand Trends:

1. Agricultural activity in rural Ontario is changing. The nature of the province's agricultural activity is evolving. Ontario agriculture is increasingly exposed to competitive pressures from around the world. Evolution in production may be resulting in even greater agricultural use of rural roads as the flow of inputs and outputs grows and diversifies.
2. The province is also witnessing increased demand for rural tourism and recreation activities. This demand is, in part, resulting from the demographic shift – the aging of the so-called “boomer” generation, representing a significant component of the population and one with relative wealth and abundant leisure time.
3. There has been increased niche manufacturing activity in rural Ontario, and the potential for more. Together, this evolving economic activity has tended to increase the burden on the existing rural road network. An efficient and safe rural road system is vital for the success of all rural economic activity.
4. Many parts of Ontario have witnessed increased traffic on the rural road network from commuting and from the pursuit of the routine activities of a more diverse rural population. Road-related problems associated with the urban-rural fringe may be expanding further into the countryside as workers commute further distances and the transportation patterns associated with modern life become more complex.

Supply Trends:

1. The realignment of provincial-municipal service responsibilities resulted in the province withdrawing direct subsidies for local roads. Municipalities are now completely dependent on the local property tax base to generate funding for rural road maintenance. Funding for roads is a major issue and rural municipalities are struggling to finance their infrastructure requirements.
2. The new municipal act and increased municipal responsibility for road maintenance have resulted in the development of new voluntary standards for local road maintenance.
3. Increased responsibility, reduced funding options, and the continuing importance of providing road services has resulted in the increasing use of performance measurement within municipalities.
4. Rural municipalities do not appear to have access to the range of funding and management options available to their urban counterparts and to senior levels of government.

This report outlines a number of significant issues and challenges currently facing rural roads in Ontario. The report then provides analysis of a survey conducted to generate more insight into the nature and extent of these issues and challenges. Following the survey analysis, the report provides some context for the rural road situation in Ontario by examining the characteristics and condition of rural roads in other Canadian provinces and selected American States.

Initial research focused on groups that represent road users in Ontario. These groups include, but are not limited to, the following organizations:

1. The Ontario Good Roads Association (OGRA)
2. The Association of Ontario Road Superintendents (AORS)
3. The Rural Ontario Municipal Association (ROMA)
4. The Ontario Federation of Agriculture (OFA)
5. The Ontario Trucking Association (OTA)
6. The Canadian Automobile Association - Ontario (CAA - Ontario)
7. The Municipal Engineers Association (MEA)
8. The Ontario Motor Coach Association (OMCA)

Some of these stakeholder groups were contacted directly. Most have produced a variety of documents outlining and discussing their perceptions of road-related issues in Ontario, including issues that bear directly on Ontario's rural roads. These issues include concern with respect to:

1. Deteriorating rural road conditions
2. Inadequate rural road maintenance

3. Deteriorating bridge conditions
4. Inadequate bridge maintenance and replacement programs
5. A variety of rural road safety issues

This primary and secondary information from the stakeholder groups formed the basis of the questions asked in the mail-out survey. Surveys were tailored to specific groups by asking economic questions specific to each group, and by making minor adjustments in the way other topic questions were worded. However, all surveys attempted to garner the same overall type of information regarding Ontario's rural roads. The initial groups included:

1. Municipalities;
2. Municipal associations;
3. Agriculture and agribusiness;
4. Tourism;
5. Economic development; and
6. Other rural industries.

Survey response varied between the groups, but was good overall at approximately 28%. Municipal response was the strongest and, understandably, perhaps the most informative regarding the current state of rural roads and issues from the municipal perspective. There was also a high degree of similarity in terms of the issues identified across all the survey groups, although there was some variation in the prioritization of issues. In general, major survey findings include the following:

1. Ontario's rural roads are under pressure and deteriorating.
2. All user groups suggested that more should be done to improve rural roads or at least prevent further deterioration.
3. Municipalities are struggling to maintain and improve rural roads. Many are deferring major capital projects and feel forced to neglect or minimize some maintenance activity.
4. Many of Ontario's rural bridges are in an advanced stage of deterioration. Inadequate bridges may pose the single greatest threat to the economic viability of some rural areas over the long-term.
5. Most respondents specifically identified the need for some type of rural bridge reconstruction program.
6. All of the survey groups strongly recommended dedicating a portion of provincial fuel tax revenue to the maintenance of rural roads. Failing this dedication, respondents suggested that some other form of stable funding is necessary to allow municipalities to adequately maintain the rural roads in the province.

7. Municipal response to the transfer of former provincial highways to municipal responsibility was neutral overall. Most municipal respondents did not object to the transfers *in principle*. However, many were dissatisfied with compensation, the condition of transferred segments, and, in some cases, the criteria used for making the transfers.
8. Respondents in all groups identified a wide range of safety concerns on rural roads, including the following:
 - a. Excessive speed;
 - b. Drivers not adjusting their driving habits to rural road conditions;
 - c. Poor surface conditions;
 - d. Narrow lane widths;
 - e. Narrow shoulders;
 - f. Poor visibility and inadequate sight lines, particularly at intersections;
 - g. Poor design geometry;
 - h. Conflicting use (e.g. autos – trucks – farm machinery); and
 - i. Inadequate winter maintenance.
9. Many road user groups expressed concern regarding increased truck traffic on rural roads, both from a safety perspective, and from the perspective of the uncompensated damage large trucks cause. As with most issues, the trucking issue is more complicated than meets the eye. First, the public perception of trucks as inherently unsafe may be distorted. Second, commercial vehicles pay as much, if not more, in user fees to the provincial government. Again, the issue may be one of directing some of those user fee revenues to the maintenance of rural roads, thus offsetting some of the lack of compensation for road wear and tear.
10. Municipal respondents identified a wide array of innovative practices employed, in part, in an effort to ameliorate funding pressures. Most of these were technical innovations used in actual maintenance and construction activities. However, some practices are directed towards improving administration and management and these include such things as road management software.
11. Most of the respondents across all survey groups indicated that they thought that the current state of Ontario's rural roads is having a negative impact on many industrial sectors.

The study also includes an overview of the rural road situation in the other Canadian provinces and in selected American states. This comparative analysis included an examination of a number of economic, demographic, and road network characteristics for each of the jurisdictions. These characteristics were included to identify similarities and differences between the jurisdictions that potentially bear on the current state of affairs beyond funding and specific issues.

One dominant characteristic shared by all the Canadian provinces is that most have gone, or are undergoing, municipal restructuring and realignment in provincial-municipal responsibilities. Beyond the experience of some form of change, however, there appears to be considerable difference among the provinces with respect to what is changing and how these changes affect rural roads. In Alberta, for example, there has been change in the responsibility for some roads. Unlike Ontario, however, realigned responsibilities in that province have resulted in the province taking on responsibility for certain county roads rather than transfers of provincial highways to municipalities.

Another common theme across the country is the belief that federal and provincial fuel tax revenue must be invested in roads at all levels of jurisdiction. This is true even in provinces where there is less evidence of widespread concern regarding the state of rural roads.

In general, the Canadian provinces other than Ontario appear to be somewhat more involved in the rural road network. Several have utilized the federal infrastructure partnership to make significant investment in rural roads.

It is in the Western provinces, particularly Saskatchewan, where the rural road situation may be approaching the level of concern evident in Ontario. Again, there are complex reasons for this situation, but a major factor is the increase in rural road use resulting from federal transportation policy with respect to the movement of grain. The removal of the significant grain transportation subsidy has resulted in abandonment of rail lines and the consolidation and rationalization of the operation of the major railways. Consequently, more grain is moving by truck and much of that movement is occurring on rural roads. In Saskatchewan, this change is accompanied by the depopulation of rural areas. This phenomenon is occurring in part because of the relative instability experienced in agriculture for the past number of years.

In contrast, the Atlantic Provinces appear to be relatively quiet when it comes to rural roads. The exact reasons for this are not clear, although it appears that the provincial governments are more directly involved in rural roads and this may have created relative stability. In addition, these provinces have relatively small road networks (with the exception of Newfoundland).

Findings from the comparative scan of selected American states were somewhat different. The states used for comparison were selected based on a number of characteristics, including the following:

- Availability of relevant information
- Relative proximity to Ontario
- Similarity in climatic conditions¹
- Similarity in topography
- Size and proportion of rural settlement; Perceived relative “rurality.”

¹ This means at least some similarity to one or more of the multiple broad climatic conditions experienced across the considerable breadth of rural Ontario.

- Relative importance of agriculture and/or forestry and/or mining – thus relative importance of the primary industries
- Relative importance of tourism activities in rural areas
- Relative importance of rural manufacturing activities
- Degree of similarity of trends in all of the above, including demographics

Based on the above criteria, the following states were chosen for analysis:

1. Minnesota
2. Wisconsin
3. Michigan
4. Ohio
5. Pennsylvania
6. New York

Rural roads in many of the states face similar pressures to those in Southern Ontario. However, the rural road situation in the United States differs significantly than that in Ontario for several reasons. First, it appears that state investment in road transportation is generally higher than in Ontario. Second, there is significant federal investment and involvement in road transportation generally. Although the federal government makes little or no direct investment in local roads, the strong support of state transportation activity indirectly aids local roads. In addition, the state governments are directly involved in local roads. Finally, there appears to be much greater cooperation between all levels of government with respect to road transportation. For example, the federal government plays a significant role in information management and technology transfer, and the state and local governments cooperate significantly in planning activities, both land-use and transportation.

Despite the positive attributes mentioned above, there are rural road issues in the selected states. Minnesota in particular appears to be suffering some of the agricultural transportation issues faced by the western provinces. There is also evidence that rural roads and bridges have experienced deterioration in the recent past. This situation appears to have been ameliorated by a recent resurgence of interest in transportation infrastructure at the federal level. Again, the influence on rural roads is likely indirect, but it would appear that road and bridge decline at all levels has been slowed and may even have been reversed. This is in stark contrast to the situation in Ontario, where, if the survey results are indicative, the rural road situation is still in decline and the principal stakeholders have yet to find a way to significantly improve the situation.

The final section of the report is a brief look at the role of innovation in preventing or ameliorating rural road deterioration. The survey responses revealed a number of innovative ways in which municipalities are using innovative practices to improve the efficiency and effectiveness of their maintenance and upgrading activities. However, there are a number of limitations in the application of innovations to rural roads management. One is the fact that innovation in itself typically requires significant investment to implement. In addition, the results of the implementation of an innovative practice may take years to assess. Finally, innovation is not a perfect substitute for adequate funding. Effective maintenance of

Ontario's rural road network will require substantial and stable funding regardless of the level and type of innovative practices that municipalities are able to employ.

1 INTRODUCTION

1.1 *Rationale*

We may have entered the age of information in a global economy, but road transportation is arguably more important to the Ontario economy than at any time in the past. Why? Information exchange is of increasing importance, but goods and services still need to reach the consumer whether locally or across the world. With the proportion of goods shipped by rail in decline for the past few decades (OTA, 1997,1998), transportation by road has become the dominant mode for everything except certain bulk products (which themselves are likely to have a road transportation component to their delivery). In addition, the population of the province is growing, and overall mobility has increased. These factors all place increasing demands on Ontario's roads, including rural roads.

Ontario's roads and rural roads in particular, have also experienced a number of changes resulting from political and economic change. Despite increased usage and the growing importance of road transportation, government spending on road infrastructure at all levels has been in decline, not only in Ontario, but also across Canada. It is questionable whether road infrastructure spending could have matched need even without the economic difficulties of the past two decades. Demands may have required a revitalized approach to funding regardless of the robustness of the economy. In any event, the government's program of fiscal restraint and downsizing, which resulted from relatively poor economic performance and the need to address the consequences of previous decades of deficit financing, have meant that infrastructure spending has been severely restrained.

In spite of economic uncertainty during the past two decades, use of Ontario's rural roads has increased substantially. The vast majority of freight in Ontario moves by truck. The intensification of agriculture and the relocation of many manufacturing industries to urban fringe and rural locations have resulted in increased truck traffic on rural roads. At the same time, automobile usage of rural roads has increased as more individuals commute to work and more Ontarians are involved in a greater diversity of recreational activities, many of which take them into the rural parts of the province.

All of the above factors have combined to create a situation that some would describe as a crisis with road transportation in Ontario. This situation extends beyond the highway network under direct control of the province and clearly affects local roads and, by extension, the large network of rural roads in the province (Fuller, 1994).

Roads are always important. However, other municipal and provincial issues have often superceded roads-related issues. The Walkerton Crisis (which itself is at least in part an infrastructure issue) is a recent example of this phenomenon. The relative persistence of road issues, and their tendency to be superceded, might lead to the description of the state of Ontario's roads as the "quiet crisis." However, it is possible that problems with the

province's road network will, in the near future, build to the point where this "quiet crisis" cannot be so easily ignored by senior levels of government.

This scan² of the rural road situation in Ontario is an attempt to provide an update of the current 2001 state of affairs - rural road issues, concerns, and needs - and an attempt to ascertain how well the rural road infrastructure is being managed.

1.2 Background

There are approximately 500 municipalities (including upper tier governments) in Ontario that are primarily rural in nature. These rural local governments are responsible for the bulk of the approximately 143,000 kilometres of locally controlled roads in the province (Mulvale, 2001).

The provincial government directly subsidized the maintenance of rural roads until 1996, when the provincial government implemented sweeping reforms to the provincial-municipal relationship. These reforms will be discussed in a subsequent section, but the main point is that management of municipal roads went from a shared municipal-provincial responsibility to solely a municipal responsibility.

It is difficult to determine the economic importance of Ontario's rural roads. However, given the importance of the primary sectors to the economy, and assuming that rural roads are vital to the flow of inputs and outputs to industries within this sector, particularly agriculture, rural roads are economically significant to the province. Rural roads also play a significant role in the multi-billion dollar tourism industry in Ontario. Likewise, the fact that a significant percentage of the urban workforce lives in rural areas means that the rural road network plays a vital role in the commuting patterns of the province's cities. This pattern of commuting extends considerable distances outward from urban areas. In addition, significant manufacturing activity is now located in rural areas, including activity related to the province's auto sector. Clearly, although it is difficult to measure the precise economic importance of rural roads, a preliminary assessment indicates that the rural road network is extremely important to the province.

1.3 Structure and Scope of the Report

The report begins with the identification of primary stakeholder groups with respect to rural roads in Ontario. Information and documentation from these groups is used to outline the major issues affecting rural roads in the province. In turn, this information from primary stakeholders served as the basis of design for the rural roads survey, the analysis of which is outlined in subsequent sections. The report then examines the broader context of the rural

² An environmental scan is a rapid assessment of new and ongoing issues and may involve a review of the available literature; consultation with primary stakeholders; a survey of clients, consumers, or participants; and a preliminary synthesis of findings.

road situation in Ontario be providing the results of comparative analysis with other Canadian provinces and selected states from the American Midwest and Northeast. Finally, there is a brief discussion of the role of innovation in rural road management, followed by a summary and broad conclusions from the research.

2 RURAL ROAD ISSUES, CHALLENGES, PROBLEMS, AND CONCERNS IN ONTARIO

2.1 *Recent Trends Influencing the Management and Administration of Rural Roads in Ontario*

Significant reforms to the provincial-municipal relationship were implemented under the “Common Sense Revolution” of the provincial government. This process began in 1996, and the reforms continue to be implemented. There have been numerous reforms but those that bear directly on the province’s rural roads include the following:

- The province has witnessed a large number of municipal amalgamations that have resulted in entirely new local government configurations – sometimes including the elimination of entire municipal tiers.
- The realignment of service responsibilities resulted in the province withdrawing direct subsidies for local roads.
- The realignment of service responsibilities also resulted in the province assigning thousands of kilometres of provincial highway to municipal control.
- The new municipal act and increased municipal responsibility for road maintenance resulted in the development of new voluntary standards for local road maintenance.
- Because of service realignment and reform, municipalities are expected to track and document their service delivery performance. Since road maintenance is a major service delivery function for rural municipalities, performance measurement represents a significant new activity in the administration of rural roads.

In addition to the changes in rural road management that have resulted from the recent government reforms in Ontario, rural roads have been influenced by other trends, including the following:

- The province’s rural non-agricultural population has increased significantly over the past few decades. This has increased the traffic on the rural road network, particularly for commuting purposes, but also for routine activities.
- More Ontario residents have been pursuing recreational activities that take them into rural areas of the province. This growth has occurred both because of the general trend towards more tourist and recreational activity, and because recent economic conditions have made pursuits within Ontario more appealing than travel to the United States and overseas.

Economic activity in rural Ontario has changed as well. The number of farms in the province continues to drop, but those that remain have become larger and more intensive. This reality, in turn, has increased the flow of agricultural inputs and outputs. Manufacturing activity in rural areas has changed also. There has been a recent trend toward locating substantial manufacturing plants – plants that formerly would have located in large urban areas – in rural and small urban settings. One reason for this is the abundance of a trainable workforce with a strong work ethic³. Again, this economic activity has placed an increased burden on the existing rural road network.

2.2 Key Stakeholder Organizations

A number of organizations represent those holding a key interest in the efficient management of Ontario's rural roads, including those that represent road users, industry, municipal government, or the provincial government, with some organizations possessing a mandate to represent more than one group. This collection of stakeholder organizations includes, but is not limited to, the following (not in any particular order):

1. **The Ontario Good Roads Association (OGRA)** – OGRA is the country's largest municipal association and it represents the transportation interests of the province's municipalities. The organization provides a number of services to its members, including research and information, education programs, the maintenance of a municipal infrastructure database⁴, policy analysis and development, standards design, communication, and performance measurement and improvement support. Without question, OGRA is a major organizational player with respect to Ontario's rural road management and maintenance.
2. **The Ontario Federation of Agriculture (OFA)** – The Ontario Federation of Agriculture represents the major interests of Ontario's agricultural sector. There may be no other sector with as much of a stake in Ontario's rural roads. Agriculture in the province continues to evolve rapidly, and this change means that an efficient and effective road network is ever more important to the sector. The OFA's interests with respect to roads have included farm implement safety, changes to trucking regulations, and policy submissions on highway transfers and minimum maintenance standards.
3. **The Ontario Trucking Association (OTA)** – The OTA represents the interests of the trucking industry in the province and the organization maintains a multi-member staff that provides research, information, advocacy, and training activities to Ontario's trucking industry. These activities cover such topics as safety and

³ This point draws on work conducted by the author for the Grey Bruce Huron Perth Georgian Triangle Training Board. An example of a company that has recently expanded in rural Ontario is Wescast Castings Limited, who has just completed a major expansion at their Wingham, Ontario facility. Wescast continues to invest in rural Ontario in no small part because of the desirable characteristics of the local rural workforce (Gordon, 2000).

⁴ This work has been in cooperation with the Municipal Engineers Association (MEA), and the Ontario Chapter of the American Public Works Association (APWA)

- operations, government relations and regulations, policy development, and industry communications. Clearly, many of these topic areas include rural roads.
4. **The Canadian Automobile Association - Ontario (CAA - Ontario)** – This provincial federation of automobile clubs represents approximately 1.8 million Ontario motorists. The association “strives for safe, clean, and cost-effective mobility, and to ensure that our members’ concerns are being addressed by the provincial government (www.caaontario.net).”
 5. **The Municipal Engineers Association (MEA)** – MEA is a professional public-sector engineering association whose stated objectives include being “an advocate of sound municipal engineering,” and “to develop and champion positions on municipal engineering issues (www.municipalengineers.on.ca).”
 6. **The Association of Ontario Road Superintendents (AORS)** – The AORS is an organization comprised of road superintendents, supervisors, managers, and forepersons across the province. Its primary objective is to “promote the training and development of experienced, reliable, and efficient personnel for the construction and maintenance of public roads in Ontario (www.aors.on.ca).”
 7. **The Rural Ontario Municipal Association (ROMA)** – ROMA represents the interests of Ontario’s rural municipalities as part of the larger Association of Municipalities of Ontario. ROMA analyzes policy and advocates to the provincial government on behalf of its membership (www.amo.on.ca/ROMA/ROMA.htm).
 8. **The Ontario Motor Coach Association (OMCA)** – The OMCA represents the motor coach industry in Ontario, which in turn, is a significant component of the province’s tourism and recreation sector. The OMCA’s role is not unlike that of the OTA (www.omca.com).

2.3 Purpose

This research is an environmental scan of rural roads in Ontario with respect to identifying the current state of the road infrastructure and the identification of issues affecting rural roads. The study also attempts to provide some perspective on current rural roads issues in Ontario by comparing the state of affairs, as well as issues and solutions, with other jurisdictions in Canada and the United States. This report is not intended to be an in-depth study of any particular area of concern. Instead, it may point to areas where more research is needed.

2.4 Method

The environmental scan of rural roads in Ontario consists of four stages. The study begins with an exploration of issues identified by key stakeholder organizations, both in literature

produced by these groups and from interviews conducted with individuals representing these groups. The information gathered in this phase informed the creation of a survey which was mailed to organizations representing a cross-section of rural Ontario interests. Analysis of survey results provided greater insight into rural roads issues. Finally, online research was conducted to examine the current situation and issues with respect to rural roads in other jurisdictions in Canada and the United States.

2.5 Issues as Identified by the Major Stakeholder Organizations

2.5.1 Funding

Without question, adequate funding to maintain and improve rural roads in Ontario is the major issue expressed by the stakeholder groups as a whole. Funding was a concern for these groups long before municipal restructuring and provincial-municipal service realignment, introduced in 1996-97, complicated the situation. In fact, concern over road infrastructure funding has been an issue at the national level for some time, with road user groups arguing that neither the federal nor the provincial governments have been contributing enough funding to adequately maintain the *existing* road network. An inability to meet this obligation precluded any effort to address the expansion and improvement needed to accommodate increased traffic, evolving trade patterns, and advancements in safety.

During the pre-reform period, stakeholders levelled the greatest funding criticism with respect to the Trans Canada Highway and the provincial highway network. However, some proponents of improved funding did make the connection with local roads funding, largely because, at that time, the provincial government was a significant funding source for municipal roads. The following table (2.1), taken from a 1994 report on a survey conducted for the Better Roads Coalition (BRC)⁵, illustrates how the Ontario roads funding situation was deteriorating prior to the local government reforms of the late 1990's.

Table 2.1: The Decline in Transportation's Share of the Ontario Provincial Budget: 1953-1993

Fiscal Year	Total Provincial Transportation Funding (\$millions)	Total Provincial Budget (\$millions)	Transportation's Share of Budget (%)
1950-51	83	305	27.2
1960-61	242	837	28.9
1970-71	512	3,846	13.3
1980-81	1,212	16,836	7.1
1990-91	2,587	46,458	5.5
1991-92	2,738	51,683	5.3
1992-93	2,575	53,707	4.8

Source: Better Roads Coalition of Ontario, 1994

Note: All provincial governments in Canada are responsible for transportation functions beyond roads.

⁵ The BRC is a coalition of several of the stakeholder groups mentioned in the introduction, including OGRA, the OTA, the CAA, and the OMCA.

In addition to concern about the level of road infrastructure investment in the province, road user-groups have long been frustrated that little, if any, of the substantial tax revenue generated by road fuels taxes is used for road-related expenditures. Instead, this revenue flows into the general revenue fund of the province, where it is used to pay for a wide variety of provincial programs. Although figures are not provided, one must acknowledge the reality that expenditures for these other programs, partially funded from fuel taxes, have grown substantially in the period covered by table 2.1. These taxes (Table 2.2), along with the federal equivalent, represent a substantial portion of a litre of gasoline or diesel fuel:

Table 2.2: Retail Taxes on Fuel in Ontario 2001

Tax Type	%
Federal Excise Tax	10.0
Federal GST	7.0
Provincial Fuel Tax	14.7
Total	31.7

Source: Canadian Tax Federation (2000); M.J. Ervin & Associates, 2001

Furthermore, the annual revenue generated from fuel taxes is considerably larger than total provincial and municipal expenditures on road construction, maintenance, and operating costs. Paying a user-fee for access to a road network is legitimate practice. The criticism of the current situation in Ontario results from the fact that user-fee generated revenues are not being reinvested into the network users are paying to access. This argument has gained strength given that the road network at the national, provincial, and local levels appears to be under considerable stress, and no alternative viable schemes for increasing funding appear to be under consideration.⁶

Virtually all of the stakeholder organizations, along with individual municipalities, have made repeated requests for a source of dedicated funding for municipal road infrastructure. Most often, this is a request for a portion of the fuel tax revenue because this is the most obvious source to access. However, municipalities would clearly be satisfied with any source of stable and adequate funding, beyond the property tax, for maintaining their road networks.

The need for municipal access to dedicated funding for roads was echoed by the provincial government's own "Who Does What" panel, which stated that: "Municipalities should be given access to a new revenue source, such as a portion of the gasoline tax, to help offset future maintenance costs" (Richardson, 1997). So far, the province has not dedicated a portion of fuel tax revenue to municipal roads (or provincial highways), and, as of July 2001 has not come up with any other source of adequate and stable funding for municipalities to access.

⁶ There are alternative funding strategies for roads. Some of these strategies have been employed at the provincial and federal levels, and in local *urban* settings. However, there does not appear to be a great number of viable options currently available for funding *rural* local roads. For more information on funding alternatives, please see part 15 of this report: Innovations.

The provincial (and federal) government’s reasons for steadfastly resisting dedicating fuel tax revenue to road expenditures are, on one hand, understandable. This significant revenue flow enters the general revenue fund and it has been used for years to fund various provincial expenditures on services that Ontario residents rely on. These non-infrastructure services, such as health care and education have burgeoned into extremely large components of the provincial budget. Dedicating fuel tax revenue to roads would leave a huge gap that would have to be filled by some other revenue source. Unfortunately, this no-win revenue dilemma has seen social programs supported at the expense of physical infrastructure. As this report will indicate, this situation, long considered a “quiet crisis” by some stakeholders, may be quickly reaching the point where the negative economic impacts will demand that the problem be addressed. Of course, how it may be addressed is, and will likely continue to be, as controversial as the original funding problem itself.

2.5.2 Funding Impacts on Rural Roads

The road-funding situation is closely linked to a number of other issues in rural roads, often exacerbating existing problems, or creating entirely new challenges. In addition to the absence of a dedicated funding source for financing rural road expenditures, the realignment process has ended any consistent provincial contribution to rural road funding.

