



Ports of Whangarei

Sustainable Futures 30 50

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1. INTRODUCTION

1.1 Background

New Zealand's ports are vital for the movement of freight. They account for over 99% of both merchandise exports and imports by volume and also support the movement of domestic freight (New Zealand Government, 2010). New Zealand is economically dependent on quality, timely, safe and cost effective international shipping services.

These services in turn rely on efficient and competitive sea ports as the critical nodes that represent the land-sea interface, or gateways, for both our exports and imports. Our port sector needs to be able to anticipate and respond to changing shipping patterns, vessel capacity, advances in freight handling technology and predicted future freight demands.

Port infrastructure in New Zealand is highly reliant on other forms of infrastructure, namely road and rail linkages, to function efficiently. Therefore, decisions on road and rail infrastructure have a considerable impact on the performance and capacity of ports.

The intent of the report is to provide useful background information on port facilities in the Whangarei District. The information, together with information provided in other reports, will assist in formulating the Whangarei District Council Sub-Regional Growth Strategy – Sustainable Futures 30/50. Given the objective of the Strategy to ensure a planning platform for the Whangarei District to deal with a growing population and economy over the next 30 to 50 years, it is essential to consider the capacity of the Whangarei ports and their ability to serve the public in the future.

1.2 Structure of the Report

The remaining part of this report is set out as follows:

Chapter 2 looks at the ports in Whangarei. It discusses the role of Marsden Point Port, putting it into a regional and national context. It also looks at port facilities and their recent trading statistics.

Chapter 3 examines the future potential of the port in associated with the major industries in the region. Examples of port associated industries are the oil refinery, forestry sector, chemical and engineering industries.

Port infrastructure is highly reliant on other forms of infrastructure, **chapter 4** will look at road and rail infrastructure in the district. Their impacts on the performance and capacity of the port will also be discussed.

The report concludes with a series of findings and recommendations in **chapter 5**.

1.3 Glossary

CIF – Cost of goods, including insurance and freight to New Zealand.

FOB – Free on board. The FOB term requires the seller to clear the goods for export. Buyer is to responsible for all the costs occurred after the cargo is loaded on board.

Imports (cargo unloaded) – Imports are valued at CIF and are shown in New Zealand dollars. These values are converted from foreign currencies when imported documents are processed by the New Zealand Customs Service (NZCS). The exchange rates are set by the NZCS each fortnight.

Exports (cargo loaded) – Exports (including re-exports) are valued FOB and are shown in New Zealand dollars. In some cases, goods are sent on consignment and the selling prices are not known until goods are disposed of at their destination. In these cases, FOB values are based on prices current at the time of export. Values given in foreign currencies are converted by Statistics New Zealand into New Zealand dollars using weekly exchange rates set by the NZCS each fortnight.

Whangarei Port or ports – In this report, 'Whangarei Port' or 'ports' refers to Northport, the New Zealand Oil Refinery (NZRC) and the Portland Cement Terminal.

Marsden Point Port – Refers to Northport and the New Zealand Oil Refinery's oil jetties.

Port Whangarei – Refers to the old port at Whangarei which closed commercial operations in 2007.

Figure 1. Aerial Photograph of Marsden Point Port



2. THE ROLE OF PORTS

Ports have been a key piece of infrastructure in the Northland Region since early 1920s. Currently, there are two main port facilities within the confines of Whangarei Harbour: Marsden Point including Northport and the Oil Refinery, and Portland Cement Terminal. Over the years they have developed in their role as an enabler for industry. It is likely that the ports will remain key piece of transport infrastructure into the foreseeable future.

The former Port Whangarei was largely developed during the 1920s to 1940s. Back in the early 2000s, Port Whangarei in the upper harbour mainly handled bulk fertiliser, forestry products and general cargoes. With ever increasing cargo volumes coming out of Northland, Port Whangarei ran out of space to dispose of dredging needed to keep the wharf basin and upper harbour channel deep enough for cargo vessels. The wharves aged and did not have the load-bearing strength required for modern, efficient cargo handling machinery. In addition, the berthing basin and channel were too small to service the larger ships needed for the export trade. Hence, the decision was made in 1995 to commence development at Marsden Point when resource management applications were made. Development of Marsden Point is on-going with the first two berths operational in June 2002. Having obtained resource consents for construction of two additional berths in late 2004, Northport has completed construction of a third berth. With the third berth completed all remaining business at Port Whangarei was transferred to Marsden Point in April 2007 (Northport, 2010).

Figure 2. Map of Whangarei Harbour Shows the Ports



Source: Northland Regional Council, 2010.

Marsden Point, a deep water port, lies at the entrance of Whangarei Harbour. The natural deep water entrance allows ships of 13 metres draft to berth at Northport. The location of this port makes it the northern most multi-purpose port in New Zealand, and the closest port to the majority of New Zealand's international markets. The three oil jetties serve the only oil refinery in New Zealand – the New Zealand

Refinery Company; and they can handle tankers up to 150,000 tonnes deadweight with a maximum draft of 15.2 metres. Northport Limited, the operating company for the port of Marsden Point (the Port), has a three berth facility up harbour of these jetties. Portland Cement Terminal has one jetty which serves the Golden Bay Cement Company cement works. One specialised bulk cement vessel uses this facility on a regular basis (NIWA, 2006).

2.1 National Context

Nationally, ports play a relatively important role in the New Zealand economy. This is due to high levels, and the commodity based nature, of our exports; as well as our distance from most of our markets (Business and Economic Research Limited, 2007). As a result, most exports and imports by volume (and to a lesser extent by value) are transported through seaports. This can be seen in Table 1 below.

Table 1. International Trade by Port

Port 2007 Provisional	Exports (tonnes)	Exports (\$ million)	Imports (tonnes)	Imports (\$ million)
Whangarei	1,156,500	273	5,242,347	3,692
Auckland	2,518,128	7,355	3,876,030	15,665
Tauranga	6,022,908	7,539	3,878,882	4,659
Taharoa	682,200	14	-	-
Gisborne	589,041	119	7,029	1
New Plymouth	1,374,968	1,848	488,717	452
Napier	2,078,702	2,253	484,236	585
Wellington	818,456	917	1,217,135	2,208
Nelson	1,243,919	850	124,273	327
Picton	377,947	40	2,433	8
Christchurch (Lyttelton)	3,273,518	2,624	1,344,764	2,613
Timaru	517,266	1,116	314,842	382
Dunedin (Port Chalmers)	1,530,084	4,130	264,727	350
Invercargill (Bluff)	648,011	1,230	1,125,054	553
New Zealand various (sea)	49,990	8	24,411	2

All seaports	22,881,638	30,315	18,394,880	31,499
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Source: Statistics New Zealand, 2007 (as cited in *National Infrastructure Plan*, 2010).

There are 14 ports in New Zealand, which account for over 99% of both merchandise exports and imports by volume. Whangarei Ports account for 28% of all seaport imports by volume and 12% by value. Whangarei is the largest importer by volume and the third largest import port by value, with Auckland (50%) and Tauranga (15%) ahead of Whangarei. The volume through Whangarei reflects the high volumes of imported crude oil, about five million tonnes for the refinery at Marsden Point (Richard Paling Consulting, 2008). Although Whangarei has a high volume of imports, the import value is relatively low due to the main import commodities being crude oils, fertiliser and other chemical resources, i.e. bulk commodities of high volume but (relatively to volume) low value.

Whangarei has much lower levels of exports, accounting for 5% of seaport exports by volume and less than 1% of exports by value. Marsden Point Port is the eighth largest exporter by volume and the eleventh largest exporter by value. Once again, the export values were low due to the main commodities being logs, woodchip and processed timber, i.e. bulk commodities of high volume but (relative to volume) low value.

On the other hand, the Marsden Point Port makes a significant contribution to New Zealand's only oil refinery. The refinery is a major national infrastructure resource and produces petrol, diesel and jet fuel, fuel oil, bitumen and other petroleum products for consumption throughout the country. The Port gives it access to offshore fuel supplies. Access to open coastal water makes seawater available for open cycle cooling – a significant efficiency gain.

Therefore, from a national perspective, the economic impact of the Marsden Point Port is in:

- Providing transport infrastructure; and,
- Facilitating the oil refinery.

