

# Electra Regional Business Growth Initiative - Logistics and Distribution

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## Executive Summary

Changes in the funding regime and road planning are still very much in the discussion and development stages and there is still the opportunity for all affected sectors and the wider community to have input into future direction.

A thorough understanding of freight movements, volumes and business location activities is required as the pillars for good plans. KCDC has a proposed Community Engagement Plan and HDC is considering a community engagement model. As issues in this sector are wide ranging, affect community's long term and business location and growth strategies, a wide ranging input into planning is recommended. Consultation with the local community and particularly the business sector is not a strength of the local councils. The Electra Business Forum represents a wide range of business sectors and members have contacts locally and nationally. To achieve a robust consultation process it is recommended that Electra invite all affected parties to a planning/information forum with the following desired outcomes:

- latest plans and strategies are shared with the community
- the business community is included in road planning discussion's
- planned routes are discussed with local transport operators and NZRTA
- rural communities are included in discussions on road classifications/freight movements in rural areas

For this consultation process to have input into planning consultation needs to occur in the next 2-3 months.

The potential of the Horowhenua for a hub is being progressed with the preparation of information on "what the Horowhenua" has to offer. The challenge is to make this information relevant to the transport sector and to make sure that it is disseminated to a wide audience both locally and nationally. It is recommended the Electra business Forum supports this initiative and hosts an information session for local and national potential businesses.

## Introduction

Logistics and distribution in some form are an integral part to most business activity and an understanding of the factors involved in efficient distribution and logistics and the smooth operation of this sector is vital for business and regional growth.

## Scope

Logistics and Distribution are broad terms that cover a wide range of industries and for the purpose of this initiative businesses that manufacture or grow goods, and local and national transport companies are included as well as the local councils (KCDC and HDC).

Regulatory agencies are also included in the scope as this sector is undergoing major changes with LTA (Land Transport Authority) funding models changing, road classifications being introduced and new weight parameters for truck movements, all factors that will determine how and where freight is moved throughout the region.

## Methodology

To achieve a good understanding of the sector in the Kapiti and Horowhenua regions, the businesses operating in this sector were identified and asked to complete a survey asking a number of key questions. Slightly different surveys were used for manufactures and transport operators (see Appendix Two for details) but the key questions are summarised below:

- Why are you based here?
- Is your product time critical?/How is your product distributed?/ Who supplies distribution service?/ Is this working well for you? /What are the issues around your current distribution system?
- What type of service do you provide?
- To be successful what are the key things that are important to your business?
- Are you growing your business? What are the things stopping you expanding?

To understand the overarching infrastructure issues that directly affect the sector, council and LTA websites were reviewed and staff at these organisations consulted. The local representative for the Road Transport Operators Association of New Zealand (RTANZ) was also contacted.

## Stock Take of the Current Businesses in the Region

To understand the issues for logistics and distribution in the region, three segments of the industry were surveyed:

1. Local manufacturing/food and beverage companies sending product out of the district.
2. Locally based distribution companies working both in and outside the region.
3. National companies operating in the district or transporting goods through the region

A total of eighteen local Manufacturing and Food and Beverage businesses were surveyed. In terms of where they fit in the logistics and distribution sector the group profile is as follows:

Table 1. Turnover of Manufacturing and Food and Beverage Businesses

Turnover (Millions of \$)	Number of Companies
<b>Under 1m</b>	4
<b>1-5m</b>	4
<b>5-10m</b>	4
<b>10m<sup>+</sup></b>	6

- The two largest companies had a combined turnover of over \$50m and employed 250 staff
- Eight companies were exporting and another 5 were looking at export opportunities
- The companies ranged from artisan food producers to large food processors and growers and were located from Paraparaumu to Foxton
- One company managed its own distribution fleet, all the others used a combination of local and Line Haul operators

A total of five locally based distribution companies were surveyed and their profile is as follows:

