

**OVERWEIGHT/OVERDIMENSION TRUCKING IN MANITOBA
AND WESTERN CANADA**

A Thesis

Presented to

The Faculty of Graduate Studies

The University of Manitoba

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Civil Engineering

by

© Robert Richard Girling

September 1988

Permission has been granted to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film.

The author (copyright owner) has reserved other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without his/her written permission.

L'autorisation a été accordée à la Bibliothèque nationale du Canada de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur (titulaire du droit d'auteur) se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation écrite.

ISBN 0-315-48129-3

OVERWEIGHT/OVERDIMENSION TRUCKING IN MANITOBA
AND WESTERN CANADA

BY

ROBERT RICHARD GIRLING

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF SCIENCE

© 1988

Permission has been granted to the LIBRARY OF THE UNIVER-
SITY OF MANITOBA to lend or sell copies of this thesis, to
the NATIONAL LIBRARY OF CANADA to microfilm this
thesis and to lend or sell copies of the film, and UNIVERSITY
MICROFILMS to publish an abstract of this thesis.

The author reserves other publication rights, and neither the
thesis nor extensive extracts from it may be printed or other-
wise reproduced without the author's written permission.

ACKNOWLEDGEMENTS

I would like to acknowledge the assistance of Professor A. Clayton during preparation of this thesis. In addition, I would like to thank the many individuals within the provincial, state and municipal transportation departments who offered the information necessary for this project. In particular, Mr. Greg Catteuw of Manitoba Highways and Transportation deserves special mention for his assistance and comments.

I would also like to gratefully acknowledge financial assistance from NSERC and a fellowship award from the University of Manitoba Transport Institute.

ABSTRACT

Overweight/overdimension (OW/OD) trucking is an important and growing segment of the trucking industry, especially in Western Canada. However, some provincial and municipal policies governing OW/OD trucking are not rational or consistent, due in part to the lack of available information. This thesis consolidates existing Western Canadian OW/OD policy information and presents new information on the extent and characteristics of OW/OD trucking in order to assist OW/OD policy makers in making better policy decisions. The new information is generated from the Manitoba Highways truck weight survey data base and by sampling internal government files. In addition, a comparative engineering and administrative evaluation of selected Western Canadian OW/OD policies is made, with specific recommendations for improvement to Manitoba OW/OD policy.

CONTENTS

ACKNOWLEDGEMENTS.....	ii
ABSTRACT.....	iii

<u>Chapter</u>	Page
1. INTRODUCTION.....	1
1.1 The Research Need.....	1
1.2 Research Objectives and Scope.....	6
1.3 Research Approach and Methodology.....	7
1.4 Thesis Organization.....	8
2. OVERWEIGHT-OVERDIMENSION TRUCKING.....	10
2.1 Legal OW/OD Trucking.....	11
2.1.1 Regulatory Exemptions.....	13
2.1.2 Indivisible Permits.....	13
2.1.3 Divisible Load Permits.....	19
2.2 Illegal Overweight-Overdimension Trucking.....	21
3. WEIGHT AND DIMENSION REGULATIONS IN MANITOBA AND WESTERN CANADA...27	
3.1 Introduction.....	27
3.2 Summary of Weight and Dimension Developments in Manitoba and Western Canada: 1970 - 1988.....	30
3.3 Basic Weight and Dimension Regulations.....	32
3.3.1 Dimensional Limits.....	33
3.3.2 Weight Limits.....	36
3.4 Development Prospects.....	38
3.4.1 The RTAC Proposals.....	38
3.4.2 Manitoba Road Classification Changes.....	40
4. LEGAL OW/OD TRUCKING: INDIVISIBLE OW/OD PERMIT POLICIES.....42	
4.1 Introduction.....	42
4.2 Manitoba.....	42
4.3 Saskatchewan.....	47
4.4 Alberta.....	49
4.5 Ontario.....	55