Anecdotal evidence suggests that some gains were made by municipalities in rural road quality, standards, and safety during the 1970s and 1980s.⁷ However, evolving usage patterns through the 1980s and 1990s meant that rural road funding *even with* provincial subsidy was probably inadequate for the long-term stability of the network. Just as this situation was emerging, provincial subsidies were eliminated. The result is a road network that, many believe, is truly in crisis from the standpoint of maintenance, repair, and long-term improvement. While thus far this “crisis” has been a relatively quiet one, it is apparent that the stress on the system may force it higher on the priority list for rural Ontario municipalities, rural residents, and the provincial government.

Challenging the status quo is a part of the mandate for any road stakeholder group, so one would always expect some criticism from these organizations. Given this role, one might question the seriousness of the current situation based on these criticisms. However, as survey results discussed later in this report will indicate, rural municipal governments are expressing almost unanimous concern regarding roads, as are third-party organizations and many individual road users.

The impacts of inadequate road funding on rural municipalities are multiple and include the following:

1. Road reconstruction and upgrading may be deferred.
2. Maintenance and repair activities may be downgraded.
3. Road standards may not be maintained.
4. Road safety may be compromised.

⁷ The author is drawing on personal experience here, having worked for a local municipality on two occasions during this period.

5. Municipal liability risk may be increasing.
6. Property tax rates may be increasing as municipalities attempt to compensate.
7. Municipalities may be attempting to implement their own user-fees (e.g., weight and dimensional permits).
8. There is increased stress on municipal personnel, including financial officers, road system managers, and staff.
9. Municipalities endure the most of user dissatisfaction with the current road situation.

Potential solutions and their pros and cons will be discussed later in this report.

2.6 Highway Transfers

Another serious issue for rural Ontario municipalities has been the transfer of former provincial highways to municipal jurisdiction. This transfer scheme was a component of provincial-municipal realignment and was based, at least partially, on the recommendations made the Who Does What (WDW) panel 1996. The recommendations on highway transfers included the following (Smither, 1996):

The sub-panel sees the future role for the province as developing and maintaining a system of highways that meets Ontario's long-term economic development needs and that serves the broader objectives of moving people and goods between and among major economic centres, both within the province and to other jurisdictions. This is most evident in the system of 400 series highways and other key corridor highways, but would also include major regional routes that serve to link smaller urban areas and provide connections to other provincial highways.

However, many highways primarily serve local needs and should ultimately come under local jurisdiction. The Ministry of Transportation estimates that up to 50% of provincial highways are now primarily of local significance . . .

The selection of highways transferred was based on the following criteria:

- Some highways were identified during the 1992 disentanglement process.
- Highways to be transferred had to primarily serve a local function.
- Transfers would also include those in urbanizing areas where local control would facilitate better development prioritizing and local control.
- Transferred highways had to have low to moderate traffic volume.
- Only highways connecting population centres of less than 5000 people in the Southwestern portion of the province, or 2000 people in Eastern Ontario.
- Low population density and extreme distances ruled out most of otherwise suitable highways in Northern Ontario – not to mention the unorganized nature of much of the north.

In theory, highway transfers fit into the government's program to realign services to the appropriate level of government. According to OGRA, the highway transfer process would:

. . . leave the province with a highway system that meets the objective of moving large volumes of goods and people across Ontario – moving materials to market and industry, facilitating international and inter-provincial trade, as well as linking major population centres.

Obee, 1997

Less clear, particularly in light of funding concerns, is where the transfers would leave local governments, particularly Ontario's rural municipalities.

By the time the panel had made their recommendation, the province had already transferred more than 1700 km of highway to local governments. On June 10 1997, the province announced that an additional 3400 km of road would be transferred to local control, effective January 1, 1998 (Merrall, 1997).

In general, neither the municipalities, nor the various road stakeholder groups, objected to the transfer of provincial highways to local jurisdiction, *in principle*.⁸ Once again, the main concern was one of funding. With a lack of money to fund existing road obligations, municipalities were understandably apprehensive about the long-term costs of maintaining relatively high-use, high-standard road components. This concern strengthened the call for a source of dedicated funding.

There were at least three other concerns expressed with respect to the transfers:

1. Municipal road managers were concerned about the current condition of some highway segments being transferred. The province stated that highways to be transferred would be improved on a priority basis, as much as current Ministry of Transportation funding would allow. This hardly inspired confidence in municipalities, who knew that many of these highways were currently in poor condition and many were due for significant upgrading.
2. Another concern was the adequacy of information regarding mid to long-term expenditure requirements for transferred segments. How could municipalities take on responsibility for road segments for which the province had no clear indication of what maintenance expenditures would be required over the medium to long-term? These expenditures could have a profound effect on the financial situation for municipalities, particularly in the absence of adequate dedicated funding. The Ontario Good Roads Association (OGRA) specifically asked for financial forecasting to facilitate “full disclosure” (OGRA, 1997).
3. Finally, some municipalities questioned the criteria used to select which highways would be transferred. For example, they questioned whether the criteria used

⁸ This is a controversial point. Some road-user groups *did* object. For example, the Better Roads Coalition discussed transfers in “Better Roads Coalition Raises Concerns Over Unconditional Grants to Municipalities.” However, again, the concern is one of funding inadequacy and its impact on the road user, rather than transfers in principle.

considered projected patterns of future use. In this sense, the concern over criteria is tied to funding concerns. Municipal road managers could identify segments that they already believed to have high use or which they projected would have high use in the future. Uncertainty regarding the overall compensation and funding picture gave rise to questioning whether certain highway segments should be transferred at all (Gordon, 1998).⁹

2.7 Rural Bridge Structures

Bridges and various bridge structures form vital links in the network of rural roads across Ontario. There is considerable variation in the number of structures that individual municipalities are responsible for maintaining. Concern for the condition of these bridge structures has been building over the past couple of decades. Many bridges have exceeded their useful life and others are now inadequate for the volume and type of vehicles that they are expected to carry. Bridge deficiencies have serious impacts for road-users and municipalities including:

1. Safety Issues – the risk of injury and/or damage to property resulting from collapse or significant surface failure, etc.
2. Economic Issues – weight and size restrictions affect the efficient movement of people and goods throughout rural Ontario.
3. Convenience Issues – a closed or severely restricted bridge means that both local and distant road-users may be forced to take alternative routes.

The cost of upgrading or replacing all deficient bridge structures in rural Ontario is significant. Various rural road stakeholder organizations have called for a dedicated bridge-funding program to address deficient structures before the situation deteriorates further. Funding for bridge repair was included in the recent Ontario Small Town and Rural Development Initiative (OSTAR) funding announcement (Ontario Ministry of Finance, 2000). It is not clear if a specific portion of the \$600 million first-round OSTAR funding was earmarked for bridge repair and improvement, but it would seem that most of this money has been allocated to water quality improvements in light of the Walkerton Crisis (Appendix A outlines the OSTAR priorities, criteria, and considerations).

2.8 Minimum Maintenance Standards

Another controversial issue related to rural roads has been the design and implementation of new voluntary minimum maintenance standards for roads. In reality, the new maintenance standards have been controversial more from a political perspective during their implementation, rather than from a technical perspective or from the perspective of their

⁹ There is also implicit reference to this concern in the 1996 Municipal Routes (OGRA) articles concerning highway transfers.

impact on rural roads funding. However, as the survey results will demonstrate, there were, and are, technical issues relating to the minimum maintenance standards.

The new road maintenance standards, like many of the changes affecting rural roads, are rooted in the disentanglement or realignment process initiated by the current provincial government soon after it came into power in 1995. The minimum standards development process originated with the *Savings and Restructuring Act, 1996* (Bill 26), which assigned the Minister of Transportation the:

. . . authority to make regulations establishing standards for the planning, design, construction, maintenance, management and operation of highways and bridges and related structures and works; the construction, maintenance and operation of rapid transit and public transportation systems; the safety and mobility of people and goods; the measurement and assessment of technical standards in connection with a matter described above, and any other matter that may be the subject of an agreement; authority to enter into agreements concerning roads, bridges and transit

Summers, 1996.

OGRA quickly indicated that they should be involved in any standards development on behalf of the province's municipalities, stressing the need to have stakeholders involved in the development of practical and affordable standards. The association produced an eight-part proposal early in 1996. This document outlined OGRA's perspective on what should be included in the development of minimum maintenance standards (Canaran, 1996):

1. Standards should be province-wide and focus on maintenance outcomes rather than processes – the idea being to promote creativity in maintenance that meets minimum standard.
2. Standards should focus on municipal projects and not highways only.
3. The new standards should stress accountability and this can be achieved through performance review of municipal maintenance activities.
4. Performance reviews based on common guidelines and practices with OGRA acting to maintain and share common data and information.
5. Maintenance guidelines were to be non-mandatory and advisory only. In other words, there should be no direct sanctions should applied by the province for non-compliance.
6. The minimum maintenance standards process should include a voluntary reporting process, with aggregated information publicly shared while respecting the confidentiality of individual municipalities.
7. The standards as a whole should be universal across all public agencies, thus promoting confidence in road safety across the entire road network.
8. Standards should involve six specific areas: service, design, construction, quality, administration, and performance.

Standard development was initiated in 1997, overseen by a steering committee comprised of representatives from the following groups:

1. The Ontario Good Roads Association (OGRA);
2. The Municipal Engineers Association (MEA);
3. The Association of Ontario Road Supervisors (AORS);
4. The Ontario Ministry of Transportation;
5. The Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA);
6. The Ontario Ministry of Municipal Affairs and Housing (MMAH);
7. The Regional Solicitors Association; and
8. The Association of Municipalities of Ontario (Obee, 1997).

The first three organizations listed had formed a working group to develop voluntary municipal standards before the Ministry of Transportation's initiative. The steering committee created terms of reference for selecting consultants to write the actual standards, with completion scheduled for late 1997 and implementation in 1998 (Obee, 1997). The standards design process allowed for public input as well as input from other stakeholder organizations including the following:

1. The Ministry of Northern Development and Mines (MNDM);
2. The Ministry of Natural Resources (MNR);
3. The Better Roads Coalition (BRC);
4. The Canadian Automobile Association (CAA);
5. The Ontario Trucking Association (OTA);
6. The Ontario Motor Coach Association (OMCA);
7. The Ontario School Bus Association (OSBA); and
8. The Ontario Urban Transit Association.

This consultation process included a survey sent to municipalities in mid-1997 and two rounds of discussions in each of the five MTO regions. The first consultation round was intended to solicit standard design input, with the second intended to review draft standards and the classification system (Obee, 1997).

The early stages of minimum maintenance standards provided a lightning rod for municipal frustration and anxiety regarding the whole restructuring and realignment package. This was evidenced by the remarks of Terry Kett, mayor of the Town of Walden, at the 1996 OGRA Annual Conference. Kett suggested that the province should not be setting standards for downloaded service if it was not prepared to provide funding (Canaran, 1996). It is not clear how widespread municipal dissatisfaction with the proposed standards process was, or even the extent to which expressed displeasure related strictly to standards and not to the realignment challenges as a whole. However, the Association of Municipalities of Ontario (AMO) did explicitly voice objection to *provincially imposed* standards (ibid.). Nevertheless, standard development did proceed, stakeholders did have input and expressed concerns. Many of these were addressed in revisions to the standards and classification scheme. The standards continue to have their critics as will be evident in discussion of survey results.

2.9 Vehicle Dimensions, Weights, and Axle Loadings

A greater proportion of freight is transported by truck today than at any time in the past. Over the past few decades, trucks have substantially increased in size and in the loads that they carry and this has placed greater demands on the road network. Consequently, truck dimensions, gross vehicle weights, axle loadings, and the safe interaction of trucks with passenger vehicles and farm machinery have become issues for discussion. All levels of government have discussed these issues, as have the various rural road stakeholder groups.

2.9.1 Issues

The issues around truck dimensions, weights, and safety are multiple and complex and they include the following:

1. The Economic Importance of Truck Transportation:

- The importance of trucking to Ontario's economy cannot be overstated. As an economy dependent on the movement of materials, both raw and processed, from a large rural hinterland to a relatively concentrated urban conglomeration, transportation is of extreme importance. The same can be said of the need to move goods to and from the United States, Ontario's overwhelmingly most significant trading partner.
- For complex reasons, trucking dominates over rail transportation for the movement of most materials over most distances. The exceptions are large quantity bulk shipments. The distances over which truck transportation can compete successfully with rail have steadily increased over the past few decades (OTA, 1998).
- Trucking represents a dilemma for rural municipalities in the current context. The movement of goods by truck, whether agricultural, other primary products, or for the support of rural manufacturing activity, is vital. On the other hand truck transportation and the trend toward larger and heavier vehicles contribute to damage on rural roads. Similarly, these trends demand higher, and more expensive, standards when roads are upgraded or reconstructed.

2. Weights:

- Trucking is an extremely competitive business, with very low profit margins. Recent increases in diesel fuel prices have further destabilized the industry.
- The extremely low margins in the industry demand efficiency, which translates into efforts to maximize the weight of loads carried. In turn, this has directly contributed to the increase in the dimensions and gross vehicle weights of trucks on Ontario's roads.

- Regulating gross vehicle weight is a multi-jurisdictional responsibility complicated by the need to accommodate the inter-provincial and international movement of goods by truck. Municipalities can enforce weight regulations on locally controlled roads, but they have no direct control over provincial policy with respect to weight limits and dimensions.

3. Safety:

- Trucks are a safety concern on rural roads.
- Trucking presents a dilemma for other rural road users. On one hand, they are concerned about safety as they interact with trucks while using rural roads. On the other hand, rural road users are completely dependent on the use of trucks to transport the goods they produce and/or use in support of their livelihoods and lifestyle.
- Public perception of truck safety, at least on an industry-wide basis, may be distorted.

2.9.2 Other Issues and Comments:

- Trucking related issues for rural roads concerned municipal governments before realignment in Ontario. With the removal of provincial subsidy, the transfer of former provincial highways, and the resulting increased financial burden on municipalities, these issues are even more relevant. The maintenance, safety, and economic implications for rural roads are even greater in the current context. The situation may deteriorate further if rural municipalities cannot find the financial resources to maintain the status quo (at a minimum).
- One way to address all of these issues, at least in part, is to dedicate a portion of the provincial fuel tax revenues to the maintenance of municipal roads. This would partially address the need to improve rural roads in light of any trucking-related damage, and improve safety. It would also result in at least a partial user-pay scenario, both for trucks and for other road users.

2.9.3 Recent Developments:

Ontario and Quebec reached conditional agreement on the harmonization of vehicle weights and dimensions in August 2000. For Ontario, the changes resulting from this agreement were in conjunction with provincially specific changes intended for implementation this year. The changes resulting from the Quebec agreement will be phased-in over the next ten years, and these include the following (OTA, 1999):

- Harmonized maximum weights for a variety of semi-trailer configurations;
- Dedicated research into on-board monitoring technology;
- Experimentation with quad semi-trailers equipped with self-steering axles;

- Decreased maximum weights for no-dump tri-axle semi-trailers;
- New lift-axle violation penalties;
- A special permit system to allow for minor variations;
- Planned initiatives to address other vehicle configurations; and
- The pursuit of similar inter-jurisdictional agreements across North America.

2.10 Impacts of Vehicle Weight and Dimension Changes For Rural Roads:

1. The reduction in the use of lift axles, and the use of self-steering axles should decrease rural road wear and tear, particularly at intersections. The MTO predicts that the changes will save approximately \$100 million in road repair costs annually, with 80% of the savings experienced by municipalities (OTA, 2000).
2. Lower overall weights for tri-axle trailers should help to reduce road damage.
3. Monitoring technology research should increase the knowledge regarding loads and damage for all jurisdictions.

A potential negative consequence for rural residents is an increase in shipping costs passed onto consumers because trucking companies are forced to transport fewer products or less material per load. Again, the significance of this impact is difficult to determine. However, given that weight restrictions are relatively modest and are to be phased-in over time, these impacts may be very limited.

2.11 Other Rural Roads-Related Issues

A considerable range of additional rural roads issues have been raised by one or more rural road stakeholder groups. Some of these issues are outlined briefly in this section.

2.11.1 Driver Licensing Issues and Farm Vehicles

Rural residents, particularly farm residents may be adversely impacted by the new graduated licensing system in Ontario. The system, which many stakeholders admit has benefits for society, serves as a restriction on travel for youth and may interfere with their ability to access summer and part-time jobs, and to participate in other learning, social, and recreational activities.

Stakeholders: The Ontario Federation of Agriculture (OFA)

2.11.2 Road Numbering System/Directional and Tourism Signage

Road users want to be assured of consistency across jurisdictions in the numbering system used on transferred highways. OFA has argued that the transferred highways should have an upper-tier prefix that allows road users to identify the routes across jurisdictions and with reference to their historical provincial numbering.

Stakeholders: OFA

2.11.3 Slow Moving Vehicle Signage

Agricultural stakeholders are concerned about the abuse of the slow moving vehicle sign. For example, people are using these signs to mark driveway entrances. This practice is dangerous because it reduces the association of this symbol with its intended purpose – identifying slow-moving vehicles using the road system. Stakeholders argue that the consequences for misuse of this important symbol should be enforced.

Stakeholders: OFA

2.11.4 Hours of Service

Agricultural stakeholders maintain that the hours of service regulations for commercial vehicles are onerous for agricultural related trucking activity. The OFA would like to see operators of trucks hauling primary agricultural products exempted from the regulations.

Stakeholders: OFA, OTA

2.11.5 Truck Versus Rail Transportation

This is a complex and controversial issue with stakeholder groups holding opposing views of the need for, and utility of, increasing rail's share of freight transportation in Ontario. Groups concerned about truck safety and environmental impacts of trucking, among other issues, advocate increased use of rail. Groups such as the OTA argue that moving towards greater rail participation is not economically viable. Furthermore, the OTA and others would argue that the safety concerns of other road users are inaccurate and that truck transportation compares favourably to other modes on an environmental basis.

Stakeholders: OTA, OFA, CAA,

3 THE RURAL TRANSPORTATION SURVEY

3.1 *Details of the Mail-Out Survey*

In addition to information collected from secondary sources and key informants representing the main stakeholders, the rural roads scan included a mail-out survey. It was designed to gather as much roads-related information from a wide variety of rural stakeholders. This section outlines the nature of the survey and presents an analysis of the results.

In keeping with the scanning nature of this rural roads study, the survey was designed to solicit information from a broad cross-section of organizations and individuals who might have an interest in rural roads issues and the current state of affairs with rural roads. The survey attempted to collect basic quantitative data on network characteristics, categorical opinion regarding specific issues, and informed opinion from individuals within the various stakeholder groups.

The survey consisted of four different questionnaires designed at the outset for specific groups of stakeholders:

Municipalities:	A province-wide cross-section of municipalities from both tiers.
Municipal Associations:	Local government associations and municipal roads/transportation-related associations.
Economic Development Organizations:	Economic development offices, corporations, chambers of commerce, etc.
Tourism Organizations:	Regional and local tourism associations, chambers of commerce, and other groups.
Rural Industry:	Industry associations representing significant and identifiable rural industries.
Agriculture:	County and district agricultural federations and
Agribusiness Organizations:	Agricultural producer, processing, and marketing associations, etc.

The municipal and municipal association questionnaires differed significantly from all other groups. The other groups were sent similar questionnaires. However, in an effort to recognize differences in priorities that might exist among the groups these questionnaires contained some economic and road use questions that were specific to each group.

The responses from the original seven groupings were combined into four. This combination was done to facilitate timely analysis and in recognition that the number of responses for some groups was not adequate for analysis. The final groupings were as follows:

1. **Municipal:** Municipal and municipal association responses;
2. **Agriculture and Agribusiness:** Responses from producers, marketing, and processing organizations;
3. **Economic Development/Industry:** Economic development, tourism, and rural industry organization responses; and
4. **General Responses:** Responses from returned questionnaires that did not fit into other categories or for which the associated group could not be identified.

3.1.1 Response Rate and Break-Down of Responses

Table 3.1: Rural Roads Survey Response Rate

Characteristic	Statistics
Number of Surveys Mailed	460
Number Undeliverable	23
Number Delivered	437
Number Returned	121
Response Rate	28%

Table 3.2: Breakdown of Returned Surveys

Type/Group	Number Returned
Municipal	38
Municipal Association	13
Agriculture & Agri-business	22
Economic Development	8
Tourism	6
General	34
Total	121

3.1.2 A Note on Survey Responses

In general, response to the survey was satisfactory given that all survey types were involved and lengthy. Municipal response was excellent in light of two realities: Municipalities are in the midst of profound and demanding change because of amalgamations and provincial-municipal realignment; and municipalities in Ontario have been bombarded with surveys and requests for information. The agriculture and agri-business response level was adequate and represented considerable geographic diversity and organizational focus. On the other hand, the tourism and economic development response rate was poor. It may be that these

organizations did not identify strongly with the subject matter of the surveys. The general group contains surveys from all of the other groups except municipal. These responses were useful for analysis, but they were grouped together because the nature of the returned survey could not be identified, or because they belonged to more than one survey group.

3.1.3 Survey Analysis

The large amount of quantitative and qualitative data contained in each survey was analyzed as follows:

1. Quantitative data (from closed responses) for each question in each survey group was entered into a spreadsheet. Responses for each question were tallied and the number of each possible response were converted to percentages and presented in the pie charts that follow. The questions were not intended to facilitate advanced statistical analysis techniques.
2. Qualitative data (from responses to open questions) was manually grouped into themes in a multi-stage analysis. This information has been presented as respondents expressed it (edited only where necessary for readability), grouped under the themes that emerged from the qualitative analysis.

The result of this multi-stage analysis is a synthesis of informed opinion about rural roads issues in Ontario, presented in a manner that is, hopefully, informative.

4 ANALYSIS OF SELECTED MUNICIPAL SURVEY CLOSED RESPONSES¹⁰

Municipal surveys were sent to a random cross-section of municipalities across all regions of the province. 38 municipalities responded to the survey.

4.1 Rural Road Network Statistics:

Respondents to the municipal surveys were asked to indicate the size of their road networks broken down by total network, rural roads, and the breakdown of the total rural network by type of surface. The results of these responses are presented in table 4.1.

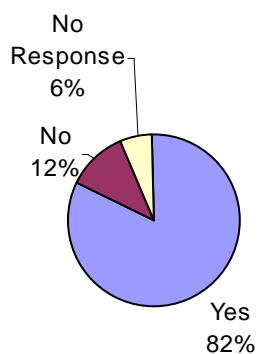
Table 4.1: Road Network Statistics for Surveyed Municipalities

Category	Sub-Category	Total (Km)	% of Network	Min (Km)	Max (Km)
Total System		22569.40	100%	12.35	3200.00
Rural Roads		15622.84	69%	15.00	2600.00
	Asphalt Surface	16378.05	73%	0.00	1261.80
	Improved Surface	4186.44	19%	0.00	1489.00
	Gravel Surface	1946.81	9%	0.00	700.00

4.2 Part A: Municipal Restructuring:

1. *Has your municipality been involved in (or discussed) municipal amalgamations and/or restructuring of services?*

Municipal Question A.1

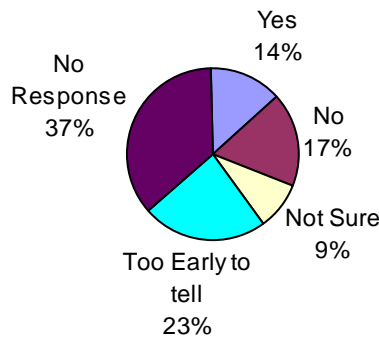


¹⁰ Note: not all questions and responses from the survey are included in this analysis. The question #'s refer to the questions in the survey, and are therefore not necessarily sequential. Please see Appendix B for the complete survey questionnaires.

More than 80 % of the municipal respondents indicated that their municipalities had been involved in municipal amalgamations or discussions concerning amalgamation. Of those, a lower percentage indicated that road expenditures, rationalization, levels of service, standards, and the like were an explicit part of amalgamation discussions and/or negotiations and implementation.

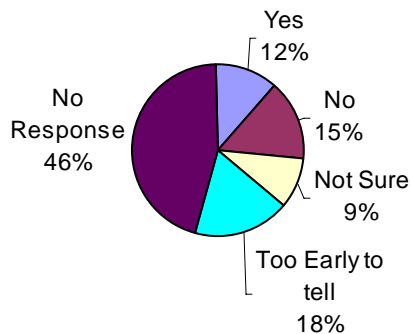
3. *If amalgamations resulted from restructuring discussions, were savings realized in road service provision?*

Municipal Question A.3



4. *If road service responsibilities were restructured outside of, or in addition to, amalgamations, have road expenditures been reduced?*

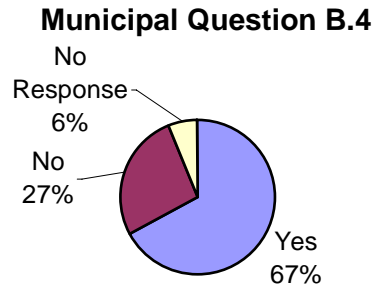
Municipal Question A.4



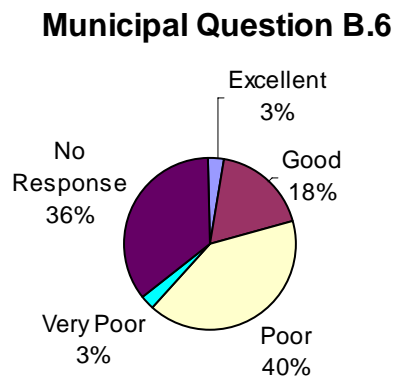
Responses to the question on savings in road service restructuring were mixed. However, the majority of respondents indicated that savings had not been realized or that it was too soon after changes had been made to determine whether savings had been realized. Similarly, respondents to question 4, for which response was poor, suggest that it may be too early to determine the extent of road expenditure reduction, if any.

4.3 Part B: Highway Transfers

4. Were any provincial highway components transferred to your responsibility?



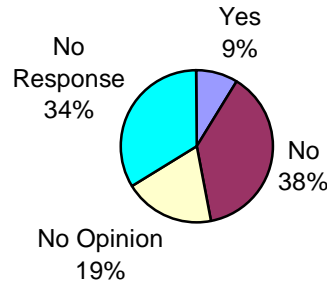
6. In what condition were these highways when your municipality took over responsibility?



