



OVERWEIGHT PERMIT MANUAL

POLICIES

First Edition 1995

INCORPORATING AMENDMENTS 1-9

READERS PLEASE NOTE:

This document is one of three available on Transit's website. It contains Chapters 6 to 12 of the Overweight Permit Manual covering information on those vehicles eligible for permits; mobile cranes; payloads; routes; enforcement; bridge supervision and traffic control; inventories; and computer systems.

For information on the administration and procedures for the issuing of overweight permits please refer to the separate document entitled **Procedures**.

For information on definitions used; permit issuing authorities; standard forms; and calculations please refer to the separate document entitled **Appendices**.

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FOREWORD

This manual replaces the Overweight Permit Policy Document last revised in 1989 and is the result of a complete review of existing policy.

It defines the compliance standards applicable to the issue of overweight permits. These standards apply both to the movement of overweight vehicles on state highways and those roads controlled by local authorities that have also adopted Transit New Zealand's requirements.

Local government comprises seventy-four territorial authorities and sixty nine of these currently require vehicles to comply with the manual's provisions.

To function as an effective management tool, a manual must be both clearly written and presented in a readily accessible format. For this reason, the revised manual has been extensively re-written and reformatted. It is also issued in a ring-binder that makes updating simple. The revised manual now more fully meets our shared operational requirements and we trust that the changes and improvements it incorporates will prove of practical advantage.

R J Dunlop
General Manager

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This manual was produced under the direction of Transit New Zealand's Axle Weights and Loadings Advisory Group. This group includes representatives from the following organisations:

- Transit New Zealand
- Land Transport Safety Authority
- New Zealand Police
- New Zealand Local Government Association Inc
- New Zealand Road Transport Association Inc
- New Zealand Heavy Haulage Association Inc
- Power Crane Association of New Zealand Inc

In addition to the above organisations, the draft version of this manual was circulated in 1993 for comment to the following organisations:

- New Zealand Rail Limited
- Association of Local Government Engineers of New Zealand
- Works Consultancy Services Ltd
- Vogel Corporation Ltd

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CONTENTS

	Page
1. INTRODUCTION	1-1
1.1 Intention of Policy	1-1
1.2 Parties to Policy	1-2
1.3 Enforcement	1-3
1.4 Overdimension Permits	1-3
1.4.1 Land Transport Safety Authority	1-3
1.4.2 Tranz Rail Limited	1-3
1.4.3 Other Railway Operators	1-3
1.5 Railway Level Crossings	1-4
1.5.1 Overdimension Vehicles	1-4
1.5.2 Overweight Vehicles	1-4
1.6 Distribution of Manuals	1-4
1.7 Revision of Policy	1-4
1.8 Terminology and Abbreviations	1-4
 2. ROAD NETWORK LEGAL WEIGHT LIMITS	 2-1
2.1 What is an Overweight Vehicle?	2-1
2.2 When Can an Overweight Permit be Issued?	2-7
2.3 Vehicle Restrictions	2-7
 3. PERMIT ADMINISTRATION	 3-1
3.1 Authority to Issue Permits	3-1
3.1.1 State Highways	3-1
3.1.2 Local Authority Roads	3-1

	Page
3.2 Where to Apply for an Overweight Permit	3-2
3.3 Types of Permit	3-2
3.3.1 Single Trip Permits	3-2
3.3.2 Multiple Trip Permits	3-2
3.3.3 Continuous Permits	3-2
3.3.4 Area Permits	3-4
3.3.5 Linked Permits	3-4
3.3.6 Permits for Vehicle Fitness Testing	3-4
3.4 Processing Times	3-4
3.5 Delays to Travel	3-5
3.6 Administration Charges	3-5
3.6.1 Permit Processing Fee	3-5
3.6.2 Bridge Engineering Supervision Fee	3-7
3.6.3 Other Charges	3-8
3.7 Application for Permit (Form TNZ 804)	3-9
3.8 Issuing of Permit (Form TNZ 805)	3-9
3.9 Permit Issuing Officers and Approving Engineers	3-10
4. PERMIT ISSUING OFFICER PROCEDURE	4-1
4.1 Check Application Details	4-2
4.2 Determine Critical Facilities on Route	4-4
4.3 Determine Facilities Requiring Referral to Approving Engineer	4-6
4.4 Inform Road Controlling Authorities	4-7
4.5 Complete the Permit	4-8
4.6 Complete the Permit Conditions	4-10
4.7 Issue the Permit	4-12

	Page
5. APPROVING ENGINEER PROCEDURE	5-1
5.1 All Movements Referred for Approval	5-1
5.2 Pavements Referred for Approval	5-2
5.3 Bridge Decks and Bridges Referred for Approval	5-3
5.3.1 Bridges included in TOPS	5-3
5.3.2 Bridges not included in TOPS	5-4
6. VEHICLE REQUIREMENTS	6-1
6.1 Vehicle Combinations Carrying a Separate Payload	6-1
6.1.1 Minimum Number of Axles	6-1
6.1.2 Full Trailers	6-1
6.1.3 Dispensations	6-1
6.2 Mobile Plant (other than Mobile Cranes)	6-1
6.2.1 Maximum VAI	6-1
6.2.2 Detachable Axles	6-2
6.2.3 Dispensations	6-2
6.2.4 Towing of Trailers	6-2
6.3 Traction Limits	6-2
6.4 Vehicle Speed and Travel Time Restrictions	6-2
6.5 Tyre Pressures	6-3
6.6 Traction Engines	6-3
6.6.1 State Highways	6-4
6.6.2 Local Roads	6-4
6.7 Tracked Vehicles	6-4
6.8 Fire Fighting Vehicles	6-5
6.9 Steel Wheeled Vehicles (“Steam Rollers”)	6-5

	Page
7. MOBILE POWER CRANE REQUIREMENTS	7-1
7.1 Permit Issue	7-1
7.1.1 Processing Time — Single Trip	7-1
7.1.2 Processing Time — Other Permits	7-1
7.1.3 Processing Procedure	7-1
7.1.4 Speed and Travel Time Restrictions	7-2
7.1.5 Tyre Pressures	7-3
7.1.6 Vehicle Parameter Calculations	7-3
7.1.7 Change of Ownership	7-3
7.1.8 Heavy Vehicle Inventory	7-3
7.1.9 Mobile Crane Weight Certificates	7-3
7.2 Vehicle Requirements	7-4
7.2.1 Rated Capacity	7-4
7.2.2 Boom Trailers	7-4
7.2.3 Counterweights	7-5
8. PAYLOAD REQUIREMENTS	8-1
8.1 Divisible Loads	8-1
8.1.1 Approved Exceptions	8-1
8.1.2 Special Circumstances	8-1
8.2 Stripping of Loads	8-1
8.3 Ballasted Tractors	8-1
8.4 ISO Containers	8-2
8.4.1 Tyre Size	8-2
8.4.2 Evidence Bona Fide	8-2
8.4.3 Maximum Vehicle Axle Index	8-3
8.4.4 Motorway Use	8-3
8.4.5 Grandfather Rights for Single Large Tyred Vehicles	8-3
8.4.6 Brake Code Requirements	8-3
8.5 Transformer Oil	8-3
8.6 Building Removals	8-4
8.7 Slurry Sealing	8-4
8.8 Platform Trailers	8-4
8.9 Towing of Disabled Vehicles	8-4
8.10 Grandfather Rights for Tourist Buses and Coaches	8-5

