Auckland City's heavy commercial vehicle policy

A heavy commercial vehicle (HCV) strategy for Auckland City

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Abstract

An efficient system of freight transport is essential to the local, regional and national economies. Businesses, industry, shops, offices and homes all rely on the delivery of goods and services to offer competitive products to the community.

Freight is moved around Auckland City by road, rail, sea and pipeline. Freight is moved on roads by light commercial vehicles (LCVs) and heavy commercial vehicles (HCVs). HCVs have a generally negative image within the community due to their size, generation of noise / air pollution and the damage they cause to the road infrastructure. Increased levels of congestion adversely effect the cost and efficiency of moving goods and can result in conflict between the transport industry, businesses and the community.

Auckland is the country's largest transport hub catering for approximately 34% of the countries national output, with the Ports of Auckland handling over 12 million tonnes in volume. Due to the existing economic and land use climate of Auckland City, a high proportion of freight movement occurs via road transport.

The implementation of a heavy commercial vehicle strategy will provide the framework for the City to fulfil it's vision: "to *provide for the safe and efficient movement of goods and services in Auckland City, whilst seeking to minimise the adverse effects on the economy, community and the environment*."

This is the first local authority freight strategy in New Zealand and offers a unique opportunity for Auckland City to work with the community and the transport industry in planning and managing the movement of freight and heavy commercial vehicles around the Auckland Isthmus.

1 Background

1.1 The existing situation

Increasing levels of traffic on Auckland's roads and associated congestion, environmental, social and economic costs have become a major issue for the City, region, businesses and the transport industry. The transport industry through the movement of freight delivers an essential service to the community and is a major contributor to the City's economic wellbeing, vitality and urban lifestyle. Increased levels of congestion adversely effect the cost and efficiency of moving goods and can result in conflict between the transport industry, business and the local community including:

- Heavy commercial vehicles (HCVs) using local roads to bypass congested arterial roads;
- Delays in the delivery of consignments;
- Increases in the costs of produce.

Ernst and Young [1] undertook a study in 1997 that showed the cost of congestion to businesses in the Auckland Region was approximately $755 million a year in 1997.

Movement of freight by HCVs within urban areas is a key contributor to the economic wellbeing and vitality of an urban area through the development of the local economy and lifestyles of the community. Without the existence of HCV movements the local shops would not be stocked with goods.

A high percentage of HCV movements are carried out on State Highways including motorways, which are controlled by Transit NZ. Auckland City' s road network is divided into five different road types with HCV through movements and access concentrated on regional and district arterials. Access to residential and businesses/retail areas not adjacent to the arterial corridors are contained on collector and local roads. Traffic flows along the arterial network are shown in the table 1

Road	**Average daily traffic flow**	**No of HCVs**	**HCV%**
Balmoral Rd, Balmoral	24,000	2,400	10%
Church St, Penrose	39,000	5,460	14%
College Rd, St Johns	21,000	1,680	8%
Dominion Road, Balmoral	20,600	1,850	9%
Donovan St, Mt Roskill	18,500	1,480	8%
Ellerslie-Panmure H' way	18,600	1,300	7%
Great North Road, Western Springs	23,000	1,380	6%
Great South Road, Harp of Erin	27,000	1,890	7%
Green Lane East, Remurea	37,000	3,330	9%
Green Lane West, Greenlane	25,000	2,500	10%
Hillsborough Road, Hillsborough	13,200	1,710	13%
Kepa Road, Orakei	23,400	1,400	6%
Mangere Rd, Otahuhu	42,000	13,440	32%
Mt Albert Rd, Three Kings	29,000	870	3%
Mt Wellington Highway,	23,000	1,150	5%
New North Road, Morningside	13,700	1,640	12%
New North Road, Mt Albert	24,500	1,225	5%
Penrose Rd, Penrose	14,000	1,120	8%
Pilkington Rd, Tamaki	18,200	730	4%
Quay St, Auckland Central	32,000	2,560	8%
Remuera Road, Remurea	12,200	1,590	13%
Rosebank Rd, Avondale	16,500	1,230	7.5%
St Lukes Rd, Balmoral	33,000	1,980	6%
Tamaki Drive, Mechanics Bay	46,000	6,440	14%
Waipuna Rd, Mt Wellington	51,000	9,180	18%
West End Road, Westmere	17,000	510	3%

Table 1 Classified traffic counts site in Auckland City (1998-2001 counts)

The majority of Auckland City's road network consists of residential roads where the movement of HCVs should be limited to deliveries and access.