Most respondents indicated that they had received between 100 and 200 kilometres of former provincial highway. The majority ranked the condition of these transferred highway segments as being poor or very poor. Only 21% indicated that the highways they took over were in “good” or “excellent” condition.

7. *Were you satisfied with the criteria used for determining highway transfers?*

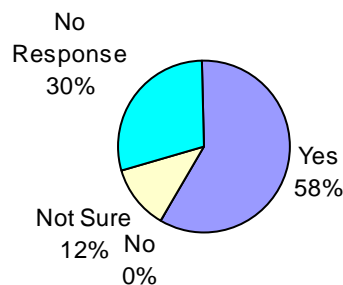
Municipal Question B.7



When asked about the suitability of the provincial government’s criteria for determining which highways would be transferred to municipal jurisdiction, reaction was mixed. A significant number did not respond, which is interpreted as no opinion, while only 9% indicated that they thought the criteria were suitable. None of the respondents felt that the provincial compensation for the transferred highways was adequate.

8. *In your opinion, will maintaining, upgrading, and reconstructing transferred highway sections place an excessive burden on your municipality in the future?*

Municipal Question B.10



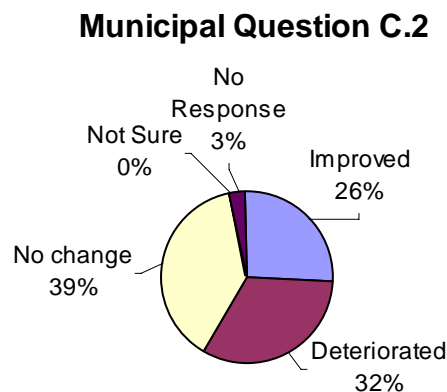
4.4 Part C: Road Condition

1. *In general, how would you describe the condition of the rural road network under your jurisdiction?*



The response to this question suggests that there are serious concerns regarding the current condition of the municipal rural road network in Ontario. Almost 80% of those who responded felt that their system was only in “fair” (46%) or “good” (33%) condition. A significant number of respondents felt their system was in poor condition, although none felt that things were “very poor.”

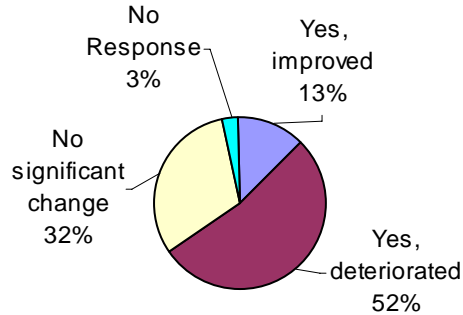
2. *In the past ten years, have your road conditions significantly changed?*



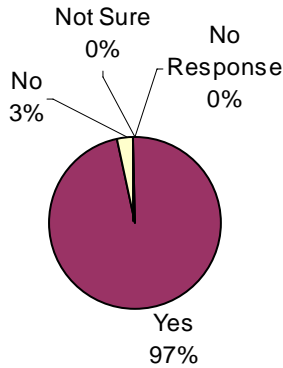
The largest number of responses for this question was “no change.” However, more respondents felt that the system under their jurisdiction had deteriorated than thought the situation had improved.

4. *Do you expect your road conditions to change significantly in the next five years?*
5. *Are you concerned about long-term funding to maintain and improve your road network?*

Municipal Question C.4



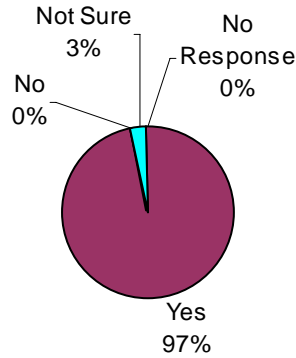
Municipal Question C.5



Looking into the future, 52% of respondents expect the road conditions in their jurisdictions to deteriorate. Conversely, only 13% expect improvement, with approximately one third of respondents not expecting significant change in road conditions. The overwhelming majority of municipal respondents are concerned about the long-term funding situation for their road networks.

6. *Do you think a portion of fuel-taxes should be dedicated to municipal roads in Ontario?*

Municipal Question C.6

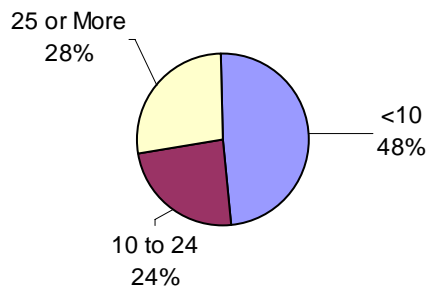


An overwhelming majority of respondents believe that a portion of the fuel tax revenue collected in Ontario should be dedicated to municipal road funding.

4.5 Part D: Bridge Structures

1. *How many bridge structures are in need of replacement or significant repair?*

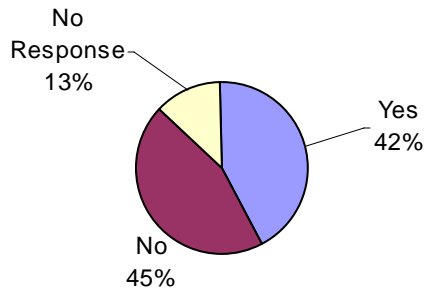
Municipal Question D.2



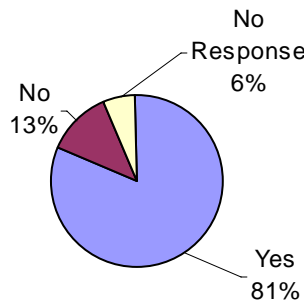
Almost 30% of respondents indicated that the road network under their jurisdiction included 25 or more bridge structures in need of replacement or significant repair. Another 24% indicated that they had 10 to 24 structures in their network that were in poor condition, suggesting that significant numbers of bridge structures in rural Ontario currently need some form of major repair work.

3. *Are any bridge structures closed or under significant weight restrictions because of their current condition?*
4. *Are you concerned about funding needed bridge replacement and repair?*
5. *Are you able to keep up with needed bridge maintenance, repair, and replacement?*

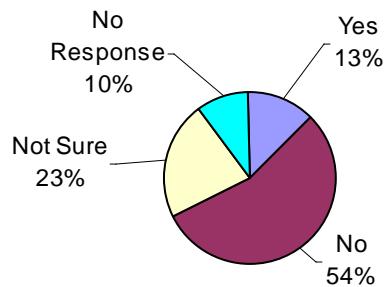
Municipal Question D.3



Municipal Question D.4



Municipal Question D.5

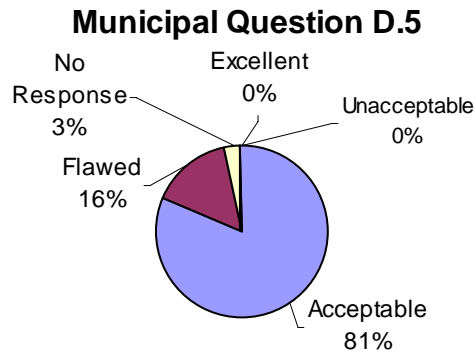


Almost half of those who responded to question #3 indicated that their municipality had bridge structures with weight restrictions because of the state of repair of those structures. These respondents indicated that 75 bridges in their jurisdictions were under weight restriction because of their condition. The response to question #4 indicates that a large majority of municipal respondents are concerned about accessing funding to make necessary

repairs to their bridge structures. Slightly more than half of those responding to question #5 indicated they are not staying abreast of the maintenance needs of the bridge structures in their road networks.

4.6 Part E: Road Standards

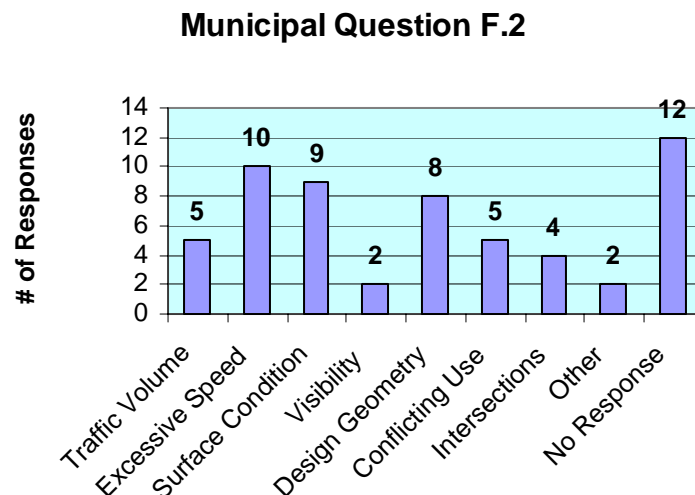
1. How would you rate the new road maintenance standards in Ontario?



Most municipal respondents felt that the newly designed voluntary road maintenance standards are acceptable, although 16% felt there are flaws in the standards.

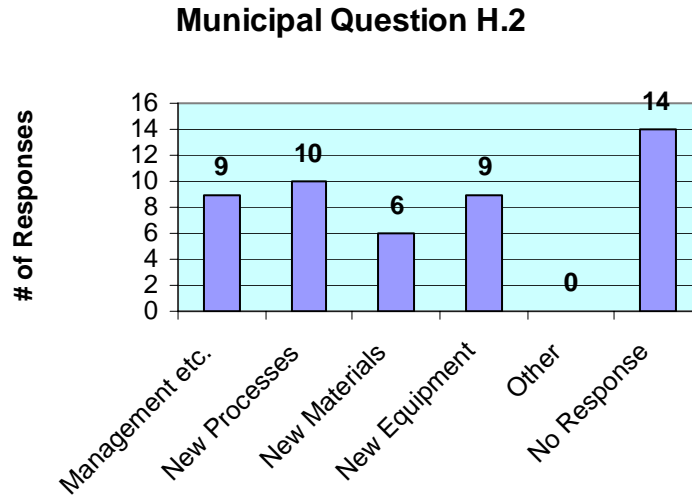
4.7 Part F: Safety Concerns

1. If you do have (safety) concerns please indicate their type and elaborate if possible:



4.8 Part H: Innovation

1. If you answered yes, indicate and describe the type of innovative practice(s):



The distribution of responses across all categories in this question suggests that municipalities are employing a wide range of innovative practices in their management of rural roads.

5 SUMMARY OF THEMES FROM MUNICIPAL SURVEY OPEN RESPONSES

Responses to the municipal survey open questions were grouped and categorized in a five-stage analysis process. The following section is a summary of issues, opinions, and solutions identified in the open responses, arranged by theme and accompanied by the relevant questions from the survey. Where no question has been included, issues have been identified in responses to a variety of questions. All of the open response questions and respondent answers are included in the appendices.

5.1 *Funding Issues:*

If expenditures have been, or are expected to be reduced, can you describe how this was/will be realized?

If you expected expenditure savings, but these have not been realized, can you explain why?

5.1.1 The Overall Funding Situation:

It is clear that most municipal respondents are very concerned about overall funding for rural roads, as is evident in the following themes that emerged in the open responses:

- Given the removal of provincial subsidy, rural municipalities are unable to maintain the status quo with respect to road maintenance.
- Many respondents could not foresee improving road conditions or even maintaining current conditions without substantial increases to property taxes.
- Some respondents felt that rural road conditions had already noticeably deteriorated because of lack of funding.
- The cost of maintaining a given level of service increases rapidly because of increases in the cost of fuel, labour, and equipment.
- Rural road supervisors are able to project future needs based on patterns of usage, population increases, etc. However, the uncertainty of the current funding situation makes it difficult to plan for necessary improvements.
- Many respondents would like to see a portion of the provincial fuel tax revenues dedicated to expenditures on rural roads. For some, this is the only solution that will provide adequate and stable funding for rural roads – these respondents do not believe that adequate road funding can be derived from the local tax base.

5.1.2 Compensation for Transferred Provincial Highways

In your opinion, was provincial compensation for highway transfers to your jurisdiction adequate? If no, please explain why you feel the compensation was inadequate.

In your opinion, will maintaining, upgrading, and reconstructing transferred highway sections place an excessive burden on your municipality in the future?

If you answered yes above, can you describe the challenges you expect to face?

With respect to compensation accompanying former provincial highways transferred to municipal control, respondents identified the following issues and concerns:

- Compensation did not reflect the short-term future need for improvements to roadways and bridge structures.
- Compensation was insufficient to allow maintenance at the level afforded to these highways while under provincial control.
- There was no consideration given to each municipality's ability to pay for the maintenance and improvement of transferred sections.

It should be noted that not all respondents took issue with the compensation for transferred highways. At least one respondent indicated that capital improvements had already been implemented and that ongoing maintenance was not a particular financial burden. However, most respondents were critical of the highway transfer process, including the level of compensation.

5.1.3 The Impact of Inadequate Funding

The impact that continuing inadequacy in rural road funding is having on local governments includes the following:

- Cancellation of planned reconstruction/improvements.
- Downsizing of planned reconstruction/improvements.
- Staff reductions/delayed staff increases.
- Capital expenditures are reduced to divert funds to maintenance.
- Acceptance of poor road quality and potential safety hazards.

In general, responses around this theme suggest two things: A resignation on the part of municipal respondents to a situation which they feel is largely beyond their control; and the underlying suggestion is that deferred maintenance will cost everyone more in the future.

5.1.4 Solutions to Inadequate Funding

Respondents generally had opinions about how to rectify the inadequacy of current funding. These included:

- Dedicate a portion of provincial fuel taxes to rural roads (municipal roads in general).
- Provide revenue from other provincial fees, including those for licensing and tires.
- Divert the provincial income tax rebate to municipalities to support maintenance and improvements.
- Collect fees for utility usages of road allowances.
- Reinstate provincial subsidy for local roads based on current road condition and municipal ability to pay.

5.2 *Maintenance Needs and Issues*

With most respondents indicating that current funding for rural roads is inadequate, it is not surprising that many indicate their municipalities have been forced into a “patch-it-up” approach to maintenance. As a result, there appears to be a significant and growing backlog of repair and reconstruction activities, including the following:

- Resurfacing
- Drainage improvements/repair
- Winter hazards

Specific maintenance and reconstruction needs were often identified in the responses to funding questions. The frustration experienced by respondents regarding funding inadequacy is amplified when they consider the backlog of maintenance and reconstruction activity that needs to be completed.

Bridge structure repair and replacement is another obvious maintenance need in many municipalities. However, the municipal survey includes specific questions regarding bridges and these responses will be covered in the next section.

5.3 *Bridges*

If you do think a provincial program is appropriate, how do you think it should be funded, and how should funds be disbursed?

Many comments related to bridges were actually given in response to funding questions, but they were separated for analysis and discussion because of the importance of bridges as a theme in the overall discussion of rural roads.

Bridges are one of the most significant topics in the current discussion of rural road issues. The collapse of a bridge structure has obvious implications for a given road link, and perhaps the broader network. However, restrictions on bridge structures, as well as quality concerns, also have significant implications for the use of the road network – implications for safety and economic activity, among others. Municipal respondents have much to say regarding bridge structures and their responses are summarized as follows:

5.3.1 Current Condition

- Many respondents indicated that significant repairs are necessary for multiple structures within their network.
- The cost of needed repairs to bridges within one municipality is often staggering. Completing necessary repairs and reconstruction to rural bridges across the province is huge given the current level of funding.
- Respondents recognize the vulnerability they face as existing structures continue to age and deteriorate.
- Weight, width and height restrictions on rural roads are rapidly growing because maintenance and replacement are being deferred – rural municipalities simply do not have the funding to conduct the necessary work.

5.3.2 Solutions to Bridge Problems

Although quick to point out both bridge related problems and their perception of the funding situation that has given, in part, rise to them, municipal respondents also suggested a number of solutions to the problem. These include the following:

- A needs-based funding program for bridges should be created at the provincial level (there was strong support for this). Variations on this suggestion included those who called for comprehensive assessment of the role of the bridge within the network, the ability of the municipality to fund repairs internally, and the requirement to have the bridge assessed by a professional engineer.
- More involvement by MTO staff in assessing municipal bridge repair needs and assisting in implementing repair/reconstruction processes.
- Longer-term programs for bridge replacement – the example given was for a five-year program with provincial fiscal and technical involvement.

It should be noted that there was conflicting opinion among respondents regarding the extent and nature of provincial involvement in any bridge program. Most thought the province should play a role in assessing the need for a given bridge. Others thought assessment of need should be up to the municipality, although municipalities might be required to demonstrate this need to the province.

5.4 Voluntary Maintenance Standards for Municipal Roads

If you have any concerns regarding the new standards, could you please describe them?

5.4.1 Opinion Regarding the New Standards

Municipal respondents were vocal about the new voluntary standards whether they favoured them or not. Themes identified in respondent opinion include the following:

- The classification scheme results in standards that are too high for some roads in their networks, resulting in excessive service requirements.
- The standards are not refined enough for roads at the low end of the classification scheme.
- There is concern regarding provincial involvement in standard setting. They argue that provincial input should be accompanied by provincial funding for municipal roads.
- The new standards scheme represents a significant increase in administrative work for municipal roads departments.
- Municipalities are concerned about their ability to meet the new standards given the inadequacy of current funding for roads.
- An impact on staffing – some respondents expressed concern about their ability to meet response time requirements (e.g. – for winter maintenance) without increasing staff.

Opinion with respect to voluntary maintenance standards was varied. There were respondents who applauded the new standards and viewed them as a positive step in municipal road maintenance.

5.5 Safety Issues

Do you have any specific safety concerns about rural components of your road network? If you do have concerns please indicate their type and elaborate if possible.

It is not surprising that questions related to safety generated considerable comment from the municipal respondents. Themes on safety related responses include the following:

- Deteriorating road conditions definitely contribute to safety concerns across the province.
- Excessive vehicle speed is an overwhelming concern across municipalities. At the same time that roads in general are deteriorating, average motorist speeds are increasing. Respondents widely commented on the reality that motorists are significantly exceeding the design speed even on roads that have been upgraded and are in good condition.

- Many roads that were updated in the 1970's and 1980's are at the end of their designed life. These roads need significant upgrading even without taking into account the increased volume and speed of traffic. There is clearly a relationship between municipal inability to address these needs and the current funding crisis.
- Narrow lane width and shoulder width.
- Visibility and control at intersections.
- Respondents are concerned about increased commercial traffic (trucking) on rural roads. While not a safety problem in itself, this increased traffic reinforces the need for repair and reconstruction to improve safety. Increased commercial traffic also means that existing roads deteriorate more quickly and newly constructed roads need to be built to handle higher weights and volumes with respect to truck traffic.
- Safety implications of increased agricultural traffic conflicting with increased motorist and commercial traffic travelling at higher speeds.
- Municipal respondents cited high winter maintenance expenditures. Respondents from small rural municipalities expressed concern about their ability to keep roads safe in winter given increased traffic volume and increasingly aggressive driver behaviour.

In general, respondents expressed great anxiety over safety given evolving traffic conditions and the perceived inadequacy of current funding.

5.6 Economic Impacts and Issues

If you are experiencing increased rural road usage, how is this affecting the administration and maintenance of your rural road network?

The impact of evolving road conditions on municipal operations elicited comments from municipal respondents and some of these are expressed in the following summary:

- Rural municipal road departments are experiencing greater expectations from the public and they receive more complaints and enquiries with respect to road conditions. These realities place greater demands on staff.
- More attention has to be paid to work zone safety because of increased traffic volume and speed.
- Some municipalities are experiencing greater demand for service on low-volume roads.
- More staff time is spent monitoring and recording road conditions.
- Much more time is spent considering the costs and benefits of various maintenance and reconstruction techniques with respect to cost, durability, and safety.
- Increased volume, including commercial traffic, is reducing the life cycle of rural roads.

5.7 Innovation

In managing your rural road network, have you recently employed any practices that you would consider innovative? If you answered yes, indicate and describe the type of innovative practice(s):

The question about municipal innovation in response to reduced funding and increased demand produced a wide range of innovative techniques. These innovations include new approaches in system management, maintenance methods, reconstruction techniques and materials, equipment, and safety and traffic control. These comments are summarized below:

- Innovative techniques in system management:
 - Computerized road system management software and Geographic Information Systems (GIS)
 - Comprehensive cost/benefit analysis processes for maintenance and reconstruction activity
 - Equipment monitoring and management software
 - Minimizing service demands – re-routing traffic, minimizing dead-end usage, etc

- Innovative approaches to maintenance, repair, and reconstruction techniques. Examples include:
 - Hot and Cold-In-Place asphalt recycling
 - Culvert re-lining
 - Pulverizing and base-stabilizing existing roadbeds (as opposed to complete reconstruction)
 - Experimentation with winter control techniques

- Innovative approaches to equipment management and use:
 - Laser ditching equipment
 - Multi-use trucks (e.g. plow, sander, dump)
 - Electronic equipment controls
 - Employing equipment operated by one person instead of two or more.

Innovation is subjective. What might be considered innovative in one municipality may be standard practice in another. Innovative approaches are also a gamble. For one thing, the innovation itself may take considerable investment to implement even if the result is savings. In addition, full cost-benefit analysis is not usually achievable until the innovative practice has been implemented.

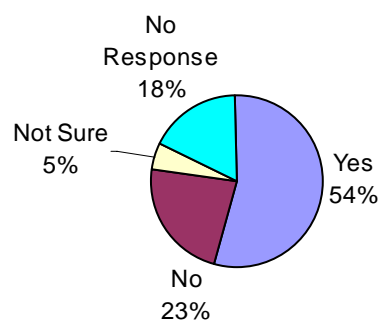
6 SELECTED RESULTS FROM THE AGRICULTURE AND AGRI-BUSINESS SURVEY ANALYSIS

The agriculture and agribusiness surveys were mailed out to a variety of production and marketing associations, the county agricultural federations, and individual agricultural operators and processors. 22 responses were received.

6.1 Part A

3. *From your organization's perspective, do you think that local municipalities are experiencing difficulty maintaining their rural road infrastructure because of a lack of dedicated funding for roads?*

Question A.3

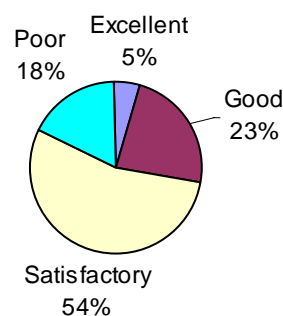


Most respondents in agriculture and agribusiness think that rural municipalities are currently experiencing difficulty funding current maintenance and repair activities on their local road networks.

6.2 Part B:

8. *In your opinion, what is the general state of the rural road infrastructure in your region, county, or district?*

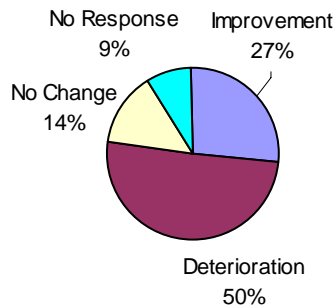
Question B.8



Only 28% of respondents thought that the rural road infrastructure in their area was “excellent” or “good”. Most respondents gave their local road infrastructure a “satisfactory” rating.

9. *Has there been significant change to the condition of rural roads in your area in the past few years? Have they improved or deteriorated?*

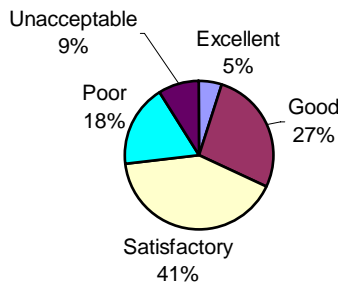
Question B.9



6.3 Part C: Bridges

12. *In your opinion, what is the state or condition of bridge structures on rural roads in your county, region, or district?*

Question C.12

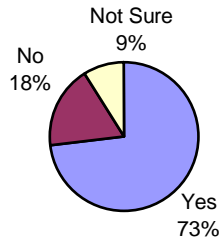


Agriculture and agri-business respondents appear to be less concerned than municipal respondents regarding bridge structures within their rural road networks.

6.4 Section E: Economic Concerns

21. Is there currently greater movement of agricultural inputs and outputs on rural roads than there was in the past?

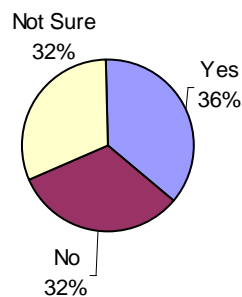
Question E.21



Most agricultural and agri-business respondents suggested that agricultural usage of rural roads in Ontario has increased as the flow of inputs and outputs has risen and diversified.

22. Is the current state of Ontario's rural roads having a negative impact on the agricultural sector?

Question E.22



Respondents were almost evenly divided on this question. Of those who offered a definitive response, a small majority indicated that current rural road conditions were adversely influencing agriculture (36% versus 32% who said “no”).

7 AGRICULTURE AND AGRIBUSINESS OPEN RESPONSE SUMMARY

7.1 *Funding Themes*

7.1.1 Perceptions of the Funding Situation From Agriculture and Agribusiness Respondents:

- Lack of funding, by the province, for rural municipal roads
- No funding for maintenance
- No funding for reconstruction and repair
- No funding for capital equipment
- Regional differences – Costs in Northern Ontario vs. Southern Ontario (real or perceived?) Examples include snow removal, dust-control, maintenance and repair from frost damage, etc.
- Intra-government competition and conflict with other services. Examples given include municipal money for capital expenditures on recreation centres, arenas, parks, libraries, etc.
- New service responsibilities under realignment have drawn away funds that could otherwise be spent on roads.
- Perception of disproportionate urban-rural expenditure levels by provincial government with respect to infrastructure (it is hard to rationalize this for roads given that there is currently virtually no provincial expenditures on rural roads.).
- Lack of expertise at the rural local level to manage maintain and improve rural road networks.
- Inadequate local assessment to manage roads costs

7.1.2 Perceptions of the Impacts of the Current Funding Situation:

- Life expectancy for roads being stretched beyond design intentions
- Deferred maintenance and reconstruction
- Deferred maintenance and reconstruction contributes to higher overall expenditures.
- Municipalities face uncertainty as to whether they can access adequate outside funds for major projects.

