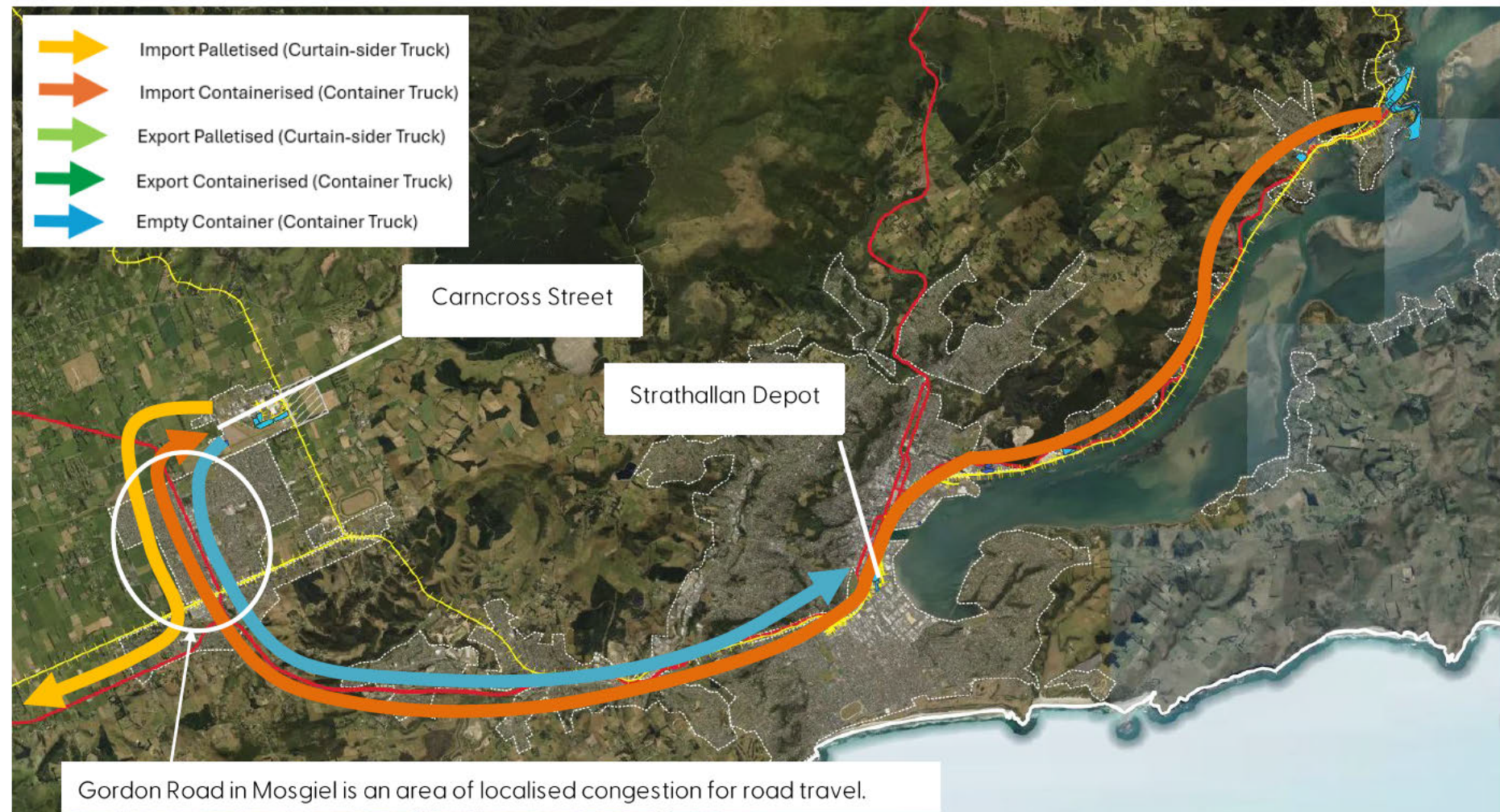




Figure 4.6 – Carncross Street – Indicative Import Bulk Product and Container Flows





The distances from Port Chalmers to Icon's warehouses range from 2km (Sawyers Bay) to just over 30km (for Carncross Street in Mosgiel). Distances to the Strathallan container depot (to return or collect empty containers) ranges from 1.7km to 18km. Distances to main customers ranges from 161km to 215km at present (all based South of Dunedin City). However, 95 Parry Street is only 1.1km away from the Cerebos Greggs Factory (an import customer) and illustrates the relevance of having some import warehouse capacity in central Dunedin to manage demand from urban business customers. All these distances are measured by road as none of Icon's current warehouses have rail access.

While having the two Parry Street warehouses on the edge of the central city (and close to SH88) avoids the worst of the central Dunedin traffic congestion, and the Mosgiel warehouse is in a location with no material local road congestion,⁶⁰ all inbound and outbound truck movements for all five warehouses inevitably requires travel within and through Dunedin's main urban area. These main truck travel routes are summarised in Figures 4.2-4.7. The weight of the lines in these stylised maps indicates the relative significance of those travel routes. The colour of the arrows (and direction) indicates the flow of palletised and containerised product which impacts the type of truck used.

Export truck movements for the T-Shed warehouse (Figure 4.2) include palletised product coming in from the south, temporarily being stored at T-Shed and then being trucked to Icon's Sawyers Bay warehouse where it is packed and the containers trucked to Port Chalmers. Empty containers required for that exporting are trucked from Port Chalmers to the Sawyers Bay warehouse. A lot of truck movements for T-Shed start or finish in central Dunedin (where congestion and speed limits reduce transport productivity). This warehouse adds to heavy truck movements along SH88 to/from Port Chalmers as well as adding to heavy truck movements in Sawyers Bay and Port Chalmers.

Export truck movements for the 95 Parry Street warehouse (Figure 4.3) include palletised product coming in from the south, through central Dunedin and to the warehouse where it is packed and the containers trucked to Port Chalmers. Empty containers required for that exporting are trucked from Port Chalmers on return trips, or from the Strathallan Depot as required. Imported containers are trucked from Port Chalmers to 95 Parry Street where they are de-vanned and trucked to the Cerebos Greggs factory or Emersons brewery in central Dunedin.⁶¹ The empty containers are then trucked predominantly back to Port Chalmers. A lot of truck movements for 95 Parry Street start or finish in central Dunedin (where congestion and

⁶⁰ Although trucks are required to travel down Gordon Road (through central Mosgiel) and this is an area of localised congestion, as indicated in Figure 4.6.

⁶¹ Some imports are also trucked out of Dunedin to Fonterra Stirling and Crombie and Price in Oamaru for example.



speed limits reduce transport productivity). This warehouse adds to heavy truck movements along SH88 to/from Port Chalmers.

Import truck movements for the 88 Parry Street warehouse (Figure 4.4) include containerised product brought south from Port Chalmers where it is de-vanned and then trucked to business customers in central Dunedin or out of Dunedin City (mainly south). Empty containers are trucked back to Port Chalmers (on the return trip) or taken to the Strathallan Depot as required. Truck journeys for this warehouse add to heavy vehicle traffic in (and through) urban Dunedin, as well as along SH88 to Port Chalmers.

Export truck movements for the Sawyers Bay warehouse (Figure 4.5) include palletised product coming in from the south, through central Dunedin and to the warehouse where it is packed, and the containers trucked the short additional distance to Port Chalmers. Empty containers required for that exporting are trucked from Port Chalmers on return trips. Imported containers are trucked from Port Chalmers to Sawyers Bay where they are devanned and the palletised product is trucked back to the rail siding at Port Chalmers where it is then railed to the customer. The empty containers are returned to Port Chalmers by truck. All inbound export product from the south must pass through urban Dunedin and along SH88 to Sawyers Bay. While the distance from the warehouse to Port Chalmers is only 2km, this warehouse contributes to traffic congestion in Sawyers Bay and Port Chalmers.

Import truck movements for the Carncross Street warehouse (Figure 4.5) include containerised product brought south from Port Chalmers along SH88 and right through urban Dunedin and out to Mosgiel where it is de-vanned and then trucked to customers outside of Dunedin City (mainly south). Empty containers are trucked back to the Strathallan Depot. Truck journeys for this warehouse add to heavy vehicle traffic in (and through) urban Dunedin, as well as along SH88 to Port Chalmers. It also currently adds to heavy vehicle traffic in Mosgiel along the designated State Highway route on Gordon Road.

4.4 Icon's Operational Constraints

All of Icon's current warehouses are constrained in some way. The absence of rail sidings/rail access is the key constraint, which requires all services to be provided by truck. This limits the efficiency and productivity of transport services provided to import and export customers, particularly between the edge of the main Dunedin urban area and Port Chalmers.

T-Shed is old and constrained by an inability for export packing on account of its wharf location. 95 Parry Street is a bit small but otherwise functional and has the advantage of a small container storage area (providing some valuable buffering capacity for export customers). 88 Parry Street is an old warehouse no longer considered fit for purpose. The



Sawyers Bay warehouse is also old and costly to maintain for food-grade storage. While relatively new, the Carncross Street warehouse is a bit small for Icon and the road distances to Port Chalmers and the Strathallan depot increase the cost and time of logistics services offered to customers from this otherwise uncongested location.

The dispersed nature of Icon's current warehouses – all of which have different lease expiry dates – also reduces the efficiency of moving staff between the various warehouses and results in poor economies of scale. While the container terminal at Port Chalmers has little or no buffering capacity remaining for export containers, nor does Icon have any meaningful container storage for their customers at most of its current warehouses (the exception being 95 Parry Street). Icon's operations are therefore vulnerable to supply chain disruptions (including shipping delays). Total reliance on SH88 also means that Icon's road-based services are exposed to natural hazard risk (particularly slips), traffic accidents and road maintenance projects that wholly or partially close SH88. Appendix C includes images that show the location of the rail line in relation to SH88, plus additional articles highlighting events that have impacted traffic flows.

The operational constraints faced by Icon are representative of the constraints faced by the wider Dunedin logistics sector, with the exception of Port Otago whose 3PL services are currently based (mainly) at Port Chalmers with rail siding access.



5 Business as Usual Issues

5.1 The Future Without the Inland Port

The current constraints (problem statement) facing Port Chalmers and the Dunedin container logistics sector are clear. Faced with those constraints, both Port Otago and Icon Logistics know exactly what key changes are required to achieve increased efficiency, productivity and resilience in import and export supply chains in the Southern Region. Both companies know how they can most efficiently contribute to a low carbon economy. Both companies have strong aspirations for growth – for their own operations, and for Otago Region generally.