4.6	Comparative Analysis of OW/OD Policies.....	58
4.6.1	Maximum Allowable Tire and Axle Loads.....	58
4.6.2	Maximum Allowable GVW.....	61
	Differences in Overweight Permit Policy:An Example.	61
4.6.3	Overweight Permit Fee Structures.....	66
4.7	Observations.....	67
5.	LEGAL OW/OD TRUCKING: DIVISIBLE OW/OD PERMIT POLICIES.....	70
5.1	Introduction.....	70
5.2	OW/OD Divisible Permits in Manitoba.....	72
5.2.1	Raw Forest Product Permits.....	72
5.2.2	Long Combination Vehicle Permits.....	73
5.2.3	Interim RTAC Permits.....	77
5.2.4	Other OW/OD Operations Under Divisible Permit.....	79
5.3	OW/OD Divisible Permits in Saskatchewan.....	79
5.3.1	Timber and Woodchip Permits.....	80
5.3.2	Overlength Vehicle Operating Agreement.....	80
5.3.3	Transportation Agreement Permits.....	86
5.3.4	Interim Vehicle Weight and Dimension Program.....	89
5.4	Divisible OW/OD Permits in Alberta.....	91
5.4.1	Log and Rough Lumber Permits.....	91
5.4.2	Extended Length Permits.....	92
5.4.3	Extended Weight Program.....	93
5.5	Other Jurisdictions of Interest.....	93
5.6	Observations.....	98
6.	WEIGHT AND DIMENSION ENFORCEMENT IN MANITOBA.....	100
6.1	Introduction.....	100
6.2	Organization.....	100
6.3	Fines and Warnings.....	102
6.4	Weight Enforcement: Some Practical Aspects.....	103
7.	THE CHARACTERISTICS OF ILLEGAL OW/OD TRUCKING IN MANITOBA.....	105
7.1	Introduction.....	105
7.2	Characteristics of Illegal Overweight Trucks Based on Manitoba Highway's Annual Truck Weight Survey.....	106
7.2.1	The Database.....	106
7.2.2	Database Modifications.....	106
7.2.3	Assumptions and Calculations Used in Determining the Characteristics of Illegal Overweight Trucks.....	107
7.2.4	Limitations and Qualifications to the Results.....	112
7.2.5	The Extent of the Illegal Overweight Problem in Manitoba.....	114
	General.....	114
	Overweight Characteristics by Road Class.....	115
	Overweight Characteristics by Commodity.....	121
	Overweight Characteristics by Truck Type.....	121
	Overweight Characteristics by Location.....	126

7.2.6	Comparison of Relative Pavement Damage of Observed versus Legalized Truck Fleet.....	127
7.3	Characteristics of Illegal Overweight Trucking Based on Manitoba Highway's Offence Notice Files.....	130
7.3.1	The Database.....	130
7.3.2	Analysis of Overweight Offense Notices.....	132
	By Violation Type.....	131
	Fine Distribution.....	134
	By Commodity.....	134
	Origin-Destination Pairs.....	136
	By Location.....	136
	By Month.....	136
	By Truck Type.....	139
8.	OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS.....	141
8.1	Limitations.....	141
8.2	Observations and Recommendations.....	142
8.2.1	Weight and Dimension Regulations.....	142
8.2.2	Indivisible OW/OD Policy.....	143
8.2.3	Divisible OW/OD Policy.....	145
8.2.4	Illegally Overweight Trucks in Manitoba.....	146
8.3	Further Research Possibilities.....	147
8.4	Commentary.....	148
8.4.1	General Comments.....	148
8.4.2	Comments on OW/OD Policy.....	149
REFERENCES.....		150

Appendix

page

A.	MANITOBA WEIGHT AND DIMENSION REGULATIONS: 1972-1988.....	154
A.1	Introduction.....	155
A.2	Changes in Dimensional Limits.....	155
A.3	Changes in Weight Limits.....	157
A.3.1	Changes in Tire Loads and Axle Weights.....	157
A.3.2	Changes in Axle Spacing Requirements.....	162
A.3.3	Changes in Gross Vehicle Weights.....	163
A.4	Changes in Tolerances.....	164
A.5	Recommendations for Changes in Manitoba Weight and Dimension Regulations.....	166
B.	MANITOBA INDIVISIBLE OW/OD PERMIT POLICIES AND PROCEDURES.....	169
B.1	Introduction.....	170
B.2	Legal Authority.....	170