7.1.3 Factors Contributing to Increased Costs:

- Amalgamation has not created cost savings, but has contributed to increased costs for roads.
- Amalgamation between organized and unorganized townships has increased road related expenditures for the new municipality.
- Many rural roads do not meet the new voluntary standards so they cost more to maintain and upgrade in an attempt to meet the standards.
- Increased traffic volumes
- Increased commercial vehicle traffic combined with larger and heavier trucks.
- Roads transferred from the province are more expensive to maintain and some were not in the condition they should have been when transferred. These roads still carry the same volume and type of traffic as they did while under the provincial system.
- Spending too much on what should be low volume roads
- Municipalities and residents expecting too much of the local roads

7.1.4 Solutions

- The province needs to re-establish funding programs for rural roads.
- The province needs to establish a source of dedicated funding for municipal roads.
- Land-use planning and municipal resource planning needs to be used more effectively. Municipalities need to implement long-term planning processes for road management.
- Industry using rural roads needs to contribute directly to the cost of maintenance and reconstruction.
- Many rural roads need to be improved (i.e. widened and improved surface to reflect the increasing amount of commercial transportation related to agricultural operations).
- Urban and rural residential citizens need to be educated about farm machinery on rural roads.

7.2 *Maintenance Concerns*

7.2.1 Current Conditions

- Many feel that local road maintenance has declined.
- The majority of respondents recognize that municipalities are facing severe funding shortages.

- Some see decline because of amalgamation – i.e. “the grader is farther away,” hence, the roads are graded less often. There are fewer employees looking after the same number of roads.
- The perception of urban-rural bias within the same municipality
- The perception that winter maintenance has suffered.
- Surface condition – potholes
- Visibility – brush and weed control
- Drainage and ditching
- Continuous patching of improved and hard surfaces as opposed to repair and reconstruction
- Less grading
- Road width

7.2.2 Impacts

- Vehicle damage, increased vehicle maintenance
- Safety concerns
- Diversion of users to other roads
- Economic Impacts
- Ultimately higher road costs

7.2.3 Reasons

- Withdrawal of provincial funding
- Inadequate tax base
- Increased costs from downloading/realignment
- Competing priorities
- Lack of rural influence – within municipalities, and in the province as a whole
- Increased commercial use of roads
- Increased agricultural usage
- Increased recreational usage – outside users

7.2.4 What Needs to Be Done?

- Find a source of funding.
- Improved land use planning – rural residential development.
- Given funding, a major upgrade programme is required for many rural roads.
- Many respondents expressed the need for specific activity in their areas:
 - Ditching and drainage improvement
 - Roadside improvements – clearing and room to get off the road if necessary

- More grading
- Better winter maintenance
- More hard surfacing
- Placing load limits on some roads
- More consistency in maintenance
- More consistency across jurisdictions

7.3 Bridges

7.3.1 Concerns

- Single lane bridges – narrow bridges are of particular concern for agricultural operations because they may restrict intra-farm movement of machinery and material. Narrow bridges are also an acute safety concern for agriculture.
- Bailey bridges
- Inadequate maintenance
- Load restrictions can have a major economic impact on agriculture because they restrict the flow of agricultural inputs and outputs.
- Closures
- Inadequate and damaged culverts
- Bridges on remote roads in Northern Ontario

7.3.2 Funding

- Recognition of lack of funding and the huge costs involved in rehabilitating structures

7.4 Safety

- Excessive speed
- Aggressive driving
- Increased traffic volume.
- Increased commercial traffic
- Lack of education on the part of other road users regarding farm machinery
- Narrow roads and bridges
- Poor visibility
- Misuse of SMV signs
- Winter maintenance with respect to inputs/outputs accessing agricultural operations (e.g. dairy farms)

- Lack of signage indicating roads are used by machinery.

7.5 Other Concerns for Agriculture

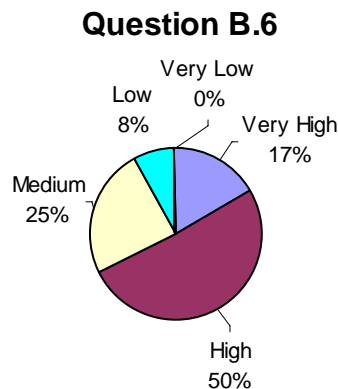
- Concern that taxes will increase to fund roads.
- Concern that agriculture is suffering because of increased road usage by other sectors.
- Ongoing concerns over safety as agriculture shares rural roads with other users.

8 SELECTED RESULTS OF THE COMBINED ECONOMIC DEVELOPMENT AND TOURISM SURVEY ANALYSIS

The economic development and tourism surveys were mailed out to economic development associations, tourism associations, and chambers of commerce across the province. 14 responses were received.

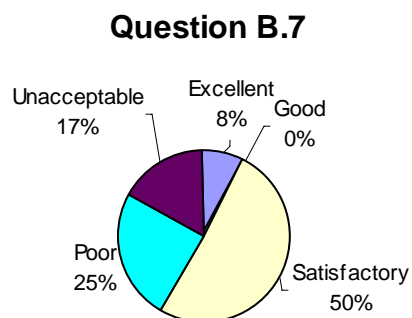
8.1 Part B: The State of Ontario's Rural Roads

6. *Regardless of whether you identified specific issues, please indicate how you would rate roads as a priority in rural Ontario:*



Two thirds of the survey respondents in this combined group suggested that roads should be a high or very high priority in rural Ontario. A further 25% suggested that roads are, or should be a medium priority.

7. *In your opinion, what is the general state of the rural road infrastructure in your region, county, or district?*



58% of respondents indicated that they thought the rural road infrastructure in their area was “satisfactory” or “excellent”. Surprisingly, no respondents chose the middle alternative of “good”. Significant numbers of respondents are not satisfied with the state of the rural road infrastructure, as indicated by those choosing the “poor” and “unacceptable” options (25% and 17% respectively).

8.2 Part C: Bridges

12. In your opinion, what is the state or condition of bridge structures on rural roads in Ontario and/or your county, region, or district?

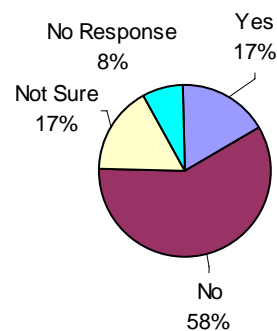
Question C.12



Sixteen percent of respondents suggested that bridge structures on their local rural road networks were in excellent or good conditions. More than half of the respondents suggested that these structures were in satisfactory condition, while more than 30% felt that the condition of bridge structures was poor or unacceptable.

14. In your area, do you think enough is being done to maintain rural bridges over the long-term?

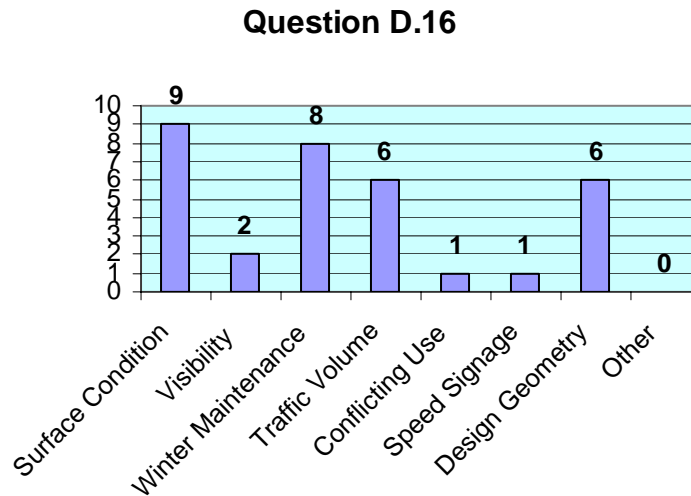
Question C.14



Nearly 60% of respondents did not think enough was being done to maintain rural bridge structures over the long-term. A further 17% were not sure whether enough was being done.

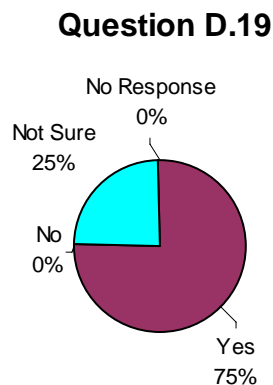
8.3 Part D: Safety Issues

15. What do you think are the most pressing concerns around safety on rural roads?



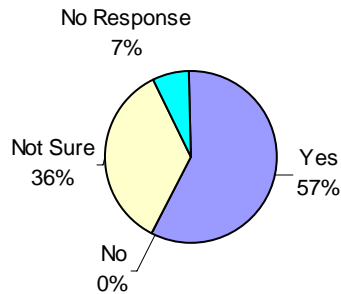
Surface condition and winter maintenance top the concerns of economic development and tourism respondents, while traffic volume and road design were also important.

19. Do you expect safety conditions to deteriorate in the short-term future?



20. Long-term future?

Question D.20

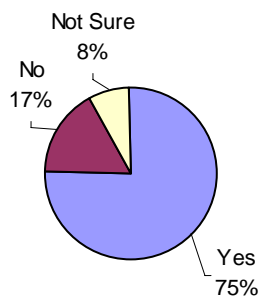


75% of respondents are expecting safety conditions on rural roads to deteriorate in the short-term future. More respondents are expecting safety conditions to deteriorate over the long-term than did for the short-term. Understandably, more were also unsure about what might happen.

8.4 Part E: Economic Concerns

24. Is the current state of Ontario’s rural roads having a negative impact on the tourism sector?

Question E.24



Most respondents (75%) believe that the current condition of Ontario’s rural roads is having a negative influence on the tourism sector.

9 ECONOMIC DEVELOPMENT AND TOURISM OPEN RESPONSE SUMMARY

Open responses from the economic development and tourism surveys were brief, but they included the following themes:

9.1 *Funding Issues*

- Funding for the maintenance of rural roads is inadequate.
- Rural roads are deteriorating because of lack of funding.
- Deteriorating road conditions are having a negative impact on all rural industrial sectors including tourism, manufacturing, and agriculture.
- A rural-urban dynamic exists within rural municipalities – urban areas receiving more of the available funding than their rural counterparts. It is important to note that this is a *perceived* imbalance – no concrete examples or data were given.
- Absolute municipal discretion with respect to road expenditures may result in less spending on road maintenance.

9.2 *Perceptions of the Impacts of the Current Funding Situation*

- Rural road life cycles are exceeding the designed life expectancy.
- Low population densities and relatively low commercial tax bases mean that rural municipalities cannot be expected to continue to maintain and repair roads using funds derived from the property tax.
- Recognition that maintenance and repair activity is currently being deferred because of lack of funding

9.3 *Perceptions of Current Conditions*

- Respondents feel that road maintenance and upgrading activity has decreased. Specific concerns include:
 - There is inadequate grading on loose surface roads.
 - Ditching and drainage improvement is inadequate.
 - Weed control is inadequate and visibility has been reduced, particularly at intersections.
 - There has been road surface deterioration on all types of rural road.
 - Winter maintenance is not always adequate.
 - Roads are not wide enough, including shoulders.

9.4 Perceptions of What is Needed

Economic development and tourism respondents were clear in pointing out what they feel needs to be done to address the rural road issues they identified. These needs include the following:

- Increase grading activity on loose surface roads
- Increase winter maintenance activity
- Step-up drainage improvement programs
- Hard surface more rural roads
- Clear roadsides and intersections of weeds and brush

Unfortunately, respondents were unable to suggest ways in which the above activities could be undertaken given the severe funding situation that they acknowledged many rural municipalities are currently facing.

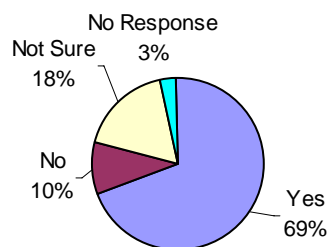
10 SELECTED RESULTS FROM THE ANALYSIS OF GENERAL SURVEY CLOSED RESPONSES

The general survey group is made up of responses from returned questionnaires that did not fit into other categories or for which the associated group could not be identified. Despite not being able to associate these returned surveys with a specific group, the responses they contain are useful and shed further light on the rural roads situation in Ontario.

10.1 Part A: Opinion on Rural Roads Issues

3. *From your organization's perspective, do you think that local municipalities are experiencing difficulty maintaining their rural road infrastructure because of a lack of dedicated funding for roads?*

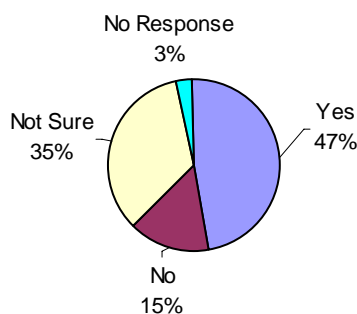
Question A.3



A large percentage of the general group respondents believe that rural municipalities are experiencing difficulty funding their road networks. This finding is in harmony with that for other survey groups.

5. *Do you think rural roads have been affected more by funding changes and the lack of a dedicated funding source, as compared to urban roads?*

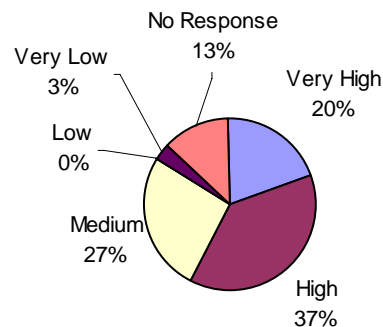
Question A.5



Most respondents indicated that they thought that roads in rural municipalities had been more adversely influenced by recent funding changes than had urban road systems.

7. *Regardless of whether you identified specific issues, please indicate how would you rate roads as a priority in rural Ontario?*

Question A.7a

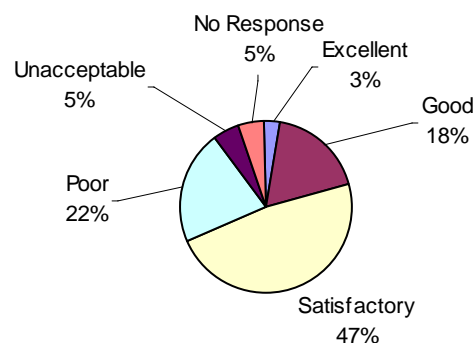


Fifty-seven percent of the respondents in this group suggest that roads are, or should be, a high priority in rural Ontario. Surprisingly, 3% felt that roads should be a very low priority.

10.2 Part B: Opinion Regarding Rural Road Condition

8. *In your opinion, what is the general state of the rural road infrastructure in your region, county, or district?*

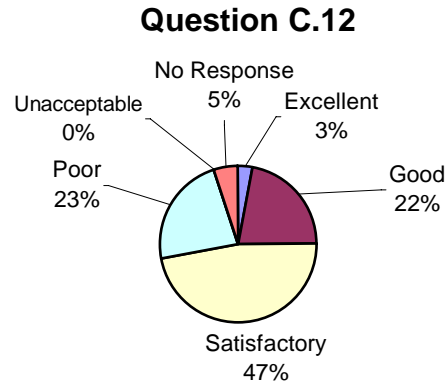
Question B.8



More than two thirds of the respondents felt satisfied with the condition of rural roads.

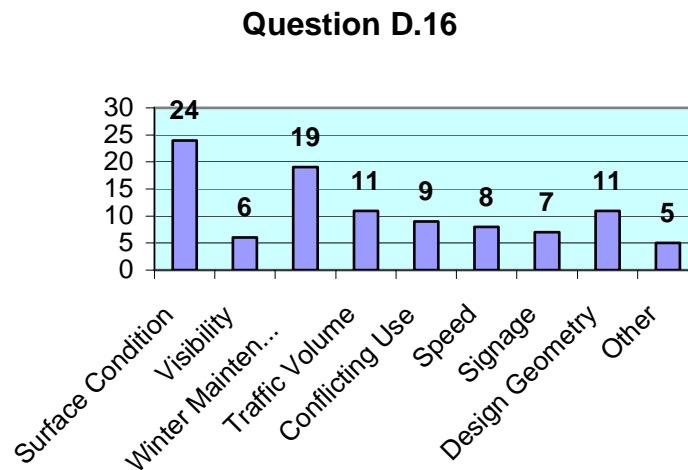
10.3 Part C: Bridges

12. In your opinion, what is the state or condition of bridge structures on rural roads in your county, region, or district?



10.4 Part D: Safety Issues

16. What do you think are the most pressing concerns around safety on rural roads? (Provide additional comment if you wish.)

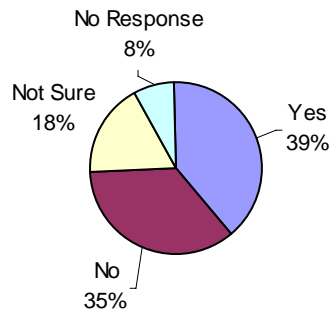


The physical condition and winter maintenance of rural roads dominate general respondents' views on road safety.

10.5 Part E: Economic Issues

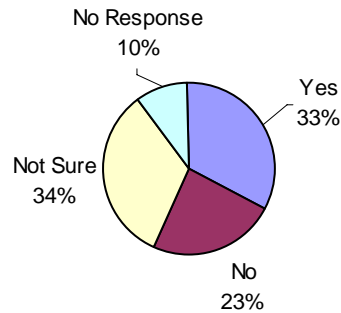
21. *Is there currently greater movement of agricultural inputs and outputs on rural roads than there was in the past?*

Question E.21



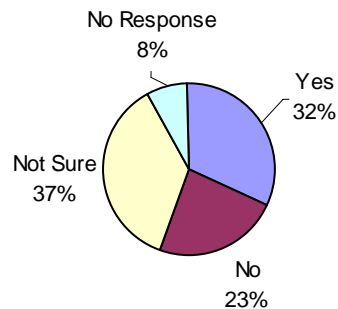
22. *Is the current state of Ontario's rural roads having a negative impact on the agricultural sector?*

Question E.22



24. *Is the current state of Ontario's rural roads having a negative impact on the tourism sector?*

Question E.24



The responses to the previous three questions on rural roads and the economy show a balanced opinion on the economic impact of rural road conditions.

11 SELECTED RESULTS FROM THE ANALYSIS OF OPEN RESPONSES IN THE GENERAL SURVEY

Given that the surveys included the general category were originally sent to respondents in the previously identified groups, many comments and issues raised reflect themes already identified. However, these surveys also reveal comment and opinion not previously discussed. This additional information is summarized as follows:

11.1 Perceptions of the Funding Situation

- There is a difference in funding needs between Southern and Northern Ontario. Some felt that Northern Ontario faced greater difficulty with respect to the current funding situation because of more severe conditions. These include a more severe winter climate and topography that greatly increases the cost of road maintenance and reconstruction.
- Intra-government competition: There is the notion that provincial-municipal realignment has increased the competition for limited funding between local government services within the same municipalities.
- The inequity between urban and rural municipalities may be amplified in the minds of respondents from Northern Ontario.

11.2 Factors Contributing to Increased Maintenance Costs

- There is a perceived negative impact of aggregate haulage activity on rural road condition and road safety. Respondents in this group (general surveys) made particular mention of this concern.
- Public expectations for road maintenance have risen while funding has not kept pace.

11.3 Recognition of Municipal Response to Reduced Funding

Respondents in this group identified a number of ways in which municipalities are responding to the funding situation. These responses were viewed in both a positive and negative light. Identified responses include the following:

- Contracting out – mixed reaction
- Sharing Resources – mixed reaction
- Improved road maintenance planning
- Technical innovations

11.4 Economic Concerns

Economic concerns expressed by respondents in this group included the following:

- Tourists are put off by poor road conditions and poor directional signage.
- The pattern of rural land use development has contributed to increased road maintenance costs in rural municipalities.
- Road conditions are constraining a wide range of industrial activity in rural Ontario.
- Commercial users do not adequately compensate damage caused by commercial traffic on rural roads. This view was most strongly held with respect to aggregate haulage.

12 COMMENTS ON OVERALL SURVEY RESULTS

Taken together, the results from all of the survey groups provide considerable insight into opinion regarding the condition of rural roads in Ontario. Responses to most questions reveal some concern regarding specific issues. However, there were few, if any, landslide results. The municipal surveys provided the greatest level of detail, and municipal respondents tended to present the bleakest picture with respect to rural roads. Other respondents have expressed concern about rural roads now, but their greatest concerns appear to be directed toward the future. In other words, many respondents seemed to suggest that conditions will worsen and problems worsen if both the municipalities and the provincial government cannot find ways to address rural road issues. One has the sense that most respondents, including municipal respondents, expect conditions to worsen in the short and medium-term future. Almost all respondents, regardless of perspective, indicated that more funding for rural roads is needed if rural road conditions are to be improved or if current deterioration is to be halted. Respondents from groups other than the municipal group were not always clear on where funding should come from, but many of these respondents also expressed support for dedicated funding

13 COMPARATIVE ANALYSIS: OTHER CANADIAN PROVINCES

13.1 Introduction

This section provides information that allows a preliminary comparison of the rural road situation in Ontario with other provinces across Canada. Analysis includes a broad examination of provincial demographics, economic character, road characteristics, and rural road issues.

13.2 Provincial Population, Economic, and Rural Road Characteristics

The information contained in the following tables was derived from a large number of sources, including:

1. Provincial ministries of finance (budget information).
2. Provincial statistical bureaus (economic and employment data).
3. Statistics Canada (demographic data).
4. Provincial transportation ministries (transportation expenditures).
5. Transport Canada (road network statistics).

Table 13.1 provides a limited profile for the populations of Canada's ten provinces. The provincial total populations, population densities, rural populations, and farm populations all bear on rural roads in several ways. The total population and the geographic distribution of that population determines, in part, how important the rural road network is in each province particularly when considered in relation to economic activity (tables 13.2 and 13.3). The province of Saskatchewan, for example, has the fourth largest rural population, expressed as a percentage of total population. It is the fifth largest province in area, and table 13.3 reveals that agricultural activity makes up approximately 7% of the province's GDP. Finally, this combination of factors, among others, results in Saskatchewan possessing the largest rural road network in the country, as revealed in table 13.5.

It should be noted that the measure of many of the characteristics presented in tables 13.1 through 13.5 are basic and are intended to provide only a very simple comparison between the provinces. There are serious limitations inherent in trying to make these types of comparisons. For example, gross domestic product can be measured in a variety of ways. The gross domestic product figures in table 13.2 were taken from a variety of sources and one can only assume that there are inconsistencies in the method used for calculating GDP. In addition, the table makes note of the fact that there is variation in the year for which GDP was calculated. Likewise, comparison of transportation budgets is fraught with difficulty because of both the difference in mandates between the provincial ministries responsible for transportation, and the method by which budgets are calculated and presented. Finally, some

characteristics are of limited use in discussing the degree of rurality or the importance of rural roads to a given province. For example, Ontario has a high population density, but it is obvious that the very high densities in urban Southern Ontario skew this number. In addition, even rural Southern Ontario densities are much higher than those found in the settled, but low density, parts of Northern Ontario. In summary, the characteristics presented here are intended only to provide some context for the discussion of rural road issues in the other Canadian provinces.

Table 13.1: Provincial Population Characteristics

Characteristic	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
Total Population (1999)	420310 0	290000 0	102778 0	114350 9	1166934 4	734539 0	75496 9	93993 1	13798 0	54100 0
% Rural Population (1996)	17.9	20.5	36.7	28.2	16.7	21.6	51.2	45.2	55.8	43.1
% Farm Population (1996)	1.8	7.0	14.7	7.2	2.1	1.6	1.4	1.4	5.8	0.3
Land Area (km2)	930529	661000	570269	548485	1068580	135679 2	72092	52841	5657	37048 5
Population Density (persons per km2)	4.52	4.39	1.8	2.08	9.16	5.41	10.47	17.79	24.39	1.46

Table 13.2: Provincial Economic Characteristics – Gross Domestic Product

Characteristic	Category	Year	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF	Notes
Provincial GDP (\$ Billions)	Real GDP at market prices	199 9	104. 3	101.9 6	23.4 3	28.7 2	424. 4	202.9 4	16.66	20.87	2.94 4	11.25 9	
GDP by Major Industrial Sector (\$Billions)	At Factor Cost												
	All Industries	199 9	n/a	115.4 0	25.1 2	n/a	370. 7	169.4 8	12.94 3	16.84 2	2.54 3	9.432	(1), (2), (3),(4)
	Goods Producing		n/a	48.23	9.47	n/a	103. 8	56.45	3.797	4.155	0.64 7	2.69	
	Primary Sector		n/a	26.89	5.89 1	n/a	6.05	4.41	0.777	0.653	0.13 1	0.988	
	Agriculture		n/a	3.00	1.75 7	n/a	3.45	2.27	0.152	0.191	0.11 9	0.033	
	Mining, Fishing, Forestry, Oil, and Gas		n/a	23.89	n/a	n/a	n/a	2.14	0.435	0.209	0.01 2	0.955	
	Manufacturing		n/a	12.81	2.01 4	n/a	74.6 7	26.61	1.645	1.993	0.28 9	0.572	
	Service Producing Sectors		n/a	67.16	5.24 9	n/a	209. 8	111.4 5	9.147	12.72 8	1.88 7	6.368	

	Transportation and Storage		n/a	12.46	2.18 8	n/a	10.9 5	7.16	0.681	0.784	0.16 3	0.429	(5)
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(1) N.B. 1997 at factor cost; (2) 1999; (3) Sask 1997 at factor cost; (4) Que 2000; (5) Sask includes communications

Table: 13.3: Provincial Economic Characteristics – Employment by Industry

Characteristic	Category	Year	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF	Notes
Employment by Major Industrial Sector (000's)	All Industries	2000	1949.1	1509.7	478.6	542.7	5952.0	n/a	324.2	403.7	61.3	204.9	
	Goods Producing	2000	414.4	393.5	145.5	144.3	1625.0	n/a	83.1	91.7	16.8	48.1	
	Primary Sector	2000	85.2	158.5	87.1	44.1	124.0	n/a	19.1	23.6	6.6	16.1	
	Agriculture	2000	29.8	81.0	71.4	37.3	88.0	n/a	6.1	7.3	4.0	1.1	
	Mining, Fishing, Forestry, Oil, and Gas	2000	55.4	77.5	15.7	6.8	36.0	n/a	13.0	16.3	2.6	15.0	
	Manufacturing	2000	205.4	128.6	23.6	64.5	1129.0	n/a	40.8	43.5	6.2	18.1	
	Service Producing Sectors	2000	1534.0	1106.7	190.1	398.4	4328.0	n/a	123.2	312.0	44.5	156.8	
	Transportation and Storage	2000	114.4	88.8	22.2	34.7	283.0	n/a	23.4	18.8	2.2	10.8	

Table: 13.4: Selected Provincial Road Expenditure Characteristics

Characteristic	Category	Year	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF	Notes
Provincial Budget (\$ Billions)	Estimates 1999-2000	1999	24.383	16.238	4.846	6.398	48.696	34.618	4.283	5.031	0.852	3.237	(1)
Expenditures on Provincial Roads (\$Billions)		1999	1.075	0.677	0.242	0.255	1.613	1.227	0.304	0.146	0.068	0.115	
Expenditures on Provincial Roads as % of Prov Budget		1999	4.4	4.2	5.0	4.0	3.3	3.5	7.1	2.9	8.0	3.6	
Population (millions)		1999	4.20	2.90	1.01	1.14	11.67	7.35	0.75	0.94	0.14	0.54	
Expenditures on Prov Roads Per Capita (\$)		1999	255.95	230.00	239.60	223.68	138.22	168.08	405.33	155.32	485.70	212.96	
Expenditures on Local Roads (\$Billions)		1999	0.694	0.795	0.257	0.213	1.923	1.432	0.099	0.124	0.010	0.079	
Expenditures on Local Roads Per Capita (\$)		1999	165.24	224.14	254.46	151.06	164.78	194.83	132.00	131.90	71.43	146.30	

(1) Budget figures for Man and Nfld are for 2000.