	Page
9. ROUTE REQUIREMENTS	9-1
9.1 Alternative Routes	9-1
9.2 Use of Local Bypasses for Weak Bridges	9-1
9.3 Use of Motorways	9-1
10. WEIGHT DETERMINATION AND ENFORCEMENT	10-1
10.1 Weighing Procedures	10-1
10.1.1 General	10-1
10.1.2 Weighing for Permit	10-1
10.2 Determination of Axle Weights by Calculation	10-1
10.2.1 Principles	10-1
10.2.2 Distribution of Payload	10-2
10.2.3 Example	10-3
10.3 Enforcement	10-5
10.3.1 Breaches of Overweight Permits	10-5
10.3.2 Process for Breaches of Overweight Permits	10-7
10.3.3 Mobile Plant	10-9
10.3.4 Mobile Crane Weight Certificates	10-9
11. BRIDGE ENGINEERING SUPERVISION AND TRAFFIC SAFETY	11-1
11.1 General	11-1
11.2 The Role of the Bridge Supervisor	11-1
11.3 Arrangements for Rendezvous for Bridge Supervision	11-2
11.4 Bridge Engineering Self Supervision by Operators	11-2
11.4.1 Policy	11-2
11.4.2 Conditions of the Policy	11-2
11.5 Industry Pilots and Traffic Safety	11-3
11.5.1 Background	11-3
11.5.2 Policy	11-3
11.5.3 Power to Stop Vehicles	11-3
11.6 Requirements for Traffic Control at Bridge Crossings	11-4

	Page
12. INVENTORY PROCEDURES AND TOPS	12-1
12.1 Heavy Vehicle Inventory	12-1
12.2 Pavement Inventories	12-1
12.2.1 Pavement Grades	12-1
12.2.2 Grading of Pavements	12-2
12.3 Bridge Inventories	12-3
12.3.1 Bridge Classes	12-3
12.3.2 Deck Grades	12-4
12.4 Transit Overweight Permit Checking System (TOPS)	12-6
 APPENDICES	
Appendix A DEFINITIONS	A-1
Appendix B APPROVED ISSUING AUTHORITIES	B-1
B1 Transit New Zealand	B-1
B1.1 Approving Engineers	B-1
B1.2 Permit Issuing Officers	B-1
B2 Local Authorities party to the Policy	B-3
B3 Local Authorities not party to the Policy	B-5
Appendix C STANDARD FORMS	C-1
Appendix D VEHICLE PARAMETER CALCULATIONS	D-1
D1 Vehicle Axle Index (VAI)	D-1
D1.1 Axle Groups	D-1
D1.2 Reference Axle Weight	D-1
D1.3 Axle Index (AI)	D-1
D1.4 Types of Tyres	D-2
D1.5 Types of Axles	D-2
D1.6 Calculation of VAI	D-3

		Page
D2	Vehicle Gross Index (VGI)	D-10
	D2.1 Reference Gross Weight	D-10
	D2.2 Gross Index (GI)	D-10
	D2.3 Calculation of VGI	D-10
D3	Pavement Loading Ratio (PLR)	D-14
D4	Deck Loading Ratio (DLR)	D-16
D5	Bridge Loading Ratio (BLR)	D-18
D6	Traction Limits (MGC)	D-20

TABLES, DIAGRAMS AND GRAPHS

		Page
Section 2		
Table 2.1	Legal Weight Limits for Individual Axles	2-2
Table 2.2	Legal Weight Limits for Tandem Axle Sets	2-3
Table 2.3	Legal Weight Limits for Tri-Axle Sets	2-4
Table 2.4	Legal Gross Weight Limits	2-5
Appendix A		
Diagram A1:	Axle Types	A-9
Diagram A2:	Axle Sets	A-10
Diagram A3:	Vehicle Types	A-11
Appendix D		
Table R1:	Reference Axle Weights, Standard Tyres	D-6
Table R2:	Reference Axle Weights, Large Tyres	D-7
Table R3:	Reference Axle Weights, Specified Standard Tyres	D-9
Table R4:	Reference Axle Weights, Small Standard Tyres	D-9
Table R5:	Reference Gross Weights	D-13
Graph L1:	Pavement Loading	D-15
Graph L2:	Deck Loading	D-17
Graph L3:	Bridge Loading	D-19

6. VEHICLE REQUIREMENTS

Note vehicle legal restrictions in section 2.3.

6.1 Vehicle Combinations Carrying a Separate Payload

6.1.1 Minimum Number of Axles

No overweight permit shall be issued for the transport of a separate payload if the proposed vehicle combination has **less than five axles or less than two driving axles** (but see below).

6.1.2 Full Trailers

When a **full trailer** is included as part of a vehicle combination, and the payload carried by that trailer cannot be distributed in part to other axles of the vehicle combination, then **no overweight permit** shall be issued if the trailer has **less than five axles** (but see below).

6.1.3 Dispensations

The National Highway Manager (for movements involving state highways) or the local authority approving engineer may, in exceptional circumstances, grant a dispensation from the requirements of 6.1.1 and 6.1.2 above to allow the use of a short wheelbase vehicle with less than five axles where the road alignment dictates and no alternative route is available.

6.2 Mobile Plant (Other than Mobile Cranes)

6.2.1 Maximum VAI

Mobile plant (other than mobile cranes which are in section 7) may be issued with an overweight permit for travel in the unladen state in accordance with this policy providing the VAI (refer Appendix D1) does not exceed the value given below for the type of plant:

Mobile Plant (other than cranes)	Maximum VAI
Motor scrapers and dump trucks	1.50
Other plant	1.20

6.2.2 Detachable Axles

The use of detachable (or tag) axles on items of mobile earthmoving plant for transport purposes is not permitted unless specific approval is obtained, see below.

6.2.3 Dispensations

The National Highway Manager (for movements involving state highways) or the local authority approving engineer may, in exceptional circumstances, grant a dispensation from the requirements of 6.2.1 or 6.2.2 above providing that the Pavement Loading Ratio (PLR) (refer Appendix D3) does not exceed 150% for the pavements involved.

6.2.4 Towing of Trailers

Trailers and equipment that are associated with the off-highway operation of mobile plant may be towed behind that vehicle provided that this practice does not increase the bridge engineering supervision requirements.

6.3 Traction Limits

A vehicle combination may be issued with an overweight permit in accordance with this policy providing that its maximum allowable gradient for combination (MGC), refer section D7, is greater than the gradient at all uphill gradients on the proposed route.

The MGC indicates whether a vehicle combination will be able to develop sufficient traction to prevent damage to the pavement surface by wheel slip.

The MGC can be increased by the addition of:

- another prime mover in series
- ballast over the driving axles

The maximum uphill gradient on a route can be determined from highway information sheets or site measurements. It is expressed in percent.

6.4 Vehicle Speed and Travel Time Restrictions

Maximum vehicle speeds for vehicles operating under a permit shall be:

- 30 km/h if the vehicle has one or more unsprung axles;

- 30 km/h if the vehicle is fitted with large earthmover tyres. (Refer section D1.4);
- 70 km/h if the vehicle is truck-mounted with fully sprung axles and is fitted with large truck tyres; and
- up to the legal highway speed for the type of vehicle in all other cases. This will generally be:
 - 80 km/h - for vehicles towing full trailers, including A trains.
 - 90 km/h - for other vehicles, including articulated vehicles and B trains.

(Refer to Appendix A for vehicle definitions).

Where the 30 km/h speed restriction imposed on vehicles under this policy is likely to create a high risk to other road users an additional condition may be imposed limiting travel to off-peak hours. Prior consultation with the LTSA, NZ Police, and the heavy transport industry is recommended.

6.5 Tyre Pressures

Tyres are to be operated at pressures recommended by either the manufacturer or the Tyre and Rim Associations.

It should be noted that regulation 8 of the Heavy Motor Vehicle Regulations 1974 specifies **maximum** tyre pressures of:

- 700 kPa for bias ply tyres; and
- 825 kPa for radial tyres.

6.6 Traction Engines

The Heavy Motor Vehicle Regulations 1974 specifically exclude traction engines from the definition of a heavy motor vehicle (refer Appendix A).

Regulation 10 (1) prohibits the use of certain heavy traffic on roads, including traction engines without pneumatic tyres, unless the written consent of the road controlling authority has been obtained. Conditions may be imposed on this consent (permit).

The two issues for road controlling authorities to consider before authorising travel by traction engines are:

- the effects of high axle loadings on pavements, bridge decks and underground services; and
- the potential disruption and associated risk to other traffic from their slow travel speed.