As demonstrated in previous sections, the optimal solution is to consolidate (to the extent practical) empty container storage; servicing; and import/export logistics warehousing into one large scale, strategically located site on a rail siding. This will create more efficient economies of scale, remove the significant heavy vehicle travel currently needed to collect and return empty containers in central Dunedin, and significantly reduce the heavy truck movements associated with bringing export product from outside of Dunedin through the main Dunedin urban area for packing and transport in containers to Port Chalmers (and vice versa for imported goods).

Secondly, a large inland container terminal needs to be included with that facility to free up capacity at Port Chalmers, provide for container trade growth and provide critical buffering capacity (full and empty container storage) to make export supply chains more resilient to unexpected events and potential shipping delays.

If this optimal outcome cannot be achieved, a business as usual future is assured.

While most major seaports in New Zealand already operate with rail accessed inland ports/inland container terminals (including Lyttleton Port which has two – one in Woolston, Christchurch and one in Rolleston), Port Otago will continue to be an outlier despite facing the same sorts of operational and growth constraints that have been faced by other ports. If Port Otago (and the import and export supply chains that rely on it) is forced to continue under the current operational model, it is likely to find it increasingly difficult to compete with other South Island seaports for container trade.

A business as usual future means:



- Continued leakage of imported goods destined for Otago businesses/customers to more distant ports outside of Otago Region.
- Continued leakage of export activity to other ports during peak seasons when capacity at Port Chalmers is reached.
- Little or no opportunities for existing exporters using Port Chalmers (and Dunedin's 3PL service providers) to increase their output (without further leakage of those supply chains out of Otago Region).
- Continued under-utilisation of existing rail infrastructure between Mosgiel and Port Chalmers (and KiwiRail rolling stock).
- Higher freight costs for exporters and importers reliant on truck movements that pass through Dunedin's main urban area (slower speeds and higher congestion increase time and costs). Efficiency and productivity will continue to decline as Dunedin's urban population grows.
- Continued externalities associated with significant heavy truck movements within and through urban Dunedin (congestion, road damage, GHG emissions, air pollution, road safety issues and increased fuel consumption).
- Increasing vulnerability of import and export supply chains that use Port Chalmers due to uncertainty once the Strathallan Depot lease expires in 2030 and due to natural hazard and other disruptive events (particularly associated with SH88 and potential shipping delays).
- It will be highly unlikely that Otago Region will attract new export product processors and manufacturers, or manufacturers/wholesalers/retailers that rely on imported goods (importers), because of export and import supply chain constraints. Opportunity costs for wider economic growth over the long-term.

Key road transport statistics of a business as usual future are (based on YE June 2024):

10,480	6,430	Unknown (significant)
• The number of export good heavy truck movements (one way) in Urban Dunedin per annum	• The number of import good heavy truck movements (one way) in Urban Dunedin per annum	• The number of empty container heavy truck movements within Urban Dunedin per annum



5.2 The Fonterra Mosgiel Case Study

Fonterra's Taieri Distribution Centre is used for dry and cool storage and container packing of products from its Edendale and Stirling factories. It is a significant facility in the context of Dunedin container logistics sector, operating for 11 months of the year. The site is located on its own rail siding (with the siding into the warehouse owned by Fonterra) in the Mosgiel industrial Zone (and opposite the Inland Port).

Product arrives at the distribution centre in bulk by rail (with train wagons marshalled (split) at the KiwiRail yard in Dunedin before being shuttled out to Mosgiel). Product is mainly packed into dry/ambient food-grade containers (supplied twice a day by rail from the Port Chalmers Depot and topped-up by trucked empty containers from either the Strathallan or Port Chalmers depots depending on packing demand) and then full containers are shuttled directly to the rail siding at Port Chalmers. The export supply chain is represented in Figure 5.1.

In the YE June 2024, the Taieri Distribution Centre sent an estimated 14,000 TEUs to Port Chalmers (indicatively estimated to equate to 175,000 tonnes of product). These containers accounted for 26% of all export TEUs railed to the port, and 28% of all containerised export receipts. While the Taieri Distribution Centre does not handle all of Fonterra's export product manufactured in the Southland/Otago (with other supply chains utilising their leased and operated D-Shed or the 3PL services of Port Otago and Icon Logistics), it plays a crucial role in managing Fonterra's export product volume in the lower South Island.

The ability to send around 14,000 TEUs of containerised export product by rail from Mosgiel substantially improves the productivity and efficiency of this Fonterra supply chain.

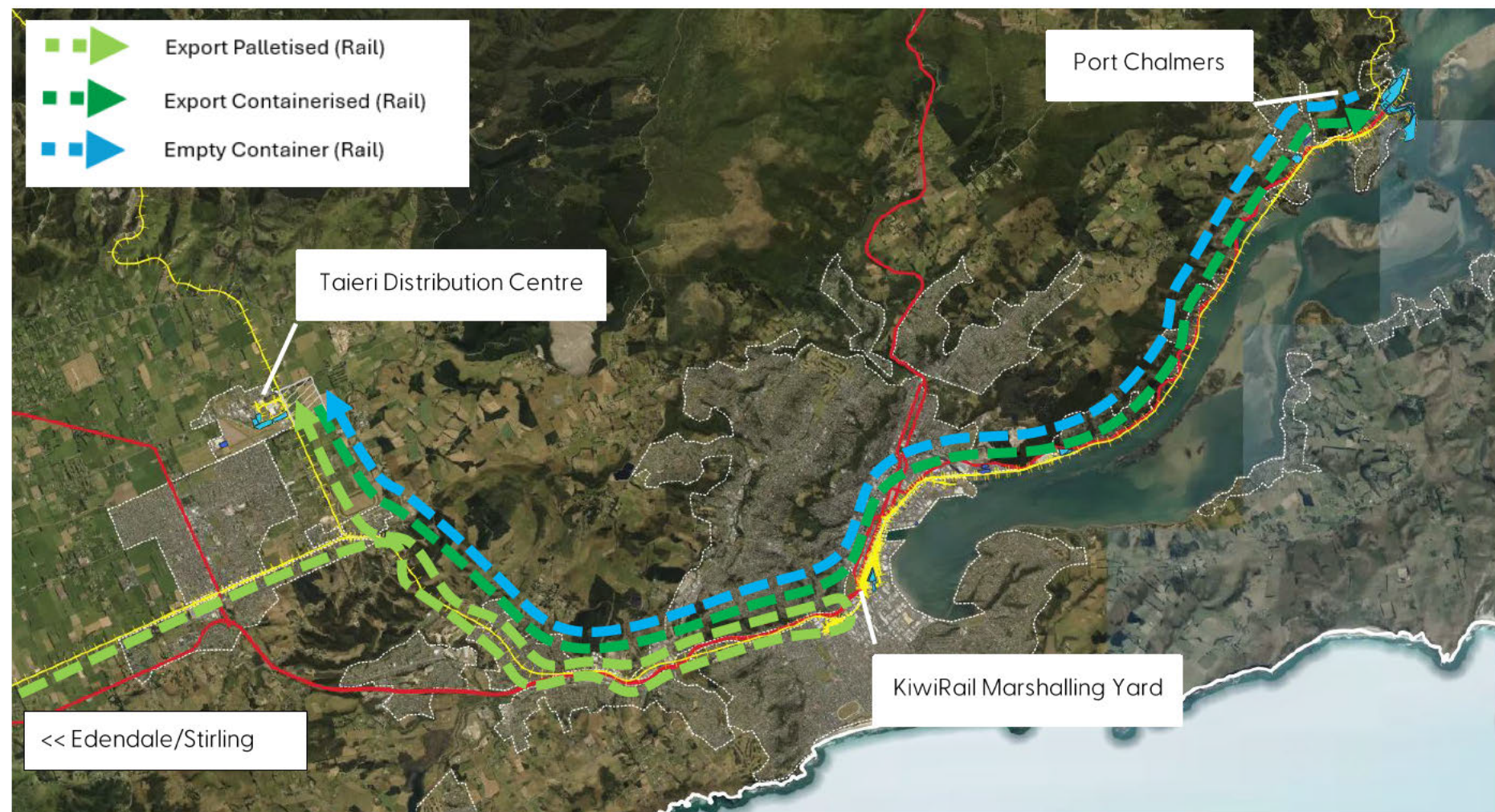
Containers are sent to port faster, with less risk of disruption and with lower labour inputs. If (hypothetically) the same volume of product was required to be trucked from the Distribution Centre to Port Chalmers, the following differences will apply:⁶²

- Distance to port will increase by 4km (road distance would be 32km (with 15km of that within the main Dunedin urban area), compared to 28km on rail).
- Tonnes moved per annum (Tonne Kms) will increase by 14% from 4.9m tonne kms to 5.6m tonne kms.
- Vehicle kms travelled will increase by nearly 216,000 kms per annum.

⁶² Refer Appendix E for the detailed calculations.



Figure 5.1 – Taieri Distribution Centre – Indicative Bulk Product and Export Container Flows





- One way vehicle movements will increase by 6,700. That is 292 shuttle train trips per annum versus 7,000 container skel truck trips.
- GHG emissions will increase by 623 tonnes of CO₂-e per annum.

The above are only the direct benefits gained by Fonterra by having a rail siding at their Taieri Distribution Centre for one year. They do not include the benefits of being able to receive empty containers by rail or receive the bulk product by rail.

There are a range of indirect benefits that flow from these direct benefits including (but not limited to) avoided road degradation, congestion and air pollution in the main Dunedin urban area. The Distribution Centre also has substantial warehouse storage capacity, which makes the supply chain more resilient to disruptions, any shipping delays and capacity constraints at Port Chalmers.

The operational model of the Taieri Distribution Centre is a strong example of a more optimised logistics supply chain that makes use of a location outside of the main Dunedin urban area and a rail connection. It is this logistics model that the Inland Port is seeking to emulate (at a larger scale) and further enhance (not least by including a container terminal, container depot and providing for rail-enabled import supply chains). In doing so, the Inland Port will be able to pass on the same sorts of productivity, efficiency and resilience benefits that Fonterra has achieved to a wide range of export and import businesses across the Southern Region (and offer some operational benefits for the Fonterra Taieri Distribution Centre at the same time).