2.2 Regional Context

As mentioned above, New Zealand's only oil refinery is located at Marsden Point, adjacent to the port. There are also large wood processing, chemical production and primary production industries in the region. Products from these industries are relatively bulky and/or difficult and costly to transport. Therefore they rely on, and benefit greatly from, the ability to transport their products to market through Marsden Point Port.

Similarly, other bulky imports and exports could become more costly and even uneconomic if they had to be trucked into or out of the region to the nearest ports in Auckland or Tauranga¹, which would reduce the desirability of operating a business in the region.

As a result, a number of key industries rely on Marsden Point Port for transport and support services. This is particularly so for the oil refinery, but also for the wood processing industry, primary sectors and some other chemical industries in the region.

2.3 Marsden Point Operations and Shipping Movements

Marsden Point - Northport

A container port facility at Marsden Point was first proposed in the late 1960s by the Northland Harbour Board, the controlling authority at the time. But it was not until 1976 that the proposal was moved ahead when the first of several environmental reports was written. As part of the first report, a hydraulic model was constructed and tidal flow data was fed into it to give a realistic model of the effects on the harbour at the site of the proposed port.

During the 1980s the plan faltered and it was not until the Northland Port Corporation was formed in 1988 that it gained momentum again. Northland's forestry industry was slowly increasing in production and it was the catalyst for the building of the new port. For economic reasons the port had to be available at a time when cargo volumes would provide income to make the project viable. Much hydrographic data and environmental information was collected in preparation for resource consents which were applied for in 1995.

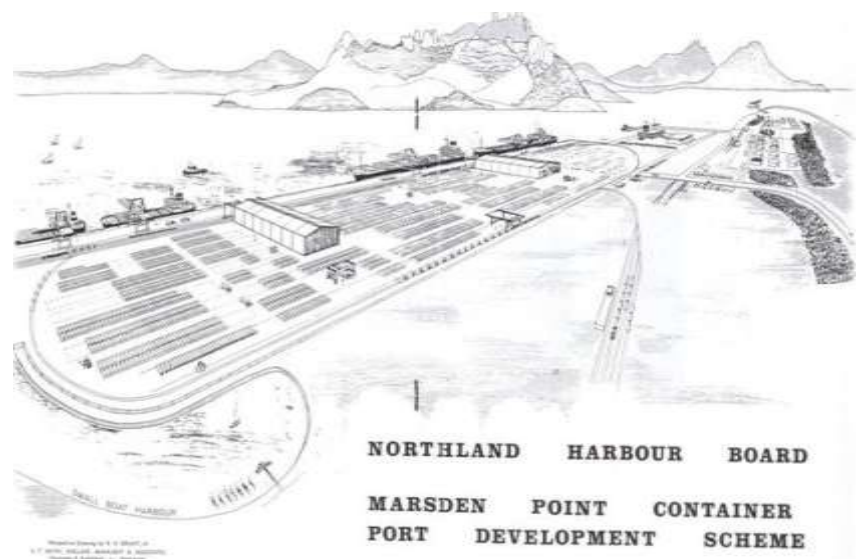


Figure 3. 1960s Proposed Container Port Development.

Final consents for a two berth port were granted in 2000 and the Northland Port Corporation then entered into a joint venture on a 50/50 basis with Port of Tauranga to form Northport Limited. Construction of the new port facility commenced towards the end of 2000.

The first berth opened for business in June 2002. In late 2004 further consents were obtained for the construction of the third berth of the proposed four with construction commencing in late 2005. The new

¹ The nearest port for products such as bulk commodities would be Port Tauranga, as Port Auckland has no storage.

berth, completed in 2007, was available to be used for cargo operations. In April 2007 all cargo operations were transferred to Marsden Point which meant the closure of Port Whangarei to commercial shipping. The construction of the fourth berth to the east will not take place until cargo volumes make it viable.

Imports and Exports

The Port serves as a major export/import hub for the forestry, horticulture and agricultural sectors of the region, and a wide variety of cargoes can be handled at each facility. There were 157 ship calls to Northport in 2007 spending a total of 245 days berthed at the port; the total cargo handled was some 1.35 million revenue tonnes. The export cargo was made up of logs heading to ports in Japan, Korea, China and India, woodchip to Japan, LVL (Laminated Veneer Lumber) to Australia and the Middle East, triboard and veneer from JNL Kaitiaki heading to Japan and the Philippines, kiwifruit to Japan and Europe, and bagged cement to Tahiti. Import cargoes were fertiliser from North Africa, clinker from Japan and gypsum from Thevenard, as well as coal from Port Kembla all heading to Portland for Golden Bay Cement (Northport Limited, 2008).

Flows through the Port are very dependent on demand for the limited number of major commodities handled. In particular, the level of export movements reflects the vicissitudes of the market for logs and the difficulties of acquiring vessel capacity in the middle of the decade given the strong demand from China and other economies for bulk ships to supply basic commodities such as coal and iron ore to support their rapid development. Because of the limited volumes of general cargo traffic handled by the Port it is only served by a small number of scheduled general shipping routes, typically operating low frequency services. It has one fortnightly service connecting with the Pacific Islands and South East Asia and four lower frequency services connecting with Australia and the Pacific Islands (Sinclair Knight Merz, 2010).

Figure 4. Marsden Point Port Layout



Source: Northport, 2008.

Northport Ltd owns the three berth port facility at Marsden Point, with access to adjacent backup land which is owned by Northland Port Corporation. Although primarily for the export of forest products, the terminal is a flexible facility catering for large multi-purpose vessels and has a turning basin of 45ha. Vessels of greater than 180m length over all and/or greater than 11.8m draft may be restricted to slack water arrivals or sailings at Marsden Point. The multipurpose jetty is an old structure from the 1960s (originally associated with the Marsden Point Oil Refinery) with reinforced concrete pilings and wooden fenders.

Paved/Sealed Areas

The Northport wharf is designed as a three berth facility to accommodate a combination of various length vessels. The total berth face is 570 linear metres plus an allowance for a 15m overhang at the eastern end. The Northport facility totals 48 hectares of land, with over 30 hectares now paved and being used for cargo operations, such as log storage, processed timber products, palletised cement/containers and other general cargoes. There is 3.0 hectares, membrane sealed and ready for paving; at this time 1.3 hectares is used for the bulk storage of coal.

Table 2. Berthage Facilities in the Port of Whangarei and Marsden Point

	No 1 Berth	No2 Berth	No 3 berth	MP Jetty
Length	570m			134m
Max Depth at Lowest Astronomic Tide /Chart Datum	13.0m 0m – 390m		14.5m 390m – 585m	8.4m
Ht of Deck above Chart Datum	5.0m			
Max Length of Vessel	275m (This is based on the current channel configuration and is the limiting length rather than the length of the berths)			110m
Deadweight	65000t		85000t	
Displacement	85000t		105000t	
Designed Length Over All	300m		265m	
Max Beam	35m		38m	
Max Draft (Laden)	13m		14m	
Max berthing angle	3°			
Max berthing velocity	0.12m/second		0.10m/second	

Source: Northport, 2008.

The Dry Good Store is a 5,000m² single span storage covered area with 8m clear height under the steel spans. The building has been designed with a steel span at the eastern wall so as to enable the facility to be extended up to 7,000m² (Northport, 2010). Northland Port Corporation has 62 hectares of land adjacent to Northport available for port related business, with some 120 plus hectares in behind this area zoned as Business 4 Environment. In total, there is over 180 hectares of land owned by Northland Port Corporation outside the port available for port related ventures to set up and operate from. This is a double of what the area of back-up land (90 hectares) Port of Tauranga has for cargo handling and storage (Port of Tauranga, 2010).

2.4 Northport Limited

Northport began trading in July 2002 as the port operating company when it took over the port activities of the Northland Port Corporation at both Marsden Point and Port Whangarei. With the closure of Port Whangarei to commercial shipping, all cargo operations have transferred to Marsden Point.

In April 2003, Northport formed a 50/50 joint venture, North Tugz, with Ports of Auckland to provide Pilotage and Tug services for ships arriving at Marsden Point at Northport's berths and the New Zealand Refining Company jetties (Northport Limited, 2008).