6.6.1 State Highways

- (a) Regional managers may issue permits under subclauses (1) and (2) of regulation 10 of the Heavy Motor Vehicle Regulations 1974 for the movement of traction engines on state highways, provided that:
- all wheels are fitted with solid rubber tyres with a minimum thickness of 25 mm; and
 - movements involving bridge crossings are checked with the TOPS computer checking system assuming an 18.00-22.5 single large tyre size and reference axle weight of 8.0 tonnes;
- (b) All movements shall be subject to any condition that the Regional Manager may see fit to impose. The impact of these large slow moving vehicles on other road users should be considered, and restrictions on time of travel may be warranted where traffic flows are significant.

6.6.2 Local Roads

Local authorities may issue permits subject to the conditions they consider appropriate to impose.

6.7 Tracked Vehicles

Regulation 10 (1) of the Heavy Motor Vehicle Regulations 1974 prohibits the use of tracked vehicles on roads unless the written consent of the road controlling authority has been obtained. Conditions may be imposed on this consent (permit). Such permits should only be considered for military vehicles such as the following:

- Bren Gun Carriers;
- M113 Tracked Personnel Carriers; and
- Scorpion Armoured Fighting Vehicles.

Such consents (permits) should have conditions imposed on them, some examples of which are:

- maximum speed;
- legal weight limits not to be exceeded;
- not permitted on motorways;
- pivot turns being prohibited on pavements;
- heavy braking to be minimised on pavements;
- minimum clearances for rubber pads on track shoes; and
- compliance with Land Transport Safety Authority requirements.

6.8 Fire Fighting Vehicles

Regulation 2 (1) of the Heavy Motor Vehicle Regulations 1974 specifically excludes “vehicles designed solely or principally for the use of fire brigades in attendance at fires” from the definition of heavy motor vehicle (refer Appendix A).

Hence these vehicles are not restricted by the regulations. Pavements and bridges are not protected from what could be dangerously heavy axle weights.

In 1981, in anticipation of the regulations being amended to include fire fighting vehicles, the overweight policy clause on divisible loads was amended to allow appliances used by fire brigades or rescue services to be issued with overweight permits. However, the regulations have not been amended to include fire fighting vehicles.

The types of fire fighting vehicles which at times travel on public roads include airport, forestry, military and Fire Service.

Overweight permits have at times been issued for some of these vehicles to travel on state highways when applications have been received. This has enabled pavement and bridge strengths on the route to be checked.

6.9 Steel Wheeled Vehicles (“Steam Rollers”)

Regulation 10 (1) of the Heavy Motor Vehicle Regulations 1974 also prohibits the movement of steel wheeled or tyred vehicles on roads without the written consent of the road controlling authority. Consents (permits) for the movement of steam rollers and similar steel wheeled vehicles should **not** be issued under any circumstances by parties to this policy.

7. MOBILE POWER CRANE REQUIREMENTS

This section of the manual contains items which relate specifically to mobile cranes. Other items in the manual are applicable to cranes unless specifically stated otherwise.

Note vehicle restrictions in section 2.3.

7.1 Permit Issue

7.1.1 Processing Time — Single Trip

Refer also to section 3 for details.

Permits should be issued within a reasonable processing time of between 4 to 8 normal working hours providing that:

- a permit application on completed TNZ 804 form is received by the permit issuing office (incomplete details or errors in the application will delay processing);
- the crane is in the heavy vehicle inventory (refer section 12.1);
- the route is for a single trip operation within the approving engineer's district;
- there is no bridge supervision required by the road controlling authorities; and
- self bridge engineering supervision is approved.

Permit applications outside these conditions will take longer to process.

7.1.2 Processing Time — Other Permits

Section 3.4 should be used as a guide to processing times for these permits.

7.1.3 Processing Procedure

Processing procedure should be as described in sections 3, 4 and 5.

7.1.4 *Speed and Travel Time Restrictions*

The maximum speed of operation on the road shall not exceed any of the following:

- The legal speed.
- The speed restriction specified as a permit condition e.g. bridge engineering supervision.
- The speed set out in the following table:

SPEED RESTRICTIONS

Mobile Crane Type	Vehicle Axle Index (VAI)	Tyre Size	Maximum Speed (km/hr)	
			Pavements	Specified Restricted Bridges
All terrain and truck mounted	Up to 1.40	Specified	90	50
	1.40 to 1.50		70	50
	Up to 1.50	Large	70	50
Other	Up to 1.50	Specified	50	50
		Large	30	30

Notes:

1. Specified Tyres

Shall be standard, specified standard and tyres of a size less than or equal to 13.00-24 or 14.00-20.

2. Crane Type

The manufacturer's classification should be accepted for "all terrain" and "truck mounted" cranes. In general these cranes have load sharing suspension systems and are designed to travel at highway speeds.

"Other" includes rough terrain cranes, which are usually fitted with large off-road tyres and unsprung axles.

Where the 30 km/h speed restriction imposed on mobile cranes under this policy is likely to create a high risk to other road users an additional condition may be imposed limiting travel to off-peak hours. Prior consultation with the LTSA, NZ Police, and the heavy transport industry is recommended.

7.1.5 *Tyre Pressures*

For tyre pressures refer to section 6.5.

7.1.6 *Vehicle Parameter Calculations*

Vehicle parameter calculations should be carried out according to Appendix D.

7.1.7. *Change of Ownership*

On change of ownership, the new owner shall apply for a permit to the approving engineer in the new area of operation stating the Heavy Vehicle Inventory reference number.

Any dispensations applicable to the crane in question may be transferred to the new owner provided that the PLR (refer section D3) the DLR (refer section D4) and the BLR (refer section D5) are acceptable to the approving engineer and the National Highway Manager.

NB: Permits are not transferable and hence a separate application must be made by the new owner.

7.1.8 *Heavy Vehicle Inventory*

Refer to section 12.1.

7.1.9 *Mobile Crane Weight Certificates*

Refer to section 10.3.3.

7.2 Vehicle Requirements

7.2.1 *Rated Capacity*

A mobile crane may be issued with an overweight permit in accordance with the policy providing that its VAI (refer section D1) does not exceed the value relevant to the certified lifting capacity as listed below:

Certified Lifting Capacity (1000 kg)	Maximum Allowable VAI
Up to 10	1.20
Greater than 10 and up to 16	1.30
Greater than 16 and up to 25	1.40
Greater than 25	1.50

The certified lifting capacity shall be the capacity as certified by an inspection body to be authorised by regulation under the Health and Safety In Employment Act 1992.

7.2.2 *Boom Trailers*

Mobile cranes configured with boom trailers may be issued with overweight permits in accordance with the policy provided that:

- The boom is free to pivot at all times the crane is operating on the road.
- The application contains a statement from the applicant that:
 - the boom is free to pivot; and
 - no device to alter the load distribution to the axles is in operation.
- The maximum VAI on the crane and the boom trailer does not exceed the value applicable to the capacity of the crane (refer section 7.2.1).
- Full details of each trailer configuration are submitted by the applicant for technical evaluation at the time of first application for a permit.
- Details shall be recorded on the Heavy Vehicle Inventory Form (TNZ 803).

Mobile cranes are permitted to travel short distances to work sites after parking the trailer. The speed of travel is not to exceed 10km/hr and travel over bridges is to be excluded.

7.2.3 *Counterweights*

Counterweights may be repositioned from the manufacturer's designed operating position on the crane's body provided that:

- The maximum VAI is reduced by the repositioning action.
- The counterweight is securely fixed in the new position while on the road.
- The maximum VAI on the crane does not exceed the value applicable to the capacity of the crane.
- Full details are submitted by the applicant for technical evaluation at the time of first application for a permit.
- Details shall be recorded on the Heavy Vehicle Inventory Form, (TNZ 803).

Counterweights required for a mobile crane's normal lifting operation may also be carried on a trailer towed behind the crane provided that this practice does not increase the bridge engineering supervision requirements.