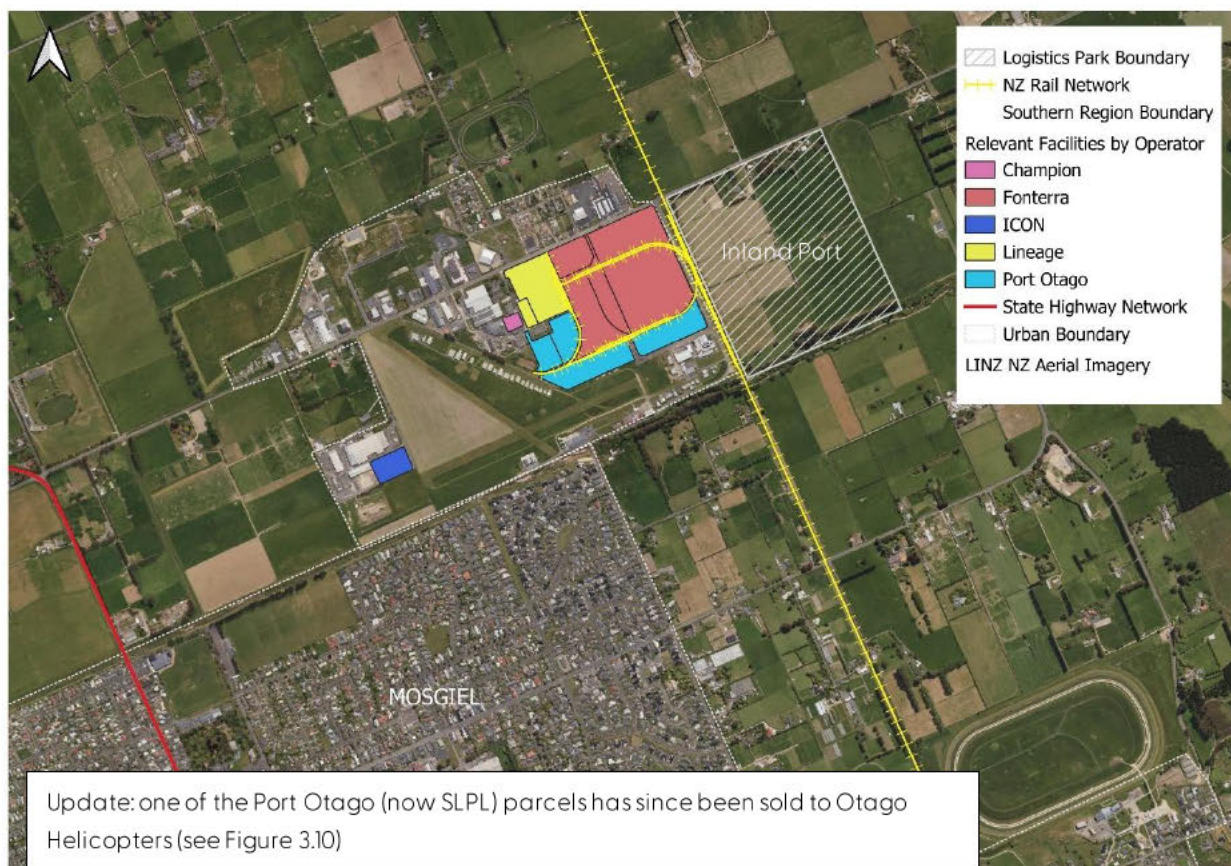
6 Proposed Inland Port

The proposed Southern Link Inland Port is a joint venture between Dynes Transport Group (owners of Icon Logistics) and Chalmers Properties Limited (a subsidiary of Port Otago). The proposal is a strategic response to the current operational constraints faced by both organisations (and the Dunedin container-related 3PL sector generally) as well as anticipated future challenges and opportunities. The aim of the Inland Port is to secure a sustainable growth future for the Dunedin container logistics sector, maximise the efficiency of existing port and rail infrastructure assets, help support a low carbon economy in Dunedin City, and facilitate economic growth in Otago Region.

6.1 The Site

The proposed site of the Inland Port is a 40ha rural property located at 270–292 Dukes Road North, adjoining Mosgiel's industrial zone, and opposite Fonterra's Taieri Distribution Centre (Figure 6.1). The scale of the site will provide a 50 year supply chain solution.

Figure 6.1 – Aerial Image of Proposed Southern Link Inland Port Site, Mosgiel

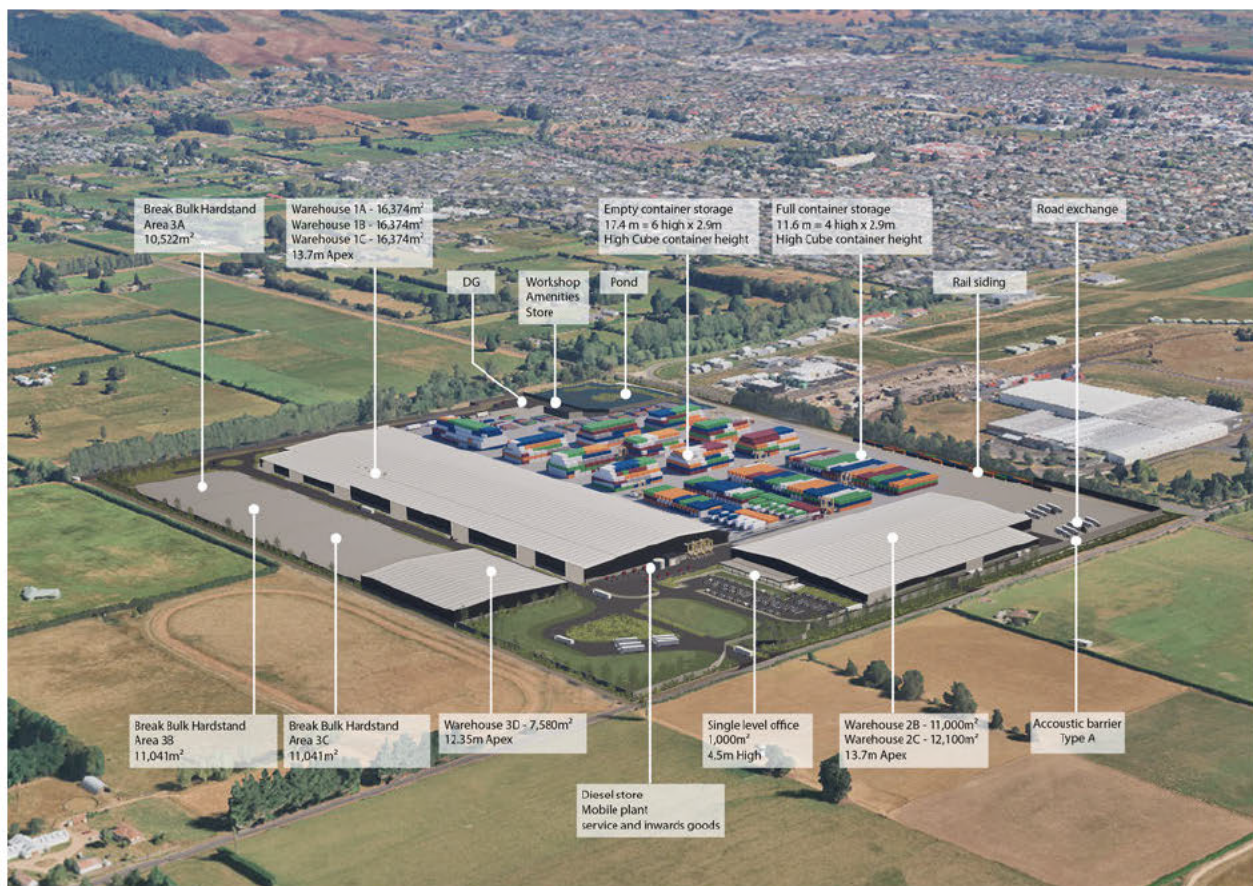




6.2 The Facility

The development will occur as described in the Project Description of the Substantive Application prepared by Mitchell Daysh which should be referred to for a complete description of the Inland Port development. As a short summary, the Inland Port will include, with reference to Figure 6.2:

Figure 6.2 – Proposed Development – Southern Link Inland Port (Stages 1-3)



- A new rail siding off the Taieri Branch Line to enable loading, unloading and operation of a rail freight shuttle service to Port Chalmers and the wider rail network;
- Approximately 80,000 m² of high stud warehousing (chilled and ambient);⁶³
- Truck canopy and unloading areas;

⁶³ Approximately 11,500sqm of this Stage 1 warehousing will be used to consolidate Icon's existing dairy export customers. It is noted that because these warehouses will be purpose built, they are optimised for their intended use, requiring less overall space than the current configurations to achieve the same throughput.



- A 5 ha container depot facility enabling the inspection, cleaning, upgrading and repair of containers including for food grade repacking;
- Up to 5 ha of container terminal for storage of full containers including refrigerated container charging ports;
- Break bulk storage facilities;
- Road widening;
- Ancillary activities to support the above including earthworks, construction of the rail siding, site access, internal roadways and vehicle parking, hardstand areas, landscaping, buildings for storage, administration and maintenance facilities, and associated infrastructure and works including measures necessary to manage stormwater and stabilise the site.

The site will be MPI and customs-compliant for imports and exports, including the potential for a free trade zone to be developed.

6.3 Medium Term Construction Impacts

Estimated construction costs for the Inland Port have been supplied to Savvy. These cost estimates (assumed to represent prices in late 2025) are relatively detailed and cover costs for site establishment and surveying, erosion and sediment control, site earthworks, rail siding construction, yards and foundations, access road changes, buildings, lighting, security and fencing, electrical services, stormwater, water and wastewater services installation, planting and other site mitigation. Some costs are not included in the pricing such as construction insurance, office fitout and finance costs. Such costs are therefore excluded from the construction impact modelling below.