Table 13.5: Selected Provincial Road Network Characteristics

Characteristic	Category	Year	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF	Notes
Total Length of Public Roads (km)	Two-Lane Equivalent	1999	65728	181437	201903	87868	167891	119878	21884	25992	5687	13081	
Kilometres of Public Roads Per 1000 Persons	Two-Lane Equivalent	1999	15.64	62.56	196.59	76.84	15.31	16.32	28.98	27.65	40.62	24.18	
Length of Provincially Controlled Roads (km)	Two-Lane Equivalent	1999	42729	18292	26200	21628	28458	29344	18480	23371	5128	8747	
Provincially Controlled Roads Per 1000 Persons	Two-Lane Equivalent	1999	10.17	6.31	25.49	18.90	2.56	4.00	24.48	24.86	36.62	16.17	
Length of Locally Controlled Roads (km)	Two-Lane Equivalent	1999	21399	159172	172522	64500	137037	90000	3185	2330	502	4127	
Locally Controlled Roads per 1000 Persons	Two-Lane Equivalent	1999	5.09	54.89	167.82	56.38	11.74	12.25	4.22	2.48	3.59	7.63	
Length of Federally Controlled Roads (km)	Two-Lane Equivalent	1999	2050	3972	3181	1740	2346	534	219	291	57	207	

Table 13.6: Provincial Rankings for Selected Characteristics

Rankings	BC	AB	SK	MB	ON	QC	NB	NS	PE	NF
Total Population	3	4	6	5	1	2	8	7	10	9
% Rural Population	9	8	5	6	10	7	2	4	1	3
% Farm Population	6	3	1	2	5	7	8	8	4	9
Total Land Area	3	4	5	6	2	1	8	9	10	7
Population Density	5	7	9	8	4	6	3	2	1	10
Agricultural GDP	n/a	2	1	n/a	7	4	5	6	3	8
Primary Sector GDP	n/a	2	1	n/a	8	7	4	6	5	3
Agricultural Employment	7	4	1	2	8	n/a	5	6	3	9
Primary Sector Employment	8	3	1	4	9	n/a	6	7	2	5
Provincial Road Expenditures Per Capita	5	3	4	6	10	8	2	9	1	7
Length of Locally Controlled Roads	6	2	1	5	3	4	8	9	10	7
Locally Controlled Roads. Per 1000 Persons	7	3	1	2	5	4	8	10	9	6
Local Road Expenditures per Capita	4	2	1	6	5	3	8	9	10	7

1 = high, 10 = low

Table 13.6 provides a ranking for characteristics selected from those in the previous tables. Where information was unavailable for a given characteristic for a given province, that province was not included in the ranking for that characteristic. Observations from the rankings with respect to rural roads include the following:

- Saskatchewan is ranked fifth in proportional rural population, but is first in the percentage of the population classified as farm (according to Statistics Canada's definition of farm residency).
- Not surprisingly, Ontario is ranked as the least rural province in terms of population. However, the province finds itself in the middle of the range with respect to the percentage of rural residents living on farms.
- Saskatchewan ranks number one in terms of the proportion of provincial GDP derived from agricultural activity.
- There are some slight discontinuities between the importance of agriculture as a contributor to GDP and agriculture as a contributor to employment.
- The relative importance of primary sector industries to the overall economy of Alberta and Saskatchewan was very close, with the primary sector being slightly more important to the Saskatchewan economy. However, it should be noted that the agricultural component of the overall primary sector is larger for Saskatchewan than for Alberta. For provinces like Ontario and Quebec, agriculture and other primary sector activity is important, but as contributors to overall GDP, primary sector activities are dwarfed by manufacturing and various service sector activities.
- The amount of money spent on all provincial transportation activity varies greatly for obvious reasons. In terms of provincial road expenditures per capita, Prince Edward Island spent the most in 1999 and Ontario spent the least. Table 13.5 reveals that P.E.I. had the lowest proportion of total road network kilometres under local control.
- The situation for expenditures on local roads was somewhat different. Whereas, as might be expected, P.E.I. spent the least, Ontario was in the middle of the group.

- Saskatchewan spent the most on local roads, per capita, and this province has the most extensive network of local roads.
- A large number of factors will influence both provincial and local road expenditures, thus comparisons beyond a superficial level are not advised. These factors include such things as the following:
 - The geographic size of the jurisdiction
 - The terrain or topography of the jurisdiction
 - Population density and settlement patterns
 - The nature of the economic activity carried on within the jurisdiction.
 - The division of responsibilities between government levels within a given jurisdiction.

13.3 Rural Roads Issues in the Other Provinces

There are issues and concerns with respect to rural roads in the other Canadian provinces. Some of these are similar to the situation in Ontario in that they ultimately derive from questions over adequate funding and the source and responsibility for that funding. Like Ontario, many of the provinces have undergone a realignment of provincial-municipal roles and responsibilities, and most provinces have embarked on programs of relative fiscal austerity during the last few years. This section attempts to outline some of the rural roads related issues, concerns, and other developments across the rest of Canada. Information in this section came from a variety of sources, which include:

1. Provincial ministries of transportation
2. Provincial statistical bureaus
3. Provincial municipal associations
4. Transport Canada
5. The Transport Institute, University of Manitoba
6. The Federation of Canadian Municipalities
7. The Coalition to Rebuild Canada's Infrastructure

13.3.1 The Western Provinces

Despite similar fiscal realities, and the common trend toward realigning service provision between the provincial and municipal levels, there appears to be some variation across the country with respect to the extent and type of provincial involvement in rural roads. In the western provinces, both British Columbia and Alberta appear to have been more directly involved in rural road provision until recently – that is to say these provinces have directly contributed substantial funding to rural road maintenance.

13.3.1.1 British Columbia

B.C. has embarked upon a municipal restructuring and realignment process that will ultimately see municipalities responsible for more of the rural road network. In the meantime, this transition has been accompanied by transition assistance grants. On the surface at least, it does not appear that there is widespread concern among municipalities regarding the realignment itself or the adequacy of the transition funding (in contrast to the recent situation in Ontario).

Federal investment in B.C.'s primary highways and the need for a national highway program in general, does appear to be a major issue in this province. However, discussion of national primary highway policy is beyond the scope of this scan.

13.3.1.2 Alberta

Like B.C. and most of the other provinces, Alberta has been actively reviewing the roles and responsibilities of local government. With respect to rural roads however, Alberta has apparently gone in the opposite direction when determining responsibility for secondary highways. The provincial government has recently taken over responsibility for secondary highways previously under local control. The justification for this has been that traffic volumes on many of these roads have increased significantly, and that the municipal funding freed up by realigning responsibilities can be used for other pressing road needs.

13.3.1.3 Saskatchewan

As already indicated, Saskatchewan has the largest network of rural roads in the country. Saskatchewan is facing some significant challenges in continuing to adequately maintain this massive network. One challenge is the increased commercial traffic on these roads resulting from a significant shift in federal grain transportation policy, as discussed below. Another factor for the province is the fact that there is a significant depopulation of the Saskatchewan countryside occurring in response to several economic and social problems. The result is one of the province and municipalities attempting to adequately maintain a rural road network with increasing commercial traffic, but serving a steadily declining proportion of the overall provincial population. Agriculture has been hit especially hard because producers are facing increased grain transportation costs and increased local taxes as municipalities attempt to deal with the increased road usage (NCTP, 1998). Rural Saskatchewan communities would also argue that the road situation is also having socio-economic impacts because road conditions are hindering alternative economic development in rural areas (ibid.).

13.3.1.4 Manitoba

The province of Manitoba falls in the middle of the ten provinces with respect to the size of the local road network and per capita expenditures on local roads (1999). Recent comments from Manitoba municipalities would suggest that they are concerned about the level of funding available for rural roads. It is not clear whether this is solely a result of the grain haul issue (below), or whether rural road funding would be an issue without this complication. Manitoba municipalities have been able to access some funding for roads through the Canada-Manitoba Infrastructure Agreement.

13.3.1.5 The Grain Haul Issue

The consolidation of grain delivery points and abandonment of grain lines is having a major effect on provincial highways and municipal roads in substantial parts of Western Canada. Provincial and municipal governments are seeing unprecedented road impacts because of increased trucking distances and changing traffic patterns.

The rural road network was designed and built to support a different grain logistics system than the one that is evolving. The truck types, traffic patterns, and amount of grain truck haul were considerably different 20-30 years ago than they are today. A considerable amount of the rural road network, especially collector highways and municipal roads, is not strong enough to support the amount of grain truck haul, the type of trucks and the changing traffic patterns that the “more efficient” grain logistics system is promoting.

Impact of Grain Truck Hauls on Saskatchewan Roads
(Government of Saskatchewan, 1998)

As suggested by the quotes above, the way grain is transported within and beyond the grain producing provinces has changed significantly. This change has resulted not only from an evolution in the relationship between truck and rail, but also because of deliberate federal government policy. This policy has seen the end of significant federal subsidization of grain haulage by rail. In turn, the railways have abandoned significant portions of their western rail lines, and grain shipment is increasingly dependent on trucking.

The grain haulage issue has affected all of the western provinces, but it has had a particularly significant impact on Saskatchewan because of the fact that this province is the largest producer of grain crops in the country.

The grain producing provinces have pushed for both federal government subsidy and a portion of the increased profits accruing to the railway companies as a result of rail line consolidation, as a means of compensating rural municipalities for road deterioration (Western Provinces, 1999). Although the federal government has responded with some subsidy, it is not clear that the rural municipalities affected have considered the funding that has reached them as being adequate. Press releases and documents from Saskatchewan and Manitoba suggest that, at least during the early stages of the grain haul challenge, rural

municipalities were expecting more assistance, and were urging their provincial governments to collaborate with them in pressing the federal government for more funding (SARM, 1998).

Although federal support and federal, provincial and municipal cooperation with respect to rural roads and the grain handling issue have continued, the western provinces continue to push the federal government for more direct support (AMM, 2001; SARM 2000). The federal government recently announced \$175 million for the support of grain roads in Western Canada (Mitchell, 2001).

The rural road challenges presented by the evolution of federal grain handling policy are significant for all of the western provinces. As indicated, the largest impacts may be felt in Saskatchewan, although those in Manitoba appear to be quite serious as well. The recent increase in oil and gas exploration and development activity across these provinces has also added stress to the rural road system.

13.3.2 Quebec

Unfortunately, the language barrier makes it difficult to collect information regarding rural road issues in the province of Quebec. The statistical information presented at the beginning of this section reveals that Quebec is ranked fourth in total local road length, third in local road expenditures per capita, and fourth in the proportional importance of agriculture to provincial GDP. Given these statistics, one would expect rural local roads to be important to the province, and that there will be issues and challenges with respect to these roads. These challenges may include the following:

1. Quebec municipalities have recently undergone an extensive restructuring process not unlike that in Ontario. Restructuring of rural municipalities in the province may have led to issues similar to those identified in the survey of Ontario rural road issues.
2. The province has significant forestry and mineral extraction industries and there may be issues related to the perceived damage to local roads from trucking in these industries.
3. There may be issues related to conflicting use between tourism/recreation and other industrial usage.
4. Like Ontario and most other provinces, Quebec has witnessed fiscal restraint at both the provincial and municipal levels of government. There may be issues regarding the adequacy of funding for rural local roads.

13.3.3 The Maritimes

The three Maritime Provinces (New Brunswick, Nova Scotia, and Prince Edward Island) are the lowest ranking jurisdictions in terms of total local road length and per capita expenditures on local roads. This reality relates to the relative size of the provinces. However, the Maritimes are among the most rural regions of the country (by the simple measures used in this analysis), so one might make the assumption that the provincial governments have traditionally been more heavily involved in the funding and administration of rural local roads. Like the rest of the provinces, the Maritime Provinces have experimented with municipal restructuring and (to varying degrees) with realignment of provincial-municipal roles and responsibilities. It is not clear to what extent, or in which direction, these processes have affected rural roads in these provinces.

13.3.4 Newfoundland

Newfoundland shares characteristics with the Maritimes, except that the inclusion of Labrador means the province has a much larger landmass. The province has traditionally had a polarized settlement pattern with the relatively large urban settlement of St. John's offset by a dispersed network of fishing communities, many of which were never served by road. Economic change in the province has been significant with the collapse of the cod fishery and the recent rise of oil and gas exploitation. Municipalities have never had particularly strong financial resources and the province has been heavily involved in funding local rural roads. It is unclear how the substantial economic change will influence the funding and administration of rural roads for the medium-term future.

13.3.5 National Issues

Two national level issues are identifiable at the provincial level. These issues are federal investment in highways of national significance, and the controversy surrounding motor fuel taxes.

13.3.5.1 National Highway Investment

Although highways of national significance might be beyond the scope of this scan, one cannot ignore connectivity when discussing road networks. Investment, or the lack thereof, in national highways has an impact on rural local roads. A properly functioning national highway system reduces in-transit traffic on secondary highways and local roads, and allows for the most efficient flow of industrial inputs and outputs. Furthermore, discussion of federal investment in highways comes up in discussions of otherwise local road issues right across the country. This was certainly true of responses to the survey of local roads issues conducted as part of this research. The bottom line across the country is that the federal government

should be investing more in road transportation, particularly in the system of highways deemed to be of national significance.

13.3.5.2 Motor Fuel Taxes

Fuel taxes are the subject of discussion and controversy right across the country. Given that the two senior levels of government both generate substantial revenue from the taxation of fuel use, both are targets for criticism. This criticism includes discussion of the level of taxation, but more importantly, most road users across the country believe that this revenue should be dedicated to funding roads at all levels of government. Currently, the greatest controversy with respect to fuel taxes outside of Ontario appears to be in the Western provinces. However, one can find policy papers, budget submissions, and resolutions urging dedicated roads usage of these revenues from a wide range of user groups and municipal governments across the country.

14 COMPARATIVE ANALYSIS: SELECTED AMERICAN STATES

14.1 Introduction

In addition to making some comparisons with the rural road situation in other Canadian provinces, it was considered potentially useful to make a similar analysis of the situation in some of the proximate American states.

14.1.1 Criteria for Selecting Comparative States

There is a much variation, if not more, between the states with respect to factors that may bear on the characteristics of rural roads and the challenges and issues that influence their administration and usage. The selection of states to examine was less rigorous than would be necessary for an in-depth study. However, the states selected for examination were chosen with the following criteria in mind¹¹:

- Availability of relevant information
- Relative proximity to Ontario
- Similarity in climatic conditions¹²
- Similarity in topography
- Size and proportion of rural settlement; Perceived relative “rurality”
- Relative importance of agriculture and/or forestry and/or mining – thus relative importance of the primary industries
- Relative importance of tourism activities in rural areas
- Relative importance of rural manufacturing activities
- Degree of similarity of trends in all of the above, including demographics

Based on the above criteria, the following states were chosen for examination:

- 1) Minnesota (MN)
- 2) Wisconsin (WI)
- 3) Michigan (MI)
- 4) Ohio (OH)
- 5) Pennsylvania (PA)
- 6) New York (NY)

¹¹ These are not in any particular order. Assessment of some criteria is more subjective than others. Proximity weighs heavily because it is related to such things as climate and topography.

¹² This would require at least some similarity to one or more of the multiple broad climatic conditions experienced across the considerable breadth of rural Ontario.

14.1.2 Cautions in Using the Following Statistics and Comparative Measures

The range and depth of statistical information available for the American states greatly exceeds that available for the Canadian provinces. However, there are many limitations that one must bear in mind when using this information, especially for comparative purposes.

First, the analysis of state demographic, economic, and road network and expenditure data used in this report has deliberately been conducted at a relatively simple level. The intent here is only to provide some characteristics that allow a broad comparison within the group of selected states and between these states and Ontario.

The consistency with which states and local governments collect, record, and present data seems higher than is the case in Canada. However, there are some differences in data collection and presentation that may be of significance were one to attempt a more in-depth and comprehensive analysis.

Most of the road network and expenditure data is taken from annual statistics provided by the Federal Highway Administration (FHWA). This data is extensive and very consistent across states. However, the FHWA itself goes to considerable length to establish legitimate basis for comparing states with respect to road information. In fact, they have developed tables to assist researchers in determining so-called “peer states” –states where there are relatively few barriers to making valid comparative analysis. Given the relatively simple nature of the analysis contained within this report, and the limited intent of the outcome of this analysis, the FHWA’s “peer state” criteria were superceded by the criteria established for this scan.

In summary, the data in this report and the analysis stemming from it should not be used beyond the stated intent of this research: that is providing a scan of the rural road situation in Ontario – a scan that includes a brief comparison of the roads situation in selected American states.

14.2 General Comments Regarding the Chosen States

- All of the states share a border with Ontario, although all are separated from Ontario by the Great Lakes, with the exception of Minnesota.
- Taken together, the selected states represent approximately the range in climatic conditions experienced within the borders of Ontario, although none would match the sub-arctic conditions of extreme Northern Ontario.
- There is considerable diversity in the group with respect to physical size, total population, the rural-urban make up of the population, and economic activity.
- All the states have at least one major urban conglomeration that dominates the surrounding countryside and has resulted in significant urban fringe type conditions (as has Ontario).

- Primary sector economic activity in all states is dwarfed by the importance of activity in manufacturing and by the service sectors. However, agricultural activity is still an important rural economic activity.

14.3 Relevant Statistical Information for the Chosen States

Table 14.1: Selected Population Characteristics – Comparative States

Characteristic	Unit	Year	MN	WI	MI	OH	PA	NY
Total Population (1)		2000	4919000	5364000	9938000	11353000	12281000	18976000
% Rural Population (2)	%	1990	30.1	34.3	29.5	25.9	31.1	15.7
# of Full-Time Farms (3)		1997	44047	39030	22043	31022	25635	18246
Land Area (4)	Sq Miles	2000	79610	54130	56804	40948	44817	47214
Population Density	Persons/Sq. Mile	2000	61.8	98.8	175.0	277.3	274.0	401.9

Sources: (1) U.S. Census Bureau; (2) U.S. Census Bureau: Table of Urban and Rural Population 1900-1990 (1995); (3) USDA - Census of Agriculture; (4) State Profiles.

Table 14.2: State Ranking – Selected Population Characteristics

Characteristic	MN	WI	MI	OH	PA	NY
Total Population (1)	6	5	4	3	2	1
% Rural Population (2)	3	1	4	5	2	6
# of Full-Time Farms (3)	1	2	5	3	4	6
Land Area (4)	1	3	2	6	5	4
Population Density	6	5	3	2	4	1

Minnesota ranks as the largest of the selected states in land area, and it has the least population. New York is by far the most populous state and ranks fourth in terms of physical size. Despite the largest size and smallest population, Minnesota is outranked by Wisconsin for the largest percentage of rural population. These two states are at the top in terms of the number of full-time farms. Not surprisingly, New York ranks last in terms of both proportional rural population and the number of full-time farms

Table 14.3: State Gross Domestic Product - Comparative States

Sector	Year	MN	WI	MI	OH	PA	NY
State GDP (\$ Billions U.S.)	1998	161.392	157.761	294.505	341.070	364.039	706.886
GDP by Major Industrial Sector							
All Industries	1998	161.392	157.761	294.505	341.070	364.039	706.886
Goods Producing	1998	116.77	51.747	94.511	104.623	90.83	100.578
Primary Sector	1998	3.322	2.849	3.606	4.668	4.222	3.287
Agriculture, Fishing, and Forestry	1998	2.674	2.849	2.470	3.505	3.887	2.806
Mining, Oil, and Gas	1998	0.557	0.307	1.136	1.163	1.178	0.481
Manufacturing	1998	29.092	41.875	78.513	86.163	71.999	75.907
Service Producing Sectors	1998	33.357	27.337	56.618	62.619	81.255	162.042
Transportation, Storage and Utilities	1998	12.477	11.806	19.873	26.464	32.844	57.152

Source: United States Department of Commerce, Bureau of Economic Analysis

Table 14.4: Selected Sectors as Percentage of GDP

Sector	Year	MN	WI	MI	OH	PA	NY
Goods Producing	1998	72.35	32.80	32.09	30.67	24.95	14.23
Primary Sector	1998	2.06	1.81	1.22	1.37	1.16	0.46
Agriculture, Fishing, and Forestry	1998	1.66	1.81	0.84	1.03	1.07	0.40
Mining, Oil, and Gas	1998	0.35	0.19	0.39	0.34	0.32	0.07
Manufacturing	1998	18.03	26.54	26.66	25.26	19.78	10.74
Service Producing Sectors	1998	20.67	17.33	19.22	18.36	22.32	22.92
Transportation	1998	7.73	7.48	6.75	7.76	9.02	8.09

Table 14.5: State Ranking - GDP Contributions of Selected Industrial Sectors to Total State GDP

Sector	MN	WI	MI	OH	PA	NY
All Industries	5	6	4	3	2	1
Primary Sector	3	6	4	1	2	5
Agriculture, Fishing, and Forestry	5	3	6	2	1	4
Transportation	5	6	4	3	2	1

New York dominates as the state with the highest Gross Domestic Product (GDP). Ohio and Pennsylvania are leaders in terms of primary sector contribution to GDP. This is likely a result of the coal, natural gas, and oil activity still undertaken in these two states. Unfortunately, agriculture is combined with fishing and forestry in these statistics. However, one would assume that agriculture would dominate over the other two activities within all states in terms of its value as a major sub-category of economic activity.

Table 14.6: Employment by Major Industrial Sector – Comparative States

Sector	Year	MN	WI	MI	OH	PA	NY	Notes
(Millions of Persons)								
All Industries	1990	2.192	2.386	4.166	4.931	5.434	8.371	
Goods Producing	1990	0.609	0.814	1.315	1.509	1.547	1.764	
Primary Sector	1990	0.099	0.112	0.083	0.114	0.129	0.106	(1)
Manufacturing	1990	0.400	0.584	1.026	1.396	1.087	1.227	
Service Producing Sectors	1990	1.584	1.573	2.851	2.971	3.887	6.606	
Transportation	1990	0.102	0.090	0.139	0.250	0.242	0.433	

Notes: (1) Primary includes agriculture, fishing, forestry, mining, and oil and gas

Source: U.S. Census Bureau. DP-3 Labour Force Statistics and Employment Characteristics. 1990 Summary Tape File 3 (STF-3). Sample data.

Table 14.7: Sector Employment as a Percentage of Total Employment

Sector	Year	MN	WI	MI	OH	PA	NY
Goods Producing	1990	27.78	34.12	31.57	30.60	28.47	21.07
Primary Sector	1990	4.52	4.69	1.99	2.31	2.37	1.27
Manufacturing	1990	18.25	24.48	24.63	23.13	20.00	14.66
Service Producing Sectors	1990	72.26	65.93	68.43	60.25	71.53	78.92
Transportation	1990	4.65	3.77	3.34	5.07	4.45	5.17

Table 14.8: State Ranking - Contribution of Selected Industrial Sectors to Total Employment

Sector	MN	WI	MI	OH	PA	NY
All Industries	6	5	4	3	2	1
Goods Producing	6	5	4	3	2	1
Primary Sector	5	2	6	4	1	3
Manufacturing	6	5	3	1	4	2
Service Producing Sectors	4	5	3	6	2	1
Transportation	5	6	4	2	3	1

Table 14.9: State Ranking - Contribution of Selected Industrial Sectors as % of Total Employment

Sector	MN	WI	MI	OH	PA	NY
Primary Sector	2	1	6	4	3	5
Manufacturing	5	3	2	1	4	6
Service Producing Sectors	2	5	4	6	3	1
Transportation	3	5	6	2	4	1

The employment statistics reveal some unexpected findings. First, despite the population and GDP statistics, which suggest primary sector activity is relatively important to Minnesota's economy (and it is, as the ranking above suggests), this state is second only to New York in

terms of the contribution the service sector makes to overall employment. Wisconsin is number one when it comes to the relative importance of primary sector employment.

Also somewhat surprising is the fact that the state of New York ranks last in relative importance of manufacturing activity to total employment. One would expect the entire services sector to dominate in this state given the business and public sector activity occurring in New York City and environs. However, one might also expect manufacturing to have had more significance as an employment generator.

A final significant point is the importance of transportation employment to New York and the second ranked state, Ohio, with respect to the importance of transportation activity to employment.

14.3.1 A Look at Selected State Road Expenditure and Network Characteristics: Absolute Numbers and Relative Rankings

Table 14.10 reveals information on roads related expenditures and road network characteristics for the states selected for analysis. This data is derived from both state government budget documents and statistics compiled by the Federal Highway Administration Service (FHWA). Federal, state, and local road data available from the FHWA is extensive, and only a fraction of that information has been utilized for the purpose of this comparison. All of the characteristics were chosen because one might expect them to serve as indicators of the importance of road transportation to each state and/or as indicators of the relative challenge encountered by each state in maintaining their road networks, both the overall public network, and local roads.