Table 2. Type of Business Activity

Type of Business	Number of Companies
<b>General Carriers</b>	3
<b>Building and Roothing sector</b>	2

A total of six companies were surveyed that operated nationally and their profile is as follows:

Table 3. Type of Freight

Type of Freight	Number of Companies
Mail and small parcels	1
Building and Roothing	1
Primary producers products	2
All freight types	2

## Resources and Attributes that Support the Logistics and Distribution Sector

Surveying for this sector was largely done as part of the Food and Beverage survey and the key location driver across all sectors for locally based transport operators is lifestyle and family connections (See Food and Beverage for further details).

Nationally operating companies come into and out of the region largely on a “business to business” capacity, bringing raw materials into the region and transporting products nationally and to ports and airports.

## Current Gaps and Roadblocks Preventing Growth in the Region

The Northern Corridor project will in the longer term assist with movement of freight through the district the challenge is to ensure movement of freight and vehicles’ off the Expressway and around the districts remains efficient during and after completion.

The environment in the region that businesses will operate in is rapidly changing with three significant changes occurring that will affect all businesses but will be particularly important for the logistics and distribution sector, these are:

1. Changes to the physical environment with the construction of The Northern Corridor (The Expressway)
2. Changes in the regulatory environment that effects road funding
3. Changes to regulations that effect movement of heavy freight

## Changes to the physical environment with the construction of The Northern Corridor

From Tawa the new roads will progressively be constructed to provide an expressway-style journey to north of Levin. The Corridor is made up of four different sections that go through Kapiti and Horowhenua and these are detailed below along with current progress and expected completion dates:

Linden to MacKays Crossing(Transmission Gully) –to be built as a public private partnership (PPP). Wellington Gateway Partnership has been selected as the preferred bidder and if contract negotiations are successful the contract will be awarded mid 2014, construction to start 2015 and **completion due 2020**

- MacKays to Peka Peka – construction started, **completion due 2018**
- Peka Peka to Otaki – consent granted, construction due to start in 2016, **completion due 2020**
- Otaki to Levin- likely to be an upgrade of existing roads rather than an expressway, details to be finalised, **completion due 2024**

Land Transport Agency (LTA) has indicated The Wellington Northern Corridor Improvement will, when completed:

- Support Wellington's growing population: the regional population is expected to increase by 80,000 over the next 20 years, mainly in Wellington City and Kapiti
- Support increased freight volumes in the region: there will be a 50% increase between 2007 and 2017, with the vast majority of movements by truck
- Improve access to Wellington's port, CBD, airport and hospital
- Reduce severe congestion on state highways and local roads
- Make travel safer
- Make journey times more reliable

## Changes in the regulatory environment that effects road funding

Local roads are funded from a combination of local rates, central government funding through the National Land Transport Fund and the National Land Transport Programme and other local sources such as developer contributions. Currently each territorial authority is given a 'base' funding assistance rate for local road maintenance, operations and renewals which is determined in accordance with:

- Need (using the size of its approved road maintenance, operations and renewals programme as a proxy)
- Ability to pay (using local councils' rating base – rateable land values – as a proxy)

The NZ Transport Agency's current concerns with this funding model are that it is based on the local road programme size and has no relation to council size relative to other councils. Effectively efficient councils are penalised. Land value is not seen as a good proxy for ratepayers' relative wealth – it assumes land is being used for its highest and best possible economic use.

As the NZ population continues to grow, funding for roads will be increasingly tied to the amount and type of use a road provides. All roads in New Zealand are currently being classified using the same criteria and a national road network classification map (The One Network Road Classification) has been developed. It is also proposed to use Capital Value as an indicator of a regions wealth, the theory being this more closely relates to the use to which a piece of land is actually being put and so is a better measure of community wealth.

While this funding change is still under review and ultimately programme size will still be an amount reached following discussion not an objectively derived figure the implications are that to some level, funding from LTA will be the same for roads of the same classification nationwide and it will then be up to local councils to decide if they wish to fund roads to a differing standard.