8. PAYLOAD REQUIREMENTS

8.1 Divisible Loads

8.1.1 Approved Exceptions

Permits shall not be issued for divisible loads, except in the following approved exceptions:

- specified ISO containers on specified routes, refer section 8.4;
- transformer oil, refer section 8.5;
- building removals, refer section 8.6;
- slurry sealing, refer section 8.7;
- platform trailers, refer section 8.8;
- towing of trailers, refer section 6.2.4;
- towing of disabled vehicles, refer section 8.9; and
- grandfather rights for tourist buses and coaches, refer section 8.10.

8.1.2 Special Circumstances

Where a special circumstance applies, such as a new severe bridge restriction, the issue of a permit for a divisible load up to the legal weight limits may be considered upon direct application to the road controlling authority involved, but specific procedures are required by the Heavy Motor Vehicle Regulations 1974 before such a permit can be issued by **any road controlling authority**.

8.2 Stripping of Loads

The removal of strippable items should be considered by the operator so as to minimise the load and hence the restrictions applying to the movement.

In addition to requirements under other sections of this policy, where the BLR (refer section D5) exceeds 175% or the DLR (refer section D4) exceeds 130%, the approving engineer may require the removal of strippable items if this would significantly reduce the amount of bridge engineering supervision for the journey.

8.3 Ballasted Tractors

The National Highway Manager (for movements on state highways) or the local authority approving engineer, may approve the use of traction ballast on a prime mover (tractor) with two rear driving axles, if other means of transport are not readily available (refer section 6.3).

Proposals submitted for approval are to include gradients en route, MGC(s) (refer section D7), ballast details and weights, makes and number of tractors involved, registration numbers of tractors and trailers.

Notwithstanding the above overweight permits may be issued for tractor(s) each with two rear driving axles, using ballast for traction when towing drawbar trailers, provided that:

- Legal weight limits on the tractor(s) are not exceeded.
- Gradients on the proposed route have been established.
- The MGC, having been calculated according to section D7, is greater than the gradient at all uphill gradients on the proposed route.

8.4 ISO Containers

Generally containers are considered to be divisible loads, however ISO containers, up to 40 feet in length, may be considered as indivisible loads when they have been loaded or packed for the sole purpose of export or import.

Single, multiple or continuous permits may be issued for vehicles carrying ISO containers, subject to the following conditions:

- road routes are specifically named; and
- routes are to and from sea ports.

Vehicles carrying ISO containers are **not** eligible for area permits.

8.4.1 Tyre Size

Minimum tyre size shall be a 235 millimetre manufacturer's designated section width having an aspect ratio of 75 and fitted to a 17.5 inch rim.

8.4.2 Evidence Bona Fide

It will be necessary for an operator wishing to rely on this policy to carry documentation supporting the fact that, in the case of export containers, the entire contents of the container had been loaded or packed for the sole purpose of export or, in the case of imported containers, the entire contents of the container were loaded or packed overseas.

Any of the following documents will be acceptable:

- Shipping company delivery order;
- Shipping company carter's note;
- Carrier's waybill;
- Wharf gate pass; or
- Any other traceable document.

It will be sufficient compliance with this policy if the driver produces a photocopy or facsimile of the document.

Where a vehicle being used under the authority of this policy is stopped by an enforcement officer the driver must immediately upon demand give to that officer documentary evidence that the container has been loaded or packed for the sole purpose of export or import.

Approval to operate under the authority of this policy may be revoked if it is shown that an operator deliberately misrepresented the fact that a container had been loaded or packed for the sole purpose of export or import.

8.4.3 Maximum Vehicle Axle Index

Overweight permits may be issued for vehicles providing that the VAI (refer Appendix D1) does not exceed 1.10. Vehicles qualifying under clause 8.4.5 of this manual may exceed this limit.

8.4.4 Motorway Use

Vehicles carrying ISO containers under an overweight permit, in accordance with section 8.4, are permitted to use motorways. (Refer section 9.3).

8.4.5 Grandfather Rights for Single Large Tyred Vehicles

Vehicles that were first registered in New Zealand before 1 October 1997 and at that time fitted with single large tyres may be issued with permits to operate at the same axle weights that now apply to vehicles fitted with twin tyred axles. These rights will expire in the year 2005.

8.4.6 Brake Code Requirements

Vehicles carrying ISO containers under overweight permits at a gross mass between 39 and 44 tonnes are required by the Land Transport Safety Authority to either be brake coded or meet the Interim Brake Specification. Operators will be asked to supply confirmation of this when applying for overweight permits.

8.5 Transformer Oil

The removal of oil from transformers can cause technical difficulties with the transformers.

Transformer oil is not regarded as a divisible component.

8.6 Building Removals

- Continuous and area permits may be available for movements where the Pavement Loading Ratio (PLR) does not exceed 120%;
- Single trip permits may be available where the PLR exceeds 120%;
- Where the PLR exceeds 130% single trip permits may be available as for other loads that are not readily divisible. The Approving Engineer may request the cutting up of heavier houses if this would significantly reduce the amount of bridge engineering supervision for the proposed journey;
- For movements on state highways where the PLR exceeds 150% the approval of the National Highway Manager shall be obtained; and
- Buildings shall be transported in accordance with the current requirements specified on the overdimension permit.

8.7 Slurry Sealing

Permits may be issued to allow partially loaded slurry sealing trucks to operate, including travel between stockpiles and sealing sites, according to the following table:

Maximum Vehicle Axle Index (VAI)	Radius of movement from stockpile site (km)
1.30	5
1.20	20

8.8 Platform Trailers

Permits may be issued to allow empty platform trailers towed behind ballasted tractors to carry a second empty trailer. Such permits are subject to the vehicle combination meeting any vehicle safety requirements of the Land Transport Safety Authority. The ballast used for traction shall conform to section 8.3 of this policy.

8.9 Towing of Disabled Vehicles

This policy relates to the issue of overweight permits for the towing of vehicles that have been involved in an accident or suffered mechanical failure. Where the disabled vehicle is a risk to road safety because of its dangerous location it will be permissible for the vehicle combination to exceed the legal weight limits without enforcement action whilst towing from the point of the accident or breakdown.

The towing distance shall be the minimum required to move the disabled vehicle from the point of accident or breakdown to the nearest place of safety out of the traffic stream where the disabled vehicle can be reduced in size, or for a distance of 10 km, whichever is the lesser. It shall exclude travel over any bridges

For the onward movement from the place of safety of disabled vehicle combinations that exceed the legal weight limits, single trip overweight permits may be issued provided:

- the vehicle axle index does not exceed 1.20;
- the vehicle combination complies with the Land Transport Safety Authority's current Policy for Overdimension Permits Section 11.3 "Disabled Vehicles" with the exception of condition (f); and
- the vehicle combination complies at all times with all relevant regulations (such as Dangerous Goods, Certificate of Loading, Road User Charges, and Load Security).

8.10 Grandfather Rights for Tourist Buses and Coaches

Buses and coaches that are currently used for tour and charter operations may be granted overweight permits to operate with passengers and luggage above the legal weight limits under the following conditions:

- First built and operated in New Zealand under design approvals prior to 1992
- Fitted throughout with air suspension or a combination of spring and air suspension
- Axle limit to be 6.60 tonnes on the steer axle. Legal weight limits to apply to all other axles and gross vehicle weight
- Tour and charter operations only

The vehicle must operate within the axle ratings laid down on the Certificate of Loading.

These rights will expire when the vehicle ceases use as a commercial tour vehicle. The rights do not apply to any bus or coach that is rebuilt after the date of this amendment to comply with the design approvals identified above.

9. ROUTE REQUIREMENTS

9.1 Alternative Routes

In general, permits should be processed using the route desired by the applicant. However, if the proposed route involves either of the following:

- pavements where the PLR exceeds 130%, or
- bridges which cannot be bypassed and which have:
 - decks where the DLR exceeds 130%, or
 - spans where the BLR exceeds 175%

then the approving engineer for the office issuing the permit may require that an alternative route be used. (Refer section 5).