As stated in the earlier section, the Northland Port Corporation owns 50% of Northport Limited, the port operating company. The other 50% is owned by Ports of Tauranga, in which the Bay of Plenty Regional Council has a majority stake (Figure 5). In terms of Northland Port Corporation, Northland Regional Council is a majority shareholder (52%), with Ports of Auckland having a 20% share (Figure 6).

Figure 5. Northport Limited Relationship with Northland Port Corporation and Port of Tauranga

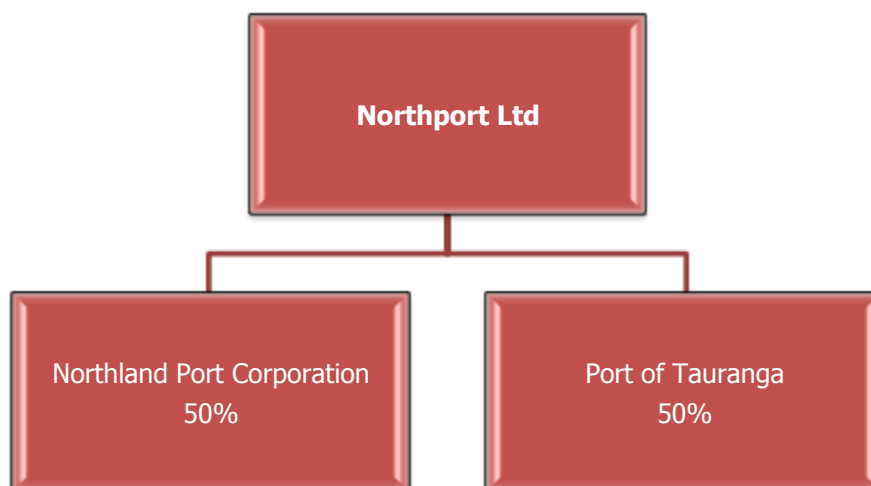
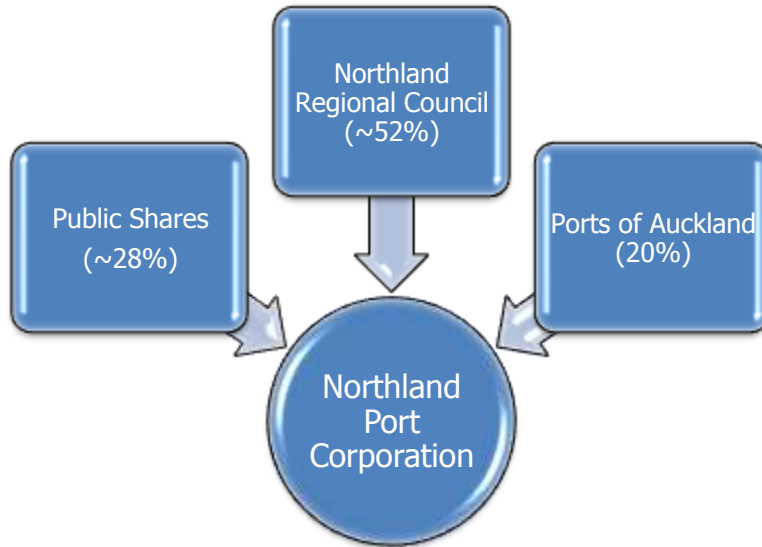


Figure 6. Northland Port Corporation Relationship with the NRC and Ports of Auckland

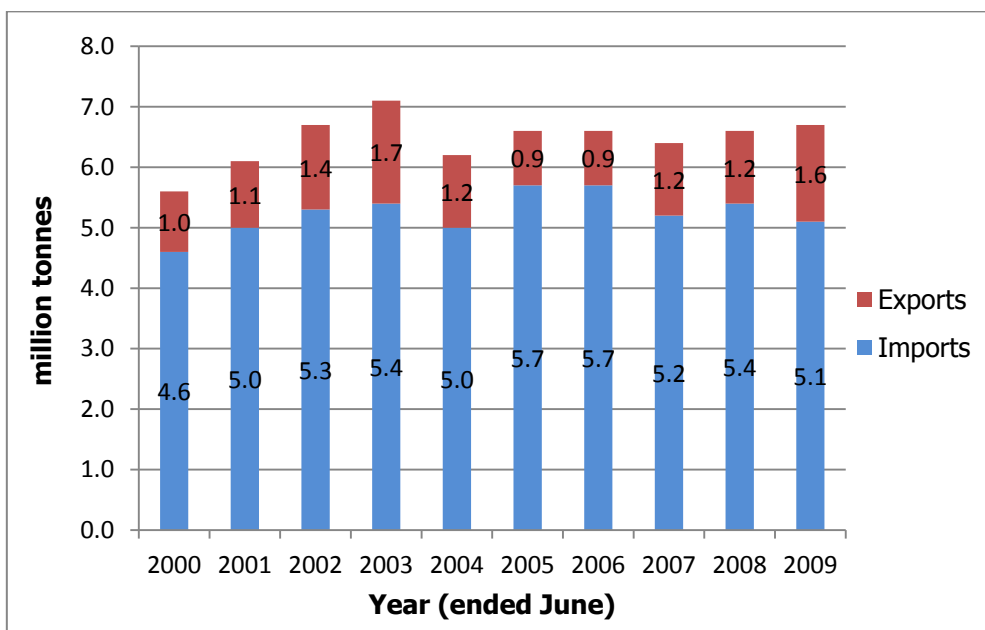


2.5 Port Trade and Statistics Information

2.5.1 Port Throughput Volumes

In terms of freight tonnes handled, Whangarei Port is New Zealand’s largest import port and second largest port overall. Figure 7 shows the total throughput (by volume) through Whangarei Port between 2000 and 2009. Total throughput for 2008/09 increased by nearly 20% (1.1 million tonnes) compared to 1999/00 financial year reaching a total of 6.7 million tonnes. The highest tonnage throughput at the port was 7.1 million tonnes in the 2002/03 financial year.

Figure 7. Whangarei Total Throughput (tonnage) 1999/00 to 2008/09



Source: Data from Statistics New Zealand, 2010.

2.5.2 Import Volumes

The year ended June 2009 saw the weight of imported cargo unloaded in New Zealand and Whangarei decrease by 9.9% (1.9 million tonnes) and 5.6% (0.3 million tonnes) respectively (Table 3). By value, cargo imports have increased 2.4% (\$848 million) for New Zealand; but the value has decreased 3.4% (\$160 million) for Whangarei compared to the year ended June 2008.

**Table 3. Comparison of total Imports by Whangarei Port and New Zealand Seaports
(Annual - June)**

YEAR ENDED	Whangarei (Port)		Total Seaports	
	Value CIF (NZ \$ million)	Gross Weight (million tonnes)	Value CIF (NZ \$ million)	Gross Weight (million tonnes)
2008	4,768	5.4	35,124	19.2
2009	4,606	5.1	35,972	17.3

Source: Statistics New Zealand.

2.5.3 Export Volumes

The year ended 2009 saw the weights of cargo loaded for export in New Zealand and Whangarei increase by 1.6% (0.4 million tonnes) and 26% (0.4 million tonnes) respectively (Table 4). By value, the year ended June 2009 saw an increase in cargo loaded for export, reaching approximately \$37.7 billion (6.7% increase compare to 2008) for New Zealand seaports as a whole. The growth in value was significant for Whangarei Port, with a 74% increase to \$442 million.

Compared to the year ended June 2008, the overseas cargo loaded at New Zealand ports and Whangarei Port increased both in weight and in value, with the value increase exceeding the weight increase for exported cargo.

**Table 4. Comparison of Total Exports by Whangarei Port and New Zealand Seaports
(Annual - June)**

YEAR ENDED	Whangarei (sea)		Total Seaports	
	Value FOB (NZ \$ million)	Gross Weight (million tonnes)	Value FOB (NZ \$ million)	Gross Weight (million tonnes)
2008	254	1.2	35,296	24.9
2009	442	1.6	37,662	25.3

Source: Statistics New Zealand.

2.5.4 Import Values

Table 5 lists the top eleven countries of origin for imported overseas cargo through Whangarei Port. The total value of cargo unloaded for import at Whangarei Port fell by 39%, from 5,862 million to 3,578 million in the year ended June 2009. This was mainly due to a decrease in mineral fuels, mineral oils and products.