## Changes to regulations that effect movement of heavy freight

The overarching goal for road transport is to move more freight, faster and with fewer units on the roads. To achieve this vehicles will be bigger or carry larger loads under the 50MAX (50T) and HPMV (High Productivity Motor Vehicles) regimes.

Lower Bound High Productivity Motor Vehicles (LBHPV) are a modified Class 1 vehicle that extends length and gross combination weight from 44 to up to 50 tonnes (50 MAX) while still allowing general access to state highways and local roads already posted for Class 1 vehicles. Economic benefits from using 50MAX compliant vehicles are expected to be an 8-12% operating cost reduction for an assumed fixed freight task.

High Productivity Motor Vehicles can exceed the 50t requirements but must travel on permitted HPMV routes. Much of the State Highway network is HPMV compliant and councils are currently in the process of accessing local roads for HPMV and 50MAX suitability. The benefits of using HPMV can be an increase of payload of up to 25% for only minor additional operating costs with less truck journeys to carry a certain weight.

The Whirokino Bridge south of Foxton on SH1 requires significant expenditure (over \$2m) to meet HPMV compliant standards and the Northern Corridor project while improving freight flow from Levin to Wellington presents many challenges for freight and traffic movement off the Expressway. KCDC has a Town Centres Project to identify the impacts of the Expressway and how this will affect the flow of traffic through the Waikanae and Paraparaumu town centres and a community consultation programme is being planned.

Both councils are currently working to identify issues for heavy vehicles and drafting heavy vehicle plans. See [Kapiti Roading Plans](#) and [Freight Hierarchy Maps](#) for more details on Kapiti. Consultation with the business community located both in the town centres and in rural locations is a vital part of the consultation process.

## **Issues for Local Companies Sending Product out of the District**

Thirteen of the eighteen companies surveyed were exporting or planning on growing their business by exporting. The larger companies were sending goods by container and the competition between ports for freight has worked to the benefit of the larger growers in the north of the region with discounts on container loads to be trucked from the district to Palmerston North and then rail freighted to Wellington. Centre Port has “bought” capacity on the rail network to facilitate this acquisition of more freight for the port. Two issues were identified as important for business growth to continue from their current sites:

- access to their site
- the capacity of the roads to take the larger rigs that will operate

Nine of the businesses surveyed were in rural locations and the continued intensification of the rural environment especially with lifestyle blocks leading to a wider range of use of rural roads (bikes, walkers, children) was a big concern both from a safety view point and a logistics viewpoint (restrictions on truck type and operating hours).

Five of the smaller companies who were in a growth phase were also located rurally and they had slightly different issues:

- costs and efficiencies of sending and receiving goods by courier when rural delivery rates apply
- costs and efficiencies of sending and receiving goods when small quantities are ordered
- merchandising and product flow especially in Auckland

## **Issues for locally Based Distribution Companies working both in and outside the region**

Local distribution companies act as redistribution points for goods coming in and out of the area or they bring in roading and building materials directly to businesses or consumers. After a long downturn this sector is optimistic with the expressway work and flow on stimulus to the local economy. Business growth will occur organically as construction projects gain momentum and the inflow of workers bolsters the local economy. To take advantage of this growth a number of issues were raised by all companies, these were:

- interface with residential development in Kapiti limiting operating hours
- ability of larger rigs to access their yards
- difficulty in obtaining HPMV permits
- having little input into new internal road layouts and capacities

## **Issues for Locating Transport Hubs and depots**

Efficient movement of freight has led to “hub and spoke” logistic and distribution centres, with the hub located in a large population area and/or by a railhead, port or airport and able to handle large freight volumes and equipment

and smaller transport options operating down the “spokes” to feed goods into and out of the hub (See Appendix One for more details on Hub and Logistic Centres).