9.2 Use of Local Bypasses for Weak Bridges

Where an acceptable ford, railway level crossing or other crossing is available as an alternative to a bridge that would require bridge engineering supervision, the approving engineer may require that such an alternative crossing be used instead of the bridge.

9.3 Use of Motorways

As a general policy motorway travel by overweight vehicles and loads is permitted wherever practically possible with the exception of the following vehicles:

- those that do not have the capability to operate safely at 70 km/h or greater;
- those restricted as a condition of the overweight permit in sections 6.4 or 7.1.4 to a maximum speed of 50 km/h or less.

In some cases evidence of the vehicle's capability may be required from the vehicle manufacturer.

Transit New Zealand's Regional State Highway Managers (RSHMs) may determine local conditions for motorway travel following consultation with the Land Transport Safety Authority (LTSA), NZ Police, and the heavy transport industry.

In general overweight vehicles should be allowed to use the motorway network in preference to urban roads and streets. The principal restriction on the use of motorways should be those vehicles that impose a hazard because they are incapable of operating safely at a reasonable speed. Motorway travel at speeds below 70 km/h may be permitted at the discretion of RSHMs provided additional local conditions covering vehicle movement (e.g. time of travel) are also imposed following the consultation outlined above.

Section 9 concludes here

10. WEIGHT DETERMINATION AND ENFORCEMENT

10.1 Weighing Procedures

10.1.1 General

All weighing shall be done in accordance with The Transport (Measurement of Weight) Notice 1997.

All weighings shall be supervised by NZ Police or a consultant approved by Transit New Zealand to ensure that correct procedures are used when weighbridge certificates are supplied by the applicant.

The weighing record must include a concise description of the vehicle and its loading condition, including the extent of operating gear carried and the description and position of the payload.

In general, the police will accept these weighing records.

10.1.2 Weighing for Permit

The permit issuing officer or any of the road controlling authorities involved in a movement, may require the vehicle to be weighed at a specific locality as a condition of the permit. This will require either:

- that confirmation of axle weights from a certified weighing facility be sent to the permit issuing officer clearly indicating the permit serial number, or
- that the weighing be done under the control of a person nominated by the permit issuing officer.

In addition the road controlling authority may, by exception, require evidence of satisfactory load sharing of vehicles that have non compliant suspension systems.

10.2 Determination of Axle Weights by Calculation

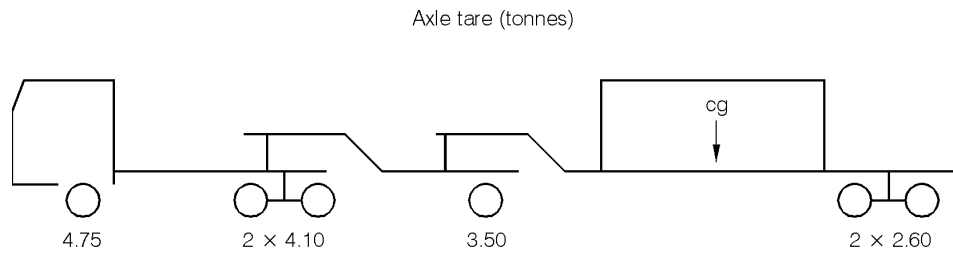
10.2.1 Principles

Individual axle weights can be determined for multi-axled vehicles by calculation. Calculations require the following information:

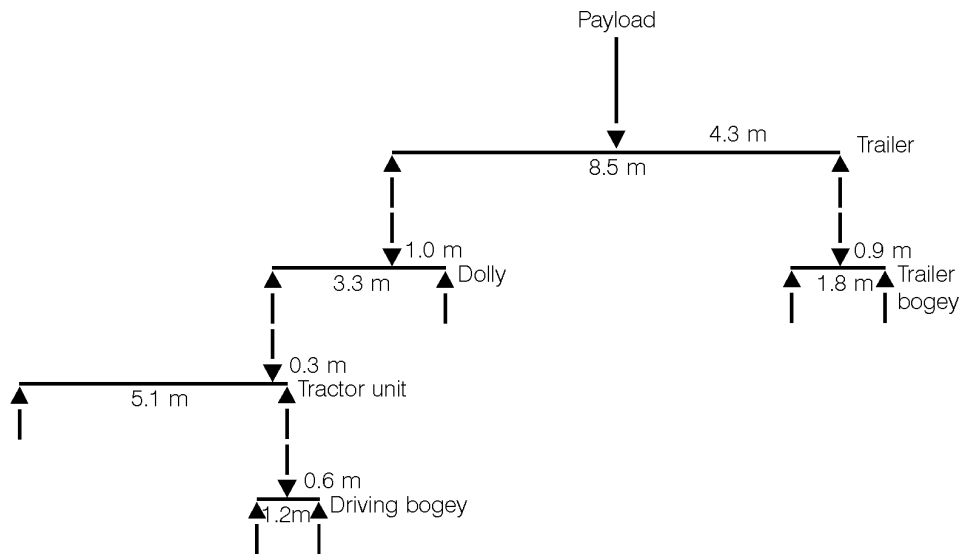
- vehicle dimensions and axle tare weights
- payload position and weight

10.2.3 Example

The transporter in the diagram below consists of three units; tractor, dolly and trailer. The tractor and trailer have rear tandem axles with walking beam suspensions. Calculate the axle weights for a 40 tonne payload.



Distribution of the payload to the axles can be represented diagrammatically:



The payload is carried by the trailer and is distributed to the dolly and the rear bogey.

The load on the dolly is distributed to the dolly axle and to the tractor, etc.

For each section the distribution is done by reference to section 10.2.2, hence:

Part of Vehicle	Proportion of Payload
Trailer	1.00
Trailer bogey	0.49
Trailer axles	$0.50 \times 0.49 = 0.245$ each
Dolly	0.51
Dolly axle	$0.70 \times 0.51 = 0.36$
Tractor	$0.30 \times 0.51 = 0.15$
Steering axle	$0.06 \times 0.15 = 0.01$
Driving bogey	$0.94 \times 0.15 = 0.14$
Driving axles	$0.50 \times 0.14 = 0.07$ each

For a 40 tonne payload, axle weights would therefore be:

Payload	0.40	2.80	2.80	14.40	9.80	9.80
Tare	4.75	4.10	4.10	3.50	2.60	2.60
Gross	5.15	6.90	6.90	17.90	12.40	12.40

10.3 Enforcement

10.3.1 Breaches of Overweight Permits

Transit New Zealand and New Zealand Police have agreed to define breaches of overweight permits as *major* or *minor* as follows:

Major breach:

- No permit held;
- Incorrect route used;
- Different vehicle used;
- Different load carried (unless payload is unspecified);
- Breach of bridge supervision requirements;
- Permit weight exceeded, requiring additional bridge and road restrictions or supervision on new permit;
- Permitted speed exceeded;
- Weight limit stated on Certificate of Loading exceeded (refer section 4.1).

Minor breach:

- Permit weights exceeded, but no additional bridge supervision requirements ensue on new permit.

Police officers may, at any time, stop and weigh a vehicle travelling under permit.

Police are authorised to divert vehicles operating on overweight permits up to five kilometres for the purpose of weighing, provided understrength bridges are not included on the route.

If the vehicle is found to be in major or minor breach of any of the conditions set by the permit, then:

- the permit is no longer valid and is cancelled unless it is revalidated by a Police officer following successful adjustment of the load;
- the vehicle must remain at the point of weighing until a new overweight permit has been obtained, or the load adjusted to comply with the permit weight and the original permit has been revalidated;
- the police will issue an infringement notice for breach of overweight permit in every instance (they may also issue notices for any other offences detected); and
- the police will issue overloading infringement notices calculated from the legal weight limits.

Unless the permit is revalidated by the Police following adjustment of the load, application must be made to the original permit issuing office for a new permit to be issued for the entire journey. Time will have to be allowed to enable the new details to be processed.

The Police will not waive overloading infringements until they have inspected the revoked and replacement permits and are satisfied that the breach was minor.