The construction costs are broken down by the three stages of construction. The stages are illustrated in Figure 6.3. Indicatively, these stages are described by SLPL as follows, alongside how they have been applied for the purposes of construction impact modelling (to avoid temporal overlap):⁶⁴

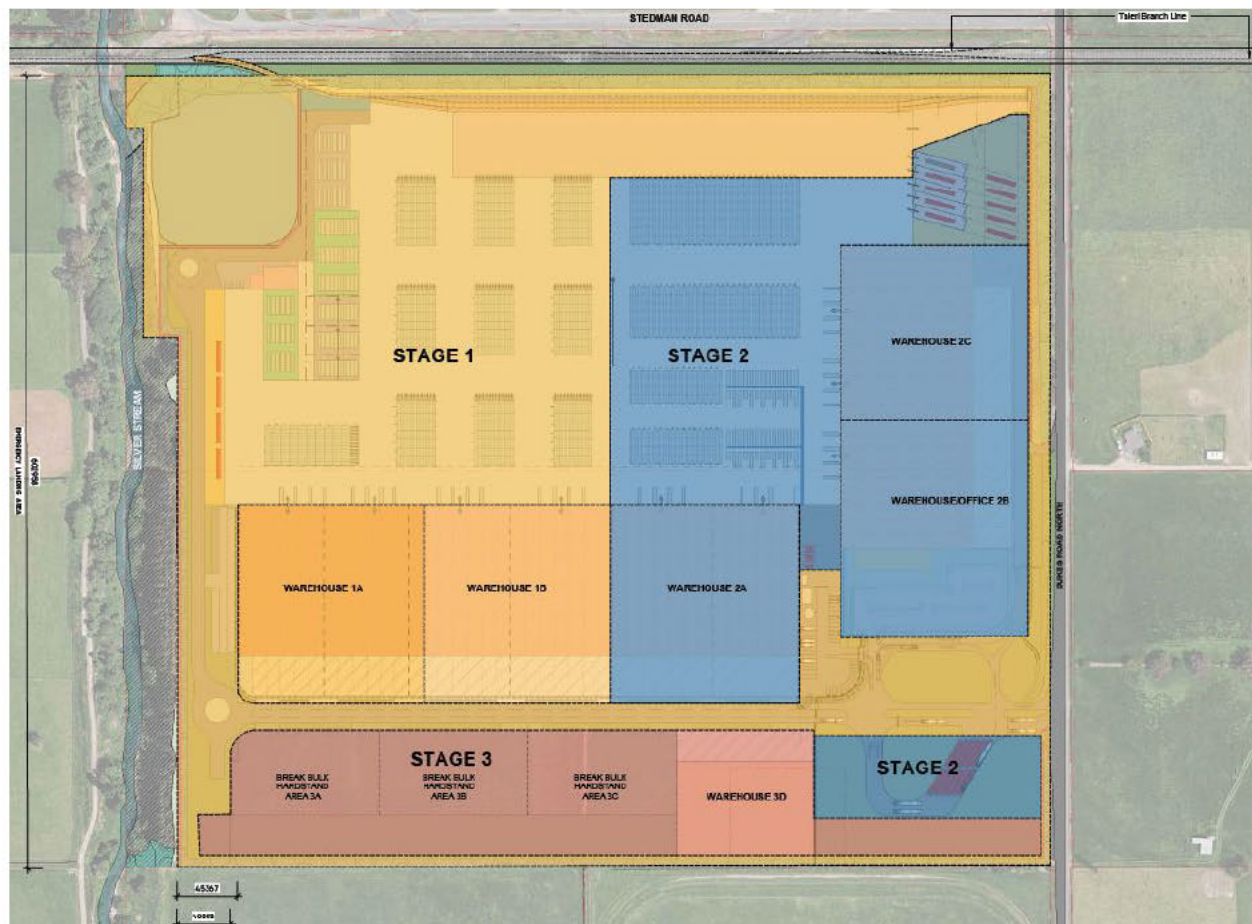
- Stage 1 – years 1-3: Stage 1 costs have been spread evenly over 2027, 2028 and 2029.
- Stage 2 – years 3-5: Stage 2 costs have been spread evenly over 2030 and 2031.

⁶⁴ This is only a scenario of how costs may be distributed over time and across the three stages and potential ten year window.



- Stage 3 – years 5–10: Stage 3 costs have been spread evenly over 2032 to 2036 (inclusive).

Figure 6.3 – Construction Staging Plan for the Inland Port



The total construction of the Inland Port will generate an estimated \$242 million of direct expenditure in the economy, spread indicatively over a ten year period.⁶⁵ This expenditure will represent gross output (turnover) for a range of goods and services suppliers. For the purposes of this economic impact assessment, all expenditure is assumed to be with New Zealand-based businesses (i.e., no directly imported products are assumed).

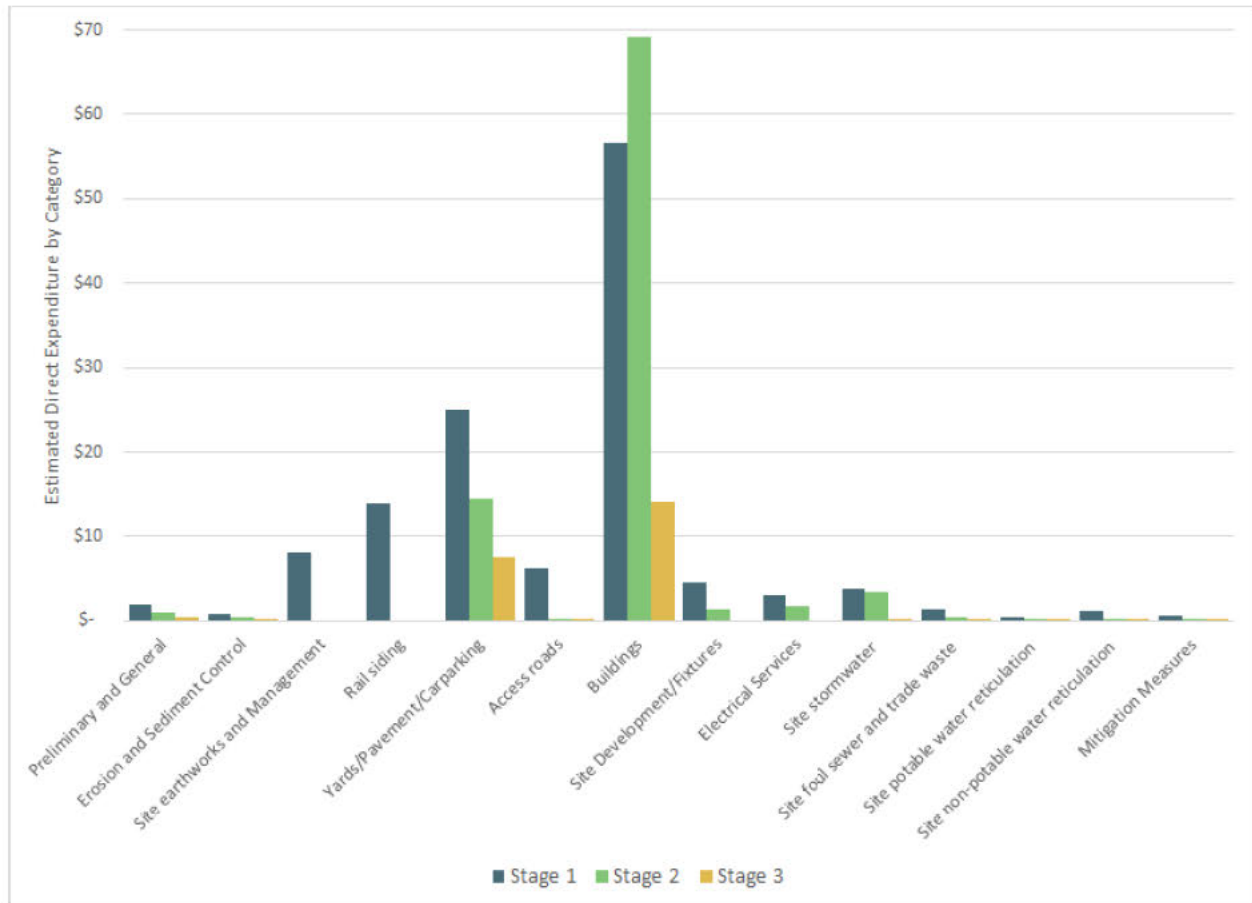
Figure 6.3 provides a breakdown of total costs by category and stage. The proposed buildings on the site (warehouses, office/admin and reefer towers) account for 58% of the total development cost (at nearly \$140 million) and dominate expenditure in each stage. The yard/pavement/carparking construction accounts for 20% of the total (just over \$47 million), concentrated in stage 1, followed by stage 2 and 3. The construction of the rail siding (6% of

⁶⁵ Excludes 20% contingency in costing. Excludes a small amount of revenue from the sale of topsoil from the site. Accounting for this, the net construction costs are approximately \$240 million.



total costs of \$13.9 million) is the third largest cost, and forms part of stage 1 as it is the critical feature of the entire operation (Figure 6.4).

Figure 6.4 – Direct Construction Expenditure (2025 Pricing) by Category and Stage



The majority of the goods and services suppliers that will be relied on for the construction of the Inland Port will be based within Otago Region and largely concentrated in Dunedin City. SLPL has previously estimated that 69% of the rail siding direct expenditure is anticipated to be with Otago Region based suppliers (and most within Dunedin City). 100% of the yard/pavement/foundation construction will be supplied by Otago Region businesses (wholly in Dunedin City). 84% of the warehousing construction will be by Otago Region businesses (mainly outside of Dunedin City). Overall, an estimated 87% of direct expenditure associated with the construction of these three main development components will benefit Otago Region businesses. Once other local contractor roles are included, this is expected to rise to 95%, with 5% directed at businesses elsewhere in New Zealand. This equates to a direct injection of just over \$230 million of expenditure in the regional economy during stages 1-3 of construction.



All of the direct expenditure that occurs within New Zealand flows through upstream supply chains, which results in additional economic activity (gross output) in supporting industries,⁶⁶ and additional employment and associated wage earnings. These are the indirect⁶⁷ and induced⁶⁸ impacts of constructing the Inland Port, which are additive to the direct⁶⁹ economic impact.

Savvy has developed a high-level Input-Output (IO) model to quantify and measure the economic activity and flows of money and goods within the New Zealand economy at a sector level. IO models are quantitative economic tools used to analyse the interdependencies between different sectors of an economy and are well suited to understanding the scale of impacts at a regional level. IO models provide a detailed framework of inter-industry transactions that capture how the output of one industry serves as an input for another. Essentially, they map the flow of goods and services in an economy, illustrating how changes in one sector can ripple through to affect others. Appendix D outlines some of the key assumptions and limitations of the IO modelling approach, with further discussion on how these results should be interpreted.

The IO model has been developed using the Statistics New Zealand National IO table which captures the structure of the national economy across 109 sectors as of March 2020. The sector level multipliers are therefore national averages rather than specific to the Otago Region economy. That said, the key sectors associated with industrial scale construction (discussed below) are well established throughout New Zealand's biggest urban cities and therefore the productivities and input-output relationships of large scale Otago Region suppliers are expected to closely align with those national averages.

Based on the detailed costings supplied by SLPL, Savvy has estimated the sector that each cost item most likely applies to. Nine core sectors are estimated to be engaged in the construction of the Inland Port, as summarised in Figure 6.5. The non-residential building construction sector will be most impacted by the project, receiving between \$14-\$69 million for each of the three stages of development. The construction services sector and heavy and

⁶⁶ And the supporting industries of those industries etc.

⁶⁷ Indirect impacts arise as the firms that initially change their output as a result of an economic shock (i.e. the direct effects), purchase required inputs from their supply chain. These business-to-business transaction changes are known as the indirect impacts.