A hub can also be located in an area where a significant volume of product is produced. In New Zealand our primary sector products fall into this category and the Port of Tauranga has continued its national expansion by buying up 15ha of commercial land in Canterbury to create a new inland port, partly to capitalise on the lucrative dairy export trade. See [Port Expansion](#) for more details.

A range of criteria are important for siting Distribution hubs:

- Local population that uses goods
- Good access to major roads and rail
- Land zoned appropriately
- Land blocks available that are big enough for large truck movements and storage, warehousing and loading
- Land price
- Ability to operate 24/7
- Local support services for serving of fleets
- Staff for hub operation and management
- Link roads on 50 MAX and longer term HPMV certified routes
- Good internet connectivity
- Reliable power supply

## Business Attraction

Kapiti and Horowhenua currently do not have either the population or the primary sector production to warrant a major distribution hub. Situated between the major hubs of Wellington and Palmerston North our local businesses will grow in the short to medium term as distribution points for the local economies. With current freight volumes and aggregation methods, larger line haul trucks are either delivering directly to end users (eg supermarkets, retail stores, building supply companies) or delivering into local yards for internal distribution. Their ability to efficiently access these customers from the new roading networks and access to freight consolidation yards is vital.

With population growth and the completion of the Northern Corridor the districts become more attractive for the siting of a hub:

### Horowhenua

- has land at a price and size for a hub to be economic
- suitable land available in the industrial/commercial block to the South of Levin
- when the expressway is completed should be able to provide good access to SH1 network
- attractive as a consolidation point for Auckland to Wellington/South Island freight.
- council support and planning
- rail link through the district with a mothballed rail head
- availability of staff

Barriers to the Horowhenua location include:

- limited knowledge in the wider transport community of the potential of the area both as a hub and as a place to live
- availability of management staff

- competition from Palmerston North as an established hub
- uncertain pathway from the proposed Levin south bypass on Highway 57 back on to SH1
- Whirokino Bridge ability to take 50MAX and HPMV vehicles

## **Kapiti**

- when the expressway is completed should be able to provide good access to SH1 network
- growth in population and expressway construction will result in organic growth of existing hubs
- good availability of all levels of staff

Barriers to the Kapiti location include:

- limited land at a price or size for a hub to be economic
- any suitable blocks likely to be adjacent to residentially zoned land thus limiting hours of operation and noise/movement activities
- freight linkages with the airport are limited with the inability to operate 24/7

## **Existing Business growth**

Existing businesses should grow with the construction projects underway and the flow on population growth.

Across the district expansion in rural areas will require planning that combines the needs of industry and the needs of the increasing rural community. Expansion of existing depots and increased freight volumes in the town centres will also require planning that meets the needs for heavy vehicle operation off the Expressway and on a 24/7 basis.

## **Conclusion**

At present the region has little competitive advantage to be a major logistics and distribution hub, however in the longer term Horowhenua in particular has many advantages for a site.

To ensure existing local manufacturing, food processing and transport operators are able to grow their business within an efficient logistics and distribution framework careful planning is needed to balance the needs of all sectors affected by freight movement.

## **Recommendations**

Changes in the funding regime and road planning are still very much in the discussion and development stages and there is still the opportunity for all affected sectors and the wider community to have input into future direction.

A thorough understanding of freight movements, volumes and business location activities is required as the pillars for good plans. KCDC has a proposed Community Engagement Plan and HDC is considering a community engagement model. As issues in this sector are wide ranging, affect community's long term and business location and growth strategies, a wide ranging input into planning is recommended. Consultation with the local community and particularly the business sector is not a strength of the local councils. The Electra Business Forum represents a wide range of business sectors and members have contacts locally and nationally. To achieve a robust consultation process it is recommended that Electra invite all affected parties to a planning/information forum with the following desired outcomes:

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## Appendix One – Logistic and Distribution Hubs