Road hierarchy	Length
State Highways *	61 km
Regional arterial roads	118 km
District arterial roads	139 km
Collector roads	145 km
Local roads	883 km

Table 2 Total length of roads in Auckland City's boundary
*controlled by Transit NZ

1.2 Community and business concerns

The major concerns voiced by the community in relation to the movement of heavy commercial vehicles (HCVs) relate to:

1) The number of HCVs on the road network
2) HCV crashes;
3) Engine braking noise;
4) HCV emissions;
5) HCVs using residential roads as a through route;
6) HCVs parking in residential roads;
7) HCV non compliance with existing regulations – ie unsecured loads

Issues that were identified by the freight industry and businesses that may potentially affect the degree to which future demands for HCV movements can be efficiently met include:

1) The completion of the strategic road network in the Auckland region;
2) The quality of the existing road infrastructure;
3) Geometric design of roads that do not account for the physical characteristics and limitations of larger vehicles;
4) Lack of communication and consultation with the freight industry on road network improvements;
5) Operational delays due to restrictions and limitations - lack of loading facilities and reduction in trip rates due to the increase levels of congestion.

2 Existing strategic policy and legislation

The development of a freight strategy must maintain consistency and enhance existing city and regional strategies that influence and effect the demand and efficiencies of freight movements.

Auckland City Strategic Plan 2020 **-** presents a vision for Auckland to become the First City of the Pacific. One of the priority outcomes in the strategic plan is "Effective Transport". The plan envisages Auckland will have "an integrated transport network where people and goods can move easily and safely by road, rail, water and air."

Cycle and Walking Strategy - was adopted by the Council in 1998. It identified the strategic direction and required investment for the future development of recreational and commuter cycling and walking in Auckland City. The desired outcomes from the implementation of the strategy are to increase the proportion of short trips made by cycling and walking while making it viable, safe and easy.

Buses First - is a series of initiative designed to give buses priority over other traffic on arterial roads. The desired outcome is to implement affordable and practical bus priority measures that will:

- make travel by bus quicker and reliable;
- encourage people to take the bus;
- and protect buses from the effects of traffic congestion.

Liveable Communities 2050 Strategy **-** is a strategy for managing the growth of the City of Auckland over the next 50 years, which was adopted in June 2000. Auckland City developed the strategy in the context of its involvement in the Regional Growth Forum, established in 1996 to address future growth across the region. The desired outcome for transport in the strategic growth management areas is "a reliable road system for the efficient movement of goods."

Code of Urban subdivision and development - is a non-statutory document that provides a guide to the service quality and standards for subdivision and development. In the creation of new developments it is imperative that access by HCVs including emergency vehicles is created and maintained to the agreed performance criteria.

Auckland City District Plan **-** is a statutory the legal document that contain the planning policies and rules for activities, developments, the location of activity zones, the impact of public works and other constraints on land development within Auckland City.

The Auckland Regional Land Transport Strategy (RLTS) **-** published in 1999 by Auckland Regional Council (ARC), sets out a strategy for managing the region's transport system and included strategies to manage the movement of freight throughout the region.

Auckland Consolidated Bylaw 1998 **-** details all the traffic restrictions that are in place in Auckland City that are not covered under national law. Any additional restriction that might eventuate from this policy would need to be included under the bylaw.