⁶⁸ Induced impacts flow from the direct and indirect impacts which generate wages, salaries, and profits for the households. The changed household incomes will generate more spending on goods and services. This household-to-business interaction is called induced activity.

⁶⁹ Direct impacts are the initial changes in the economy due to an economic shock (often new expenditure). The direct GDP effect is calculated based on the value of the shock and the direct employment effect is the number of jobs created by the shock itself.



civil engineering sector are estimated to capture the next highest shares of direct project expenditure, particularly during stage 1.

Figure 6.5 – Direct Construction Expenditure (2025 Pricing) by Indicative Sector and Stage

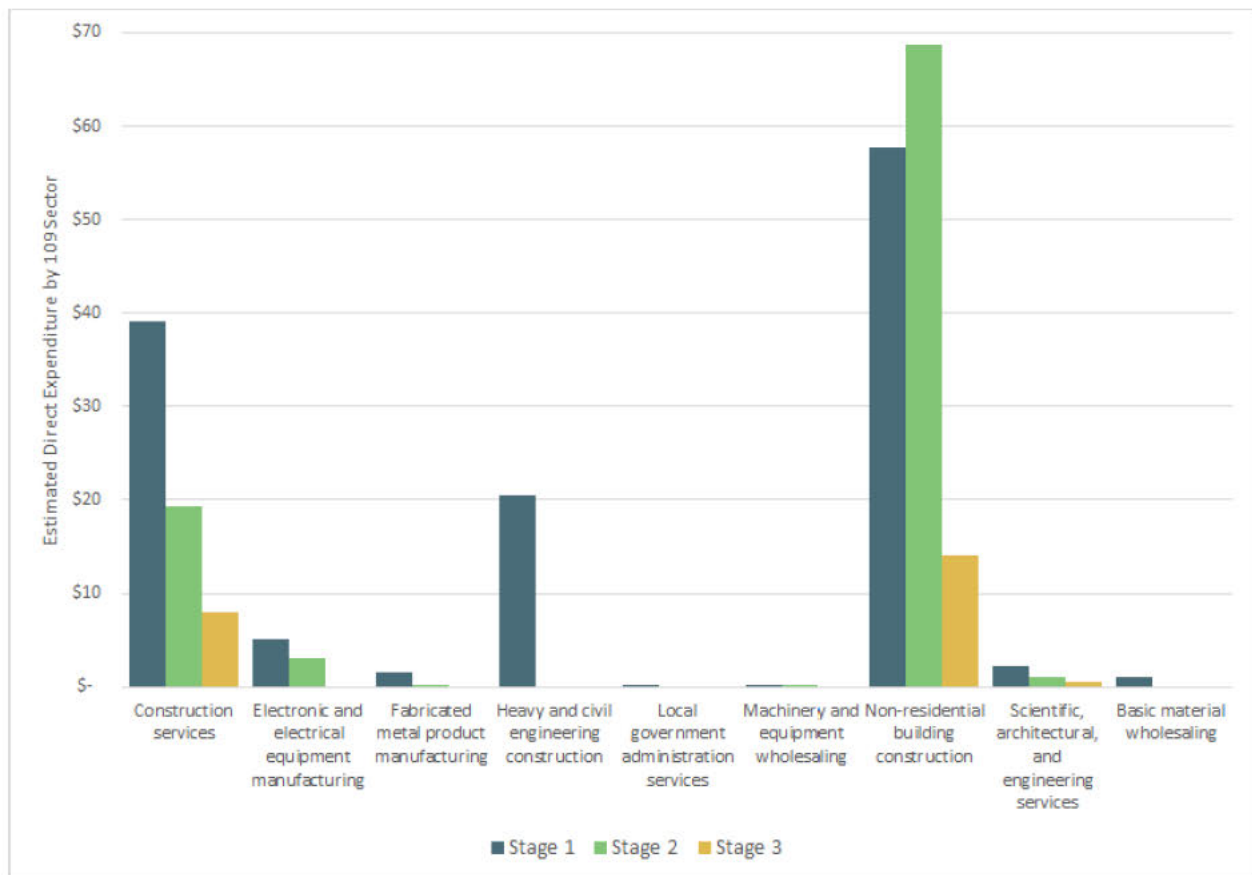


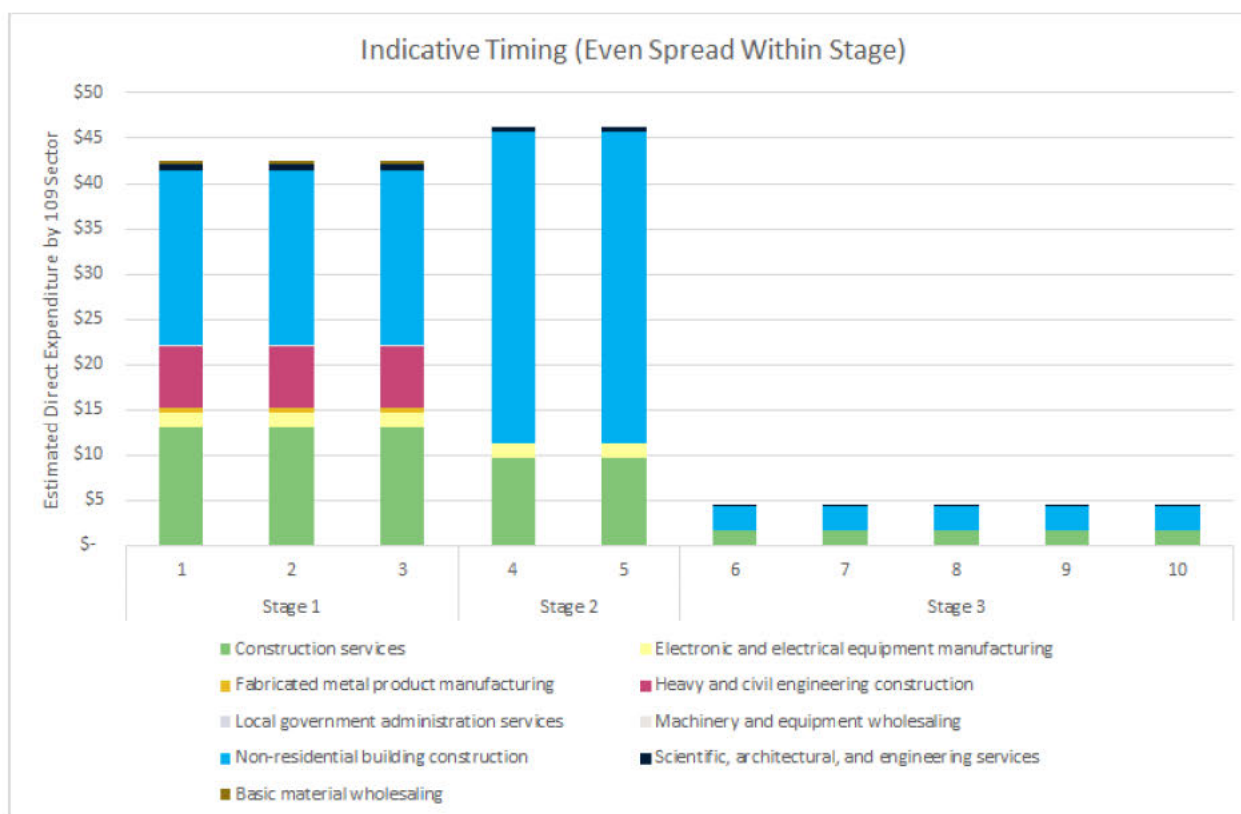
Figure 6.6 provides a scenario of direct expenditure by sector and year across stages 1–3 of the development. As noted above, Savvy has simply distributed stage costs evenly across the years (timing) of each stage as advised by SLPL, while also making each stage discrete. Under this scenario, direct expenditure could total a similar amount annually for the first five years of development (over stages 1 and 2), at around \$42 to \$46 million per annum. If stage 3 is sequenced evenly over five years, that ongoing development could inject a further \$4.5 million per annum into the economy, with the full extent of the Inland Port complete at the end of year 10 (indicatively 2036).

The direct expenditure of constructing the Inland Port discussed above (and shown in Figure 6.6) must, in keeping with best practice, be deflated to match the base year of the national IO table, which is the year ending March 2020, before direct, indirect and induced multipliers can be applied in the model. This has been done using the Producers Price Index (PPI) for each



corresponding sector.⁷⁰ This brings the total expenditure on the Inland Port down to \$213 million in 2020 dollar terms.

Figure 6.6 – Direct Construction Expenditure (2025 Pricing) by Indicative Sector and Year



Using the national level multipliers for each of the sectors expected to be engaged by the development project,⁷¹ Table 6.1 summarises the total direct, indirect and induced value added (akin to GDP) impacts sustained throughout the New Zealand economy (but largely within Otago Region) by the construction of the Inland Port. It shows the total impacts across all three stages, undiscounted. The resulting economic impacts are expressed in year ending March 2020 dollars equivalents and are not re-inflated to current dollars in accordance with best practice. While Table 6.1 shows the direct, indirect and induced impacts that flow from the direct expenditure in each of the listed sectors, the impacts (particularly the indirect and induced impacts) are not limited to those listed sectors, and will be widely dispersed across economic sectors, including as a result of how households spend their wages and salaries.

Table 6.1 shows that over the total development period, the construction of the Inland Port will generate an estimated \$₂₀₂₀47.7 million in direct value added, increasing to \$₂₀₂₀191.3 million in value added once indirect and induced impacts are included. These should be considered

⁷⁰ Savvy as calculated deflators using the PPI for each sector between Q3 2025 and Q1 2020, sourced from StatisticsNZ.

⁷¹ The multipliers used in the model are set out in Appendix D.



gross economic impacts as they assume that no displacement of economic activity occurred in order to meet the demands of the Inland Port construction project. They should also be considered an upper limit of value added impacts. That said, there is nothing especially complex about the construction project and with sufficient procurement time, the works are likely to be delivered by suppliers that can accommodate SLPL timing within their annual capacity (or with some increased resources and staffing). The construction sector relies on a steady stream of contracts to maintain and/or grow their output and employees. The Inland Port project will therefore play a role in sustaining, and potentially growing, the Otago construction sector.