Table 5. Imports of Overseas Cargo (cif NZ \$ million) - Whangarei Port by Country of Origin

Country	2009 Actual (NZ \$ million)	2008 Actual (NZ \$ million)	% Increase/Decrease
Qatar	921	1,414	-34.8%
Brunei Darussalam	501	508	-1.3%
United Arab Emirates	376	702	-46.5%
Australia	322	634	-49.2%
Singapore	255	190	34.2%
Indonesia	229	593	-61.5%
Malaysia	188	491	-62%
Russia	177	191	-7.2%
Kuwait	156	146	6.8%
Republic of Korea	105	155	-31.9%
Iran	101	191	-47.3%
Total Imports (Whangarei Port)	3,578	5,862	-39.0%

Source: Statistics New Zealand, 2010.

Table 6 shows figures of the major products going through Whangarei Port. The top three commodities contributing to value of unloaded imports during the year ended June 2009 were mineral fuels, mineral oils and products, salt/sulphur/earths/stone and fertilisers. However, the figure of total imports (by value) has dropped 39% compared to the year ended June 2008.

Table 6. Imports of Overseas Cargo (cif NZ \$ million) - Whangarei Port by Commodity

Top 8 Commodities	2009 Actual	2008 Actual	% Increase/Decrease
Mineral fuels/oils	3558.4	5747.3	-38.1%
Salt/sulphur/earths/stone	2.0	48.8	-96.0%
Fertilisers	8.1	29.8	-72.8%
Nuclear reactors/boilers	None	25.6	N/A
Ships/boat/floating structures	0.9	4.5	-79.2%
Food industries/residues and wastes thereof	2.5	4.3	-40.9%
Optical/photographic/cinematographic	0.1	1.2	-88.2%

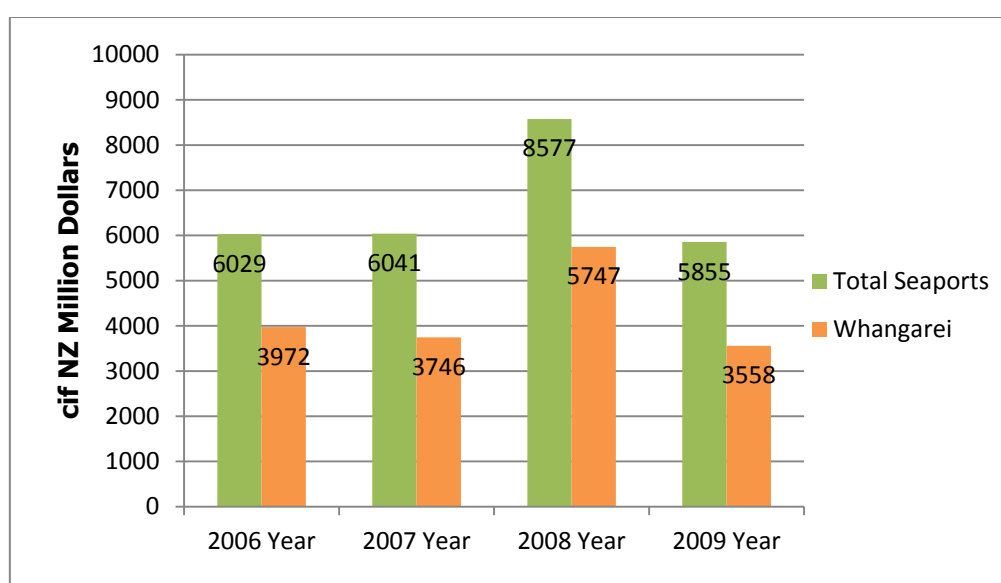
Electrical machinery and equipment	5.7	None	N/A
TOTAL IMPORTS	3578.0	5,862	-39.0%

Source: Statistics New Zealand, 2010.

2.5.5 Imports of Mineral Fuels and Products

Whangarei is New Zealand's leading mineral fuels/oils port, handling approximately 61% - 67% of New Zealand's total mineral fuels/oils imports between 2006 and 2009 (Figure 8).

Figure 8. Imports of Mineral Fuels, Mineral Oils and Products of Their Distillation, Whangarei Port between 2006 and 2009



Source: Statistics New Zealand, 2010.

2.5.6 Export Values

The value of export cargo loaded rose by 15.5% in the year ended June 2009 compared with the year ended June 2008 (Table 7). The countries contributing to the higher value of exports during the year ended June 2009 were China and India. The value of export cargo loaded to China increased over 129%, reaching \$69.6 million; while the figure of India increased 112%, reaching \$43.9 million. The value of export cargo loaded to Republic of Korea dropped over 50%, to \$13.8 million in the year ended June 2009 compared with the previous year.

Table 7. Exports for Overseas Cargo (fob NZ \$ million) - Whangarei Port by Country of Origin

Country	2009 Actual (NZ \$ million)	2008 Actual (NZ \$ million)	% Increase/Decrease
Australia	133.7	139.8	-4.4%
China	69.6	30.4	129.0%
Japan	61.5	73.5	-16.3%

Singapore	44.7	28.7	56.2%
India	43.9	20.8	111.5%
EU – Destination Unknown	17.0	9.9	71.9%
Republic of Korea	13.8	30.0	-54.1%
American Samoa	10.2	None	N/A
French Polynesia	5.7	4.2	37.1%
Saudi Arabic	5.0	9.9	-20.5%
United Arab Emirates	1.4	2.4	-41.1%
TOTAL EXPORTS	424.8	367.6	15.5%

Source: Statistics New Zealand, 2010.

The main commodities contributing to the higher value of exports during the year ended June 2009 were wood, articles of wood and wood charcoal, up \$30.6m (or 15.1%); mineral fuels, mineral oils and products, up \$9.2 million (or 6.9%), and fruits and nuts, up \$8 million (or 36%) (Table 8). These products were the biggest export commodity by value for Whangarei Port, accounting for 89% of total exports in the year ended June 2009. It is important to note that the value of cargo loaded for ships, boats and floating structures had increased significantly from \$1.2 million in year ended 2008 to \$11.4 million in year ended 2009. Partly offsetting these rises were falls for iron and steel, down \$11,700.

Table 8. Exports of Overseas Cargo (fob NZ \$ million) - Whangarei Port by Commodity

Top 8 Commodities	2009 Actual	2008 Actual	% Increase/Decrease
Wood and articles of wood/ wood charcoal	233.3	202.7	15.1%
Mineral fuels, mineral oils and products of their distillation/ bituminous substances/mineral waxes	143.7	134.5	6.9%
Fruit and nuts, edible/peel of citrus fruit or melons	30.2	22.2	36.0%
Ships, boats and floating structures	11.4	1.2	824.9%
Salt/sulphur/earths/stone/plastering materials, lime and cement	5.9	4.2	40.4%
Nuclear reactors, boilers, machinery and mechanical appliances/parts thereof	0.1	<0.1	71.5%
Aircraft/spacecraft	None	2.2	N/A
Iron/steel	<0.1	0.5	-97.6%
TOTAL EXPORTS	424.8	367.6	15.5%

Source: Statistics New Zealand, 2010.

2.5.7 Exports of Wood and Articles of Wood

Northland is one of the main forestry areas in New Zealand, with Waikato and Bay of Plenty ahead of Northland (Richard Paling Consulting, 2008). Woodchip, logs and processed timber are the biggest commodity contributing to volumes of cargo loaded. Table 9 shows the actual export cargo volumes in revenue tonnes between 2007/08 and 2008/09, and the forecast volumes in 2009/2010. The forecast on logs exported in 2009/10 represents nearly 71% of the total export cargo volumes in revenue tonnes. This will be a 15% increase compared to the year ended 2007/08.

Table 9. Export Cargo Volumes in Revenue Tonnes

	2007/08 Actual	2008/09 Actual	2009/2010 Forecast
Logs	632,411	911,984	1,194,802
Woodchip	270,577	185,013	229,154
Processed Timber	185,549	232,481	199,765
General Cargo	42,516	61,092	62,181
EXPORT TOTAL	1,131,053	1,390,570	1,685,902

Source: Northport, 2010.

3. FUTURE PROJECTIONS

The proposition that Marsden Point Port could threaten Ports of Auckland has been around for decades (Graham, 2007). Further developing Auckland's port, which is on prime waterfront in the heart of the city has not proven to be a model that works in most other cities. Most cities, whether it be San Francisco, Sydney, London, etc have actually relocated those facilities elsewhere and have taken advantage of one of their key assets.