Table 14.11 is a ranking of the absolute values of characteristics selected from table 14.10. A high ranking (1 = high, 10 = low) with respect to these characteristics might suggest an increase in the challenges associated with maintaining a high functioning road network, while high rankings in other characteristics might be expected to add to the challenge. Still, others may not be expected to have a positive or negative effect but serve to flesh out the comparison and provide insight into the administrative realities faced by the various jurisdictions. The following section lists the characteristics in Table 14.10 and attempts to explain their significance to the comparative analysis.

State Department of Transportation (DOT) Budget - This is simply a measure of how much money each state spent on total transportation (which includes activities other than road transportation), administration, operations, and capital investment activities. This absolute number simply serves illustrative purposes. Transportation spending becomes more meaningful in relation to such things as total government spending, the proportion of government spending represented by transportation, spending per person, spending per mile, and the like.

DOT Budget as % of State Budget - As suggested above this is a better comparative measure than absolute spending. One would expect states with a higher ranking in this

category to have larger networks in terms of both length and volumes. In other words, a state with a large amount of rural territory may have a large network and thus require a greater proportional expenditure of state funds than a state with proportionally smaller amount of rural territory. However, a state that is heavily urbanized may also have proportionally high road transportation expenditures. Their total road network may be significantly smaller, but the volume of traffic on that network is significantly heavier. As with the other characteristics, proportional spending is best considered within the context of other factors.

Total Length of Public Roads; Total Length of State Controlled Roads; Total Length of Local Roads – Larger networks will require more expenditure regardless of which level of government is responsible.

Expenditures on Locally Controlled Roads – This is the absolute total of expenditures by local governments on local roads in each state in a given year.

Expenditures Per Capita on Locally Controlled Roads – how much is spent on local roads per person, which is a crude measure of the burden on taxpayers represented by local road maintenance and operation.

State Expenditures and Grants-In-Aid for Locally Controlled Roads – Absolute amounts of state funding for local roads in each state.

State Expenditures and Grants-In-Aid Per Mile of Locally Controlled Roads – A more meaningful measure of state expenditures because it is in relation to the size of the local road network. This measure is still limited because other attributes of the network (traffic volumes, terrain, climate, etc.) will bear on total expenditures and therefore influence the significance of overall state funding.

Table 14.10: Road Network and Expenditure Characteristics - Comparative States

Characteristic	Units	Year	MN	WI	MI	OH	PA	NY
State Budget	(\$ Billions U.S.)	1999	21.546	19.288	31.993	31.312	37.267	108.784
State DOT Budget (1)	(\$ Billions U.S.)	1999	3.311	1.855	2.68	2.396	4.047	5.254
DOT Budget as % of State Budget	%	1999	15.4	9.6	8.4	7.7	10.9	4.8
Population		1999	4,776,000	5,250,000	9,864,000	11,251,000	11,994,000	18,197,000
State DOT Budget Per Capita	\$ U.S.	1999	693	353	272	213	337	289
Total Length of Public Roads (2-Lane Equivalent)	Miles	1999	131,996	111,906	121,722	116,371	119,384	112,659
Miles of Public Roads Per 1000 Persons	Miles	1999	27.6	21.3	12.3	10.3	10.0	6.2
Length of Roads Under State Jurisdiction (2 - Lane Equivalent)	Miles	1999	11,939	11,753	9,726	19,294	40,102	15,027
Length of State Controlled Roads Per 1000 Persons (2-Lane Equivalent)	Miles	1999	2.5	2.2	1.0	1.7	3.3	0.8
Expenditures on State Controlled Roads	U.S. \$	1998	710,000,000	743,000,000	282,000,000	1,573,000,000	2,741,000,000	3,040,000,000
Expenditures Per Capita on State Controlled Roads.	U.S. \$	1999	149	408	99	139	223	160
Expenditure Per Mile of State Road	U.S. \$	1999	59,469	63,218	28,994	81,528	68,351	202,303
Length of Roads Under Local Jurisdiction (2-Lane Equivalent)	Miles	1999	116,789	99,311	109,914	94,231	74,620	96,167
Length of Locally Controlled Roads Per 1000 Persons (2-Lane Equivalent)	Miles	1999	24.5	18.9	11.1	8.4	6.2	5.3
Expenditures on Locally Controlled Roads	U.S. \$	1998	1,765,952,000	1,587,369,000	1,349,630,000	1,351,303,000	1,204,906,000	4,300,305,000
Expenditures Per Capita on Locally Controlled Roads.	U.S. \$	1999	370	302	137	120	100	236
Expenditure Per Mile of Locally Controlled Road	U.S. \$	1999	15121	15984	12279	14340	16147	44717
State Expenditures and Grants-In Aid for Locally Controlled Roads	U.S. \$	1999	584,434,000	497,500,000	1,012,754,000	1,041,789,000	200,737,000	694,882,000
State Expenditures and Grants-In-Aid Per Mile of Locally Controlled Roads	U.S. \$	1999	38,651	31,125	82,479	72,648	12,432	15,540
Percentage of Local Roads That Are Rural	%	1999	87.3	85.4	74.2	71.4	71.6	63.5
Length of Roads Under Federal Jurisdiction (2-Lane Equivalent)	Miles	1999	1,935	709	2,083	97	945	27
Federal Funds Used For Local Roads	U.S. \$	1999	63,241,000	903,000	242,000	11,000	2,770,000	251,758,000
Federal Funds Per Mile of Local Road	U.S. \$	1999	541.50	9.09	2.20	0.12	37.12	2,617.93

Notes: (1) The State DOT's are responsible for other transportation functions. Sources: State Budget Documents; FHWA Statistical Tables

Table 14.11: State Ranking - Selected Road Network and Expenditure Characteristics

Characteristic	MN	WI	MI	OH	PA	NY
State DOT Budget (1)	3	6	4	5	3	6
DOT Budget as % of State Budget	1	2	4	5	3	6
State DOT Budget Per Capita	1	2	5	6	3	4
Total Length of Public Roads (2-Lane Equivalent)	1	6	2	4	3	5
Miles of Public Roads Per 1000 Persons	1	2	3	4	5	6
Length of Roads Under Local Jurisdiction (2-Lane Equivalent)	1	3	2	5	6	4
Length of Locally Controlled Roads Per 1000 Persons (2-Lane Equivalent)	1	2	3	4	5	6
Expenditures on Locally Controlled Roads	2	3	5	4	6	1
Expenditures Per Capita on Locally Controlled Roads.	1	2	4	5	6	3
Expenditure Per Mile of Locally Controlled Road	4	3	6	5	2	1
State Expenditures and Grants-In Aid for Locally Controlled Roads	4	5	2	1	6	3
State Expenditures and Grants-In-Aid Per Mile of Locally Controlled Roads	3	4	1	2	6	5
Percentage of Local Roads That Are Rural	1	2	3	5	4	6
Federal Funds Used For Local Roads	2	4	5	6	3	1
Federal Funds Per Mile of Local Road	2	4	5	6	3	1

14.3.2 Findings

The state of Minnesota stands out in the ranking of these characteristics. This state was ranked # 1 for the following characteristics:

1. DOT Budget as a % of State Budget
2. State DOT Budget Per Capita
3. Total Length of Public Road System
4. Length of Public Roads Per 1000 Persons
5. Length of Roads Under Local Control
6. Length of Locally Controlled Roads Per 1000 Persons
7. Expenditures Per Capita on Local Roads
8. Percentage of Local Roads That Are Rural

The state of Wisconsin probably ranks second overall according to the characteristics used in this analysis, although the situation is less obvious than for Minnesota. Wisconsin ranked first, second, or third under the following characteristics:

1. DOT Budget as a % of State Budget (2)
2. State DOT Per Capita (2)
3. Length of Public Road Per 1000 Persons (2)
4. Length of Roads Under Local Control (3)
5. Length of Locally Controlled Roads Per 1000 Persons (2)
6. Expenditures on Locally Controlled Roads (3)
7. Expenditures Per Mile of Locally Controlled Roads (3)
8. Percentage of Local Roads That Are Rural (2)

14.3.3 Inferring From the Rankings

Given the range of limitations outlined at the beginning of the analysis, one has to be cautious in drawing conclusions from the data and the rankings. However, some broad conclusions can be made.

Using Minnesota as an example, it is evident that transportation services in general are very important to the state. One cannot conclude that road transportation is necessarily more important to Minnesota than the other states, because the state DOT's are responsible for state investment and oversight into other modes of transportation. However, given the relative size of the road network it would seem likely that road transportation services rank very highly for the state in relation to the other states in the comparative group. The importance of transportation is also evident in the ranking for expenditures on transportation as a percentage of the overall state budget.

The rankings also reveal that Minnesota has the largest local road network of the states analyzed. Likewise, the amount of expenditures on local roads is the highest in the group.

This does not mean that Minnesota is spending an appropriate amount of money on local roads. In terms of direct state support for local roads, the state ranked fourth and in terms of direct state support per mile, Minnesota ranked third. This suggests that in terms of the expenditure burden represented by local roads, local governments in Minnesota are bearing more of the responsibility than local governments in Michigan (ranked first).

The fact that Minnesota ranked first with respect to the percentage of all local roads that are rural in nature is likely the single most significant indicator of the importance of rural roads in that state.

Given the relatively high proportion of rural local roads, the size of the total road network and the local road network, and the relative size of road expenditures (Minnesota was also second in expenditures on rural roads), one would expect that rural road issues, if they exist, would be most obvious here. In fact, based on this limited comparative analysis, one would expect Minnesota, of all states, to demonstrate issues at least similar to those being experienced in Saskatchewan, as well as Ontario.

14.4 Comparing the Selected States with Ontario

Values for Ontario, taken from the previous provincial analysis, were included with the American states in tables 14.12 and 14.13, to allow a ranked comparison in tables 14.14 and 14.15. Not all provincial characteristics are directly comparable with the state characteristics. Where appropriate, Canadian units have been converted to American. Again, caution is necessary, because there may be differences in the way in which data for various characteristics were collected and presented. In general, the data is suitable for a broad comparison.

14.4.1 Demographic and Economic Characteristics

The first two tables present demographic and economic data and are largely self-explanatory. However, comments on a few of the characteristics are appropriate:

- Ontario has the largest land area by far, and the third largest population of the group. However, the province ranks fifth in total provincial (state) GDP.
- Looking at GDP by sector, Ontario ranks third for the primary sector as a whole, but for agriculture, fishing, and forestry, the province ranked seventh.¹³
- Regardless of how it is examined, (GDP by sector, GDP as a % of total, employment by sector, and % of total employment), transportation as an economic activity in Ontario is not as significant as in the states used for comparison. This may be a surprising finding, given the large amount of transportation activity in Ontario, and the fact that much of the Canada-United States trade crosses the Ontario border.

¹³ Unfortunately, agriculture was not separated out in the U.S. data. The value of agriculture is available from the USDA Census of Agriculture, but data year and format presented problems for inclusion here.

14.4.2 Road Expenditure and Road Network Characteristics

- Ontario has the fourth largest total budget, but the smallest transportation budget. Transportation spending, as a portion of the total budget, is also the lowest in the group, as is transportation spending per capita.
- Perhaps surprising given the province's size, Ontario also has the smallest total network of public roads. For roads under state/provincial jurisdiction, the province ranks third behind Pennsylvania and Ohio.
- Ontario has the second highest rate of expenditure per mile on state/provincial-controlled roads, lead by Wisconsin.
- The province ranks fifth when it comes to expenditures on locally controlled roads and sixth for both expenditures per capita, and expenditures per mile, on locally controlled roads.

Table 14.12: Ontario in Comparison With the Selected States: Demographic and Economic Characteristics

Characteristic	Unit	MN	WI	MI	OH	PA	NY	ON
Total Population (1)		4919000	5364000	9938000	11353000	12281000	18976000	11669344
% Rural Population (2)	%	30.1	34.3	29.5	25.9	31.1	15.7	16.7
Land Area (4)	Sq Miles	79610	54130	56804	40948	44817	47214	4125790
Population Density	Persons/Sq. Mile	61.8	98.8	175.0	277.3	274.0	401.9	28.28
GDP by Sector								
All Industries	(\$ Billions U.S.)	161.392	157.761	294.505	341.070	364.039	706.886	240.970
Primary Sector	(\$ Billions U.S.)	3.322	2.849	3.606	4.668	4.222	3.287	3.93
Agriculture, Fishing and Forestry	(\$ Billions U.S.)	2.674	2.849	2.470	3.505	3.887	2.806	2.24
Transportation	(\$ Billions U.S.)	12.477	11.806	19.873	26.464	32.844	57.152	7.12
% of GDP								
Primary Sector	%	2.06	1.81	1.22	1.37	1.16	0.46	1.63
Agriculture, Fishing and Forestry	%	1.66	1.81	0.84	1.03	1.07	0.40	0.93
Transportation	%	7.73	7.48	6.75	7.76	9.02	8.09	2.95
Employment by Sector								
All Industries	Millions (1990)	2.192	2.386	4.166	4.931	5.434	8.371	5.592
Primary Sector	Millions (1990)	0.099	0.112	0.083	0.114	0.129	0.106	0.124
Transportation	Millions (1990)	0.102	0.090	0.139	0.250	0.242	0.433	0.088
% Employment by Sector								
Primary Sector	Millions (1990)	4.52	4.69	1.99	2.31	2.37	1.27	2.22%
Transportation	Millions (1990)	4.65	3.77	3.34	5.07	4.45	5.17	1.57%

Table 14.13: Ontario in Comparison With the Selected States: Road Network and Expenditure Characteristics

Characteristic	Unit	MN	WI	MI	OH	PA	NY	ON
State Budget	(\$ Billions U.S.)	21.546	19.288	31.993	31.312	37.267	108.784	31.654
State DOT Budget (1)	(\$ Billions U.S.)	3.311	1.855	2.68	2.396	4.047	5.254	1.049
DOT Budget as % of State Budget	%	15.4	9.6	8.4	7.7	10.9	4.8	3.3
Population		4,776,000	5,250,000	9,864,000	11,251,000	11,994,000	18,197,000	11,670,000.00
State DOT Budget Per Capita	U.S. \$	693	353	272	213	337	289	90
Total Length of Public Roads (2-Lane Equivalent)	Miles	131,996	111,906	121,722	116,371	119,384	112,659	104,322
Miles of Public Roads Per 1000 Persons	Miles	27.6	21.3	12.3	10.3	10.0	6.2	9.5
Length of Roads Under State Jurisdiction (2 - Lane Equivalent)	Miles	11,939	11,753	9,726	19,294	40,102	15,027	17,683
Length of State Controlled Roads Per 1000 Persons (2-Lane Equivalent)	Miles	2.5	2.2	1.0	1.7	3.3	0.8	1.6
Expenditures on State Controlled Roads	U.S. \$	710,000,000	743,000,000	282,000,000	1,573,000,000	2,741,000,000	3,040,000,000	1,500,000,000
Expenditures Per Capita on State Controlled Roads.	U.S. \$	149	408	99	139	223	160	90
Expenditure Per Mile of State Road	U.S. \$	59,469	63,218	28,994	81,528	68,351	202,303	84,827
Length of Roads Under Local Jurisdiction (2-Lane Equivalent)	Miles	116,789	99,311	109,914	94,231	74,620	96,167	85,152
Length of Locally Controlled Roads Per 1000 Persons (2-Lane Equivalent)	Miles	24.5	18.9	11.1	8.4	6.2	5.3	7.3
Expenditures on Locally Controlled Roads	U.S. \$	1,765,952,000	1,587,369,000	1,349,630,000	1,351,303,000	1,204,906,000	4,300,305,000	1,250,000,000
Expenditures Per Capita on Locally Controlled Roads.	U.S. \$	370	302	137	120	100	236	108
Expenditure Per Mile of Locally Controlled Road	U.S. \$	15,121	15,984	12,279	14,340	16,147	44,717	14,680

Table 14.14: Ontario in Comparison With the Selected States: Ranking of Demographic and Economic Characteristics

Characteristic	Unit	MN	WI	MI	OH	PA	NY	ON
Total Population (1)		7	6	5	4	2	1	3
% Rural Population (2)	%	3	1	3	5	2	7	6
Land Area (4)	Sq Miles	2	4	4	7	6	5	1
Population Density	Persons/Sq. Mile	6	5	4	2	3	1	7
GDP by Sector								
All Industries	(\$ Billions U.S.)	6	7	4	3	2	1	5
Primary Sector	(\$ Billions U.S.)	5	7	4	4	2	5	3
Agriculture, Fishing and Forestry	(\$ Billions U.S.)	5	3	6	2	1	4	7
Transportation	(\$ Billions U.S.)	5	6	4	4	2	1	7
% of GDP								
Primary Sector	%	1	2	5	4	6	7	3
Agriculture, Fishing and Forestry	%	2	1	6	4	3	7	5
Transportation	%	4	5	6	3	1	2	7
Employment by Sector								
All Industries	Millions (1990)	7	6	5	4	3	1	2
Primary Sector	Millions (1990)	6	3	7	5	1	4	2
Transportation	Millions (1990)	5	6	4	3	3	1	7
% Employment by Sector								
Primary Sector	Millions (1990)	2	1	6	5	3	7	4
Transportation	Millions (1990)	3	5	6	2	4	1	7

Table 14.15: Ontario in Comparison With the Selected States: Ranking of Road Network and Expenditure Characteristics

Characteristic	Unit	MN	WI	MI	OH	PA	NY	ON
State Budget	(\$ Billions)	6	7	3	5	2	1	4
State DOT Budget (1)	(\$ Billions)	3	6	4	5	2	1	7
DOT Budget as % of State Budget	%	1	3	4	5	2	6	7
Population		7	6	5	4	3	1	3
State DOT Budget Per Capita	\$	1	2	5	6	3	4	7
Total Length of Public Roads (2-Lane Equivalent)	Miles	1	6	2	4	3	5	7
Miles of Public Roads Per 1000 Persons	Miles	1	2	3	4	5	7	6
Length of Roads Under State Jurisdiction (2 - Lane Equivalent)	Miles	5	6	7	2	1	4	3
Length of State Controlled Roads Per 1000 Persons (2-Lane Equivalent)	Miles	2	3	6	4	1	7	5
Expenditures on State Controlled Roads	\$	6	5	7	3	2	1	4
Expenditures Per Capita on State Controlled Roads.	\$	4	1	6	5	2	3	7
Expenditure Per Mile of State Road	\$	6	5	7	3	4	1	2
Length of Roads Under Local Jurisdiction (2-Lane Equivalent)	Miles	1	3	2	5	7	4	6
Length of Locally Controlled Roads Per 1000 Persons (2-Lane Equivalent)	Miles	1	2	3	4	6	7	5
Expenditures on Locally Controlled Roads	\$	2	3	6	4	7	1	5
Expenditures Per Capita on Locally Controlled Rds.	\$	1	2	4	5	7	3	6
Expenditure Per Mile of Locally Controlled Road	\$	4	3	5	7	2	1	6

14.5 Fuel Taxes

14.5.1 Fuel Tax Rates in the Selected States

As is the case with Canada, taxes on motor fuels are collected by both the federal and state governments in the United States. Table 14.16 provides the 1998 and 1999 tax rates on gasoline and diesel fuel for the states used in this analysis.

Table 14.16: State Motor-Fuel Tax Rates: Gasoline and Diesel Fuel – 1998/1999

State	Gasoline		Diesel	
	%		%	
	1998	1999	1998	1999
Michigan	19.00	19.00	15.00	15.00
Minnesota	20.00	20.00	20.00	20.00
New York	22.65	29.30	21.85	27.95
Ohio	22.00	22.00	22.00	22.00
Pennsylvania	25.90	25.90	30.80	30.80
Wisconsin	25.40	25.40	25.40	25.40
State Average	19.96	19.29	20.15	19.96

Source: FHWA table MF-205

14.5.2 Average Gasoline Prices and Total Taxes: Canada and the U.S. (June 2001):

Table 14.17: Gasoline Taxes and Prices: Canada and the U.S. – June 2001

Country	Taxes (1)	Pump Price
Canada	\$0.3040	0.729/litre
United States	\$0.1126	0.433/litre

Federal and provincial/state motor fuel taxes

The difference in gasoline and diesel fuel prices between Canada and the United States is largely a difference in the overall rate of taxation on motor fuels. The price of crude oil is essentially a world price and therefore there is little difference in the price of this commodity between the two countries (approximately \$0.01 in June 2001). The rate of taxation in Ontario is approximately 40% on the wholesale price of fuel, while in the United States the average rate of taxation is approximately 26% (M.J. Ervin and Associates, 2001b). Refining costs fluctuate, as do profit margins at the various levels of sale, but the overall differences in these components between the two countries is small. Fuel prices in the United States have increased recently, but the significantly lower tax rates (which do vary considerably by state) mean that U.S. prices remain substantially below those in Ontario and across Canada generally.

An important difference between Ontario and the states selected for comparison in this analysis lies with the use of revenue derived from fuel taxes at both the state and federal levels. This report has made various references to the fact that fuel tax revenue both at the provincial level and the national level is not in any way dedicated to roads (or any transportation expenditure such as public transit). In the selected states, and in the United States generally, fuel tax revenues collected at the state level are almost exclusively dedicated to road related expenditures, either maintenance or capital improvements. Tables 14.18 and 14.19 outline the disbursement of state fuel tax revenues on roads for the selected states. The data reveals that the selected states disburse the bulk of more than seven billion dollars of fuel tax revenue for expenditures on roads, including almost two billion for roads at the local level.

14.5.3 Federal Involvement in Rural Roads

The federal government in the United States is very heavily involved in policy development, research, and funding for all modes of transportation (FHWA, 1999i). While most of the various road-funding programs managed by several federal agencies do not apply specifically to local rural roads (some have in the past), local governments benefit substantially from these programs for at least two reasons. The first is that significant federal assistance is given to the state governments to assist in the maintenance and capital construction of both interstate highways and state highways. One could argue that without this federal assistance, the state governments could not afford to invest in local roads at the level they currently do. The second way in which local governments indirectly benefit from federal investment is that federal investment into technical and administrative research ultimately benefits all three levels of government.

Again, the direct impacts on local governments may be hard to measure, but recent years have seen a renewed federal commitment to road transportation investment. Unlike the case in Canada, the American federal government plays an extremely important role in road policy, research, and/or funding - an influence that extends to local rural governments in a variety of ways.

Table 14.18: Disposition of State Fuel Taxes – 1999 (Thousands of U.S. Dollars)

STATE	RECEIPTS AVAILABLE FOR DISTRIBUTION 1/	FOR COLLECTING MOTOR-FUEL TAXES AND FEES 2/	NET FUNDS DISTRIBUTED 3/	FOR STATE ADMINISTERED HIGHWAYS 4/			
				CAPITAL OUTLAY, MAINTENANCE, AND ADMINISTRATION	HIGHWAY LAW ENFORCE- MENT AND SAFETY	DEBT SERVICE	TOTAL
Michigan	1,047,969	7,820	1,040,149	335,761	10,401	32,289	378,451
Minnesota	593,159	4,435	588,724	314,572	40,445	8,387	363,404
New York	1,476,786	-	1,476,786	576,797	134,098	569,479	1,280,374
Ohio	1,463,957	4,300	1,459,657	615,648	146,491	105,099	867,238
Pennsylvania	1,678,629	18,236	1,660,393	1,204,583	163,799	88,604	1,456,986
Wisconsin	783,383	1,025	782,358	299,104	37,604	36,389	373,097
Totals	7,043,883	35,816	7,008,067	3,346,465	532,838	840,247	4,719,550

Source: FHWA table MF-2

Notes:

2/ Includes some estimates

4/ Includes expenditures for county roads under state control.

Table 14.19: Disposition of State Fuel Taxes - 1999 (Continued) (Thousands of U.S. Dollars)

STATE	FOR LOCAL ROADS AND STREETS			FOR MASS TRANSIT PURPOSES	FOR GENERAL AND NON-HIGHWAY PURPOSES					
	DIRECT EXPENDITURES BY STATE	TRANSFERS TO LOCAL GOVERNMENTS	TOTAL		LOCAL GENERAL AND NON-HIGHWAY PURPOSES 5/	STATE NON-HIGHWAY PURPOSES 6/	TO STATE GENERAL FUND			TOTAL
							STATE GENERAL PURPOSES	OFFSET BY GENERAL FUNDS SPENT FOR HIGHWAYS 7/	NET	
Michigan	32,882	529,299	562,181	99,517	-	-	-	-	-	-
Minnesota	-	225,307	225,307	13	-	-	-	-	-	-
New York	18,187	33,263	51,450	123,222	-	21,740	320,696	(320,696)	-	-
Ohio	156,102	396,612	552,714	30,182	-	9,523	-	-	-	-
Pennsylvania	-	145,623	145,623	57,784	-	-	-	-	-	-
Wisconsin	68,818	252,400	321,218	55,789	-	32,254	-	-	-	-
Totals	275,989	1,582,504	1,858,493	366,507	-	63,517	320,696	(320,696)	-	-

Source: FHWA table MF-2

Notes:

5/ Some allocations for local general purposes may have been used in part for highways.

6/ Includes only allocations for specific non-highway purposes.

7/ Gross allocations of highway-user revenues to state general funds were reduced by appropriations for highways from state general funds. These amounts are included with allocations for state highway purposes.

8/ In these states, most highway-user revenues are placed in the State general fund. For a discussion of general fund States' financing, see "Highway Finance" text under "Funds Attributable to Highway Users."

14.6 Rural Road Issues/Challenges and Trends in the Comparative States

From a distance, one does not have the impression that there are rural roads issues in the comparative states that are at the level of crisis evident in Ontario (from the roads surveys and from secondary information), or in other provinces like Saskatchewan.

Financial and time limitations means that road survey information similar to that gathered for Ontario could not be gathered for the comparative states. As a result, rural road issues in the states are more difficult to identify – this has been done “at a distance” over the World Wide Web. Given this limitation it is perhaps easiest to identify a selection of the broader issues, challenges, and trends that are likely to be affecting rural roads within the states used here for the comparative analysis. These issues, challenges, and trends include the following:

14.7 Issues and Challenges:

14.7.1 An Aging Population

All of the states in the analysis are experiencing an aging population – a phenomenon shared with Ontario.¹⁴ An aging population has significant implications for transportation in all modes, including transportation on rural roads. Direct implications include fewer vehicle miles travelled (exclusive of other demographic changes), the need for greater emphasis on public transportation (including innovative approaches to rural public transportation), and even the precipitation of the need to re-examine such things as roadway design and signage to better accommodate the older driver (Rogers, 1999; Johnson and Beale, 2001). Indirect implications include economic pressures resulting from insufficient number of workers to replace those leaving the workforce. The overall performance of the state economies is important to rural road transportation because it bears on the level of such things as revenues generated through fuel taxes and on the overall ability of governments to invest in roads.