B.3	Manitoba Department of Highways and Transportation.....	171
B.3.1	OW/OD Permit Application and Enforcement Procedure.....	173
B.3.2	Overweight Permits: Conditions, Limits and Fees.....	175
	Tire and Axle Load Limits.....	175
	Maximum G.V.W. Limits.....	177
	Overweight Fee Structure.....	180
B.3.3	Overdimension Permits: Conditions, Limits and Fees.....	183
B.4	City of Winnipeg.....	183
C.	MANITOBA OW/OD PERMIT SAMPLE.....	188
C.1	Introduction.....	189
C.2	The Data Base.....	189
C.3	Sample Size and Accuracy.....	193
C.4	The Results.....	194
C.4.1	Statistics on All OW/OD Moves.....	195
	Number of Moves Authorized: 1984-1987.....	195
	By Place of Issuance, Permit Type and	
	Type of Overweight or Overdimension.....	196
	By Month.....	197
	By Trip Length.....	197
	By O-D Patterns.....	197
	By Commodity.....	198
C.4.2	Statistics on Overweight Moves Only.....	198
	By Requested G.V.W.....	198
	By Vehicle Type.....	199
	By Commodity.....	200
D.	DETAILED PROVINCIAL AND MUNICIPAL WEIGHT REGULATIONS.....	201
E.	VEHICLE DEFINITIONS, DIAGRAMS AND DESCRIPTIONS.....	209
	GLOSSARY OF TERMS.....	217

LIST OF FIGURES

<u>Figure</u>		<u>page</u>
2.1	Classification of OW/OD Trucking.....	12
2.2	Examples of Illegally Overweight Eight Axle A-Trains in Manitoba.	22
4.1	Allowable Axle Group Weight and G.V.W. Under Manitoba and Ontario Overweight Permit Policy vs. Equivalent Base Length.....	63
4.2	59,990 kg G.V.W. Overweight 4-S3.....	65
4.3	Overweight Vehicle Pavement Damage and Permit Fees in Manitoba..	67
5.1	Designated Overweight RTAC Routes In Manitoba.....	78
5.2	Designated Overweight Log and Pulp Haul Routes in Saskatchewan..	81
5.3	Saskatchewan Overweight and Overdimension Timber Haul Vehicles..	82
5.4	Saskatchewan Overweight Chip Haul Vehicles.....	83
5.5	Saskatchewan Overlength Vehicle Routes.....	85
5.6	Schematic of Saskatchewan Overweight Liquid Bulk Tanker.....	90
5.7	Designated North Dakota State Highways for Vehicle Combinations Exceeding 75 Feet in Overall Length.....	96
7.1	Manitoba OW Trucks (% of Trucks OW by Year).....	116
7.2	Manitoba OW Trucks (% of Axles OW by Year).....	117
7.3	Distribution of 1987/88 Manitoba Overweight Notices by Commodity.....	135
7.4	Distribution of 1987/88 Manitoba Overweight Notices by Survey Location.....	137
7.5	Distribution of 1987/88 Manitoba Overweight Notices by Month...	138
7.6	Distribution of 1987/88 Manitoba Overweight Notices by Truck Type.....	140
B.1	Manitoba Overweight Calculation Example.....	182
C.1	Example Manitoba Overweight Permit Form.....	190
E.1	Heavy Haul Truck Configuration.....	211
E.2	16 Wheel Tandem Jeep Axle Group.....	215
E.3	Single Axle Booster Axle.....	215
E.4	Premay Heavy Haul Equipment.....	216
E.5	Premay Heavy Haul Equipment.....	216