### Operating Efficiently

Intermodal transport can be described as the transport of merchandise by at least two transport modes with a minimum of one stage being made by train, by truck, or by maritime modes. In other words, it is a cargo unit that is transferred from a transport mode to another. The optimal combination of modes allows transporters to achieve what is known as economies of scope. In a majority of cases, the first and/or last steps of the cargo itinerary consist in truck transportation and are to be minimized. More than ever, delivery firms' activities are based on intermodal transport to optimize delivery times and, in turn, their overall efficiency (Rodrigue, 2013)

### Freight Distribution Clusters (Logistics Zones)

**Logistic zone.** Grouping of activities dealing with freight transportation (freight forwarders, shippers, transport operators, customs) and related services (storage, maintenance and repair) within a defined and often planned area.

#### Two drivers have been particularly prevalent in the emergence of logistics zones:

- **Complexity of freight distribution.** Due to the long distances over which supply chain management is being carried, intermodal and distribution strategies must be accommodated at strategic locations. Also, due to complex supply chain practices, additional operations need to be performed on the cargo and the loads while in transit.
- **Massification.** The quantity of cargo being handled as well as a level of concentration at specific gateways and along corridors has favored the emergence of large logistic zone complexes at strategic locations that are able to provide the necessary infrastructures to insure large scale operations as well as future traffic expectations.

### Typology of Logistics Zones

Managed large distribution centers tend to develop on the principle of **internal economies of agglomeration** (within the distribution center). The larger the distribution center, the lower their operational costs, particularly if accessible low cost land is available. Logistic zones (or Freight distribution clusters; FDC) expand these advantages through **external economies of agglomeration** implying that the concentration of distribution centers within the cluster, even if they concern different supply chains, has the potential to reduce an array of costs. Logistics zones can be classified according to their modal orientation, their geographical scope or their function. A modal taxonomy of logistic zones suggests five major forms; port-centric logistics zones, inland ports, freight villages, intermodal logistics zones and logistics parks.

An **inland port** is an intermodal terminal (commonly rail) built or updated concomitantly with the development of adjacent logistical and service activities (inland ports are covered more extensively in this section). An inland port can also be serviced by trucks, which often takes place in developing countries, but this does not represent an efficient strategy as massification cannot be implemented. The inland terminal is directly integrated to co-located distribution activities, which is one of the main advantages of such facilities as they become their respective customers. The term "dry port" is often used to label them since it refers to a facility that performs a similar intermodal function than a port, is not directly serviced by deepsea maritime services, is a factor of agglomeration, but is not linked with a maritime function (with the exception of fluvial ports). The inland port is conceivably the most advanced form of a logistics zone since it links co-located freight distribution activities to a gateway through a rail (or fluvial) corridor. In North America, Chicago, Kansas City and Columbus have large inland port complexes.

A **logistics park** is a planned zone composed of distribution centers and light manufacturing activities. They provide geographical advantages in terms of accessibility, land availability and infrastructures as well as operational advantages in terms of favorable regulations and economies of agglomeration. However, the degree of accessibility varies depending on the array of intermodal terminals available in vicinity. Logistics parks in proximity to an intermodal rail terminal are often labeled as intermodal logistics park. Logistics parks are often been independently planned and it is common to see them emerge after the construction of an intermodal terminal (or other logistics zones) as a promoter seizes an opportunity to provide land for logistics. A common type of logistics park is only serviced by road and do not require significant planning, but simply a change in zoning and some basic amenities (e.g. road access to a lot and utilities). They also tend to appear "spontaneously" at locations having good accessibility levels and where promoters are able to secure land for development.