On the other hand, Port of Tauranga has developed as a specialised port focused on the log and timber industry and has now expanded to be a major container terminal. The construction of the Kaimai tunnel and availability of port land saw the transfer of the export of NZ Steel's products to Tauranga instead of Auckland. A feature of the port is the rail-served 'MetroPort' inland logistics centre in South Auckland, which allows it to serve customers in the main industrial heartland. The port has also been successful in attracting other container traffic from much of New Zealand. However, the peaks and troughs of log movements have seen the port using land well away from the ships' berths, necessitating longer ship-side feed, and running the risk of deteriorating log condition (Richard Paling Consulting, 2008).

The major advantage of Marsden Point Port is that there is ample available land in Marsden Point. According to the 2010 District Plan GIS data, the total commercial/industrial zoned land at Marsden Point/Ruakaka area is approximately 597 hectares. Within this, there is over 180 hectares land owned by Northland Port Corporation available for port related ventures to set up and operate from. However, Northport at present does not have any large container cranes or a rail link that would connect it to the important Auckland region and beyond.

Since the 1970s, there have been proposals to build the Marsden Point Branch, a branch line railway from the North Auckland Line to serve Marsden Point's current economic interests as well as a proposed deepwater harbour. As of 2007, land acquisition to establish a corridor for the line is under way. More discussions on the rail link are included in Chapter 4.2 of the report.

3.1 Future Expansion/Reclamation

Northport is continuing to develop the port facility at Marsden Point. Based on berth and storage area occupancy, Northport has resource consent for a fourth berth and potential to expand to a fifth berth if/when required (Northport, 2008).

Table 10 shows the current consented berth and reclamation area, and the future berth and potential reclamation area for the Port.

Table 10. Future Expansion and Reclamation

Current		
Berth and reclamation	48 hectares	570m berth face
Consented		
Berth with no reclamation		270m berth face
Additional reclamation	4.7 hectares	
Consented Total	52.7 hectares	840m berth face
Berth 5 and reclamation	13.6 hectares	270m berth face
Potential Port Total	66.3 hectares	1,110 berth face

Source: Northport, 2010.

3.2 Cargo Projections

According to Northport's projection report – *Port Infrastructure Planning* (2010), forestry projections for Northland continue to be based around a long term sustainable harvest volume of 4.0 to 4.2 million JASm³ ² per annum for the combined export and domestic markets. This volume is expected to be reached around 2016. Indications are that 2.2 million JASm³ of this volume will be utilised for export as either logs or processed products.

The region's bulk cargo imports are not projected to significantly increase beyond the current volumes of 150,000 tonnes of fertiliser (Balance and Ravensdown), 60,000 tonnes of coal, 30,000 tonnes of Gypsum (Golden Bay), and 40,000 tonnes Palm Kernel (RD1). Based on these projected volumes it is unlikely that as a regional port Northport cargo volumes will increase beyond 2.5 million revenue tonnes within the next 10 years (Northport, 2010).

Table 11. Cargo Projections in Revenue Tonnes

	2010/11 PROJECTIONS	2011/12 PROJECTIONS	2012/13 PROJECTIONS	2013/14 PROJECTIONS
Logs	1,283,782	1,330,000	1,386,000	1,400,000
Woodchip	300,000	330,000	366,000	402,000
Wood Pellets				90,000
Processed Timber	230,000	230,000	230,000	230,000
General Cargo	59,000	59,000	59,000	59,000
Export Total	1,872,782	1,949,000	2,041,000	2,181,000
Fertiliser	54,000	84,000	100,000	84,000
Palm Kernel	40,000	40,000	40,000	40,000
Gypsum	25,000	25,000	25,000	25,000
Coal	60,000	60,000	60,000	60,000
Import Total	179,000	209,000	225,000	209,000
Total Volume	2,051,782	2,158,000	2,266,000	2,390,000

Source: Northport, 2010.

² JASm³ = Japanese Agricultural Standard metres cubed.

3.3 Land Use and Strategic Positioning

Northport's facility is ideally suited for liquid and dry bulk cargoes, general cargoes (timber products, steel, palletised cargoes), roll on/roll off cargoes (essentially new and used cars) and coastal general/bulk/container trade.

Mighty River Power continue to hold open the option of a fossil fuel power station at Marsden Point which could result in additional dry or liquid bulk imports of up to 1.0 million tonnes. Land requirements for this product include: a corridor for either a pipeline or conveyor, and/or heavy haul road, and the possibility of undercover bulk storage or bulk tanks (Northport, 2010).

For Northport volumes to increase substantially the port needs to look outside the region, improved supply chain links to Auckland and the Central North Island are key drivers to obtaining any market share of these commodities. Improved roading and an upgrade to the main Auckland trunk railway line are urgently required as is the rail link between Marsden Point and Oakleigh.

The Port of Auckland handles in excess of 4 million revenue tonnes of cargo across the general wharves. While the port has signed long term contracts with their customers, the general public see the wharves as valuable real estate that should be used to open up the waterfront. Northport is well positioned to aggressively compete for these commodities once the supply chain links have improved.

The used/new car trade is suitable for relocation to Marsden Point. To handle the potential 100,000 new and used cars entering New Zealand Northport would need a transit facility for discharge operations; the industry would need in the region of 10 hectares for storage, pre-delivery inspections, possibly even dealer outlets.

Port statistics internationally indicate the following land utilisation for cargo operations:

- General/dry bulk: 100,000 tonnes/hectare/annum
- Container terminal: 200,000 teu³/hectare/annum
- New cars: 10,000 cars/hectare/annum

Based on these statistics Northport has the potential to handle in the region of 4.5 to 5.0 million tonnes of cargo through the consented port facility of 52.7 hectares and 840m berth face (four berths), handling general cargoes, dry and liquid bulk cargoes, and coastal container trade, and 6.0 to 7.0 million tonnes if the proposed berth five and associated storage is reclaimed (Northport, 2010).

3.4 Northland Port Corporation Land Holdings

The Northland Port Corporation land outside the port boundary will in time bring new business to the region which in turn will provide for new cargo through the port.

³ Teu = Twenty-foot equivalent unit, a measure used for capacity in container transportation.

Appendix 1 of this report showing the extent of land owned by Northland Port Corporation for port related business. The area is ideally suited to additional dry bulk storage (fertiliser, coal, woodchip, logs); bulk liquid storage (LNG⁴, tallow, bitumen, etc); containers – empty storage yards, de-vanning and distribution, repairs and pre-tripping facilities; car storage and pre-delivery inspection facilities, etc. For Northport to have strategic growth it is essential that there is a high measure of control over the land use in this area. If this control is lost then there is potential for future port growth to be adversely affected due to inadequately located land resource. At this point in time, the lease agreements provide for a 35 year term. Based on the Port projections this type of lease period fits well with port growth projections and land usage.

The remaining area of land is more suited to: car storage, pre-delivery inspections, and auction facilities (Business Environment 2), manufacturing sites that may have import/export requirements, as well as support industries (Business Environment 4).

⁴ LNG = Liquefied natural gas.

4. INFRASTRUCTURE

Port infrastructure in New Zealand is highly reliant on other forms of infrastructure, namely road and rail linkages, to function efficiently. Therefore, decisions on road and rail infrastructure have a considerable impact on the performance and capacity of ports.

This chapter will first look at the relationship of infrastructure with one of the major industries utilising Port services in Northland, namely the forest industry. It will then look at Northland Regional Council's strategic directions for roads, rail and coastal shipping under the *Draft 30 Year Transport Strategy for Northland*.

4.1 Infrastructure and Forest Industry

Forest Industry

The Northland wood supply region has a well-established forestry sector, with plantation forests spread throughout the region. The State played a large role in the early establishment of a number of forests, and was supported by large private companies in the 1970s. Now, the forestry sector is dominated in the Far North by Juken New Zealand Limited's (JNL) Aupouri Forest and other leasehold forests such as Otangaroa. Further south, Taumata Plantations and Matariki have their forests, both wholly owned and leasehold. The region's wood processing sector is based on the JNL triboard mill, veneer plant and sawmill at Kaitaia, the laminated veneer lumber (LVL) mill of Carter Holt Harvey (CHH Ltd) at Marsden Point, the large CHH sawmill near Whangarei and the Marasumi chip mill near Portland. Sawlogs and pulpwood are shipped from the region via Marsden Point Port, and via the rail line to the Central North Island.