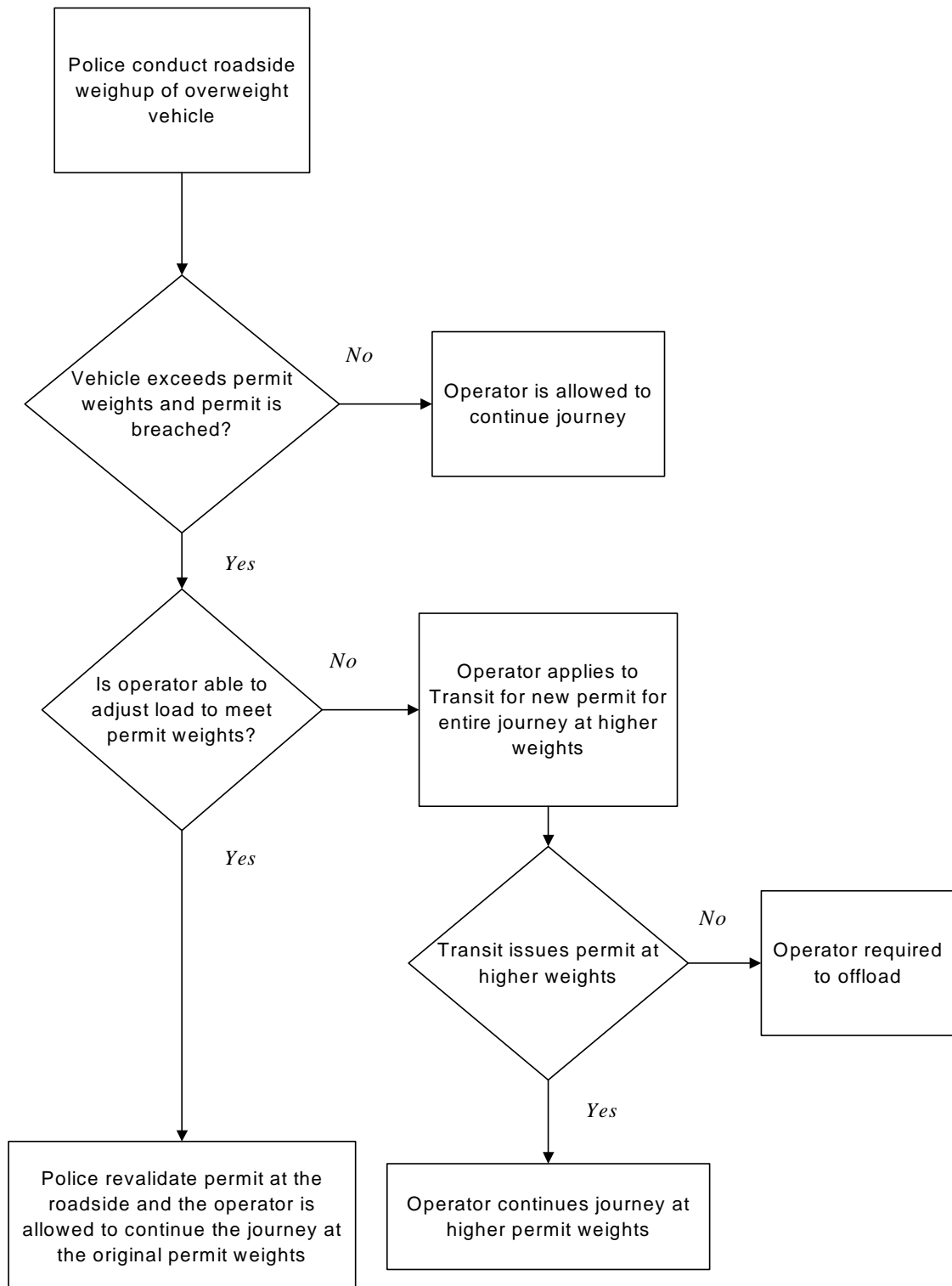
Where a vehicle has been found to exceed the stated permit weight limits and the operator is able to adjust the load to comply with those weight limits, NZ Police have agreed to revalidate overweight permits at the roadside in order that the journey may resume. The full process for roadside enforcement of overweight vehicles and subsequent action by the NZ Police is shown in section 10.3.2.

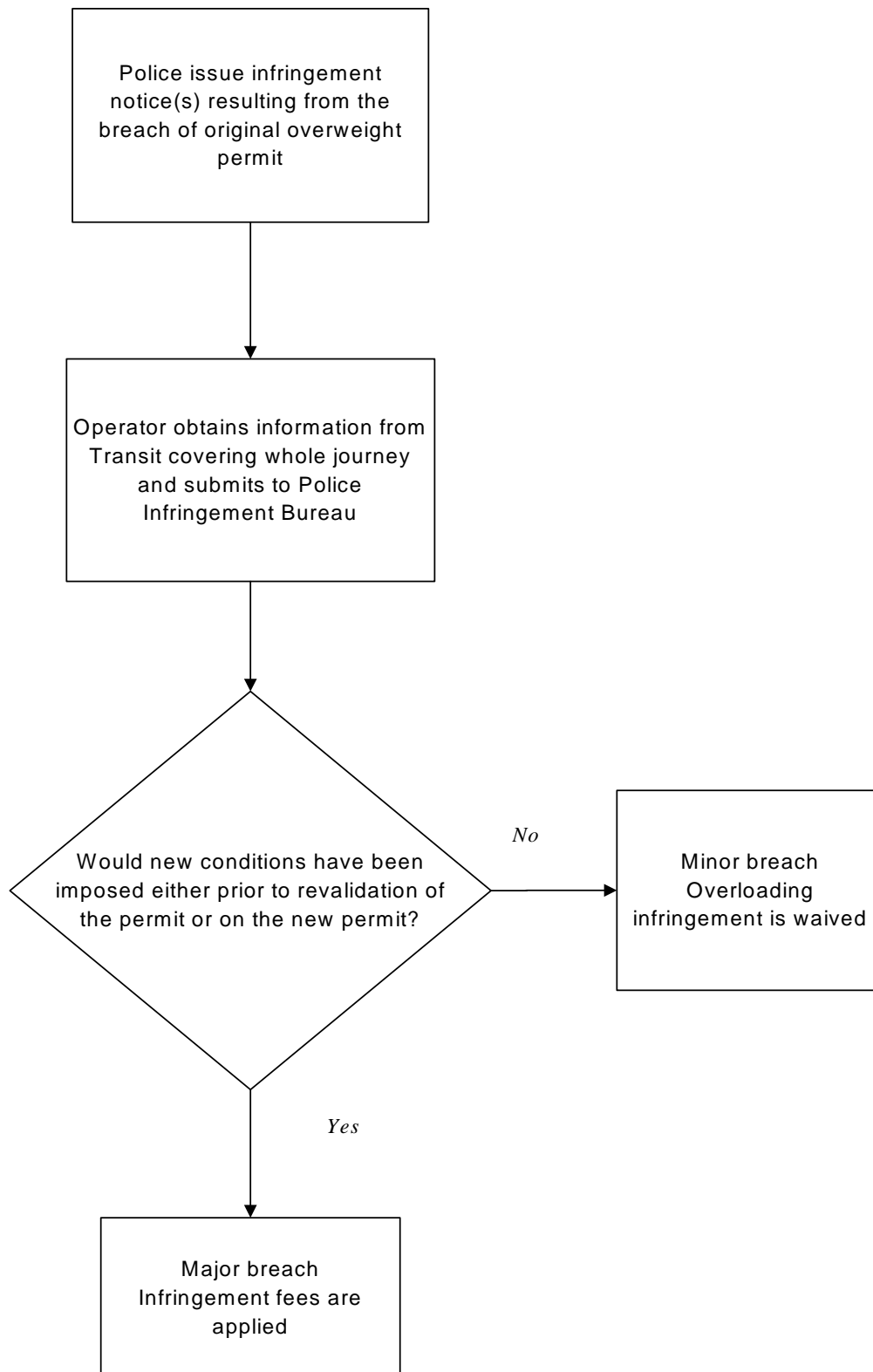
Transit New Zealand will support requests from the Police for access to overweight permits for information.