A **freight village** is an integrated cluster of support activities for freight distribution such as office space, hotels and restaurants. A freight village mostly focuses on the service and transactional dimensions of freight distribution and could exist in a context where limited freight distribution is taking place. It does not require an adjacent intermodal terminal, but this terminal is commonly in vicinity. A freight village can also be linked with an airport terminal since this type of high value freight is intensive in transactions. The definition of a freight village is subject to different interpretations as in some cases logistics parks are labeled as freight villages, but the term should be applied where a high intensity of freight related services have clustered within a logistics zone. Raritan Center in New Jersey is one of the oldest freight village in North America since extensive service activities have emerged within a standard logistics park.

The level of functional integration between the distribution activities located within a cluster varies from small where they simply share a location and its accessibility to significant where activities have a high level of integration. An overview of logistic zones around the world

### Site Selection and Location Dynamics

Because of their characteristics, logistic zones have an array of requirements for site selection. First, the site offers a number of **geographical advantages**:

- **Accessibility.** Transportation costs remain the dominant factor in total logistics costs, with accessibility a standard factor based upon the proximity of the FDC to terminals (rail and port) and customers. For logistic zones attempting to fulfill the role of an inland port, co-location with an intermodal rail terminal is a very important factor. The notion of accessibility tends to vary based upon if the FDC is mainly import or export oriented. Import-oriented FDCs tend to be at intermediary locations along corridors towards main consumption markets. Export-oriented FDCs tend to be in proximity of major transport terminals, particularly ports. An important factor is that the region must be in itself an important market, both from a production and consumption perspective. A logistic zone that has a limited local market presents a higher risk since it services a market that is much more contestable. In the context of higher energy prices accessibility becomes even more important as final distribution costs ("last mile") tend to increase exponentially with distance because of empty backhauls. Another important criteria in site accessibility concerns its temporal accessibility implying that a logistic zone is open around the clock, enabling to better match the flexibility of supply chain management.
- **Land.** One important aspect behind a managed distribution cluster is the availability of land that has already been zoned for such a use. Logistic firms are very sensitive to the availability and the cost of land because they consume a large amount of space, implying that land is one of the most significant costs in their operations. For a user, land acquisition (or renting) costs are thus reduced, particularly in relation to a standalone initiative. A careful analysis of the demand can lead to the provision of a mix of functional parcel sizes reflecting the needs of the industry. Local and regional governments are also able to establish preferential taxation procedures if a logistical cluster fits regional development policies.

- **Infrastructures.** Another common strategy is the provision of utilities (electricity, water, sewage, etc.) as well as roads, such as a dedicated highway ramp, as an incentive. FDCs also offer the opportunity to provide warehousing space available for various term leases as well as equipment supporting logistics and distribution activities. LEED (Leadership in Energy & Environmental Design) certification is becoming mandatory for buildings in logistics zones co-located with inland ports.
- **Anchor tenants.** The presence of large logistic firms, or the distribution branch of a large firm such as a retailer is fundamental. A large firm brings with it substantial capital investment, expertise and more importantly a cargo volume. It shows to other potential users the commitment of an industry leader and that the logistic zone thus has a value proposition. It can also go the other way around as a site selection by a large distributor such as a "big box" retailer can incite the development of a logistic zone.

Second, the site of a logistic zone offers **operational advantages**:

- **Planning and regulations.** A managed FDC has the advantage of being able to provide a "fast track" process for the construction and operation of freight distribution activities. It thus has a support from various levels of government. Procedures granting permits are already in place in addition of insuring compliance to safety, security and environmental regulations. Since the FDC is part of a planning process (commonly a public-private partnership), there are provisions for expansions and additional infrastructures as it develop and expand. One important attribute that can assist FDC at attracting added value activities and consolidate their role and function is the status of a foreign trade zone (FTZ). This can include custom clearance and flexibility for importers and exporters about which type of added value can be performed.
- **Economies of agglomeration.** The principle of economies of agglomeration for a FDC implies a variety of cost reduction because a critical mass is attained. Because of the volume of freight being handled within a specific area, there is a potential of consolidation of loads from a variety of users into shuttles, particularly between the FDC and major transport terminals. There are thus more full truck loads (FTL), improving the efficiency of distribution. The FDC thus can become a logistical market in itself with a variety of service providers bidding for contracts that are "outsourced". This can include shared services such as labour, transloading or information technologies and telecommunications.
- **Internal multiplying effects.** The proximity effect involving several logistical firms within a FDC also leads to the diffusion of best practices related to management, information technologies (e.g. software) and efficient compliances to rules and regulations. This promotes the training of a pool of labor leading to an array of productivity gains.