The forecasts compiled by Ministry of Agriculture and Forestry (MAF) indicate that the availability of radiate pine from the Northland forest estate will increase over the next 10 to 12 years, despite a drop-off in the large scale forest owners' harvest volumes after 2015 (MAF, 2009).

Road Transport

Northland's road network comprises 70% of unsealed roads compared with the national average of 30%. The basic road network recently had a significant upgrade when the Ministry of Economic Development allocated NZ\$71 million for the improvement of key forestry arterial routes in Northland and the East Coast during 2002 to 2007. In Northland the funds were used by the region's councils to upgrade 230km of central and western Northland roads. An additional NZ\$30 million was allocated in 2008 to continue the project over the next three years.

Northland's foundation rock materials are generally of poor quality, and this contributes to the relatively high cost of road construction and maintenance in the region (MAF, 2009). Greater use of rail or barging for heavy freight may assist in alleviating damage from heavy transport; however, in many cases alternatives to road transportation are not available and/or viable.

Rail Transport

The rail freight network in Northland extends north from Auckland through Helensville and terminates at Otiria, west of Kawakawa. A branch line extends from Waitotira to Dargaville. The rail network has been previously used to transport wood chips from the Marusumi (Portland) chip mill to the chip export facilities at the Whangarei Port, and from the TDC sawmill to Central North Island pulp mills. However, since the closure of the Whangarei Port, rail transport to the new port has not been possible and all freight has been transported on road. The Otiria, Dargaville and Helensville rail yards have also been used as railheads for pulp log transport to the Portland chip mill, and the Kinleith Pulp Mill in the Central North Island. Other factors have led to a reduction in the use of the rail network. The availability of rolling stock for transport of logs appears to be constraining the immediate increase in the use of the rail network (MAF, 2009). However, given the contribution the rapidly developing Bream Bay area makes to Northland's regional economy through its port and other businesses, a rail link is vital to the Northland Region.

A feasibility study completed in 2003 for the Northland Regional and Whangarei District Councils had found that developing the link would offer a host of benefits, including helping to ease forestry-related traffic volume and congestion problems on the region's roads. The study also found development of the rail link could create the equivalent of more than 200 fulltime jobs during the construction period, and inject millions into the local economy. It could also help attract other big business to the Marsden Point area.

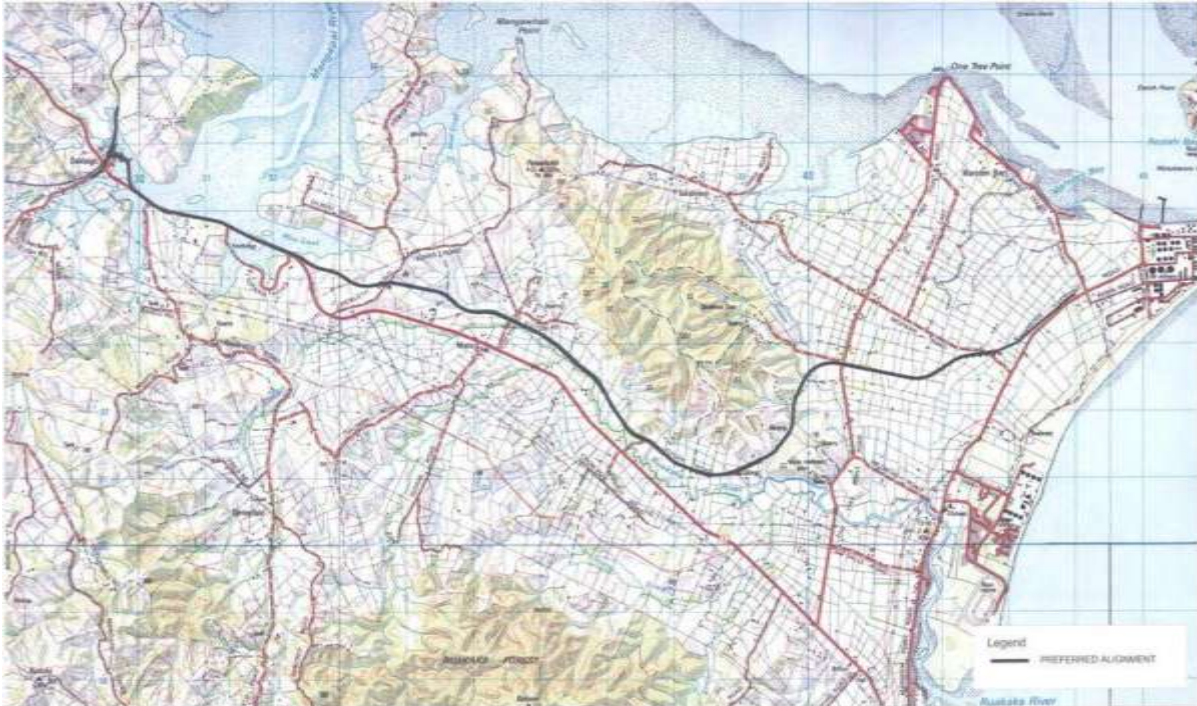
The first stage in this project was the designation of the land needed for the rail link corridor. A designation is a provision in a district plan which provides notice to the community that the land will be needed in the future for a particular project. Once a site is designated for a particular purpose, the requiring authority is able to:

- proceed with the specific work on the site as if it was permitted by the district plan;
- control activities that occur on the site, to prevent the landowner doing anything that would compromise the future work (this is the case even if the requiring authority does not own the site);
- apply to the Minister of Lands to compulsorily purchase or lease all or part of the land under the Public Works Act 1981;
- enter private land to undertake investigations.

Designating the route means that the land will be available in the future when the funding is identified to build the railway. If this is not done, it means that subdivision or other development may take place in the meantime on the land that makes up the preferred route.

The proposed Oakleigh to Marsden Point rail link leaves the existing North Auckland Line (NAL) at Oakleigh, approximately 25 kilometres south of Whangarei City. It travels eastwards for approximately 16 kilometres to link with the new deepwater port at Marsden Point (Figure 10). The designation provides for a corridor wide enough to accommodate double-tracked lines for the entire length apart from the junction at Oakleigh and through Mata Hill, where it is desirable to minimise the width of the cutting.

Figure 9. Oakleigh - Marsden Point Rail Link Preferred Corridor



Source: Northland Regional Council, 2010.

In 2009, land for the rail corridor was formally designated for rail use. However, given the pressures for investment elsewhere in busier parts of the network there are no firm proposals or timetable for undertaking the construction of this route within KiwiRail's current planning horizon (Sinclair Knight Merz, 2010). There has, in fact, been talk of KiwiRail closing the North Auckland line of the rail network, which would make the proposed link to Marsden Point redundant.

4.2 Draft 30 Year Transport Strategy for Northland

In January 2010, the Northland Regional Council released the *Draft 30 Year Transport Strategy for Northland* (the document). The document advocates bulk freight moving from road-based to rail and coastal shipping.

"An upgrade and expansion of the existing rail network in Northland needs to be undertaken in order for this to be a viable option. There also needs to be effective intermodal facilities to allow effective bulk freight to domestic and international markets, aiding economic growth and increasing the regional GDP."

Northland will become a regionally significant destination for the import and export of bulk freight driven by its proximity to the significant economic areas in the south, especially Auckland and Hamilton. In the document, the Regional Council identifies the Northland deep water port as a viable option as a container port because of its location. This is considered unlikely, however, as the upper North Island cannot support three container ports. Unless the Port of Auckland shifted its container operation to Whangarei it is unlikely that Marsden Point Port would develop a container facility unilaterally. Even if Auckland closed its container port, Marsden Point Port would still need to compete with Port of Tauranga for the container development. There is a need to investigate an inland freight distribution centre for the transport network to facilitate road

to rail/shipping. The construction of the Marsden Point rail link and upgrade of the North Auckland line would have a significant effect on future port expansion.