LIST OF TABLES

<u>Table</u>	<u>page</u>
3.1 Provincial Weights and Dimensions, 1973.....	31
3.2 Provincial Weights and Dimensions, 1987.....	31
3.3 Allowable Dimensions.....	34
3.4 Allowable Loads.....	37
3.5 RTAC/CCMTA Proposals for Future Interprovincial Weights and Dimensions, 1987.....	40
4.1 Manitoba Maximum Axle Loads Under Permit (kgs).....	44
4.2 Manitoba Overweight Configurations.....	46
4.3 Saskatchewan Maximum Axle Loads Under Permit (kgs).....	48
4.4 Alberta OW/OD Permit Counts, 1986/87.....	50
4.5 Maximum Gross Vehicle Weight (tonnes) for Permit Issuers.....	52
4.6 Alberta Maximum Axle (kgs) and Tire Loads (kgs/mm) Under Permit (Tire Width of 255 mm).....	53
4.7 Distribution of Alberta Overweight Truck Configurations.....	54
4.8 Ontario Maximum Axle Loads Under Single Trip Permits (kgs).....	56
4.9 Maximum Tire (kgs/mm) and Axle Loads (kgs) and G.V.W. (kgs) Under Single Trip Overweight Permit by Province.....	60
4.10 Number of Primary Road Bridges by Design Load and Province.....	62
4.11 Minnesota Damage Assessment Cost Factors per Mile.....	76
5.1 Manitoba Long Combination Vehicle Statistics, 1984: Triple Trailer (TT) and Rocky Mountain Double Trailer (RMD) Combinations.....	76
5.2 Manitoba Long Combination Vehicle Statistics, 1987: Triple Trailer (TT) and Rocky Mountain Double Trailer (RMD) Combinations.....	76
5.3 Hours That LCVs May Operate on Saskatchewan's Two Lane Highways...	84
5.4 Saskatchewan Bulk Haul Tonnage Summary, 1986/87.....	88
5.5 Number of Trucks Under Alberta's Extended Weight Program by Configuration Type.....	94
7.1 Manitoba Truck Overweight Type by Road Class, 1975-85.....	118
7.2 Manitoba Truck Overweight Axles by Road Class, 1975-85.....	120
7.3 Manitoba Overweight Trucks by Commodity and Overweight Type.....	122
7.4 Manitoba Overweight Trucks by Commodity and Axle Overweight.....	123
7.5 Manitoba Overweight Trucks by Truck Type.....	124
7.6 Observed and Legalized ESALs Truck Type.....	128
7.7 Observed and Legalized ESALs by Commodity.....	129
7.8 Manitoba Prosecution Statistics.....	130

A.1	Manitoba Dimension Regulation History.....	156
A.2	Manitoba Weight Regulations, Jan. 1/70 to Dec. 31/78.....	158
A.3	Manitoba Weight Regulations, Jan. 1/79 to Aug. 12/82.....	159
A.4	Manitoba Weight Regulations, Aug. 13/82 to Feb. 12/82.....	159
A.5	Manitoba Weight Regulations, Feb. 13/82 to Present.....	160
B.1	Manitoba Absolute Maximum Axle Weights Under Special Permit, Class A1 and B1 Highways (kgs).....	176
B.2	Manitoba Absolute Maximum Axle Weights Under Special Permit and Required Authorization Class A1 and B1 Highways.....	179
B.3	Manitoba Overdimension Permit Conditions.....	184
B.4	Additional Requirements and Conditions for Mobile Homes.....	185
B.5	Maximum Weights and Dimensions of Routine Permits Issued by the City of Winnipeg Police Department.....	187
C.1	OW/OD Moves in Manitoba, 1984/85 to 1986/87.....	195
C.2	Number of Sampled OW/OD Moves by Location, Permit Type and OW/OD Class.....	196
C.3	Requested Overweight Permit G.V.W. Distribution.....	199
E.1	Profile and Description of Selected Trucks and Truck Combinations Complying with Manitoba Basic Weight and Dimension Limits.....	212
E.2	Profile and Description of Selected Truck Combinations Requiring Divisible OW/OD Permits.....	213
E.3	Profile and Description of Selected Vehicles Used Under Indivisible Permit.....	214

Chapter 1

INTRODUCTION

1.1 THE RESEARCH NEED

The weight and dimension limits of most trucks operating in Canada are governed by provincial statutes and regulations. These statutes and regulations define the envelope of possible physical characteristics that trucks can assume without special permits. In many countries, Canada included, weight and dimension envelopes have been changing in order to allow the use of larger, heavier, and more productive trucks.

Not all trucking takes place within these basic regulatory weight and dimension envelopes. First, all jurisdictions allow trucks to operate beyond the basic regulations under the authority of special permits. Second, trucks can also exceed these envelopes illegally. Both of the above cases are referred to as overweight, overdimension (OW/OD) trucking.