Table 6.1 – Direct, Indirect and Induced Value Added Contribution of Inland Port Construction by Sector

Stage 1-3 Value Added by Indicative 109 Sector	Direct (₂₀₂₀ \$ million)	Indirect (₂₀₂₀ \$ million)	Induced (₂₀₂₀ \$ million)	Total (₂₀₂₀ \$ million)	Share of Total Impact
Construction services	\$ 21.1	\$ 19.3	\$ 12.6	\$ 53.1	27.8%
Electronic and electrical equipment manufacturing	\$ 3.6	\$ 1.7	\$ 1.4	\$ 6.7	3.5%
Fabricated metal product manufacturing	\$ 0.4	\$ 0.4	\$ 0.3	\$ 1.1	0.6%
Heavy and civil engineering construction	\$ 5.3	\$ 7.6	\$ 4.6	\$ 17.4	9.1%
Local government administration services	\$ 0.1	\$ 0.0	\$ 0.0	\$ 0.1	0.1%
Machinery and equipment wholesaling	\$ 0.1	\$ 0.0	\$ 0.0	\$ 0.1	0.1%
Non-residential building construction	\$ 15.3	\$ 65.7	\$ 27.5	\$ 108.5	56.7%
Scientific, architectural, and engineering services	\$ 1.6	\$ 0.9	\$ 0.8	\$ 3.3	1.7%
Basic material wholesaling	\$ 0.3	\$ 0.3	\$ 0.2	\$ 0.8	0.4%
Total	\$ 47.7	\$ 96.0	\$ 47.5	\$ 191.3	100%

Source: Port Otago, Savvy, based on direct expenditure deflated to March 2020 dollars, applies March 2020 Value Added Multipliers (National).

Table 6.2 summarises the same value added impacts by year between 2027 and 2036. Total direct, indirect and induced value added is estimated at around \$₂₀₂₀33.8–36.0 million over the first 5 years, before dropping to an annual value added contribution of \$₂₀₂₀3.5 million from 2032 to 2036. Applying a discount rate of 8% to the value added contributions over time, the net present value of Inland Port value added impacts is just under \$₂₀₂₀147.8 million – largely felt within the Otago Region economy. Applying a smaller discount rate (2%) as a sensitivity test, the total value added impact is just under \$₂₀₂₀178.6 million. These impacts should be considered an upper limit of value added for construction of the project.



Table 6.2 – Direct, Indirect and Induced Value Added Contribution of Inland Port Construction by Year and Net Present Value

	Stage 1			Stage 2		Stage 3					Total
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
Direct Value Added (₂₀₂₀ \$ million)	\$ 9.3	\$ 9.3	\$ 9.3	\$ 7.7	\$ 7.7	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 47.7
Indirect Value Added (₂₀₂₀ \$ million)	\$ 16.1	\$ 16.1	\$ 16.1	\$ 19.3	\$ 19.3	\$ 1.8	\$ 1.8	\$ 1.8	\$ 1.8	\$ 1.8	\$ 96.0
Induced Value Added (₂₀₂₀ \$ million)	\$ 8.4	\$ 8.4	\$ 8.4	\$ 9.0	\$ 9.0	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 47.5
Total Value Added (₂₀₂₀\$ million)	\$ 33.8	\$ 33.8	\$ 33.8	\$ 36.0	\$ 36.0	\$ 3.5	\$ 3.5	\$ 3.5	\$ 3.5	\$ 3.5	\$ 191.3
Share of Total Value Added by Year	18%	18%	18%	19%	19%	2%	2%	2%	2%	2%	100%
NPV Total Value Added (2026 Base Year) - 8%											\$ 147.8
NPV Total Value Added (2026 Base Year) - 2%											\$ 178.6

Source: Port Otago, Savvy, based on direct expenditure deflated to March 2020 dollars, applies March 2020 Value Added Multipliers (National).

Table 6.3 summarises the estimated direct, indirect and induced employment impacts of the Inland Port's construction. Like the value added results, these employment results are based on average employment productivities that applied in 2020, so can be considered as 2020 employment equivalents. They are measured in terms of full time equivalent jobs (FTEs) and reflect only the number of FTEs that would be required to support the lift in direct, indirect and induced economic activity in the economy assuming a linear (fixed) relationship between business output and employment.

Put simply, businesses do not necessarily employ additional staff if turnover increases. Businesses may be able to absorb some additional output using existing staff if, for example, they currently had low productivity (staff not being fully utilised), they could increase the hours of work across the week, or they could employ technology that would allow them to work more efficiently. Business responses to increased output varies by sector, with some sectors having more labour 'elasticity' than others. On this basis, Savvy considers that the employment impacts in Table 6.3 reflect a mix of sustained existing jobs and new jobs – mainly but not exclusively – in the Otago Region attributable to project construction.⁷²

In employment terms, the direct expenditure with mainly Otago Region based goods and service providers is estimated to sustain 76 FTE jobs for the duration of stage 1, reducing slightly to 65 FTEs for the duration of stage 2 and down to 7 FTEs for the duration of stage 3. Once indirect and induced employment impacts are included, total sustained and/or new employment increases to 262 FTEs for the duration of stage 1 (2027–2029), increasing slightly to 282 FTEs for the duration of stage 2, before dropping to an average of 28 FTEs for the duration of stage 3 (2032–2036). Over all ten (indicative) years of the Inland Port's development, the total cumulative employment impact is 1,489 FTE jobs. As with value added impacts, this

⁷² Any new jobs to the region are contingent on being able to attract workers. Even if workers transfer from an existing job, there is likely to be a net increase in job 'opportunity'. Otago Region has below average unemployment in 2025 (3.0% compared to 5.0% nationally, although Dunedin City has 4.2% unemployment, source: Infometrics Regional Economic Profiles, 2025).



employment impact is spread over a broad range of sectors (not limited to the construction sectors) and should be considered as an upper limit of employment impacts.

Table 6.3 – Direct, Indirect and Induced Employment Contribution of Inland Port Construction by Year

	Stage 1			Stage 2		Stage 3					Total
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
Direct Employment (FTEs)	76	76	76	65	65	7	7	7	7	7	396
Indirect Employment (FTEs)	126	126	126	154	154	14	14	14	14	14	758
Induced Employment (FTEs)	59	59	59	63	63	6	6	6	6	6	335
Total Employment (FTEs)	262	262	262	282	282	28	28	28	28	28	1,489
Share of Total Employment by Year	18%	18%	18%	19%	19%	2%	2%	2%	2%	2%	100%

Source: Port Otago, Savvy, based on direct expenditure deflated to March 2020 dollars, applies March 2020 Employment Multipliers (National).

These medium term construction impacts will make a valuable contribution to the Dunedin and Otago Region economy including by sustaining construction employment and creating new job opportunities. This is especially important given that the construction industry in Dunedin City accounted for the biggest loss of employment between 2024 and 2025 (with 205 less construction jobs filled over those 12 months).⁷³ The project's employment impacts are not limited to the construction sector once indirect and induced economic impacts are included. This too is important given that Otago Region's total employment reduced by 0.4% in the last year.⁷⁴

The economic impact generated by the development of the Inland Port may not be considered significant in relative terms (i.e., relative to the size of Dunedin's or Otago Region's annual GDP in 2020 the net present value of the Inland Port's value added construction impact equates to 2% of Dunedin GDP and 1% of regional GDP, although will not all be felt in a single year).⁷⁵ However, in absolute terms, the development of the Inland Port is considered significant as it will be a large construction project in the context of the Dunedin and regional economy. Dunedin City's economy contracted by 0.5% over the last year, and the regional economy had zero growth in the year ending March 2025. In that economic climate, large development projects are even more significant.

Savvy acknowledges that economic impacts quantified above cannot be wholly equated with enhancement of economic wellbeing. However, it is considered that a substantial portion of those upstream impacts will: support local businesses that contribute to the vitality and vibrancy of local communities; provide meaningful, well-paid employment; and provide incomes for households that support their standard of living.

⁷³ Source: Infometrics. Construction employment across total Otago region reduced by 283 jobs since 2024.

⁷⁴ Source: Infometrics. Nationally, employment in the YE March 2025 decreased by a higher 1.1%.

⁷⁵ Dunedin's GDP was \$7.92 billion in 2020 and Otago Region's GDP was \$17.49 billion in 2020 (source, Infometrics).



The construction of the Inland Port is just the start of the long-term economic impacts and benefits that the facility enables once operational. The ongoing economic impact of the operation of the Inland Port has not been modelled for this report. The core reason for that is because the Inland Port is intended to enable a restructure and consolidation of existing business activity (plus future growth) and as such, the initial operational economic impact of the Inland Port as a business entity is expected to be a transfer effect within the Dunedin (and Otago) economy (i.e., not net additional, at least in the short term).

This is not to say that the Inland Port will not contribute to growth in regional GDP once operational, particularly with the additional capacity enabled by stage 2 and 3 of construction. Rather, the complexity of calculating those net additional operational (upstream) economic impacts robustly is considered beyond the scope of this report. Instead, other important economic benefits directly attributable to, or facilitated by, the Inland Port (once operational) are discussed (qualitatively and quantitatively) in the remainder of this report. This includes net direct employment growth (discussed below) and other downstream economic benefits that further cement the Inland Ports significant regional and national contribution.

6.4 Long Term Employment Impacts

Table 6.4 sets out informed estimates of staffing at the Inland Port once operational (direct employment). As signalled in previous sections, and discussed in more detail below, the Inland Port will allow for some consolidation of Port Otago's and Icon's current operations to the Mosgiel site. As such, permanent employment has been expressed in gross terms, and net terms once staff transferring from facilities that are closed and relocated are taken into account.

Table 6.4 – Gross and Net Additional Direct Operational Employment at the Inland Port (FTEs)

	Stage 1 FTEs	Stage 2 FTEs (additional)	Stage 3 FTEs (additional)	Total Permanent FTEs on Site	Transferred FTEs (Stage 1) *	Net Additional FTEs Created on Site
Container Terminal & Depot	6	2	2	10	6	4
Warehouse (Bulk)	13	16	3	32	12	20
Warehouse (FMOG) **	33	39	8	80	2	78
MPI/Customs Compliance Services	1	1	1	3	1	2
Total Logistics Park	53	58	14	125	21	104

Source: Port Otago, Icon Logistics/Dynes Group. Staging is indicative and reflects the incremental expansion of warehousing as well as the progressive transfer of container activity otherwise occurring in Port Otago facilities/Port Chalmers. Admin/office staff are captured as part of warehouse staffing.

* As the Logistics Park provides the opportunity to consolidate some of Icon Logistics' and Port Otago's operations in Mosgiel, some jobs/roles will be transferred from other sites within Dunedin City. ** Fast Moving Consumer Goods.



The initial workforce on the site is expected to start with 53 permanent staff, with a further 58 to follow once stage 2 is operational, and a further 14 to follow once stage 3 is operational. In total, the number of jobs (workforce) sustained on the site is estimated to reach 125. Of that total, 21 jobs exist currently and will transfer to the Inland Port. In total, the Inland Port is expected to create 104 new jobs in Dunedin City in the short-medium term. To put that in context, there were 2,757 filled jobs in the Transport, Postal and Warehousing Industry in the year ending March 2025.⁷⁶ The net additional jobs created by the Inland Port will increase that by 4%. Overall, the Inland Port will be a significant employer in Otago Region.