4.2.1 Strategic Direction for Roads

In regard to roading, the report confirms the stretch of State Highway 1 (SH1) from Puhoi, where the current four lane road from Auckland ends, to Whangarei is a priority for the next 30 years (Figure 11). The section of SH1 between Puhoi and Wellsford has been identified in the Government Policy Statement on Land Transport funding as being a Road of National Significance (RONS) for national road development priorities. Improvements must be made to secure this entire stretch of SH1, particularly at the Brynderwyn hills where landslips frequently threaten the road, and Te Hana where a single bridge that spans the Te Hana Creek could be placed at risk by flooding or structural uncertainty, effectively severing the road network between the north and the south.

Figure 10. Strategic Priorities - Puhoi to Whangarei



4.2.2 Strategic Direction for Rail

According to the *Draft 30 Year Transport Strategy for Northland*, the rail network is to be the preferred option for the movement of bulk freight intra and inter regionally, facilitated by an efficient inland freight distribution centre.

The document identifies as the primary strategy priority for rail an upgrading of the existing North Auckland Line. Currently this line is limited by weight and speed restrictions resulting in much of the regional freight being transported by road. Shipping companies are moving towards larger scale containers and the current tunnel sizes on the rail line are not sufficient for these larger containers to pass through. For freight volumes to be increased on the existing network, the dimensions of seven tunnels would need to be modified by lowering the tracks. The installation of heavier weight tracks and bridges to allow heavier loads at greater speeds is essential to encourage more freight to be moved by rail rather than road.

In regard to the Marsden Point rail link, the resource consent and designation application has been approved for the various stages of development of the link. The Marsden Point rail link if it goes ahead will be the first significant expansion of the rail network in more than 50 years, and will greatly assist with freight transport and increase rail freight volumes.

However, there must be recognition that the existing road network needs to be able to support increased freight movement in the short term, in order to generate critical mass for the upgrade of the North Auckland rail line and the construction of the inland freight distribution centre and the rail link to Marsden Point (Northland Regional Council, 2010).

4.2.3 Strategic Direction for Shipping

In 2006/07 2.51 million tonnes of freight⁵ were transported by coastal shipping in Northland. This represents 20% of the total movement of freight in Northland that year. It is anticipated that there is considerable scope to expand this further.

In the document, the Regional Council identifies that the primary focus of Northland's port facilities is on the deep water port at Marsden Point, and existing oil handling facilities for the Oil Refinery (New Zealand's only oil refinery which is therefore a nationally significant asset). These operative commercial port facilities are the major facilities in Northland.

The strategic direction for the port is centred on the maintenance and upgrading of the existing facilities, and providing for future growth. The third berth has recently been constructed as part of the port development, and consent has been gained for one more, to be open 'when increasing port volumes attain a viable level' (Northland Regional Council, 2010).

⁵This was mostly fuel from NZRC and cement from Golden Bay.

Additionally Northland Port Corporation has the significant advantage of having secured land to facilitate future development and storage facilities. Whilst the Marsden Point rail link has been designated, there is no guarantee that it will be built. Future port expansion does not depend on the rail link, but would be greatly enhanced should it be constructed. Rail would allow greater and more efficient movement of bulk commodities along with imported cars should this trade be moved from Auckland in the future. The rail link would also be essential if Northport was to develop container facilities. As mentioned earlier, this is unlikely in the near to medium-term, unless Port of Auckland closes its container facility.

In 2006 – 2007, the total movements by coastal shipping in New Zealand amount to about 4.2 million tonnes annually, of which almost half (2.5 million tonnes) is the movement of fuel from the Marsden Point refinery. The equivalent tonne-km figure is similar to rail, around four billion annually, indicating an average trip length approximately 1,000km (Richard Paling Consulting, 2008). The movement of petroleum through coastal shipping is likely to grow with the expansion of the refinery. Therefore, coastal shipping has potential for increase in the future.

The New Zealand Transport Strategy contains an objective to *"increase coastal shipping's share of inter-regional freight to 30% of tonne-kilometres by 2040"* (New Zealand Government 2008). The Northland Regional Council *Draft 30 Year Transport Strategy* proposes that coastal shipping will increase its role in the movement of freight and become an alternative to land transport. For example, there is potential to use barges to transport logs and woodchips from Northland forests to Marsden Point Port for export overseas.

5. CONCLUSIONS

Northland's location makes its ports the closest in New Zealand to international shipping lanes and to overseas markets, and as such there is a great potential to further develop the Northport deep water port facility.

Marsden Point Port is the largest import port in New Zealand with main commodities such as mineral fuels/oils, fertiliser and coal going through the Port. Following the relocation of the port facilities from central Whangarei to Marsden Point this is now the major port located in the Northland region. International traffic is dominated by the exports of logs and woodchips and by imports of petroleum. Other commodity movements are relatively small. Although export cargo volumes through Northport are not the highest in New Zealand, logs, woodchip and processed timber will remain the major commodities for the export market. Northport has a future of stable and sustainable growth due to the forestry sector. Forestry projections for Northland continue to be based around a long term sustainable harvest volume of 4.0 to 4.2 million JASm3 per annum for the combined export and domestic markets. It is projected that the total exports of logs, woodchip, wood pellets and processed timber will increase 14.15%, from 1.81 million revenue tonnes in 2010/11, to 2.12 million revenue tonnes in 2013/14.

Total cargo imports are dominated by imports of mineral fuels and oil products through the oil jetties of New Zealand Refinery Company. These are around five million tonnes per year on average, representing around 95% of total import tonnage of around 5,250,000 tonnes on average. The regional bulk cargo imports through Northport are not projected to significantly increase beyond the current volumes of 150,000 tonnes of fertiliser, 60,000 tonnes of coal and 30,000 tonnes of Gypsum, and 40,000 tonnes of Palm Kernel. Based on these projected volumes it is unlikely that as a regional port Northland total cargo volumes will increase beyond 2.5 million revenue tonnes within the next 10 years.

To increase cargo volumes through Northport, the port needs to look outside the region. Northport is well positioned and has considerable opportunity to become a significant port in New Zealand. In comparison with, for example, Ports of Auckland in its constrained Auckland CBD location, Northport has much industrial land available for expansion. This would enable potential trades such as car imports and coastal feeder trades.

The use of Marsden Point for large volumes of general cargo traffic to or from areas further south in New Zealand would in effect replace a very efficient and sustainable form of movement in large container vessels by a much less efficient and sustainable movement by rail or by road. To provide an advantage to New Zealand as a whole the reduction in costs of international shipping resulting from the use of larger vessels or reduced travel time would have to offset the cost of the movement of cargo to and from destinations and origins in New Zealand.

However, the key to obtain large future market shares of cargo volumes is to improve supply chain links to Auckland and the Central North Island. This would require significant investments in both infrastructure and

port facilities at Marsden Point itself. Improved roading and an upgrade to the main Auckland trunk rail line are urgently required as is the rail link between Marsden Point and Oakleigh.

For the long term prospect, rail could increase its role significantly in the movement of freight, particularly with the development of the Marsden Point Rail link and an Inland Freight Distribution Centre. Coastal shipping is also likely to increase its role.

Currently, there is little in the way of coastal shipping within the Northland Region other than fuels and cement which are expected to continue to be transported by coastal shipping. The development of Northport and Marsden Point rail link will open the options for coastal shipping as an alternative for transporting general freight.