3 Development of a HCV strategy for Auckland City

A major challenge in the development of a strategy was to develop measures that address the conflict between the nuisances associated with the movement of heavy commercial vehicles and the value they provide in the delivery of essential goods and services and their contribution to the City and the Region' s economy.

There was a danger that in attempting to address certain problems of heavy commercial vehicle (HCV) movements, the overall role HCVs play in urban lifestyles may be lost and possible undesirable outcomes may be produced through quick sought after, or ill thought out initiatives.

For example, prohibiting HCV movements from certain routes or the use of transhipment depots may have some benefits, but this may be at considerable extra cost to operators. These additional costs would undoubtedly fall on the end user or may even cause industries to relocate, thus effecting the City' s economy on a wider front.

There was also the risk of a proliferation of measures or responses that would be largely ineffective. Examples of these initiatives might be extensive use of heavy commercial vehicle prohibitions or noise restrictions. As well as enforcement and resource implications for the City, due to the size and nature of Auckland, many of the perceived offending vehicles would have legitimate access to land uses on such routes and would not be able to be prevented from using the route. In the case of noise restrictions, currently there are no appropriate noise regulations or tests in existence for this to be a viable initiative on the existing road network.

It became apparent through research into the freight movements that Auckland City is not the only city to grapple with the problems of heavy commercial vehicle movements. Other cities in New Zealand, such as Hamilton, Rotorua and Wellington experience similar problems, but to date no specific policy documents have been produced, nor is there a national freight policy. Many cities around the world have attempted to initiate a wide range of measures with various degrees of success, but it is clear that no “Simple” or “Quick Fix Solutions” to these conflicting issues exist.

The development of the HCV strategy was undertaken in three stages with public and industry consultation being undertaken across each of the stages.

3.1 Stage 1 Issues paper

An issues paper was drafted that presented the existing situation and identified the major issues. This paper was circulated widely for consultation. The final paper reported:

- the existing situation;
- relevant issues that key stakeholders;
- freight industry issues;
- a review of existing national and international practises of the management of freight movements;

- on the outcome of consultations with key stakeholders.

3.2 Stage 2 Strategies paper

The production of a strategies paper set out a range of measures and considered their effectiveness as components of an overriding strategy. A set of criteria were developed and then used to assess the suitability of the different measures.

An evaluation matrix was created that had specific policies and measures including but not exclusively: advisory routes; route and area bans; industry consultation; location of freight generators, versus criteria, that included but not exclusively: impacts on economy, impacts on transport operational costs; impacts on journey times; and environmental impacts.

The matrix demonstrated the performance of the particular measures against each criterion. For example, time restrictions on HCVs entering shopping areas would score well on an environmental criterion but badly in terms of the impact on operating costs. Measures that addressed a wide range of desirable objectives were distinguished from those that did not.

3.3 Consultation

A HCV steering and reference groups were created to assist in the development of the processes and provide feedback on proposals. The groups consisted of: local elected representatives; city and regional council officers; Police; LTSA; Ministry of Transport; Transit NZ; Ports of Auckland; Road Transport Forum; Container Depot Association; Auckland Business Forum; and Tranz Rail.

3.4 Road Transport Expo 2001

Auckland City displayed the work undertaken in the development of the HCV strategy at the Road Transport Expo (RT2001) in Hopuhopu Waikato from 8th -10th March. The Road Transport Expo is the country' s leading transport exhibition and is used as a launch pad by the transport industry for new developments and products.

The Expo gave the HCV strategy a regional coverage including transport companies and truck drivers who use the Auckland road network to conduct their business but are based outside the Isthmus. During the 3 days approximately 10,000 people visited the Expo that resulted in a high coverage for Auckland City and the HCV strategy within the industry and the general public.

3.5 Public open days

Open days were held at community centres and shopping centres in Auckland to demonstrate the work in developing the strategy and to obtain information from the public on their concerns regarding the movement of freight.

3.6 Freight operator survey

A questionnaire was sent to transport operators to obtain information relating to:

- Operators working conditions;
- Operators fleets;
- Effect on operations of restrictive measures;
- Operating problems encountered on the Auckland road network.