⁷⁶ Source: Infometrics Economic Profile.



7 Direct Effects/Opportunities

This section discusses the direct positive economic impacts arising from the Inland Port – for Port Otago’s container operations, the Dunedin container related logistics sector, exporters and importers in the Southern Region, and for the wider Dunedin City community.

7.1 Consolidation of Port Otago’s Container Operations

If approved, the Inland Port will enable the following key changes in Port Otago’s container operations. These are the direct impacts or opportunities provided by the Inland Port, which has been strategically planned to address the Port’s current and future operational constraints⁷⁷ and achieve optimal container trade operations.⁷⁸

- Closure and relocation of the Strathallan Depot to the site – noting that the lease expires in 2030.
- Closure and relocation of the Ravensbourne Depot to the site.
- 30-40% of empty dry/ambient container processing at the Port Chalmers Depots will relocate to the site (transported by rail).⁷⁹
- Non-Fonterra warehousing (and associated logistics services) will relocate from Port Chalmers to the site (with surplus warehousing space removed). Export containers will be railed to Port Chalmers once packed.
- Port Otago will direct all full export containers (packed by other 3PL service providers) to arrive by rail, via the Inland Port (to the extent practical).
- With the exception of full imported containers able to be railed north directly from Port Chalmers (on return trips for exports arriving by rail from the north), and full import containers destined for customers in central Dunedin, Port Otago will rail all other full imported containers to the Inland Port and direct all full imported containers (destined for 3PL service providers for de-vanning) to be collected from the Inland Port instead of Port Chalmers.

⁷⁷ As discussed in Section 3.3.

⁷⁸ As discussed in Section 3.4.

⁷⁹ Reefer container servicing and storage will remain at Port Chalmers.



- Port Otago will direct 3PL service providers in Dunedin to return all empty containers to the Inland Port (avoiding returns to Port Chalmers).⁸⁰

The direct benefits of consolidating these Port Otago activities at the Inland Port, and the significant mode shift from truck to rail associated with those changes, include:

- Release of high value port land that will allow for increased full container storage capacity at the Port Chalmers container terminal. Land at Port Chalmers is indicatively valued at \$1,500/sqm.⁸¹ Industrial zoned land in Dunedin central is currently priced between \$600–700/sqm. In Mosgiel, it is priced \$300/sqm. Mosgiel is the more cost-effective location to consolidate (and expand) Port Otago's container business outside of Port Chalmers.
- Significant additional full container terminal capacity is created in Mosgiel (indicatively a 28% increase above the status quo).⁸² This creates an overall increase in buffering capacity for container exports – improving 'just in time' delivery of export containers which in turn improves the efficiency of container handling at Port Chalmers, the resilience of export supply chains, and avoids potential disruptions to export dairy and meat production.
- Improved economies of scale for depot activities (improved efficiency and productivity).
- Increased utilisation of KiwiRail infrastructure.
- Significant reductions in heavy vehicle traffic within the main Dunedin urban area, including central Dunedin, along SH88, and in Port Chalmers. Quantification of the reductions in vehicle movements (where practicable) is discussed further below.

7.2 Consolidation of Icon's Container Operations

If approved, the Inland Port will enable the following key changes in Icon's container logistics operations. These are the direct impacts or opportunities provided by the Inland Port, which

⁸⁰ Alternatively, some 3PL service providers may be able to return empty containers to Icon's 95 Parry Street container yard (where they may be flipped for non-food exports, thus avoiding the need for servicing).

⁸¹ While not likely to be 'sold' on the commercial property market, this is the indicative value that Port Otago works to recover from the land.

⁸² Based on a 5ha container terminal proposed at the site, added to 17.7ha of container terminal and depot space at Port Chalmers currently. Relocation of warehousing and empty containers storage to the Park adds additional capacity.



has been strategically planned to address Icon's current and future operational constraints⁸³ and achieve a more optimised, solution-focussed logistics service.

- Closure of the T-Shed warehouse in central Dunedin (i.e. no renewal of lease). Relocate dairy customer demand to new Inland Port warehousing.⁸⁴
- Closure of the 88 Parry Street East warehouse⁸⁵ in central Dunedin (i.e. no renewal of lease).⁸⁶ Relocate general goods imports to Sawyers Bay warehouse instead.
- Closure of the Carncross Street warehouse in Mosgiel (i.e. no renewal of lease).⁸⁷ Relocate customer demand to new Inland Port warehousing.
- Change role of the 95 Parry Street East warehouse (i.e. retain lease). Relocate dairy product storage to new Inland Port warehousing and limit function to non-dairy food-grade imports and exports. Utilise site for a small amount of container de-hires (returns) in the Dunedin Urban area for re-use as domestic or low grade exports.
- Change role of the Sawyers Bay warehouse (i.e. retain lease). Relocate dairy exports (and imports for dairy export customers) to the Inland Port and limit function to general goods warehousing.

The direct benefits of consolidating Icon's dairy export (and dairy customer import) warehousing at the Inland Port, the significant mode shift from truck to rail associated with those changes, and the reduction in Icon's warehousing from 5 sites currently to 3 sites going forward include:

- On the assumption that warehouse lease costs are commensurate with industrial land values (discussed above), a reduction in operational costs per sqm by moving some warehouse space from central Dunedin to Mosgiel.
- Improved economies of scale for warehousing activities on the site (improved efficiency and productivity).
- Significant reductions in heavy vehicle truck movements (and therefore operational costs) within the main Dunedin urban area associated with bulk dairy exports not needing to travel into central Dunedin or Sawyers Bay warehouses for packing (and vice versa for imports). These reductions are in addition to the reductions described

⁸³ As discussed in Section 4.4.

⁸⁴ Refer Figure 4.2 for status quo vehicle movements from this warehouse.

⁸⁵ Refer Figure 4.4 for status quo vehicle movements from this warehouse.

⁸⁶ Only if Icon secures more import contracts for the Dunedin Hospital rebuild project will this warehouse be retained given its proximity to the construction site. This would be a temporary delay in closure.

⁸⁷ Refer Figure 4.6 for status quo vehicle movements from this warehouse.



above in relation to changes instigated by Port Otago that impact Icon's operations (including a reduction in vehicle movements needed to return and collect empty containers from the Strathallan Street depot and deliver and collect full containers to Port Chalmers by road). Having the empty container depot and container terminal co-located with Icon's warehousing at the Inland Port, will mean a fundamental shift away from Icon's current reliance on truck movements within the Dunedin urban area and will create significant improvements in the efficiency of Icon's logistic services. Quantification of the reductions in vehicle movements (where practicable) is discussed further below.

- Improved container transport productivity (time savings) by significantly reducing heavy truck movements (and vehicle kilometres) in the main Dunedin urban area where lower speed limits, traffic congestion and more stopping/starting, increases the time of shifting bulk and containerised product.
- Significant growth potential for warehouse capacity (including modern, fit-for purpose warehousing) at the Inland Port that would not have been achievable given the high demand for, and limited supply of, industrial land for lease or purchase in Dunedin. The Inland Port therefore allows for Icon's container logistics operations to expand efficiently and sustainably. The additional warehouse capacity also provides more buffering of warehouse capacity for export supply chains. In a similar way to the benefits of additional container terminal capacity, this also increases the resilience of export supply-chains and avoids potential disruptions to export dairy and meat production.

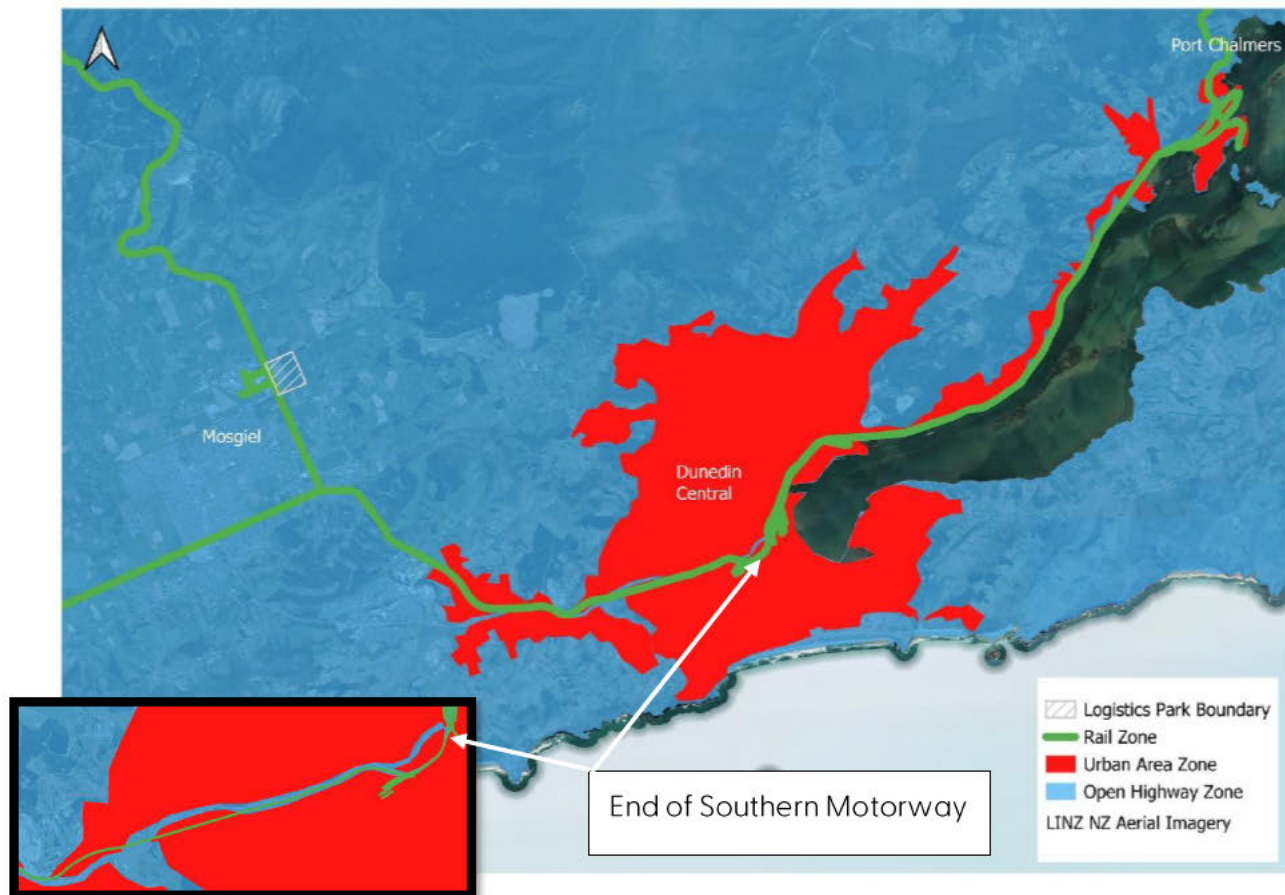
7.3 Import/Export Supply Chain Impacts

This section helps to illustrate how the Inland Port will significantly impact selected supply chains in the Southern Region that currently use Port Chalmers and Icon's 3PL services. Three case studies are presented using information provided by Icon. Each case study includes a brief qualitative description and quantitative assessment to help measure (as accurately as practicable) some of the direct effects associated with shifting logistics services to the Inland Port in Mosgiel with an associated mode shift to rail.