The extent, nature and importance of OW/OD trucking is generally poorly documented. Many highway agencies have little or no information on the following subjects:

- the extent of illegal overloading of trucks on the highway network;
- the vehicle types and commodities that are most prone to illegal overloading;
- the extent to which illegal overweight trucks contribute to pavement and bridge damage;
- the extent and nature of legally authorized OW/OD trucking;
- the opportunities that exist for further use of OW/OD trucking in order to realize improvements in transport efficiency and perhaps safety.

These economic and technical issues associated with OW/OD trucking have important implications for industry, governments and the public.

A better understanding of OW/OD trucking is important in order to improve decisions on transportation policy. OW/OD trucking may have a substantial and growing impact on economics and highway safety. OW/OD trucking affects many groups including governments, carriers, shippers, and the general public. Finally, it is particularly important to understand OW/OD trucking in Western Canada because the permitting of large and heavy trucks hauling both divisible and indivisible loads has been increasing steadily.

The impacts of OW/OD trucks can be positive or negative and can affect different groups to varying degrees. On the positive side, special permitting OW/OD trucks has the potential to reduce transportation rates of divisible freight through reduced truck operating costs and increased intermodal competition. As an example, the Province of Saskatchewan has allowed overweight moves of potash since the late

1960's in order to reduce transportation costs and increase the marketable area for potash.

...the province made it possible for International Minerals and Chemical Corporation to haul potash ... with vehicles having weights in excess of the legal maximum in return for a road fee. The move allowed IMC ... some efficiencies in its truck haul and assisted the potash industry in negotiating lower freight rates from the railways.

(Churko and Hurst, 1985, 315)

Another positive effect of OW/OD trucking is that allowing the movement of large and heavy indivisible loads under permit can reduce the costs of construction projects and certain industries by allowing labour specialization and movement of larger, more efficient machinery to a project site. Examples of the positive impacts and importance of allowing indivisible OW/OD moves include (NCHRP, 1969, 7):

1. Enables production of larger, more marketable goods (.ie larger mobile homes)
2. Enables savings through less field assembly.
3. Gives heavy industries a greater latitude in site selection.
4. Enables movement of larger, more efficient machinery, thus increasing general productivity.
5. Extends the flexibility of the total inter-modal transportation system and its ability to serve the public.

On the negative side, overweight trucks can increase the cost of maintaining and repairing roads and bridges. In the case of illegally overweight trucks, governments are uncompensated for increased road and bridge damage. A Saskatchewan study estimated that illegally overweight

trucks are causing about 1.8 million dollars damage per year on Saskatchewan highways, representing about 6% of annual expenditures on pavement rehabilitation and maintenance (Wyatt and Hassan, 1984).

The impacts of heavy trucks on roads and bridges can be severe. Haas (1984) of the North Dakota Highway Department said the following about the effect of overweight trucks on highways:

One of the problems with pavement rutting...is loads and the loads they were really concerned about were the overloads, especially those that aren't permitted. Nobody ... had a handle on how many overloads their system was carrying. The people who issue the permits have the information, but apparently their information wasn't being used....
...One of the things that came out of that conference is that you can destroy an asphalt pavement with one single overload.
.... It could also be a permitted overload.

The magnitude and number of heavy loads and the resulting damage to roads and bridges is increasing and is of concern internationally. Overweight trucks shorten the service life of bridges and can result in damage and sometimes collapse. The Organization for Economic Cooperation and Development (OECD) expressed its concern for overweight trucks in a report on bridge evaluation (OECD, 1979, 9).

In many countries the increase in heavy traffic is a serious problem because of the resulting more rapid deterioration of existing highways and, in particular, of bridges. Overloads are, in particular, one of the most important reasons for bad and unsafe traffic situations and road and bridge conditions.

Also on the negative side of OW/OD trucking is the possible reduced level of safety with overdimension trucks. The safety and stability of

long combination vehicles (LCV) is currently being debated. The Ontario Commission on Truck Safety (Uffen Commission) felt that these overlength vehicles were unsafe and should not be allowed on Ontario highways (OCTS, 1982). In addition, RTAC has recently recommended that triple trailer combinations should not be considered for special permitting because of stability and controllability problems (RTAC, 1987, 39). However, the safety of LCV's is a controversial issue because of the good safety records these trucks have in Alberta and in many other jurisdictions.