It was identified during initial consultation with the industry that the majority of operators in transport industry ran to tight monetary and time constraints. When a return rate of 6% was achieved from the questionnaires it was identified that the returned questionaries were mainly from companies that had large fleets or a transport manager.

The results of the questionnaire will be used to direct the future implementation of the HCV strategy and demonstrate where resources need to be directed.

The survey results showed the majority (77%) of respondents were part of a vehicle fleet operation who conduct operations in the local region and on the North Island. The survey demonstrated that the majority of rigid (63%) and articulated trucks (93%) have some form of engine braking facilities. When asked to comment on the effect of installing engine breaking restrictions on Auckland City controlled roads, 41% said restrictions would increase maintenance costs, 25% stated that restrictions would reduce road safety and 28% stated that there would be no effect to their operations.

Operators were requested to comment on the parts of the road network that were affecting their operations such as lane widths and cornering ability. Operators were requested to scale the problems on a scale of 1 to 5 with 5 being severe.

- 42% experienced problems with cornering and roundabouts;
- 23% stated that a lack of loading zones severely affected vehicle operation;
- 35% stated existing parking provisions were hindering operations;
- 34% were concerned with indirect routes increasing journey times;
- 22% were concerned that signal timings were not optimised.

General comments included the need to complete the motorway network, the need for the cutting back of foliage and trees in the road reserve and the need for improved accident management systems.

Operators were requested to comment on the three intersections that hampered their operations. The following five intersections were the most listed:

1. Panmure Roundabout;
2. Mt Wellington / Vesty Drive, Mt Wellington;
3. Royal Oak Roundabout, Royal Oak;
4. Grafton Gully / Stanley St, Parnell;
5. Neilsen St / Onehunga Mall, Onehunga.

Operators were also requested to comment on three cross town routes where they considered improvements to the road network were required to improve their operations. The following four were the most listed:

1. Great South Rd
2. Neilson St;
3. Hillsborough Rd;
4. Southern Motorway;

3.7 Stage 3 The Heavy Commercial Vehicle Strategy

The issues and strategies papers identified seven key objectives that needed to be addressed if an HCV strategy was going to achieve positive results for both the community and business in Auckland. An action plan was created that identified the main themes and the measures that would need to be investigated or implemented.

3.7.1 Action plan

1. **Community and industrial communication**
To improve the community and industry's awareness of the role of HCVs in the urban fabric of Auckland City.

- Improve the community' s awareness of the benefits of the freight industry.
- Liaise with the freight industry to improve safety, industry image and enforcement of existing legislation.

2. **HCV network planning**
To identify, develop and support efficient corridors for the movement of goods and services in Auckland City.

- Advocate for the development of a regional freight strategy.
- Identify, support, develop and promote freight routes.
- Identify missing links within the freight network.
- Link major freight origins and destinations via the freight route network.
- Support the creation of off-street HCV and coach parking.
- Liaise with agencies regarding changes to vehicle limits and legislation.

3. Transport operations and technology
To advocate for the development and application of technologies that improves the environment and cost effectiveness of the transport industry.

- Develop an improved understanding of freight demand.
- Investigate and encourage opportunities to reduce empty running by freight vehicles.
- Encourage developments using intelligent transport systems.

4. **Local area HCV management**
To reduce the unnecessary encroachment of HCV through traffic, in traffic sensitive areas.

- Improve the management of HCV movements in sensitive areas by providing quality alternatives.

5. **Traffic operations**
To improve the efficiency of the road network and to minimise the adverse road operational effects on HCVs while maintaining the required safety and design standards.

- Improve the geometric design standards on the freight network
- Undertake HCV accident related studies
- Investigate on street loading and parking facilities for HCVs
- Improve the maintenance levels of the freight network

6. **City and development planning**
To take account of the requirements of HCVs in City planning, development planning and traffic management and road schemes.