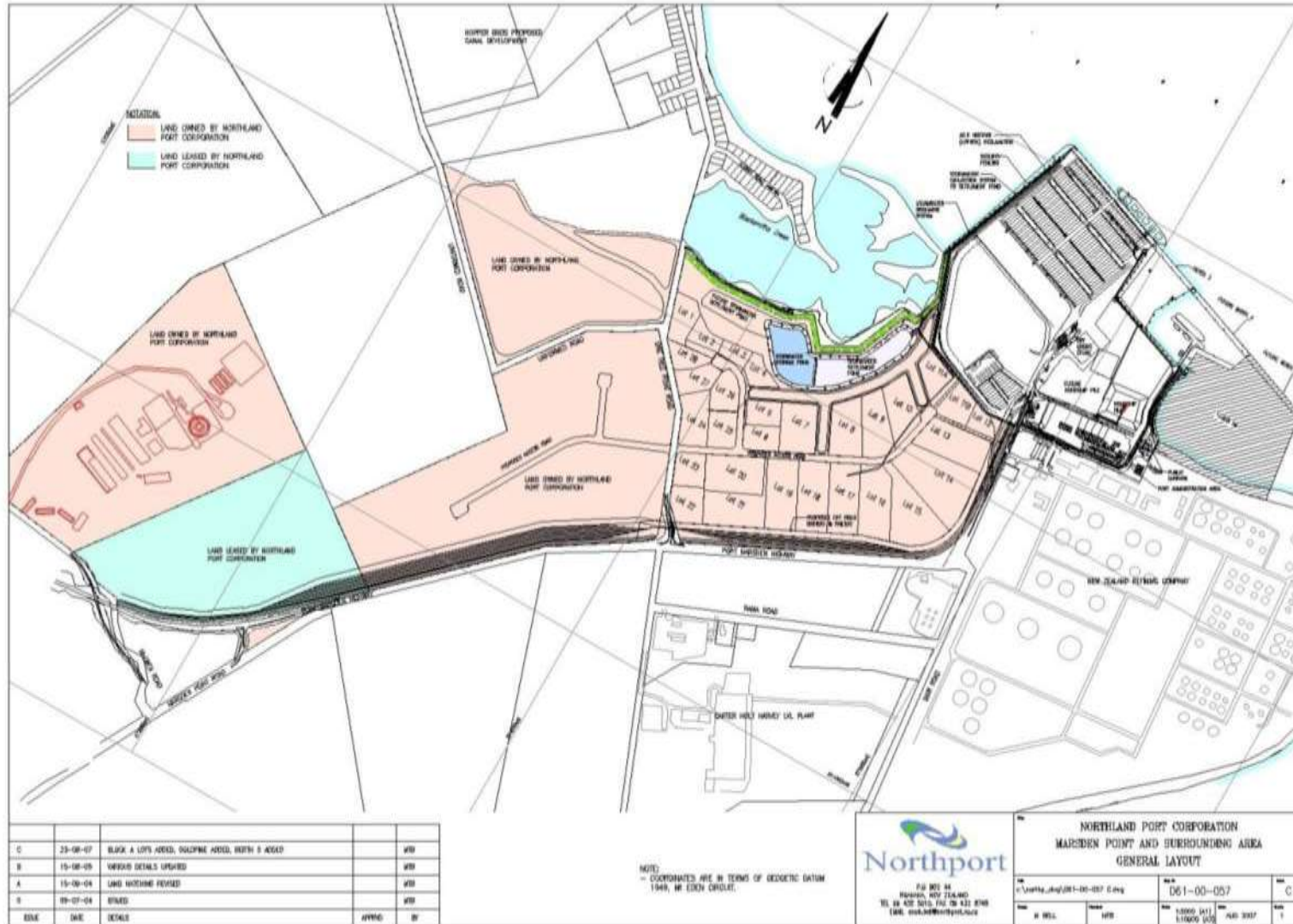
In terms of port facilities and future port expansion, there was resource consent granted for an additional 270m of berth and 4.4 hectares of storage. There is potential to extend another 270m and reclaim 10 to 12 hectares of additional land for storage. Northland Port Corporation has the significant advantage of having secured land to facilitate future development and storage facilities. There is over 180 hectares of land zoned Business Environment backing onto the port boundary; and the Port has an agreement to utilise this area if Northport ever required it. The total cargo handling capacity (including general cargoes, dry and liquid bulk cargoes and future coastal container trade) for Northport is between 6 and 7 million tonnes if the proposed berth five and associated storage is reclaimed.

In considering future options for Marsden Point the most likely scenario is a continuation of the present position, with the port mainly catering for bulk cargoes and general cargo commodities. An alternative option would be for Marsden Point to assume the role as a major hub port replacing Auckland and/or Tauranga as the preferred port for the Upper North Island and possibly a wider area. This scenario is regarded as very unlikely. Unless the Port of Auckland shifted its container operation to Whangarei it is unlikely that Whangarei would develop container facilities unilaterally. Further if Auckland closed its container port Marsden Point would still need to compete with Port of Tauranga for the container development.

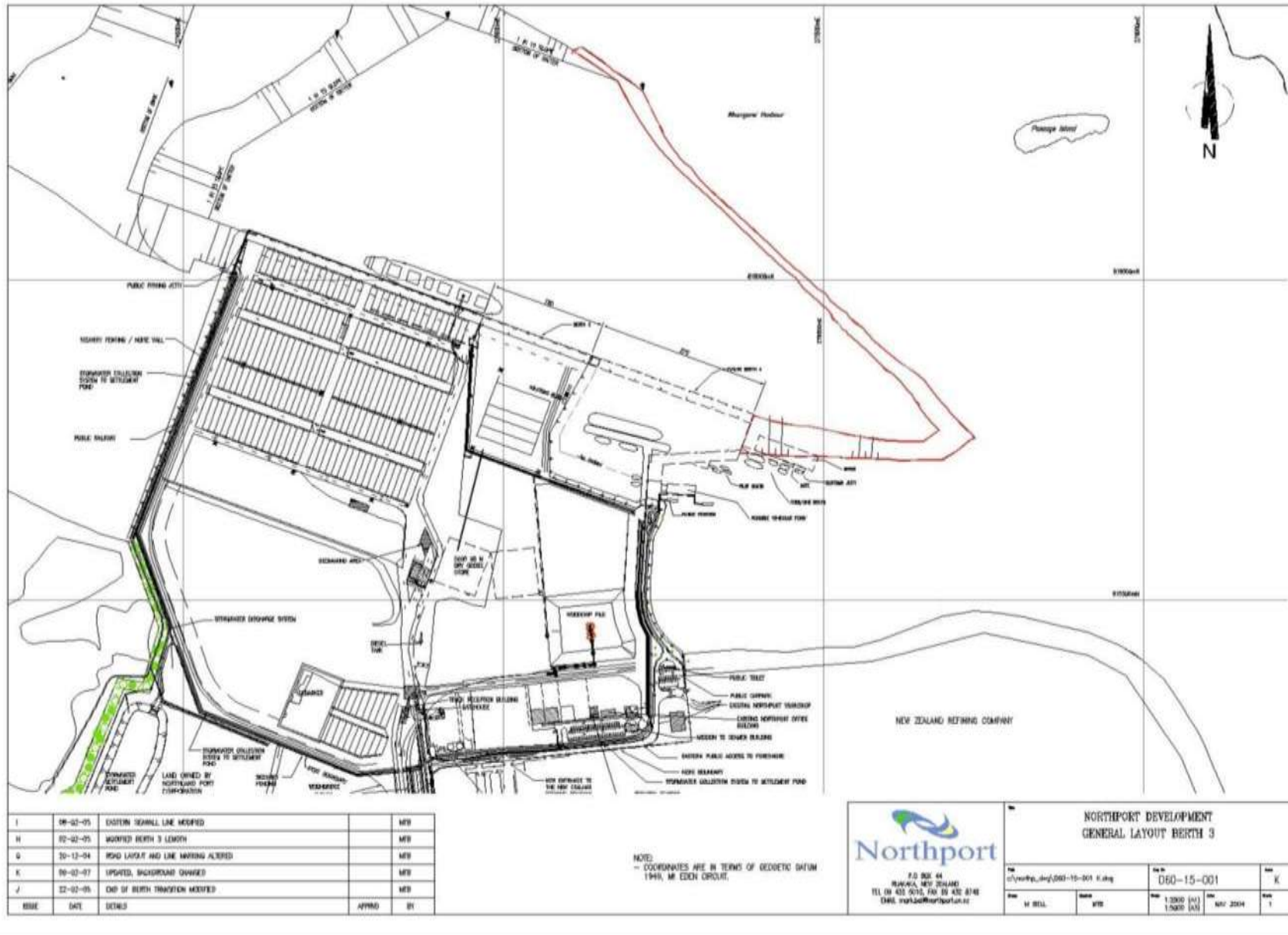
Overall, it is anticipated that Marsden Point will continue to be a nationally significant import and export port – particularly given its natural deep water harbour and its proximity to international shipping lanes. It also has significant areas of industrial land available landward of the port facilities. The evidence to hand suggests that the port sector in the Whangarei District and the Northland Region is functioning well. The region will retain its commercial wharves and shore-based facilities for coastal shipping and will continue to investigate opportunities throughout the region for coastal shipping and barging.

6. APPENDICES

Appendix 1 – Northland Port Corporation Land Use for Future Development



Appendix 2 – Northport Layout



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