OW/OD trucking is an important transportation issue, about which little is known. For the Canadian situation concerning weight and dimension regulations and related research programs, Nix (1987) observed that:

...special permitting is probably such a complex subject covering so much trucking that attention has to be drawn to the fact that little is known about it: in ... research germane to weight and dimension regulations, special permitting has been neglected.

..in terms of the number of trucks operating under special permits, there are no good data sources...

(pg.20)

...there are two areas where not enough is known. The first is special permitting. ...special permits control a large amount of trucking activity in Canada and ... is growing in importance. The second area is enforcement... some aspects of enforcement require greater examination.

(pg. 86)

Cooperation among the impacted groups is important for further improvements in transportation policy and efficiency. With proper

cooperation, the benefits of larger and more efficient trucks can be split among all interest groups.

In order to make better use of existing infrastructure through changes in technology and regulations, development of close liaison and cooperation between the motor vehicle and trailer manufacturing industry, trucking companies and the regulating agencies in research, development and setting of regulations is of utmost importance... (examples include)... i) Saskatchewan's winter weight policy (in effect blanket permitting higher axle loadings during periods where the roadbed is frozen) ii) Saskatchewan's bulk commodity policy.

(Sutherland, 1983)

The development of more rational and productive policies, procedures and regulations governing OW/OD trucking, and the basic weight and dimension envelopes which define OW/OD trucking, could be assisted by the development of a more objective and systematic understanding of OW/OD trucking. It is towards this end, within the Manitoba and Western Canada context, that this research is directed.

1.2 RESEARCH OBJECTIVES AND SCOPE

The principal goal of this research is to provide an objective assessment of selected OW/OD trucking policies in Manitoba and Western Canada. Where possible, recommendations for policy change are provided. In addition, new information of interest to OW/OD policy makers is presented on the various characteristics of OW/OD trucking.

The research has focussed on three sub-objectives:

1. To describe, compare and critically evaluate the policy, practices and procedures governing OW/OD trucking in Western Canada and adjoining jurisdictions, both legal and illegal.
2. To describe and compare the characteristics, extent and nature of OW/OD trucking in Manitoba and Western Canada, both legal and illegal.
3. To formulate and generally evaluate ideas for more rational and productive policies, procedures and regulations concerning OW/OD trucking in Manitoba and between Manitoba and Western Canada.

The scope of the research into policy and procedures (Objective 1) is divided evenly between the three western provinces and their major urban centres, with less attention given to the bordering provinces and states. The characterization and analysis of existing OW/OD trucking (Objective 2) is focussed on Manitoba with some reference to the other prairie provinces depending on the availability of data. The formulation and evaluation of ideas for improvements in policies and procedures (Objective 3) is directed principally at the Manitoba situation.

1.3 RESEARCH APPROACH AND METHODOLOGY

In conducting this research, data from a variety of sources was gathered, developed and analyzed. A literature search was conducted on weight and dimension regulations; policies and regulations governing

OW/OD trucking; and the impacts of OW/OD trucking on roads and bridges. Information on OW/OD policies, procedures and regulations from the various provincial, municipal and state governments were obtained through library searches, personal visits, phone interviews and correspondence. Personal contact was important in determining the "de facto" realities of the regulatory environment and technical considerations concerning OW/OD trucking.

Several data bases were used to determine the characteristics of OW/OD trucking in Manitoba. These included the Manitoba Department of Highways and Transportation (Manitoba Highways) truck weight survey data tape and random samples of the Department's offence notice and OW/OD permit files.

Information on permit filing systems and permit statistics from Saskatchewan and Alberta was gathered in anticipation of further research in those provinces. The complexity of the filing systems, and sheer volume of permits (especially in Alberta), limited the scope of the research in these jurisdictions.

1.4 THESIS ORGANIZATION

OW/OD trucking in Manitoba and Western Canada is described and classified in Chapter 2. This is followed in Chapter 3 by a review of the weight and dimension regulations in Manitoba and Western Canada. Selected indivisible OW/OD policies of Ontario, Manitoba, Saskatchewan

and Alberta are compared and analyzed in Chapter 4, while the divisible OW/OD policies of Manitoba, Saskatchewan and Alberta are compared in Chapter 5. The enforcement of the weight and dimension regulations and policies is examined in Chapter 6. In Chapter 7, the characteristics of illegal overweight trucking in Manitoba are analyzed based on the Manitoba truck weight surveys and random sample of Manitoba offence notices. The study concludes with a summary of observations and recommendations for Manitoba Highways.