- Maintain a minimum vertical height clearance over carriageways.
- Incorporate specific HCV transport measures into the City' s intensification programmes.
- Concentrate industrial development in around major industrial areas and transport links.
- Encourage development in particular areas to minimise overall transport costs and impacts Incorporate the HCV strategies.

7. **Monitoring**
To ensure that a monitoring programme is established that can adequately monitor the progress and performance of the HCV strategy.

- Monitor HCV flows on major freight routes.
- Annual HCV accident reports.
- Undertaking safety audits of projects.
- Origin / destination surveys.
- Before and after studies.

4 Parallel projects

The development of the strategy has highlighted a number of deficiencies in the City' s knowledge of freight movements around Auckland. At the same time as undertaking the development of the strategy a number of parallel projects have been undertaken.

4.1 Classified traffic counts

To understand heavy commercial vehicle (HCV) travel patterns on ACC roads and achieve a good level of monitoring, classification traffic counters need to be incorporated into the road network.

At present Auckland City uses tube traffic counts to collect traffic volumes by vehicle size and traffic speed. Due to high level of traffic volumes, causing the tubes to become dislodged, and congestion, creating an unidentifiable vehicle type across the tube, the tube counters have become unreliable in accurately reflecting the different types of vehicle sizes and numbers on Auckland' s arterial roads.

To accurately reflect the existing patterns of HCV across the Isthmus, the HCV policy proposes significant investment in traffic counting equipment. Under this strategy, loop counters would be placed in all arterial roads with current high levels of HCVs, and would be progressed to ensure that the designated freight network was completely monitored by the year 2005.

Initially approximately 30 loop sites will be placed on the arterial network. Each site will be monitored at least twice a year, with the opportunity to monitor them more frequently if required.

4.2 Freight routes

The City has an existing road hierarchy that separates the road network into 5 hierarchies:

1) Strategic roads;
2) Regional arterial roads;
3) District arterial roads;
4) Collector roads;
5) Local roads.

The HCV strategy aims to create an overlay of classification on certain roads that focuses specifically on the movement of freight vehicles (similar to Auckland City' s existing overweight and overdimension routes).

The formulation of a freight network will not restrict HCV access to roads not in the freight network, as some level of HCV access will always be required across the whole network. The main functions of the freight network is to:

1) Summarise existing operating conditions;
2) Provide a statement of intent for residents and industry;
3) Guide the application of policy and future development of the freight network;
4) The investigation of improvements to the geometrics and traffic operations of the freight routes;
5) Protect non-freight routes.

The development of the freight network is in its first stages and will require significant consultation with the transport industry and community to ensure that benefits are achieved.

The implementation of this type of measure will occur in an overall strategic context of minimising the cost to industry by choosing the most appropriate routes for large-scale freight movements. This would be achieved by developing the freight networks with associated improvements and supporting industry that generates high levels HCV movements to relocate in close proximity to the freight network. It is also important that the freight network has good access to the strategic network of the motorways.

A freight network will be divided into three road types and focus on regional, district arterials and collector roads. Focusing on these roads will facilitate the City wide HCV strategy and enable tactical road improvements to be made i.e. improve turning circles on intersections on primary routes while progressively greater restrictions will apply to the non freight routes.

4.3 Ireland Rd Traffic Calming Scheme

Ireland Rd, Panmure, was identified by residents and members of the community as carrying a high percentage of through traffic in particular HCVs. A local area traffic management programme was carried out which identified the need for traffic calming measures to be implemented along Ireland Rd.

A traffic monitoring programme was undertaken to identify the percentage of through traffic, speed of vehicles and percentage of HCV traffic.

Traffic surveys were undertaken in August 2000 which identified that 73% of the HCVs using Ireland Rd were through traffic, either accessing Panmure Roundabout or SEART / Mt Wellington Highway. HCVs accounted for 8% (approximately 870 HCV per day) of traffic volumes on Ireland Rd

With the implementation of traffic calming measures on Ireland Rd, an attractive alternative route to cater for HCV was required. After consultation with the industry it was found that Ireland Road could offer faster travel times than using the alternative route of Mt Wellington / Ellerslie Panmure Highway, and that HCVs had difficulty turning from Mt Wellington into Waipuna Rd.