With these location factors in mind, three major forms of logistic cluster dynamics have emerged:

- **Near gateways** where logistic zones are strongly conditioned by warehousing parks in the vicinity of container port terminals as well as in suburban settings nearby ring roads. This is prone to the usage of port-centric logistic zones and satellite terminals.
- **Around inland rail terminals**, which took place at the same time that new facilities were being designed in a suburban setting, away from the more traditional locations nearby central business districts. This reinforce the emergence of load centers.
- Along major **highway corridors** that can service a large metropolitan area or a group of metropolitan areas.

The logistic zone is therefore a **value proposition** for freight distribution that goes well beyond the function of warehousing with distinct economic benefits, such as job creation and capital investment, but also costs such as environmental externalities. An array of services are required as they support the functions of a logistics zone and provide employment. The goal is often to create a service market within a logistics zone since it strengthens local expertise and improve the performance of freight distribution. This market is related to three main categories of services:

- **Freight services.** Specialized services that are rarely found outside the freight distribution industry. They include freight transportation, warehousing and light fabrication services. They also include an array of freight operations taking place in a distribution center that can be subcontracted. Since the majority of freight shipments are containerized, logistical activities servicing containerization are particularly significant.

- **Corporate services.** General services that focus on the operation of enterprises. Several of these services can be specialized since logistics enterprises have specific needs. Much of these services are performed within the corporation, a growing share are being subcontracted (lower costs and higher quality through specialization). A logistics zone thus offer the possibility to develop a specialized service market.

**Personal services.** An array of services for the concentration of workers in a logistics zone. While they are unrelated to freight distribution they are complimentary since they contribute qualitatively to the performance of a logistics zone.

Another important component of the value proposition of a logistic zone concern information technologies where there is an opportunity to create an freight management system that encompasses several distributors as well as nearby intermodal terminals. Last, the sheer size and organizational complexity of logistic zones require a form of governance that either falls into private, public or joint interests.

### **Large-scale logistics-type businesses**

#### **UPS**

United Parcel Service (UPS) is an enterprise specializing in the collection and the routing of parcels throughout the world. It represents an excellent example of a corporation actively involved in freight distribution and the application of logistics. In 2007, UPS generated incomes around 50 billion dollars and employed 425,000 people, 358,000 of them in the United States. Its service area covers 200 nations and handles **4.0 billion parcels per year**; around **15.8 million per day**, of which 2 million are carried by air transport, most of them in the United States. UPS handles about 61% of all parcels ground deliveries in the United States while this share drops to 34% for the overnight air freight market. It is estimated that UPS delivers more than 6% of the American Gross Domestic Product and 2% of global GDP each and every day.

The infrastructures of UPS are extensive and include 2,400 distribution centers, 93,000 vehicles and 268 airplanes going to 391 airports in the USA and 219 abroad. Besides, UPS makes call to about 310 planes on a contractual basis according to variations in demand, making it the 2nd largest freight airline in the world and the 9th largest airline in terms of revenue. UPS has also an extensive information system specifically adapted to the needs of parcel collection. Each parcel handled requires numerous data elements that are transmitted over a optic cable network supported by satellite and wireless communication. This network is named UPSnet. The storage is necessary for the management of the very complex logistics of the several millions of parcels sent each week having different origins, destinations and recipients.