Chapter 2

OVERWEIGHT-OVERDIMENSION TRUCKING

The purpose of this chapter is to classify and define OW/OD trucking. The different categories of OW/OD trucking are described and some of the problems and opportunities they present are discussed.

The weights and dimensions of vehicles in Canada are regulated and limited by provincial government statutes and regulations. Overweight-overdimension (OW/OD) trucking is defined here as the operation of vehicles beyond these basic regulations.

What constitutes OW/OD trucking can be difficult to determine because the statutes and regulations are complex and subject to change. To this effect, because the basic regulations are subject to change, what was considered overweight or overdimension yesterday, may be considered normal trucking today. Because of seasonal differences in road weight limits, what is considered overweight in the spring is not in the summer and what is considered overweight in the summer is not in the winter. Because of regional and road class differences, what is considered overweight or overdimension in one area is not in another. Because of different approaches and philosophies regarding tolerances,

what is considered overweight or overdimension changes with, and sometimes within, jurisdictions.

Despite the problem of defining OW/OD trucking, it is possible to classify it into two main categories and several subcategories. The two main areas are legal and illegal OW/OD trucking. Legal OW/OD trucking can be further divided into the subcategories of regulatory exemptions, indivisible permits and divisible permits. In addition, a vehicle may be overdimension, overweight or both overweight and overdimension in each of the above categories. Figure 2.1 shows the main and subcategories of OW/OD trucking.

2.1 LEGAL OVERWEIGHT-OVERDIMENSION TRUCKING

All provinces allow trucking beyond their standard weight and dimension regulations by issuing special permits. Legal OW/OD trucking can be divided into three categories; regulatory exemptions; indivisible permits; and divisible permits.

Special permitting provides a legal framework in which OW/OD trucking can occur, which can take into account regional differences and other factors effecting weight and dimension limits. Such permitting not only allows moves of irreducible, large and heavy equipment that could not otherwise travel, but also has the potential, and is being used, to lower freight transport costs of reducible loads through the use of larger, more efficient trucks.