Infringement offences and fees are listed in the Second Schedule, Transport Act 1989.

10.3.2 Process for Breaches of Overweight Permits

1. At the roadside



10.3.2 Process for Breaches of Overweight Permits (continued)**2. Subsequent Police action**

10.3.3 Mobile Plant

Fixed weight mobile plant (motor scrapers, forklifts, mobile cranes etc) having constant axle weights and dimensions, may have their overweight permit endorsed with their certified weight obtained from a supervised weighing site.

Police officers will recognise such certified weights as an alternative to enforcement weighing provided that:

- weighings and dimension checks are conducted under police supervision;
- approved and certified weighing equipment only is used;
- the endorsement applies only to the trips listed on the permit and ceases to have effect when the permit date has expired;
- no modifications have been made to the vehicle or load which affects the certified weights;
- the vehicle has either a current certificate of fitness or warrant of fitness, whichever is applicable;
- the vehicle complies with the weight limitations imposed by the certificate of loading; and
- the vehicle complies with all of the provisions of the Road User Charges Act 1977.

10.3.4 Mobile Crane Weight Certificates

To prevent repeated enforcement weighing of a fixed weight mobile crane, a “Mobile Crane Weight Certificate” may be issued by the Land Transport Safety Authority.

The certificate incorporates a detailed description of major accessories likely to significantly effect the weight and includes photographs.

Cranes issued with this certificate will not be weighed routinely by police officers, provided that all the conditions listed in section 10.3.2 are complied with.

If there are valid reasons to believe that changes have been made, that would cause a significant increase in the weights stated on the certificate, then a crane remains subject to enforcement weighing.

The above does not prevent police from weighing a mobile crane if they consider there is good reason to.

11. BRIDGE ENGINEERING SUPERVISION AND TRAFFIC SAFETY

This section covers the policy for bridge engineering supervision and traffic safety on bridge crossings.

Permit issuing officers should refer to section 11.6 for the procedure to follow when completing the permit conditions.

11.1 General

Bridge engineering supervision is specified as a condition of an overweight permit when it is necessary to apply special positional and/or speed controls to keep the effects of the vehicle within the capacity of the bridge. (Refer section 12.3.1).

As a result of complying with these conditions the overweight vehicle may also produce an impact on traffic safety which requires the presence of a qualified pilot to warn other traffic.

The road controlling authority has the power to impose these controls on the overweight vehicle and to have its authorised officers ensure that the conditions are carried out.

(Regulation 7(1) of the Heavy Motor Vehicle Regulations 1974).

11.2 The Role of the Bridge Supervisor

Bridge engineering supervision is normally carried out by personnel directly responsible for maintaining the structural integrity of the bridge. It involves checking that the overweight vehicle complies with the permit conditions on bridge crossings. In many cases a speed restriction with the vehicle remaining in its own lane will be sufficient. For travel on state highways the bridge supervision service is provided by Transit New Zealand's engineering consultants.

The responsibility for traffic safety during bridge crossings rests principally with the holder of the overweight permit. The bridge supervisor should ensure that their routine activities during bridge crossings are limited to the protection of the structure, rather than the direction and control of traffic.

Following the bridge crossing the supervisor should initial the form TNZ 806 alongside each bridge for which they have provided supervision.

Road controlling authorities may require that bridges be inspected for damage by their supervisor after the overweight vehicle has crossed. Any damage observed should be immediately reported and followed up.

11.3 Arrangements for Rendezvous for Bridge Supervision

Where bridge engineering supervision is included as a condition of an overweight permit, the permit holder shall contact the bridge engineering supervisor at least 24 hours before the bridge crossing and arrange to meet the supervisor at some convenient place before the bridge.

If the overweight vehicle is delayed through unforeseen circumstances, the operator shall make every effort to contact the supervisor and change the arranged rendezvous time.

If the overweight vehicle fails to rendezvous within one hour of the time arranged, the crossing arrangements will be deemed to have been cancelled. This will be conveyed to the permit issuing officer, since failure to rendezvous incurs a fee. (Refer section 3.6.2.).

11.4 Bridge Engineering Self Supervision by Transport Operators

11.4.1 Policy

The policy of bridge engineering self supervision was first introduced in 1987, and reviewed by Transit New Zealand in 1996. Under this policy companies that have a good record in relation to observing the Heavy Motor Vehicle Regulations 1974 and Transit New Zealand's overweight permit policy may be approved to carry out bridge engineering supervision.

The impact of this policy has been to largely eliminate the use of Transit New Zealand's consultants for routine bridge crossings on state highways. In future road controlling authorities are expected to extend self supervision by transport operators to all bridge crossings where they are satisfied that the integrity of the bridge structure is not threatened.

11.4.2 Conditions of the Policy

This policy is subject to the following conditions:

- The National Highway Manager is authorised to approve companies. A list is kept of approved companies, together with a schedule of their drivers and vehicles. Self-employed drivers will be recorded against the company they are engaged to drive for. If permit conditions are breached, the National Highway Manager has the discretion to disqualify the company and/or the driver and remove their names from the list.
- Companies that provide evidence of measures taken to avoid a recurrence of a breach of overweight permit should be reinstated to the approved list for bridge engineering self supervision following three months of disqualification.

- The company is to nominate, on the basis of proven good record, the driver(s) it wishes to be permitted to provide such supervision, and the vehicles or plant items involved. Transit will consider applications taking into account the record of the company together with advice received from consultants, NZ Police, and other road controlling authorities.
- The list of approved companies will be updated periodically to record changes in drivers and vehicles. The self supervision status is held by the company, and is not transferable in the event of drivers changing to a non-approved company.
- When bridge self supervision is authorised the permit is endorsed by the permit issuing officer to specify which bridges and drivers are covered.
- While the responsibility for bridge engineering supervision remains with the road controlling authority or Transit New Zealand's engineering consultant, the permit holder must advise them of any discrepancy or damage associated with a bridge crossing. Such advice should be given as soon as possible, but in any case within 24 hours of the bridge crossing.

11.5 Traffic Control at Bridge Crossings

11.5.1 Approved Industry Procedure

The New Zealand Heavy Haulage Association and the Power Crane Association of New Zealand have jointly developed the document "Code of Practice for traffic control at bridges being crossed by overweight vehicles". This document meets Transit New Zealand's requirements for traffic control by overweight vehicles at bridge crossings.

11.5.2 Qualification

Traffic controllers who have been registered with either of the two industry associations mentioned in section 11.5.1 or separately recognised by the road controlling authority may be permitted to accompany overweight vehicles for the purpose of providing traffic control on bridge crossings as required in section 11.6.

11.5.3 Power to Stop Vehicles

Any person accompanying an overweight vehicle for which a permit has been issued by Transit New Zealand has the power to stop vehicles on any state highway where this is necessary for the purposes of safety.

(Section 61(2B) of the Transit New Zealand Act which came into effect on 29 July 1995).

11.6 Requirements for Traffic Control at Bridge Crossings

Level & Condition for Bridge Crossing ⁽¹⁾	Risk to other vehicles	Traffic control requirements ⁽⁴⁾
50 km/hr or 20 km/hr own lane	Not significant	None required
All Crawl own lane ⁽²⁾	Low	Overweight vehicle to have revolving amber light visible from the rear together with rear facing retro-reflective hazard panels
All Crawl central or crawl offset ⁽⁵⁾	High	Provide qualified traffic controllers or C Grade Pilots ⁽³⁾ using approved industry procedures

Notes:

1. The first column refers to the bridge engineering supervision requirements which are outputs from the overweight permit computer checking system. It is expected that permits issued by local authorities using alternative methods would follow a similar pattern.
2. A traffic controller may need to be present for own lane travel (20 km/hr or crawl) where other heavy vehicles have to be prevented from travelling on the same span as the overweight vehicle. It is expected that this will only apply on long span bridges where the critical span of the bridge as identified by the overweight permit computer checking system is over 30 metres in length.
3. An A or B grade pilot certified under the Land Transport Safety Authority (LTSA) scheme for classifying pilots used to escort overdimension vehicles and loads may be used to replace a C Grade pilot.
4. Vehicles or loads exceeding 3.1 m in width will require a pilot under the LTSA scheme for overdimension vehicles/loads irrespective of the bridge crossing condition being imposed by Transit.
5. For Crawl central or crawl offset on one lane bridges overweight vehicles shall comply with the low risk traffic control requirements given above.