#### **THE UPS SYSTEM**

The UPS system is mostly aimed at servicing businesses since 80% of the traffic handled is business to business. To be effective, UPS relied on the efficiency of its distribution system. Reliability and efficiency are key issues in the establishment and management of freight distribution systems leaning on parcels. Optimal locations for the hubs are sought, as well as the possible delivery routes to avoid unnecessary movements, congestion and assure timely deliveries. Every single parcel has to go through the UPS network regardless of its destination. It could be bound for the other side of the planet or addressed to the neighbor; the parcel will have to go through the distribution system, which has an hub-and-spoke structure. This distribution system involves three major functions:

#### **Consolidation**

The first step obviously involves the collection of parcels by trucks assigned to specific routes. To optimize the driver's effectiveness, traffic trends and road conditions are continuously monitored to insure that the optimal path is taken. From his/her truck, the driver has access to an hand-held computer device (DIAD) that enables to capture information about each packages and delivery. This is essential to track a parcel or be alerted in any

road change or unplanned situation. The parcels are then assembled at the closest distribution center.

### **Distribution**

The distribution function works on a hub to hub basis, depending on the distance involved, the mode used between hubs will either be trucking or air. Commonly, trucks are used for distances less than 400 miles (600 km). The main air hub is Louisville, Kentucky, which handles over 100 flights a day. In 2002, a distribution center of 5.2 million square foot, called UPS Worldport, opened at the Louisville International Airport. This facility handles about 1.6 million packages each day. The main land hub is the Chicago Area Consolidation Hub, which is the largest distribution center in the United States.

### **Fragmentation**

This step is the inverse of consolidation as parcels have to be delivered to each individual destination. Commonly, fragmentation is combined with consolidation as a delivery truck route can be integrated with a pickup route. This can be achieved only with a high level of control on the logistical chain.

Strategies such as the **consolidation principle** and the **hub network strategy** are very important and useful in transport geography analysis.

## Appendix Two - Surveys

### Logistics and Distribution Survey-Kapiti/Horowhenua -Manufacturers

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Purpose: As part of the Electra Business Development forum, [http://www.electra.co.nz/business\\_forum/index.htm](http://www.electra.co.nz/business_forum/index.htm) where the goal is to determine the size, scale and potential for key business sectors in Kapiti and Horowhenua, we are trying to understand the issues that are facing new businesses and the expansion of existing businesses.

The outcome of this work, is to make recommendations that will support business growth in the Kapiti and Horowhenua regions. The first step in the process is collecting the views and issues as seen by key business people around the region.

We would appreciate your time in answering a few questions on the issues and providing background information on your business.

#### **Business Details**

Name:

Products :

Number of People employed:

Customer location (% local, regional, national, international):

#### **Distribution Channel's**

- Is your product time critical?
- How is your product distributed?
- Who supplies distribution service?
- Is this working well for you? What are the issues around your current distribution system? Eg cost, frequency, time schedules etc

#### **Business Location Drivers**

- Why are u based here? What is good about having business in the Horowhenua/Kapiti?  
Eg lifestyle choices for staff, price and availability of work space, council support, labour availability and/or cost, connectivity, availability of raw product etc.

- To be successful what are the key things that are important to your business?

#### **Limitations to Business growth**

Are you growing your business? What are the things stopping you expanding?

### Logistics and Distribution Companies Survey-Kapiti/Horowhenua -

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**Business Details**

Name:

**Type of service Provided:**

*Post*

*Courier*

*Local trucking*

*Regional Trucking*

*Line Haul (NI, SI)*

*Rail*

*Interisland Freight*

*International Freight*

**Number of People employed in Horowhenua and Kapiti:**

**Customer Type:**

Business to Business

Business to Customer

Domestic

Import

Export

Other

**Distribution Channel's**

- Do you have Distribution hubs in the area?
- What would be your requirements to establish a hub?

**Business Growth**

*Which of the above sectors are you planning on growing in Kapiti/Horowhenua?*

*What are the barriers/roadblocks to growth?*