¹⁴ Evidence of the importance of population aging to transportation trends is evident in documents from several of the states used in this comparative analysis. For example, the Minnesota DOT places considerable emphasis on the phenomenon in their discussions of transportation trends (MN/DOT, 2000).

14.7.2 Population Change: Urban Concentration, Urban-Rural Fringe Growth, and Stagnation and Decline in Selected Rural Areas

An increasing percentage of the population in each state is becoming concentrated in very large urban conglomerations. For example, the majority of Minnesota's population now lives in the Twin Cities metropolitan area, resulting in the reality that a very large percentage of the population of one of the group's most rural states (by some measures) is concentrated in one large urban centre (MNDOT, 2000). This trend is influenced by, but not limited to, the aging trend mentioned above. The rural transportation implications of increasing urbanization are multiple and complex.

First, increasing urbanization does not mean that the rural areas of the states are experiencing population stagnation or decline. In fact, there is evidence from several studies that indicates population growth in rural counties in the United States – counties that are often included in the urban rural fringe around major urban centres.

Second, the evidence around demographic change is complex and confusing. Before the 1980's, rural America had been experiencing of out-migration and declining population. This trend was reversed in the 1980s and into the 1990's as people migrated into rural areas for a host of economic and social reasons. Recent evidence suggests that this trend was slowed, if not reversed in the late 1990s and into the new century (Johnson and Beale, 2001).

Third, the current situation appears to be one of increasing proportional population concentration in large urban centres, an accompanying growth in the population of rural areas on the urban fringe, and continued slow growth, stagnation, or, at worst, population decline in rural areas distanced from urban influence.

As one would expect increasing population in fringe municipalities is resulting in pressure on rural roads in these areas that is substantial and growing, not unlike the situation in Ontario. This type of pressure gives rise to a variety of rural roads issues, including volume saturation, rapid deterioration, and usage conflicts. For distance rural municipalities experiencing population stagnation or decline, the issues are different. A primary concern becomes one of having to maintain road infrastructure for fewer users and funding maintenance (at least partially) from a shrinking or stagnant tax base.

These interrelated changes all have implications for the provisions of road services in rural areas, regardless of their proximity to major urban areas. Road services continue to be required in rural areas. However, increasing urbanization means that urban transportation demands (both road and otherwise) continue to place more burdens on overall state transportation investment. For rural municipalities on the urban-fringe, the issue becomes one of meeting increasing demands with limited funding.

Evidence from the state of Minnesota also suggests that an increasing percentage of total vehicle miles driven are occurring on roads other than the interstate highways and major state trunk roads (MNDOT, 1998a). Some of this change is related to increasing urban populations (thus resulting in more of the total miles being driven on local urban streets and roads) and the evidence suggests that minor state roads are accepting an increasing share of the total burden. In fact, similar information presented on travel by system jurisdiction suggests that county and local roads are bearing a decreasing proportion of total vehicle miles driven (MNDOT, 1998a). However, decreasing proportional burden does not mean fewer total vehicle miles driven on rural local roads.

14.7.3 Urban Concentration of Economic Activity

Also accompanying the increasing urbanization is the continued concentration of economic activity in urban centres. Again, economic activity, including its location, has a major impact of road transportation. This is true both in terms of which jurisdictions (urban versus rural) have the economic activity to support public investment through taxation, and in terms of the impact that the movement of goods and services has on local roads. As in Ontario, one could argue that the commercial traffic having significant impact on rural roads is resulting from economic activity that is benefiting another distant urban municipality. One major mitigating factor in the study states, and one that is not present in Ontario, is the fact that fuel taxes collected at the state level benefit the entire state, including local rural municipalities. Ironically, shifts in the nature of the economy have the potential to actually benefit rural areas. The rise of manufacturing contributed to the concentration of economic activity in urban areas. However, two trends are opening the possibility for greater benefit to rural areas. One is the global rise of the so-called information economy. Theoretically, distance barriers, which have traditionally hindered rural economic development, are less important in this type of activity. This is only true if there is a communications infrastructure that supports this type of activity – in practice, rural areas tend to lag behind urban areas in communication infrastructure improvements. The second trend that may benefit rural areas is the continued diversification and specialization in manufacturing activity. Rural areas in Canada and the U.S. can, and do, occupy manufacturing niches for specialized products where, again, distance to markets is a less significant barrier.

14.7.4 Changing Modes of Transportation for Agricultural Commodities

This challenge applies in particular to the evolving situation with respect to the transportation of grain in Minnesota. Here, the situation is not unlike that being experienced in the Western provinces – rationalization of rail lines is increasing the burden on roads, particularly local rural roads. Transportation prices for farmers are generally increasing while grain prices are volatile. Local municipalities are facing increasing road maintenance and upgrading costs because of increasing commercial traffic. Local municipalities are hard-pressed to pass increasing costs to local taxpayers,

many of whom are farmers, because there are limits to their ability to pay. One reality which may differentiate this situation from that in the Canadian West is the reality that state governments already contribute more to local roads than is the case in most of the Canadian provinces.

14.8 Other Trends Affecting Rural Roads in the Comparative States

14.8.1 Well-Established Performance Measurement Programs

All of the states included in this analysis have well-established performance measurement programs, at least within the state departments of transportation. The extent to which performance measurement is used by local government roads departments is unclear. However, given the heavy degree of state involvement in local roads, both through funding and through planning and other support activities, it is likely that performance measurement is a routine component of local road administration. Performance measurement activities have the *potential* to reduce and ameliorate local rural road issues *if* they possess the following characteristics:

1. The performance measures at the local level are suited to local level requirements, operations, and administration.
2. The performance measures are appropriate, measurable, and manageable.
3. Performance measurement is carried out and conducted in accordance with the measurement procedures that have been established.
4. The results of the performance measurements are translated into action in addressing inadequacies.
5. The road budget allows inadequacies to be addressed within a reasonable timeframe.

Without these characteristics, performance measurement is nothing more than a bureaucratic exercise draining time and money away from the maintenance of the road system.

14.8.2 Concerns About the Condition of Rural Roads and Bridges in the Comparative States

Much of the information in this analysis has come from federal and state sources. This comparative analysis has not benefited from the luxury of a primary survey of road user groups, as was the case for the research conducted on rural roads within Ontario. However, there is some information regarding rural road stakeholder opinions on the condition of rural roads and bridges, and some broader national level information

regarding rural road and bridge conditions. Unfortunately, given its fragmentary nature this information is somewhat confusing.

Rural road users in all of the states have expressed concern about the quality and condition of roads and bridges. However, there has been significant recent change in road transportation across the United States. Part of this change has resulted for a renewed interest in transportation generally, and road transportation specifically, by the U.S. federal government. This renewed interest is manifested in TEA-21, a federal transportation bill that came into law in 1998 (STPP, 1998). TEA-21 evolved from the 1991 Intermodal Surface Transportation Act (ISTEA), but TEA-21 includes several enhancements over its predecessor.

Very simply put, TEA-21 represents renewed federal commitment to substantial investment in all modes of transportation in the United States. While the overall funding commitment is large, it is subject to change as the federal fiscal situation changes and as federal policy evolves (with changes in government, for example). In addition, yearly commitments are actually modest in comparison to existing federal funding for transportation.

TEA-21 has its critics, and undoubtedly there are many criticisms that could be levelled against it. Most of the details are beyond the scope of this report. However, it is significant here for two reasons. One is that it does represent additional funding for roads. While this additional funding may not be applied directly to rural roads, the additional overall funding room it provides to the state governments may have indirect positive influence on local roads. The second reason TEA-21 is significant is that it represents an overall shift in policy with respect to road transportation. Many of the limited number of criticisms of local and state roads discovered in this research were written in the late 1990's, before TEA-21 or early in its implementation. While much more in-depth research would be required, one has the sense that at least some of the issues mentioned in road criticisms have been resolved or are in the process of being resolved. In fact, where the information is available, road and bridge condition data for local and state roads in the comparative states suggest that significant improvements have been made in reducing deficiencies since the late 90's.

It is important to note that these improvements, if they have occurred and if they are significant, cannot be considered the exclusive result of TEA-21. However, the accompanying shift in policy with respect to transportation has undoubtedly influenced any gains that have been made. In many ways, the comparative states may have been in the position that Ontario and other provinces are in now – facing seriously degraded transportation infrastructure, including rural roads, with no immediate plan of action for significant amelioration. In the comparative states, TEA-21 and the accompanying policy shift (at all levels) was at least one factor in making some gains with respect to their road infrastructure.

Finally, one has to acknowledge that TEA-21 owes whatever success it has achieved, in no small way, to the fact that the federal government has returned to a fiscal surplus situation.

14.9 Summary and Conclusions of the State Comparative Analysis

14.9.1 Summary

Generally, the states discussed here benefit from a number of factors, including the following:

1. State government expenditures on transportation as a whole averaged approximately 9.5% of the total state budget in 1999. This compares to Ontario's 3.3% of the total budget. It does not follow that these state expenditures are adequate or appropriate, or that Ontario's expenditures are inadequate or inappropriate. However, the higher expenditure level in the states suggests that the overall level of funding by the states for roads (remembering the significant state investment in local roads) is higher than is the case for Ontario. One would assume that in general, road conditions should be better and the backlog of capital improvements lower, than is the case for Ontario. As already stated, there is considerable variation in all of the road characteristics across the comparative states, including characteristics of the rural local road network.
2. Regardless of the level of state transportation expenditure, the fact that fuel tax revenues in the states are directly channeled into road maintenance and construction, including at the local level, is a significant improvement over Ontario (and the other provinces). If nothing else, road users, both individuals and commercial users, are assured that the user fees that motor fuel taxation represents is being applied to a government expenditure related to the use being taxed – this is certainly not the case in Ontario or elsewhere in Canada.
3. State and local governments benefit directly and indirectly from the substantial involvement of the federal government in road transportation. Direct federal funding for rural local roads is very limited, but the senior government exerts a positive influence on local roads by substantially supporting the state level, and by investing in technical and administrative innovation and research. Finally, just the extensive amount of data collected and analyzed by agencies such as the FHWA benefits road administration and management across all jurisdictions.

14.9.2 Conclusions

A number of conclusions can be drawn from this comparative analysis, in spite of its rather superficial nature. These conclusions include the following:

1. None of the individual states serves as the basis for good comparison with Ontario. However, as a whole the group provides an adequate basis to make some preliminary comparisons based on the state criteria for selection.
2. There is tremendous variety between the chosen states with respect to demographics, economic activity, and road network and road expenditure characteristics.
3. While the breakdown of the jurisdictional structure for the administration of roads in the comparative states is similar to Ontario, the relationship between government levels is significantly different. The federal government is much more involved in both the administration and funding of roads at the junior level. Administratively, the federal government plays an important role in the collection of statistical data (through the FHWA), in the dissemination of technology and best practices, and in influencing overall transportation policy. The state governments directly fund local roads, at least in part, and most possess one or more programs aimed at improving local roads. In addition, state governments play an important and active role in both land use and transportation planning – activities that have a direct bearing on local road maintenance and development.
4. While informed opinion on actual rural road condition is scarce in this research, one can tentatively assume that conditions have not reached the crisis level currently experienced in Ontario (at least as perceived by survey respondents). Furthermore, one has the sense that conditions have improved in the recent past. Finally, the states and local governments appear to benefit from more funding (which is arguable) and appear to benefit more from intergovernmental co-operation and information sharing.
5. Any attempt to take analysis beyond the superficial level represented here would require considerable in-depth secondary and primary research. Undoubtedly, more can be learned about the U.S. experience with rural roads that may be of use in understanding and ameliorating rural road issues in Ontario.

14.10 Implications for Rural Roads in Ontario

It is possible to draw some implications for rural roads from the research conducted on the rural road situation in the comparative states. These implications include, but are not limited to, the following:

1. Improving rural road conditions takes significant funding – funding which goes beyond the capacity of the local tax base to provide.

2. State (Provincial) and local governments benefit from dedicating fuel tax revenues to roads, even if the benefits to local governments are indirect.
3. Roads at all levels benefit from a strong federal government involvement, be it through strong policy guidance, technology transfer, statistical and information management, funding, or some combination of these roles.
4. Local governments benefit from roads-related assistance from the state (provincial) level, whether in the form of planning, technology transfer, technical assistance, funding, or some combination of these roles.

15 Summary and Conclusions

15.1 Summary

This document has presented findings from a scan of rural roads in Ontario. The research was initiated with two fundamental assumptions. The first assumption was that there was a need to update and provide information on the current “state of affairs” with respect to rural roads in Ontario. The second assumption was that there *are* issues or concerns with respect to the present condition of Ontario’s rural roads. This second assumption was based on anecdotal evidence suggesting that road users of all types were concerned about the condition on Ontario’s rural roads, and concern that the rural road network was under stress and deteriorating. Furthermore, it was assumed that rural road conditions are, or will soon be, having a negative impact on economic and social activity in rural Ontario. For example, whereas a bridge that has been put under severe restrictions or even closed may be an inconvenience to a transient motorist, for the farm families living on that stretch of road, the resulting impact on their livelihoods and social interaction might well be devastating.

Research activity began with the identification of key rural road user groups. Preliminary examination of current issues was achieved through direct contact with these stakeholders and through a review of literature produced by these groups. This literature included press releases, policy papers, budget submissions, and research papers, from which it was possible to identify a number of broad issues and areas of concern. In turn, preliminary issues were these were used to craft comprehensive mail-out questionnaires targeting not only the user group organizations and their components, but also other organizations and groups potentially concerned with Ontario’s rural roads.

The combined results of these surveys produced a considerable volume of basic statistical information (closed responses) and detailed qualitative information (open responses) based on the informed opinion of respondents. The analysis of quantitative information data has been depicted in simple charts, while the qualitative information has been synthesized and presented as themes of interest and/or concern for each of the survey groups.

The survey results, for the most part, confirmed original assumptions about current rural road issues in Ontario. In addition, information gleaned from surveys has tended to provide detail about the scope and relative importance of road issues. Finally, the survey has allowed for the preliminary identification of differences in rural road issues that exist at several different levels. These include regional differences, differences between municipal levels (upper and lower tiers), differences based on population, differences between user-groups with respect to the importance of issues and, to some extent, differences in the perception of the cause and effect relationships between the major rural roads issues.

Concurrent with the survey process, the author provided context for the current situation in Ontario, by conducting a comparative scan of the rural roads situation in the other Canadian provinces, conducting a similar scan of selected American states, and examining, where appropriate the roles, responsibilities, and influences of the federal levels of government in each country.

Finally, the author conducted a brief examination of the role and limitations of innovation as a means of ameliorating or preventing rural road issues.

15.2 Conclusions

This research has employed a scanning methodology, and as such, it represents an overview of the current rural road situation in Ontario, and the context under which this situation has developed and continues to develop. In harmony with this approach, the conclusions that may be reached are broad and serve best to guide further research and broad policy discussion. The array of potential conclusions is also large, so those suggested here comprise a subset of the total implications that may be drawn from this research. Some of the broad conclusions derived from this scan include the following:

15.2.1 Rural Road Issues and Concerns in Ontario

1. There are significant issues and challenges faced by both rural road users, and rural road service providers. A pitfall of scanning type research is that it can be biased by a relatively small number of actors who hold a particular stake in the outcome, and whose primary role is one of advocating for changes to a system regardless of its actual condition. However, both the secondary literature and the primary information resulting from the surveys, is such that it is difficult for one to question the validity of at least some concerns with respect to rural roads. Enough user groups and other organizations have identified essentially the same issues and concerns that the overwhelming suggestion is that Ontario's rural road situation is one of crisis.
2. Rural road issues in Ontario cannot be viewed in a vacuum. In part at least, they are a result of policy and change at all three levels of government. The same user groups who identified significant concern with rural roads in Ontario have also been identifying issues with the province's highway system and drawing attention to their perception of the lack of federal investment in nationally important highways across the country. In general, these stakeholders would argue that a shift in mentality is needed with respect to road investment from the two senior levels of government. A shift that, in their view, would ultimately benefit rural local roads because inadequacies would be recognized and a holistic (i.e. the entire road network) viewpoint would be developed.

3. Issues, concerns, and challenges identified by stakeholders cut across all facets of rural road operation, maintenance, and construction. These include, but are not limited to, topics such as:
 - a. Road deterioration
 - b. Deterioration in maintenance activities and budgets
 - c. Issues with rural road safety
 - d. Concerns over highway transfers from the province
 - e. Concerns over municipal road maintenance standards
 - f. Deteriorating bridges
 - g. Conflicting usage of rural roads
 - h. The economic impacts of road deterioration on all sectors
4. The Ontario rural road issues identified in this research are characterized by broad consensus or similarity across both groups representing road users and groups representing road service providers (municipalities and the various municipal associations). However, there are differences among these groups in the perception of the importance of issues and in the perception of the cause and effect relationships that exist between issues.
5. The single dominant issue with respect to rural roads in Ontario is lack of funding. Most respondents in most groups have indicated that more funding is needed to address and ameliorate existing road issues and to adequately maintain rural roads over the long-term.
6. The funding issue is complex. Rural municipalities appear to have little room to maneuver in attempting to direct more revenue to rural road maintenance. This situation has been exacerbated by provincial-municipal realignment in the province, and the corresponding withdrawal of most direct provincial funding for local roads. Municipalities and user groups have almost universally called for the dedication of some portion of provincial fuel taxes to local road maintenance expenditures. The province continues to resist such a dedication. Compounding the problem is the reality that any redirection of fuel tax revenues to roads, whether provincial or local, would require significant adjustment to the funding of other provincial services. This reality exists because current fuel tax revenue, which is significant, is directed into the province's general funds where it is used in a wide variety of expenditures. Finally, innovative funding arrangements that are applicable at the provincial or large urban level are not suitable for application to rural road funding.

15.2.2 Comparative Analysis: Other Canadian Provinces

There are similarities and differences between Ontario and the other Canadian provinces with respect to the current “state of affairs” with rural roads and with respect to the range and extent of rural road issues. The provincial comparative analysis reveals the following conclusions:

1. Preliminary evidence suggests that the Western provinces in general, and Saskatchewan (and perhaps Manitoba) have the most in common with Ontario in terms of the perceived seriousness of rural roads issues. The issues in these provinces are often related to the change in federal government policy with respect to the transportation of grain. This policy shift has resulted in significant restructuring and consolidation in the Western rail sector and increased transportation costs. One outcome of this policy shift is a significant increase in commercial traffic on rural roads. Rural municipalities, particularly in Saskatchewan, are facing increased maintenance costs simultaneous with agricultural stress and often out-migration. These factors are undermining the ability of local rural municipalities to adequately maintain their road networks.
2. All the provinces are concerned about the extent of federal government investment in road transportation. While this investment debate is primarily concerned with highways of national significance, the issue has implications for roads at the provincial level for at least two reasons. One is that significantly increasing federal investment might potentially free provincial revenues for provincial and local roads. The second is that federal policy could lead resurgence in road investment, as has been the case in the United States with ISTEA and TEA-21.
3. In most provinces there is a significant desire by local governments and user groups to have federal and provincial fuel tax revenue directed to road maintenance at all levels.
4. Rural road issues appear to be less significant in the Atlantic Provinces.
5. Most provinces have undergone provincial-municipal realignment and municipal restructuring in recent years. In some cases, these changes have predated the change in Ontario. In others, these changes are still being studied and implemented and the situation is evolving. However, it does not appear that the other provincial governments have withdrawn from their involvement in local roads to the extent that has occurred in Ontario. In addition, in at least one instance, the realignment process has resulted in changes that are opposite to the situation in Ontario. This instance is Alberta, where some county roads, serving essentially as secondary highways, have actually been taken over by the province, thus freeing local government resources to better maintain other local roads. There are examples (as in British Columbia) where provincial to local highway transfers have occurred similar to recent events in Ontario. There is no clear indication whether these transfers have resulted in the same debate regarding road condition and the adequacy of transfer funding arrangement.
6. Unfortunately, research into the rural roads situation in Quebec, potentially one of the most similar situations to that of Ontario, was hampered by the language barrier and little information was gathered for this province.

15.2.3 Comparative Analysis: Selected American States

The scan of selected American states revealed some similarities and significant differences in the rural roads situation with Ontario and between the United States and Canada generally with respect to rural roads funding and administration. These similarities and differences include the following:

1. The degree to which the chosen states are similar to Ontario varies considerably. All have at least some major characteristics in common with this province, be it climate, population, economic make-up, or the variety of topographic regions.
2. In general, the states appear to spend more on roads, including local, roads per capita than is the case in Ontario.
3. Perhaps the most significant difference between Canada and the United States is the fact that both the federal and state governments (at least those examined here) direct the bulk of their fuel tax revenue to road related expenditures.
4. Although the evidence is more abundant at the national level, there has been criticism of rural roads in the United States. Much of the limited information gathered in this research suggests that criticism of rural road condition and maintenance may have declined since the passage of the federal TEA-21 transportation bill. Though less significant, in terms of additional funding, than first appearances suggest, this bill and its predecessor (ISTEA), represents leadership by the federal government with respect to road transportation – an influence that reaches the state and local government levels. In general, one has the impression that road funding has rebounded somewhat in the states included here and in the U.S. generally. This is not to suggest that rural road issues do not exist. For example, there is evidence to suggest that the westernmost comparative state, Minnesota, is facing issues similar to those experienced in the western provinces. All of the states also appear to be struggling with issues on the urban-rural fringe – issues experienced in Southern Ontario.
5. Federal and State support and involvement with respect to rural roads is significant, and it extends beyond funding. Rural areas in many, if not all of the states, benefit from extensive state-local co-operative planning in land use, economic development, and transportation. In addition, there appears to be significant technology transfer from the federal government, to the states, and to local governments. In general, one has the sense that road transportation is viewed more holistically than is the case in Ontario and Canada.

15.2.4 Data and Information Availability

This scan of rural roads has been broad, both in terms of the rural roads topics discussed and in terms of the geographic areas included for context. All of the subtopics included in this research would benefit from more in-depth and specific study. However, this research reveals several important limitations and considerations regarding the availability of rural road related data and information. These include the following:

1. It is extremely difficult to obtain economic data across provinces that are consistent in terms of how it has been collected, analyzed, and presented. Provincial budget data presents similar challenges. Local government data either does not exist, or differs in the type of data collected and/or the most recent year available.¹⁵
2. In contrast, road-related data available for the United States, including the local level, is extensive – almost overwhelming. Much of this information is synthesized and analyzed by the Federal Highway Administration (FHWA), an arm of the federal department of transportation.¹⁶ However, state and local governments play a significant role in this data gathering because they actually collect the necessary information and pass it on the FHWA. One could argue that Canada and the provinces could learn from U.S. practice with respect to road related data gathering. In the U.S., the federal role is vital. All of the information used in this report, including FHWA data is freely available on the Internet. While acknowledging the considerable cost that this information collection and analysis must represent, something similar would surely benefit a country like Canada where road transportation is so vital to the nation's economy. While Transport Canada collects considerable information, statistics like those in the United States do not appear to be available. One offers this criticism cautiously, acknowledging the efforts of organizations such as the Ontario Good Roads Association, which has expended considerable effort in collecting and standardizing municipal road data in Ontario. However, even this information is not publicly and freely available.

15.3 A Final Comment

Both users and providers of Ontario's rural roads face some significant challenges. Demand is increasing at the same time rural municipalities face severe constraints on their ability to maintain and upgrade their road networks. While more money may not

¹⁵ Municipal financial statistics were found for four provinces: British Columbia, Alberta, Ontario, and New Brunswick. While all had significant amounts of useful data, comparison between them would have involved great effort to ensure the comparison of like characteristics. Consequently this information was not used in the current analysis.

¹⁶ There are other agencies and groups that play a significant role in gathering and analyzing road information in the United States. Taken together, these agencies and groups produce a large volume of useful data and information.

directly address all of the concerns, issues, and problems identified in this scan, it appears that rural municipalities need access to more funding. Furthermore, any new funding source needs to have stability such that rural municipalities can plan for the kind of medium and long-term maintenance and reconstruction programs that will significantly improve the condition of Ontario's rural roads.

16 References

- Bradley, The Hon. Judy, Saskatchewan Highways and Transportation; Hon. Glen Findlay, Manitoba Highways and Transportation; Hon. Harry Lali, British Columbia Transportation and Highways; Hon. Walter Paszkowski, Alberta Transportation and Utilities. 1999. Western provinces' response to the Estey Report. Letter. February 8th.
- B.C. Ministry of Finance and Corporate Relations. 2000. 2000/01 Estimates.
- Ministry of Municipal Affairs. 2000(?). *Managing Changes to Local Government Structure in British Columbia: A Review and Program Guide*. Prepared by the Local Government Structure Branch for the Local Government Restructure Program. Published on the World Wide Web and available at: www.marh.gov.bc.ca.
- BC STATS (Ministry of Finance & Corporate Relations). 2000. Employment by Industry (based on NAICS) for British Columbia: 1987 – 2000.
- B.C. Ministry Of Transportation And Highways. 2000a. *Federal Highway Funding: How much has been spent in British Columbia in recent years?* Transportation Topics. No. 8. Published on the World Wide Web and Available at: <http://www.th.gov.bc.ca/bchighways>. November.
- . 2000b. Lali to urge for federal transportation funding Communications Branch press release. Published on the World Wide Web and Available at: <http://www.th.gov.bc.ca/bchighways>. October 2nd.
- Brown, Dennis M. *Will Increased Highway Funding Help Rural Areas?* Prepared for the Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin Number 753.
- Burgess, Patricia and Thomas Bier. 1998. *Public Policy and "Rural Sprawl": Lessons from Northeast Ohio*. A working paper prepared for the Lincoln Institute of Land Policy.
- Canada. Secretary of State (Rural Development). 2001. *Building our future together: Rural Action Plan*. The National Rural Conference. April.
- Canadian Taxpayers Federation (CTF). 2000a. Tax Rates by Province – 2000.
- . Canada's gas taxes = highway robbery. Report on a national study prepared for the 2nd Annual Gas Tax Honesty Day May 18, 2000. Published on the World Wide Web and available at: www.taxpayer.com.
- Canaran, Naserine. 1996a. OGRA's leadership in municipal transportation. *Municipal World*. June.
- . 1996b. Pay for your say or stay out, mayor tells province. *Municipal World*. June.