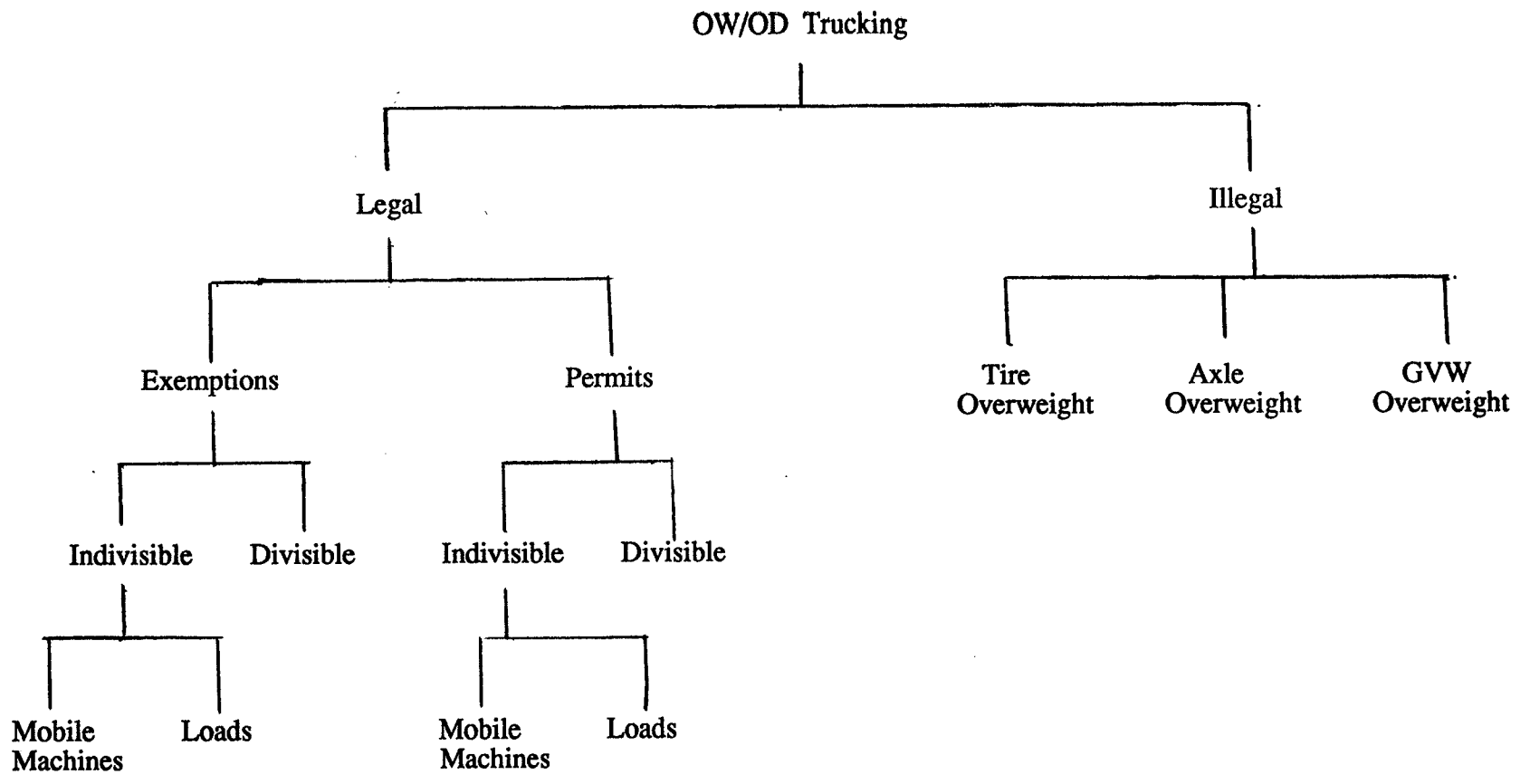


Figure 2.1
OW/OD Trucking Classification

The following sections define and describe each of the categories of legal OW/OD trucking in more detail and discuss some of the problems and opportunities OW/OD trucking presents.

2.1.1 Legal OW/OD Trucking: Regulatory Exemptions

Regulatory exemptions are granted legislatively and require no administrative effort other than enforcement of conditions of movement (if specified). Weight and dimension exemptions are usually granted to certain commodities, vehicles types, or special interest groups. Examples include dimensional or weight exemptions for snow clearing equipment, farm equipment, farm trucks and loads of loose fodder. As a further example, Saskatchewan weight limits do not apply to farm equipment (including single unit trucks) being used for the purpose of farming.

Regulatory exemptions offer the opportunity to reduce the administrative burden and cost of handling everyday OW/OD moves that are currently issued permits automatically. Conditions of movement can be set in regulations, eliminating the need for permits.

2.1.2 Legal OW/OD Trucking: Indivisible Permits

Indivisible OW/OD permits are issued to move large, heavy and irreducible loads and equipment that exceed normal weight and dimension

limits. Examples of these OW/OD irreducible loads and equipment include transformers, mobile homes, mobile cranes and construction equipment. Appendix E includes some diagrams and descriptions of this equipment. Indivisible OW/OD permits are issued at the discretion of the appropriate traffic authority allowing movement of overweight, overdimension loads and vehicles under special conditions. The objective of indivisible permit operations is to (NCHRP, 1980):

1. Control damage of roads and bridges resulting from overweight loads.
2. Govern movements of overdimension equipment so that safety and traffic capacity is not compromised.

As was stated in the introduction, indivisible OW/OD permits can be economically important to a region for several reasons. For example, in Alberta, oil companies can reduce their oil project construction costs by building large modules in Edmonton or Calgary, and transporting them north on OW/OD trucks, where they are assembled. This is more efficient than sending the raw materials north to be assembled in the field, where the cost of labour is higher and quality is more difficult to control.

Allowing the movement of indivisible OW/OD loads allows heavy industry greater choice in selecting plant locations and the movement of larger, more efficient construction machinery to project sites.

The definition of an indivisible load is not always clearly defined and can change from situation to situation and from place to place.