Section 11 ends here

12. INVENTORY PROCEDURES AND TOPS

12.1 Heavy Vehicle Inventory

An inventory of heavy vehicles that operate under overweight permits has been compiled by Transit New Zealand. The inventory includes transporters, mobile plant and articulated vehicles.

For each vehicle the inventory lists information necessary for overweight permit applications. This makes the processing of permits more efficient.

Each vehicle is allocated a permanent serial number. A separate record is held for each vehicle configuration that may require a permit.

Changes in vehicle information should be maintained by Transit regional offices.

Whenever permit applications are made for vehicles not in the inventory, form TNZ 803 should be completed and sent to Transit New Zealand regional offices.

12.2 Pavement Inventories

Before this policy can be implemented in an area, the pavements of all roads likely to be subjected to overweight movements must be graded into grades A, B, C or D.

Pavement grades should be stored in and available from inventories.

Pavement gradings for state highways and agreed overweight bypasses are stored in TOPS (refer section 12.4). These pavement grades are available from Transit New Zealand regional offices.

12.2.1 Pavement Grades

Under this policy a Grade A pavement allows axle weights approximating the legal axle weight limits (refer section 2) at a PLR (refer section D3) of 100%

Similarly, grades B, C and D allow progressively reducing axle weights, as shown in the following table:

Pavement Grade	*Approximate % Legal Axle Weight Limits Allowed at PLR 100%	Pavement Grade Factor
Grade A	100%	1.000
Grade B	89%	0.889
Grade C	78%	0.778
Grade D	67%	0.667

*Exact for twin-tyred spaced axles.

12.2.2 Grading of Pavements

Regional managers are responsible for grading state highway pavements. They should inform Transit New Zealand head office of all grading and regrading determinations as soon as they are made.

At a PLR of 150%, which is allowed in some cases under this policy, axle weights will be 50% in excess of weights at the PLR 100% level.

The grading of a particular pavement should be chosen so that the pavement structure and its underlying components (foundation, culverts, services, etc) can sustain axle weights at the 150% PLR level without substantially increasing the pavement wear at the likely overload frequency.

Pavement gradings should be determined in the expectation that they can be maintained for at least five years, although as a matter of routine, gradings should be subject to review at two-yearly intervals.

The following points regarding a pavements condition should be considered:

- Pavements that show signs of shape defects appearing, particularly in the wheel tracks, may be suffering from foundation overstrain or low basecourse shear strength which may justify a lower pavement grading. “Shape” and “ride” components of pavement structural ratings should indicate this condition.

- Pavements that are surfaced with structural dense asphaltic layers and have a “high” Benkelman Beam deflection together with signs of surface cracking may justify a lower pavement grading, as in this situation the cracking represents loss of structural competence as well as surface waterproofing. “Cracking” and “patching” components of pavement structural ratings should indicate this condition.
- Where the strength of a pavement significantly varies on a seasonal basis, then the grading of that pavement can be varied accordingly.
- If unexpected deterioration of any pavement occurs, then the pavement grading should be modified immediately.

12.3 Bridge Inventories

Before this policy can be implemented in an area, all bridges likely to be subjected to overweight movements must be rated, which involves:

- classifying the main structural members into bridge classes, for example Class 100; and
- grading the bridge decks into deck grades, for example Grade A.

Detailed methods of bridge classification and bridge deck grading are given in section 6 of the Transit New Zealand “Bridge Manual for Design and Evaluation”, 1992.

Bridge classes and deck grades should be stored in and available from inventories.

12.3.1 Bridge Classes

Under this policy, bridge class is the percentage of the standard Rating Load that the main structural members of a bridge are allowed to carry (with a maximum of 120) when a vehicle is travelling:

- under an overweight permit; and
- under normal vehicle operating conditions.

The Rating Load produces approximately the same effect on the main structural members of a bridge as a vehicle with a VGI (refer section D2) of 1.75 under normal vehicle operating conditions.

Hence a Class 100 bridge is allowed to carry vehicles with VGI values of up to 1.75 when travelling:

- under an overweight permit; and
- under normal vehicle operating conditions.

Similarly, a Class 50 bridge is allowed vehicles with VGI values of up to $1.75 \times 50\%$.

In each of these cases the BLR (refer section D5) is 175%.

Normal vehicle operating conditions include crossing the bridge:

- at up to the legal speed limit;
- in any lane; and
- with traffic in the other lanes.

Bridge engineering supervision (refer section 11) restricts the normal vehicle operating conditions to enhance the vehicle carrying ability of the bridge.

Under this policy bridge engineering supervision is required when the BLR exceeds 175%.

12.3.2 Deck Grades

Under this policy, the Deck Capacity Factor (DCF) is the proportion of the standard Rating Load that the bridge deck is allowed to carry when a vehicle is travelling:

- under an overweight permit; and
- under normal vehicle operating conditions.

Deck grades are shown in the following table:

Deck Capacity Factor (DCF)		Deck Grade	Deck Grade Factor
equal to or more than	less than		
1.00		Grade A	1.000
0.89	1.00	Grade B	0.889
0.78	0.89	Grade C	0.778
0.67	0.78	Grade D	0.667
	0.67	Grade E	

Deck grades are a coarser measure than DCF. They are used in manual calculations and for the issue of overweight permits. DCF is used for calculations in TOPS.

The Rating Load produces the same effect on the deck of a bridge as a vehicle with a VAI (refer section D1) of 1.30 under normal vehicle operating conditions.

Hence a Grade A bridge deck is allowed to carry vehicles with a VAI of up to 1.30 when travelling:

- under an overweight permit
- under normal vehicle operating conditions (refer section 12.3.1).

Similarly, a Grade C bridge deck is allowed to carry vehicles with a VAI of up to 1.30×0.78 .

In each of these cases the DLR (refer section D4) is 130%.

Under this policy **bridge engineering supervision** (refer sections 11 and 12.3.1) is required when the DLR (= VAI/Deck Grade Factor) exceeds 1.30.

The following table shows the maximum VAI of vehicles that each grade of bridge deck is allowed to carry when vehicles are travelling:

- under an overweight permit; and
- under normal vehicle operating conditions (i.e.: without bridge engineering supervision).

Deck Grade	Maximum VAI allowed without bridge engineering supervision (1.30 × Deck Grade Factor)
Grade A	1.30
Grade B	1.16
Grade C	1.01
Grade D	0.87

12.4 Transit Overweight Permit Checking System (TOPS)

This computer system is a program used in conjunction with Transit New Zealand's overweight permit policy. Transit New Zealand owns and maintains the information stored in the system, together with the software. The system covers state highways and agreed bypasses for overweight loads. Refer Transit New Zealand's "Overweight Permit Route Maps".

Recent changes mean that local authorities can now choose to have their roading networks included in TOPS.

TOPS comprises of a three tiered structure that allows the data, business logic and user interface to be separated. The software programme is written using Visual Basic and SQL. The bridge, highway and vehicle data are stored in a server at Transit New Zealand Head Office, Wellington.

The programme checks pavements and bridges on a specified route for their ability to carry a specified overweight vehicle, and prints any restrictions or supervision requirements for the route in the form of a test report. It also populates the overweight permit template stored in the system with vehicle details and bridge crossing conditions.

The help menu of the system comprises of;

- TOPS User Guide
- TOPS Operational Guide
- TOPS System Administrator Guide