- Crockatt, Michael A. and Dr. Barry E. Prentice. *Infrastructure Banks: Innovative Financing For Tapped-Out Transport Budgets*. Prepared for the Transport Institute, University Of Manitoba.
- Desana, James. 1997a. Rationalization Process Makes Sense for Michigan's Roads A letter by the Director of the Michigan Department Of Transportation.
- , 1997b. The ABC's Of Competition and Privatization. A letter by the Director of the Michigan Department Of Transportation.
- Dittmar, Hank and Donald D.T. Chen. 1966. *Crying Wolf*. Published by (Surface Transportation Policy Project) STPP. Revised: Second Edition October.
- Federal-Provincial-Territorial Working Group on Private-Public Partnerships. 1999. *Context of Private-Public Partnerships for Highways In Canada*. March.
- Federation of Canadian Municipalities (FCM). 2000. Resolution on national transportation. As presented June 2000, FCM Annual Conference.
- Fuller, Anthony M. 1994. *Sustainable Rural Communities in the Arena Society*. In, John M. Bryden, editor, Towards Sustainable Rural Communities: The Guelph Seminar Series.
- Heggie, Ian G. 1999. *Cost Sharing Arrangements Used By Selected Local Government Road Agencies*. Prepared for the Transport Institute, University of Manitoba. March.
- Hicks, Brian. 1996. *A Historical Look At The Federal Government's Involvement In Highway Infrastructure*. Technical Paper No.12799e. Transport Canada - Highway Policy And Programs Branch, Special Infrastructure Project. June.
- Institut de la statistique du Québec. 2001a. Gross domestic product at factor cost by industry, at 1992 prices, seasonally, February 2001. Direction des comptes et des études économiques. May 22.
- , 2001b. Gross domestic product at factor cost by industry, at 1992 prices, seasonally, January 2001. Direction des comptes et des études économiques. April 27.
- Johnson, Kenneth M and Calvin L. Beale. 2001. *The Rural Rebound: Recent Nonmetropolitan Demographic Trends in the United States*. Prepared for Loyola University-Chicago, Chicago, IL; and the U.S. Department of Agriculture, Washington, DC.
- Kirbyson, Brad. 1999(?). *National Transportation Investment Strategy (NTIS)*. Prepared for the Association of Manitoba Municipalities.

- Melville, Jim. 2000. Vanclief announces federal funding for Saskatchewan highways. Prairie Farm Rehabilitation Administration. Press Release. June 16.
- Merrall, Dennis. 1997a. OGRA asks for municipal access to new revenue source. *Municipal Routes*. 43 (April).
- . 1997b. Glimmer of hope in highway transfers. *Municipal Routes*. 42 (March).
- Michigan Department of Finance. 1999. Fiscal Year 1999 Budget Department Budget Schedules.
- Minnesota Department of Finance. 1998. The Governor's 1998-2003 Strategic Capital Budget Plan Executive Summary and Requests for Each Agency. January. Published on the World Wide Web and available at: <http://www.finance.state.mn.us/bis>.
- Michigan Department of Transportation (MDOT). 1999. Transportation Funding Made Easier. Published on the World Wide Web and available at: www.mdot.state.mi.us.
- Minnesota Department Of Transportation (MnDOT). 2000. Moving Minnesota From 2000 to 2020: Minnesota Statewide Transportation Plan. January. Published on the World Wide Web and available at: www.dot.state.mn.us.
- . 1999. Agency Capital Budget Request - Fiscal Years 1998-2003. Published on the World Wide Web and available at: www.dot.state.mn.us.
- . 1998. Minnesota Transportation Trends (Power Point Presentation). Published on the World Wide Web and available at: www.dot.state.mn.us.
- . 1997. Local Roads (Power Point Presentation). Published on the World Wide Web and available at: www.dot.state.mn.us.
- National Association of Development Organizations (NADO). 1999(?). *Minnesota's Regional Development Program*. Published on the World Wide Web and available at: <http://www.nado.org>.
- New York Department of Transportation (NYDOT). 1999. STIP – Statewide Transportation Improvement Program, Summary For Federal Fiscal Years October 1, 1999 - September 30, 2002.
- . 1998. Department Budget 1998-1999.
- New Brunswick Department of Finance. 1999(?)a. New Brunswick Budget 1999-2000.
- . 1999b. The New Brunswick Economy – 1999: A Report to the Legislative Assembly. Published on the World Wide Web and available at: www.gov.nb.ca/finance. February.

New Brunswick Department of Transportation. 1999(?). *Transportation in New Brunswick: Annual Report*. Published on the World Wide Web and available at: www.gov.nb.ca/transportation.

Newfoundland and Labrador Federation of Municipalities. 2001. Presentation to Canada Transportation Act Review Panel. February.

North Central Transportation Planning Committee. 1998. A submission to Justice Willard Estey, Grain Review Secretariat.

Nova Scotia Department of Finance. 1999. Nova Scotia Statistical Review. Statistics Division. December. 16th Edition. Published on the World Wide Web and available at: <http://www.gov.ns.ca/finance/statistics>.

Obee, William. 1997. Maintenance standards for municipal roads and bridges. *Municipal Routes*. 45 (June).

The Ohio Office of Budget and Management Division of State Accounting. 1999. State of Ohio The Ohio Budgetary Financial Report for the Fiscal Year Ended June 30, 1999.

Ohio Department of Transportation. 2000(?). Department of Transportation. Fy 2000 - 2001 Budget Appropriations By Fund. [H.B. 163 (Highway) and H.B. 283 (Grf)].

Olson, Paul M. 2000. *Smart Growth Needed in Rural Minnesota*. Commentary by the Blandin Foundation president.

Ontario Ministry of Transportation (MTO). 1998. Maintenance 2001 Project - Second Year of Operation, 1997-1998 Season. Fact Sheet.

Ontario Ministry of Transportation (MTO). 1999. Maintenance 2001 Project - Third Year of Operation, 1998-1999 Season. Fact Sheet.

Ontario Ministry of Transportation (MTO). 2000. Maintenance 2001 Project - Third Year of Operation, 1999-2000 Season. Fact Sheet.

Ontario Trucking Association (OTA). 1998. Why a competitive and productive trucking industry is essential to the Ontario economy.

-----, 1997. National highway study reconfirms roads and truckings' importance to the future of Canada. May.

Pennsylvania Department of Community and Economic Development. 2000. *Shared Municipal Services Program*. Published on the World Wide Web and available at: www.state.pa.us. September.

Prince Edward Island Department of The Provincial Treasury 2000. *Twenty-Sixth Annual Statistical Review 1999*. Prepared by the Economics, Statistics And Federal Fiscal Relations Division. May.

Richardson, Sheila. 1997. OGRA asks for municipal access to new revenue source. *Municipal Routes*. 42 (March).

Rogers, Carolyn C. 1999. *Growth of the Oldest Old Population and Future Implications for Rural Areas*. Rural Development Perspectives, vol. 14, no. 3.

Saskatchewan Association Of Rural Municipalities (SARM). 1998. SARM advised no more money for rural roads in 1998. Press Release. April 24th.

Saskatchewan Bureau of Statistics. 2000. Saskatchewan gross domestic product at market prices, consolidated income account 1990-1999. Saskatchewan Provincial Economic Accounts 2.0.. Published on the World Wide Web and available at: www.gov.sk.ca/bureau.stats. November.

-----, 1999. *Economic Review 1999*. Published on the World Wide Web and available at: www.gov.sk.ca/bureau.stats. December: Number Fifty-Three.

Government of Saskatchewan. 2000. Saskatchewan gross domestic product at market prices, consolidated income account 1990-1999. Saskatchewan Provincial Economic Accounts 2.0.

Government of Saskatchewan. 1998. *Impact of Grain Truck Hauls on Saskatchewan Roads: A Submission By The Government of Saskatchewan to the Estey Grain Review Phase II*. This Submission was based on research conducted, and a report prepared by Ray Barton Associates. September 29.

Saskatchewan Ministry of Highways And Transportation. 2000. Sonntag calls on feds to fund rural roads. News Release. June 23.

Saskatchewan Ministry of Municipal Affairs. 2000. *Municipal Governance for Saskatchewan in the 21st Century. Options 2000: A Framework for Municipal Renewal*. Task Force on Municipal Legislative Renewal: Summary of final reports. August.

Smither, Michael J. 1996. "Who Does What" panel –wide ranging recommendations. *Municipal World*. (December).

South Central Transportation Planning Committee (SCTPC). 1998. Submission to the Review of the Grain Transportation And Handling System. April.

Statistics Canada. 2000. *Canada at a Glance: 2nd Edition*.

- Statistics Canada. 2000(?) BC Real GDP at Factor Cost 1984-1999: System of National Accounts. Catalogue no. 15-203-XIB
- Statistics Canada. 1999(?) Urban and Rural Population Counts, for Provinces and Territories, 1996 Census - 100% Data.
- Statistics Canada. 1999(?). Farm Population, 1991 and 1996, All Provinces. Census of Agriculture - Population, Catalogue No.93F0038XIE.
- Summers, Diana. 1996. OGRA responds to transportation issues in Bill 86. *Municipal Routes*. 33 (Jan/Feb).
- SG Hambros. 1999a. *Public-Private Partnerships for Highways: Experience, Structure, Financing, Applicability and Comparative Assessment. Objective One - Final Report*. Prepared for the Council of Deputy Ministers Responsible For Transportation and Highway Safety. March.
- , 1999b. *Public-Private Partnerships for Highways: Experience, Structure, Financing, Applicability and Comparative Assessment. Objective Two Final Report*. Prepared for the Council of Deputy Ministers Responsible for Transportation and Highway Safety. March.
- , 1999c. *Public-Private Partnerships for Highways: Experience, Structure, Financing, Applicability and Comparative Assessment. Objective Three Final Report*. Prepared for the Council of Deputy Ministers Responsible for Transportation and Highway Safety. March.
- National Highway Policy Update Project Steering Committee. 1998. *The National Highway System: Condition and Investment Needs Update 1997*. Prepared for the Council of Ministers Responsible for Transportation and Highway Safety.
- United States Department of Agriculture (USDA). 1998. *The Future Adequacy of Rural Roads*. In, *Agricultural Transportation Challenges for the 21st Century: A Framework for Discussion*. This is a discussion paper prepared by USDA staff prior to the summit by the same name.
- , State Agricultural Statistics Services (All states); USDA, National Agricultural Statistics Service. 1997. *Census of Agriculture State Profiles*. Published on the World Wide Web and available at www.usda.gov/nass.
- U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Analysis Division. *Gross State Product Data (All comparative states)*. September.
- United States Department of Transportation. Bureau of Transportation Statistics. 2000. *National Highway Statistics, 1999*.

-----, 1999. *National Highway Statistics, 1998.*

-----, 1998. *National Highway Statistics, 1997.*

United States Department of Transportation. Federal Highway Administration (FHWA).
2001. *Your State's Share: Attributing Federal Highway Revenues To Each State.*

----- 1999. TEA-21 Delivers: One-Year Anniversary. June.

-----, 1999. *Highway Statistics 1998.*

-----, 2000. *Highway Statistics 1999.*

Walzer, Norman and Steven C. Deller. 1996. *Rural Roads and Bridges: Condition and Status of Roads.* Prepared for: Illinois Institute for Rural Affairs Western Illinois University, Macomb, Illinois; Department of Agricultural Economics; University of Wisconsin, Madison, Wisconsin; United States Department of Agriculture, Agricultural Marketing Service, Transportation and Marketing Division. September.

Wisconsin Department of Administration, Division of Executive Budget and Finance. 1999. State of Wisconsin Budget in Brief. February. Published on the World Wide Web and available at:

17 Appendix A: OSTAR Funding Details

Public health and safety is OSTAR's priority in the first round of investments.

In the first OSTAR funding round, the government's top priority will be investing in projects that address public health and safety.

Who may apply?

All upper and lower tier municipalities in Ontario may apply, except for the municipalities in the Greater Toronto Area, the new City of Hamilton, the Region of Waterloo, the new City of Ottawa, the new City of Greater Sudbury, the Region of Niagara, the City of Thunder Bay, the City of London and the City of Windsor. These large urban areas will be eligible for SuperBuild's Millennium Partnerships initiative. Notwithstanding the ineligibility of large urban areas, municipalities with a population of less than 100,000 in any of the regional municipalities in the Greater Toronto Area or in the other eight large urban areas listed above are eligible to apply to OSTAR. Local Services Boards in Northern Ontario are also eligible to apply. In some circumstances, the lead applicant may be a non-governmental or private sector organization rather than the municipality itself. In these situations, the municipal council must endorse the application as its highest public health and safety priority.

Through OSTAR, the province will:

- Help municipalities improve infrastructure in Ontario's agricultural and rural areas, small towns and small cities
- Solve infrastructure problems with a focus on health and safety priorities (health-related water and sewer projects, bridges)
- Encourage wider scale infrastructure projects and inter-municipal cooperation
- Invest senior government funding to help municipalities with ability to pay challenges

OSTAR Criteria

To qualify for provincial investment, proposals must demonstrate:

- There is a demand or need for the project
- Specify the condition of the existing asset
- The cost-efficiency of the infrastructure solution proposed
- The quality of the financial plan, including a plan to recover full operating and capital costs through service charges where appropriate

Other considerations:

- Amount of private or other public sector partner contribution
- Innovation – new and better ways of providing infrastructure (e.g. inter-municipal projects)
- Strong financial and long-term management plan

- Priority projects identified by Ministry of the Environment inspections will automatically be treated as the municipality's top priority
- Each municipality's ability to pay will be considered when determining the appropriate provincial funding share
- Proposals must focus on investments that improve economic development and quality of life with a focus on health and safety priorities. Examples may include:
 - Water and sewage
 - Municipal bridges
 - Municipal dams and storm sewers
 - Roads, bridges, and ferries - important economic and regional links

18 Appendix B: Survey Questionnaires

The following three survey questionnaires are representative of the mail-out surveys. The full survey mail-out included questionnaires for municipal associations (very similar to the municipal questionnaire), questionnaires for the agricultural federations (which were very similar to the agricultural and agri-business questionnaires) and questionnaires for chambers of commerce (which were similar to those for economic development and tourism).

18.1 Rural Roads Survey – Municipal Questionnaire

Rural Roads: For the purpose of this research, "rural roads" are considered those that are not in urban areas and are not part of the provincial highway system (recently transferred highways in rural areas are considered rural roads). Essentially rural roads are township, county, and non-urban regional roads.

A. General Information:

1. What is the total length of your road system?
2. Of the total, approximately how many kilometres would you consider rural?
3. How many kilometres are:
 - Asphalt:
 - Improved Surface:
 - Gravel:

B. Municipal Restructuring:

(Upper-tier municipalities – please comment on your jurisdiction in general. Lower-tier municipalities, please comment on your local experience):

4. Has your municipality been involved in (or discussed) municipal amalgamations and/or restructuring of services?
 - Yes No
5. If yes, were road expenditures, road rationalization, levels of service standards, etc. part of the discussions?
 - Yes No
6. If amalgamations resulted from restructuring discussions, were savings realized in road service provision?
 - Yes No Not Sure Too Early to Tell
7. If road service responsibilities were restructured outside of, or in addition to, amalgamations, have road expenditures been reduced?
 - Yes No Not Sure Too Early to Tell
8. If expenditures have been, or are expected to be reduced, can you describe how this was/will be realized:
9. If you expected expenditure savings, but these have not been realized, can you explain why?
10. Are further amalgamations or service restructuring under consideration?
 - Yes No Not Sure

C. Highway Transfers:

4. Were any provincial highway components transferred to your responsibility?
 Yes No
5. If yes, how many kilometres were transferred?
6. In what condition were these highways when your municipality took over responsibility?
 Excellent Good Poor Very Poor
7. Were you satisfied with the criteria used for determining highway transfers?
 Yes No No Opinion
8. In your opinion, was provincial compensation for highway transfers to your jurisdiction adequate?
 Yes No
9. If no, please explain why you feel the compensation was inadequate:
10. In your opinion, will maintaining, upgrading, and reconstructing transferred highway sections place an excessive burden on your municipality in the future?
 Yes No Not Sure
11. If you answered yes above, can you describe the challenges you expect to face:
12. Do you expect additional compensation or funding from the province to maintain transferred highway sections?
 Yes No Not Sure

D. Road Condition:

1. In general, how would you describe the condition of the rural road network under your jurisdiction:
 Excellent Good Fair Poor Very Poor
2. In the past ten years, have your road conditions significantly changed?
 Yes, Improved Yes, Deteriorated No Significant Change Not Sure
3. If you have seen significant change, why has this occurred?
 Provincial Programs
 Improved Tax Base
 Innovation in Administration, Maintenance Processes, etc.
 Other (please describe)
4. Do you expect your road conditions to change significantly in the next five years?
 Yes, improvement Yes, Deterioration No Significant Change Expected
5. Are you concerned about long-term funding to maintain and improve your road network?
 Yes No Not Sure
6. Do you think a portion of fuel-taxes should be dedicated to municipal roads in Ontario?

Yes No Not Sure

7. If you answered yes above, do you think this will ever be achieved?
 Yes No Doubtful Not Sure
8. Can you suggest alternative forms of provincial funding or provincial programs that would assist municipalities in maintaining and improving their rural roads?

E. Bridge Structures:

1. How many bridge structures are there in your road network?
2. How many bridge structures are in need of replacement or significant repair?
3. Are any bridge structures closed or under significant weight restrictions because of their current condition?
 Yes None
4. Are you concerned about funding needed bridge replacement and repair?
 Yes No
5. Are you able to keep up with needed bridge maintenance, repair, and replacement?
 Yes No Not Sure
6. Do you think there should be a provincial program for bridge repair and replacement?
 Yes No No Opinion
7. If you do think a provincial program is appropriate, how do you think it should be funded, and how should funds be disbursed?
8. How would you rate rural bridge structures as a priority in your jurisdiction?
 Very High High Medium Low Very Low

F. Road Standards:

1. How would you rate the new road maintenance standards in Ontario:
 Excellent Acceptable Flawed Unacceptable
2. If you have any concerns regarding the new standards, could you please describe them:

G. Safety:

2. Do you have any specific safety concerns about rural components of your road network?
 Yes No Not Sure
3. If you do have concerns please indicate their type and elaborate if possible:
 Traffic Volume Excessive Speed Surface Condition Visibility

Design Geometry Conflicting Use Intersections Other
(describe)

4. Do you think that your municipality has the necessary resources (funding, staff, etc.) to address these safety concerns?
 Yes No Not Sure

H. Economic Issues:

1. Is there currently greater movement of agricultural inputs and outputs on your rural roads than there was in the past?
 Yes No Not Sure
2. Are there currently a greater number of people using your rural roads to access tourism activities than there was in the past?
 Yes No Not Sure
3. Is there currently greater movement of other industrial inputs and outputs on your rural roads than there was in the past?
 Yes No Not Sure
4. If you are experiencing increased rural road usage, how is this affecting the administration and maintenance of your rural road network?

I. Innovation:

2. In managing your rural road network, have you recently employed any practices that you would consider innovative?
 Yes No Not Sure
3. If you answered yes, indicate and describe the type of innovative practice(s):
 Management/Decision-Making/Inventory Systems
 New Processes
 New Materials
 New Equipment
 Other

J. Other:

1. Please describe or comment on any other issues with respect to rural roads in your jurisdiction or in Ontario generally:

18.2 Rural Roads Survey – Agricultural Business

Rural Roads: For the purpose of this research, "rural roads" are considered those that are not in urban areas and are not part of the provincial highway system (recently transferred highways in rural areas are considered rural roads). Essentially rural roads are township, county, and rural regional roads.

A. Identification of Rural Roads Issues From Your Business/Industry Perspective:

- 1) What would you identify as the current pressing issues with respect to rural roads in Ontario generally, and/or your county/region/district specifically? Can you expand on these issues, and describe them?
- 2) Do you think the issues are being addressed in any way? If so, how? If not, what needs to be done?
- 3) Regardless of whether you have identified and issues, how would you rate rural roads as a priority for your industry:
 Very High High Medium Low Very Low
- 4) From your industry's perspective, is there evidence that municipalities are experiencing difficulty maintaining their rural road infrastructure because of a lack of dedicated funding?
 Yes No Not Sure
- 5) If you have seen evidence of this difficulty, can you describe it?

B. The State of Ontario's Rural Roads:

- 6) In your opinion, what is the general state of the rural road infrastructure in Ontario, and/or your region, county, or district?
 Excellent Good Satisfactory Poor Unacceptable
- 7) Has there been significant change to rural roads in your area in the past few years? Have they improved or deteriorated?
 Yes, improvement Yes, deterioration No significant change
- 8) What impact do you expect there to be on rural roads from the recent rural infrastructure-funding announcement?

C. Bridges:

- 9) In your opinion, what is the state or condition of bridge structures on rural roads in Ontario and/or your county, region, or district?
 Excellent Good Satisfactory Poor Unacceptable
- 10) What is the nature of any deterioration? Have any bridges been placed under new weight restrictions because of deterioration or inadequate maintenance?
- 11) Do you think enough is being done to maintain rural bridges over the long-term?
 Yes No Not Sure

- 12) If rural bridge upgrades and improvements are needed, in your opinion how should these be funded?

D. Safety Issues:

- 13) What do you think are the most pressing concerns around safety on rural roads? (Provide additional comment if you wish)

- a) Surface condition
- b) Visibility
- c) Winter maintenance
- d) Traffic Volume
- e) Conflicting Use
- f) Speed
- g) Signage
- h) Design geometry (e.g. hill gradients, curve geometry, sight lines, etc.)
- i) Other (please describe)

- 14) Has the level of safety changed recently? If so, in what ways(s)?

- 15) Do you expect conditions to improve or deteriorate in the short-term future?

Yes, improvement Yes, deterioration No significant change

- 16) Long-term future?

Yes, improvement Yes, deterioration No significant change

E. Economic Concerns:

- 17) Compared to the past (say 20 years ago), are agricultural operations in Ontario using rural roads for more movement within one farm operation?

Yes No

- 18) Is there currently greater movement of agricultural inputs and outputs on rural roads than there was in the past?

Yes No

- 19) Is the current state of Ontario's rural roads having a negative impact on the agricultural sector?

Yes No

- 20) If there is a negative impact, what is the nature of it? What can be done to reduce the impacts?

- 21) Is the current condition of roads impeding the economic success of other industries in rural Ontario?

Yes No

- 22) If there is a negative impact, what is the nature of it? What can be done to reduce the impacts?

- 23) What other concerns do you have about rural roads, road transportation, and the agricultural economy in rural Ontario?

18.3 Rural Roads Survey – Economic Development and Tourism

Rural Roads: For the purpose of this research, "rural roads" are considered those that are not in urban areas and are not part of the provincial highway system (recently transferred highways in rural areas are considered rural roads). Essentially rural roads are township, county, and rural regional roads.

There are many businesses in a wide variety of industrial sectors that depend on the rural network for the transportation of inputs and outputs, and the provision of services. Please consider the importance of the rural road network to industry or business in your area when responding to the following questions.

A. Identification of Rural Roads Issues From Your Business/Industry Perspective:

- 24) What would you identify as the current issues or concerns with respect to rural roads in your county, region, or district?
- 25) Do you think the issues are being addressed in any way? If so, how? If not, what needs to be done?
- 26) From your industry's perspective, is there evidence that municipalities are experiencing difficulty maintaining their rural road infrastructure because of a lack of dedicated funding?
 Yes No Not Sure
- 27) Do you think rural roads have been affected more by funding changes and the lack of a dedicated funding source, as compared to urban roads?
 Yes No Not Sure
- 28) If so, why have rural roads been affected more?

B. The State of Ontario's Rural Roads:

- 29) In your opinion, what is the general state of the rural road infrastructure in your region, county, or district?
 Excellent Good Satisfactory Poor Unacceptable
- 30) Has there been significant change to rural roads in your area over the past few years? Have they improved or deteriorated?
 Yes, improvement Yes, deterioration No significant change
- 31) What impact do you expect there to be on rural roads from the recent rural infrastructure-funding announcement?

C. Bridges:

- 32) In your opinion, what is the state or condition of bridge structures on rural roads in Ontario and/or your county, region, or district?
 Excellent Good Satisfactory Poor Unacceptable
- 33) What is the nature of any deterioration? Have any bridges been placed under new weight restrictions because of deterioration or inadequate maintenance?

- 34) In your area, do you think enough is being done to maintain rural bridges over the short-term?
 Yes No Not Sure
- 35) The long-term?
 Yes No Not Sure
- 36) In your opinion, what type of program is required to upgrade and improve rural bridge structures in general? How should this be funded?

D. Safety Issues:

- 37) What do you think are the most pressing concerns around safety on rural roads? (Provide additional comment if you wish)
- j) Surface condition
 - k) Visibility
 - l) Winter maintenance
 - m) Traffic Volume
 - n) Conflicting Use
 - o) Speed
 - p) Signage
 - q) Design geometry (e.g. hill gradients, curve geometry, sight lines, etc.)
 - r) Other
- 38) Has the level of safety changed recently? If so, in what ways(s)?
- 39) Do you expect safety conditions to improve or deteriorate in the short-term future?
 Yes No Not Sure
- 40) Long-term future?
 Yes No Not Sure
- 41) If you answered yes to either of the above questions, please describe your concerns:

E. Economic Concerns:

- 42) Is there currently greater movement of agricultural inputs and outputs on rural roads than there was in the past?
 Yes No
- 43) Is there currently greater movement of other industrial inputs and outputs on rural roads than there was in the past?
 Yes No
- 44) Is the current state of Ontario's rural roads having a negative impact on any particular businesses or industrial sectors?
 Yes No
- 45) If there is a negative impact, what is the nature of it? What can be done to reduce the impacts?
- 46) What other concerns do you have about rural roads, road transportation, and the economy in rural Ontario?