An investigation was undertaken to assess the requirements of improving the movements of HCVs at the Mt Wellington / Waipuna intersection. On examining the issue of improving turning movements it was identified that scheduled trees are located at the intersection. Due to the proximity of the scheduled trees to the intersection, various options have been investigated which could incorporate the trees into any improvements. The inclusion of the trees within the boundaries of the investigations could result in the least cost effective option being implemented. Three options are being investigated:

Option 1: Create a free left turn and remove and replant the scheduled trees

Option 2: Create a free left turn and maintain the scheduled trees
Option 3: Realign the intersection and maintain the scheduled trees

The Council may not be able to fulfil the criteria for Transfund subsidy and be required to pay the full cost of the improvements. This type of investigation can be is an example to show the requirement to improve the arterial network if restrictive measures are to be placed on other parts of the road network.

4.4 HCV safety studies

HCV safety related issues were identified by both the transport industry and the community. Safety studies will be undertaken to examine the sites that have high crash rates related to HCVs and problem sites highlighted by the reference group and the community. While the studies will address HCV issues, the safety of the intersections / links must be improved for all road users.

Crashes involving HCVs during the five year period 1995-1999 accounted for approximately 3% of all reported injury crashes and approximately 4% for all non injury crashes in Auckland

Crash Year	Reported Injury crashes **HCV** (All)	Reported Non-Injury crashes **HCV** (All)	Grand Total Reported crashes **HCV** (All)
1995	**99** (3,101)	**462** (9,921)	**561** (13,022)
1996	**81** (2,623)	**398** (9,366)	**479** (11,989)
1997	**74** (2,371)	**408** (8,671)	**482** (11,042)
1998	**59** (2,111)	**378** (8,373)	**437** (10,484)
1999	**78** (2,211)	**422** (9,053)	**500** (11,264)
Grand Total	**391** (12,417)	**2,068** (45,384)	**2,459** (57,801)

Table 3 Reported crash numbers involving HCVs in Auckland

Overtaking and lane changing is the most common reported crash involving HCVs, with rear end shunts the second most common. A breakdown of the crash types are summarised in table 4:

LTSA supplied crash information for the eleven sites that showed the highest level of crashes involving HCVs. These were examined to ascertain if any patterns in vehicle movements could be identified.

The investigations showed that seven out of the eleven sites were roundabouts, with the most common crash type involving HCV changing lanes while traversing or approaching the roundabout.

The investigations into the crash statistics have led to safety and operational review of 6 roundabouts in Auckland City.

Types of crashes involving HCVs	Percentage of total HCV crashes
Overtaking and Lane Changes	25%
Rear End	16%
Collision with objects	10%
Manoeuvring	10%
Crossing	9%
Turning versus same direction	6%
Right Turn Against	5%
Loss of Control	5%
Cornering	4%
Merging	3%
Head on	2%
Pedestrians	1%
Miscellaneous	4%

Table 4 Types of crashes involving HCVs in Auckland City

	Intersection	Area	1995	1996	1997	1998	1999	Total
1	Panmure Roundabout	Panmure	4	4	9	5	4	**26**
2	Hayr Rd / Carr Rd	Mt Roskill	6	2	4	5	5	**22**
3	Mt Wellington Highway / Vesty Drive	Mt Wellington	2	2	4	3	5	**16**
4	SH1 / Kyber Pass off ramp northbound	Newmarket	2	8	3	2	0	**15**
5	Royal Oak Rbt	Royal Oak	3	1	6	2	3	**15**
6	May Rd / Stoddard Rd	Mt Roskill	3	2	3	2	4	**14**
7	SH16 / Grafton on ramp southbound	Grafton	4	3	2	2	2	**13**
8	Saleyards Rd / Portage Rd	Westfield	3	0	1	6	3	**13**
9	Greenlane Interchange	Greenlane	3	1	3	2	3	**12**
10	Church St/O' Rorke Rd	Penrose	2	2	4	2	1	**11**
11	Dominion Rd / Denbigh Ave	Mt Roskill	0	2	5	1	3	**11**
	Total crashes		**32**	**27**	**44**	**32**	**33**	**168**

Table 5 Sites within Auckland with the highest number of crashes involving HCVs

4.5 Minimum vertical height clearance over the carriageway

As part of the draft HCV startegy Auckland City have a set guideline for a minimum vertical height clearance over the carriageway which is shown in the table 5. Consultation occurred with the transport industry and emergency services. Transit New Zealand standards were reviewed along with those that apply in Australia and America.

Table 6 Auckland City minimum vertical height clearance over the carriageway

Road Class	Minimum Height Clearance
Over Dimension Routes	6.5 metres
Arterial Roads / Collector Roads	5.3 metres
Local Roads / Service lanes	5.3 metres*

*This may be reduced to 4.9m in unique circumstances. For example, technical difficulties in achieving the 5.3m clearance height or undue adverse impacts of achieving the differential between 4.9m and 5.3m. In any event the council must be satisfied that safety is not compromised.

4.6 Advocating for the completion of investigations into the strategic road network

The majority of HCV through movements across the City use the strategic road network or the motorways One of the key issues raised by both the community and transport industry relates to the completion of all or part of the strategic road network as outlined in the Auckland Regional Land Transport Strategy.

To progress the investigations of the strategic network Auckland City and Transit NZ signed a memorandum of understanding in May 2000 to work together to further the roading and road based passenger transport initiatives in the most efficient way in Auckland City and in interdistrict initiatives.

The memorandum of understanding sets out a framework for the officers of each road controlling authority to progress policies and projects in a constructive manner that will highlight the social economic and environmental disbenefits and benefits.

The improvements and additions to the strategic network, (that will reduce the number of HCVs on Auckland City' s road network) that Auckland City and Transit NZ are working together on include:

- SH1 Central Motorway Junction
- SH1 Harbour Bridge to City
- SH1 Greenlane Interchange
- SH16 Grafton Gully-Port - Stanley St improvements;
- SH16 - SH1 connections
- SH20 Hillsborough Rd -Richardson Rd;
- SH20 Avondale extension;
- Eastern corridor studies.

4.7 Incorporate specific HCV transport measures into the City's intensification programmes

Auckland City's Liveable Communities strategy identifies a series of strategic growth management areas (SGMA) within Auckland City where infrastructure improvements required to accommodate increases in population will be focused. This will included the requirement to ensure a high level of accessibility to the transport network and to provide a reliable road system for the efficient movement of goods and services. Investigations into the existing and future requirements / trends of HCVs within the SGMAs have been identified. Investigations have been undertaken into the existing HCV patterns in the Avondale area and the requirements for any additional roading links.

5 Conclusion

The management and future planning for the movement of freight in Auckland, the largest transport hub of New Zealand, will continue to be a major issue that will effect the economic and social vitality of the City. Due to the existing economic and land use climate of Auckland City the majority of freight movements will occurs via road transport, particularly heavy commercial vehicles.

The development and implementation of a heavy commercial vehicle strategy will provide the framework for the City to fulfil it's vision: "to *provide for the safe and efficient movement of goods and services in Auckland City, whilst seeking to minimise the adverse effects on the economy, community and the environment*."

The parallel projects that were undertaken through the development of the strategy have already shown positive results in the management of freight vehicles and can be used as examples of the benefits of adopting a freight strategy.

As stated in the abstract Auckland City is the first local authority to adopt a freight strategy in New Zealand. The strategy offers a unique opportunity for the City to work with the community and the transport industry, in planning and managing the movement of freight and heavy commercial vehicles around the Auckland Isthmus.

6 Acknowledgments

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