Figure 7.1 provides an indicative map of 'transport productivity zones' identified for the purposes of these case studies (and referred to in the qualitative analysis below). The boundaries of these zones (specifically the western boundary of the main Dunedin urban area) have been advised by Icon based on the known point where truck transport productivity rates change. The three zones in Figure 7.1 are:



Figure 7.1 – Indicative Transport Productivity Zones in and around Dunedin



- Open Highway Zone – this is the most productive zone from a truck transport perspective. It contains higher speed limits (i.e. 90km/hour), fewer stops/starts, and little or no congestion. The zone applies to everywhere outside of the Urban Area Zone and includes Mosgiel and through to the end of the Southern Motorway.⁸⁸ Icon has advised that average truck costs⁸⁹ when travelling in this zone are \$3.50/km and the vehicle travel time rate averages 80km/hour.
- Urban Area Zone - This zone starts where the Southern Motorway ends and carries through to Port Chalmers along SH88. It is characterised by lower speed limits including 50km/hour within urban streets, congestion in (but not limited to) peak periods, and more stopping/starting (including queuing at intersections/lights). Icon has advised

⁸⁸ While the travel route through central Mosgiel is urban (with associated urban speed limits and congestion etc), the relative impact of this short distance does not materially impact the overall travel cost/time per km.

⁸⁹ Based on a fully loaded truck. Applies to container skel truck or curtain-sider truck. Costs cover all costs except administration costs, interest and depreciation (i.e. covers driver wages, fuel costs, maintenance costs, road user charges etc).



that average truck costs⁹⁰ when travelling in this zone are [REDACTED] and the vehicle travel time rate averages just under 30km/hour.

- Rail Zone – This zone applies to the rail network. It is generally free of congestion, with minimal stopping/starting. KiwiRail has advised that average shuttle train costs⁹¹ when travelling in this zone could be in the order of [REDACTED] and the vehicle travel time rate averages just under 40km/hour. For example, it takes approximately 45 minutes to travel the 28km from the Inland Port rail siding to Port Chalmers.

The following 3 case studies – all of which relate to export supply chains – account for an estimated 44% of the full export TEUs that arrive at Port Chalmers already containerised by truck (year ending June 2024).⁹³ This high sample size supports these 3 case studies being highly representative of the nature of economic benefits that will accrue to import and export supply chains in the Southern Region as a result of the Inland Port.

7.3.1 Customer Case Study 1 – [REDACTED]

[REDACTED] Their processing plant is [REDACTED]

[REDACTED] The processing plant operates for 11 months of each year, meaning that it generates demand almost year-round for 3PL services and coastal and international shipping. Output from the processing plant is estimated at around [REDACTED] of specialised infant formula per annum.

Icon sends curtain-sider trucks to the processing plant (from Dunedin) and brings the palletised product back to Dunedin to Port Otago's Sawyers Bay [REDACTED] warehouse. Empty food-grade dry/ambient containers are brought by Icon's trucks from the container depot in Port Chalmers to the warehouse. The product is packed (by Port Otago) into those containers and then trucked to Port Chalmers by Icon. From there, around 70% of the containers are loaded onto coastal shipping where it is taken to [REDACTED] and transported to [REDACTED] canning plant. The canned product is then repacked into containers and then exported from [REDACTED]

[REDACTED] The other 30% of containerised (un-canned) product is exported directly from Port Chalmers.

On occasion, packed containers from the [REDACTED] warehouse are trucked to the KiwiRail CT (container) yard in central Dunedin instead of being taken to Port Chalmers.

⁹⁰ Ibid.

⁹¹ With all 24 wagons loaded with full containers.

⁹² This rate is subject to further commercial assessment and may be subject to change. It is commercially sensitive.

⁹³ Refer Section 3.1.2.



KiwiRail then rail those containers to [REDACTED] where they are loaded for coastal shipping at [REDACTED] for canning etc. This alternative supply chain occurs when Port Chalmers does not have sufficient capacity in its container terminal.

At the same time, [REDACTED] imports some ingredients and packaging from overseas and requires pallets and barrels to be brought back from the canning plant in [REDACTED]. These import/domestic containers are collected by Icon and de-vanned in Sawyers Bay then taken back to the processing plant in [REDACTED] by curtain-sider truck (on return trips).⁹⁵

This supply chain is vulnerable to occasional floods/slips (as well as car crashes and road maintenance) that impact SH88 between Dunedin Central and Sawyers Bay/Port Chalmers. As an example, in October 2024, SH88 was closed for four days due to slips that blocked the road in multiple places (although notably not the parallel rail line which was unaffected). The slips prevented trucks reaching the [REDACTED] warehouse (and Port Chalmers). The detour was not available for heavy vehicles.⁹⁶

The road closed on Friday and did not open again until 6am on the following Monday. If the road had opened any later than it did, the [REDACTED] processing plant would have had to cease production (and redirect all raw milk to other plants). This is because the processing plant only has enough storage on site for 2 days of production and an alternative food-grade warehouse (with rail access) was not available. A halt to production was avoided by optimising the site warehouse to its maximum capacity to cope with the backlog, as well as Icon preloading vehicles. Had [REDACTED] supply chain instead been able to use the Inland Port for warehousing and full container transport to Port Chalmers (by rail) at that time, this weather event would not have had any impact on product transport once it got to Dunedin.

In addition to improving the resilience of the [REDACTED] supply chain, another direct benefit of the Inland Port will be avoidance of any future leakage of export TEUs to [REDACTED]. This is because Port Otago will gain a significant increase in full container storage capacity across its Port Chalmers and Inland Port terminals which will mean it is unlikely to need to 'close the port' in future for export receipts, such as when ships are delayed and the existing terminal reaches capacity.

⁹⁵ This is referred to as 'back loading' and makes the most of otherwise empty one-way truck movements.

⁹⁶ <https://www.nzta.govt.nz/media-releases/state-highway-update-dunedin-otago-as-rain-continues-state-of-emergency-declared-dunedin/>



Table 7.1 – Summary of Inland Port Impacts on a Section of the [REDACTED] Export Supply Chain (One-way Factory to Port Chalmers)

	Annual Change With Inland Port (n)	Annual Change With Inland Port (%)
Tonnes Lifted per Annum	50,000	
Kilometers (One Way Factory to Port Chalmers)	8	7%
Tonnes Moved per Annum (Tonne km) (One Way Factory to Port Chalmers)	400,000	7%
Vehicle Kilometers Travelled per Annum (One Way Factory to Port Chalmers)	-28,137	-17%
Indicative Transport Cost per Annum (\$) (One Way Factory to Port Chalmers) **	\$183,000	31%
Vehicle Movements per Annum (One Way Factory to Port Chalmers)	-2,000	-58%
Vehicle Travel Time - Hours per Annum (One Way Factory to Port Chalmers) (applies to transit time only) **	-903	-34%
Indicative Transport Emissions (CO ₂ -e Tonnes per Annum) (One Way Factory to Port Chalmers) **	-115	-18%

Source: Savvy, Port Otago, Icon, Dynes Transport Group, MfE (for Emissions Factors). The change in vehicle type represents the warehouse packing stage of the supply chain.

** Refer assumptions listed in Section 7.3 and/or Appendix E.

Table 7.1 quantifies the expected impacts of the Inland Port on the [REDACTED] export supply chain. It models only the transportation of the product from the plant in [REDACTED] through to Port Chalmers (via the [REDACTED] where it is containerised). That is, it is just a one-way section of the export supply chain. Full details, including inputs and assumptions for this modelling, are contained in Appendix E. The colours in Table 7.1 match the detailed table in Appendix E for ease of cross-reference.

Table 7.1 shows that if the same supply chain switched from a truck-dominated 3PL service utilising a Sawyers Bay warehouse for packing to a truck and rail 3PL service utilising the Inland Port in Mosgiel that the total trip length from factory to Port Chalmers increases slightly by 8km (7%). For that trip, 13% of the distance occurs within the Urban Area Zone (Figure 7.1) under the status quo. Under the 'with Inland Port scenario' there is no travel by road within the Urban Area Zone (with the entire trip within the Open Highway Zone and Rail Zone).



The total tonne Kms (tonnes moved) per annum increases by 7% in accordance with the increase in distance. However, all other impacts of the Inland Port create moderate to significant reductions. This includes:

- 17% less vehicle Kms travelled per annum (i.e. a net reduction of 28,137 vehicle Kms, which includes a reduction of 23,118 vehicle Kms travelled within the Urban Area Zone per annum).
- 31% more transport costs per annum (i.e. a net increase of around \$183,000 per annum). While the modelling shows that rail from the Inland Port may be more costly than using trucks under status quo warehousing arrangements, exporters such as [REDACTED] will not be looking at this metric in isolation of the other supply chain benefits for them (and the wider community).
- 58% less vehicle movements (i.e. a net reduction of 2,000 vehicle movements per annum. This reduction is all container skel truck movements. Under the status quo supply chain, 1,471 curtain-sider truck trips are required per annum (to move the product in bulk form) plus 2,000 container skel truck trips (to move the product once containerised). With the Inland Port, this becomes 1,471 curtain-sider truck trips (ending at Mosgiel) and the equivalent of 83 full shuttle train trips from the Inland Port to Port Chalmers).
- 34% less hours per annum spent transporting [REDACTED] product to Port Chalmers (excluding the time at the warehouse). This is 903 less hours spent in transit and represents a significant increase in the productivity of the supply chain (same tonnes exported in less time).
- 18% less tonnes of CO₂e emissions per annum (i.e. a net reduction of 115 tonnes of CO₂e) on account of the emissions reductions associated with rail freight compared to road freight. This is made up of a 26 tonne reduction in CO₂e emissions per annum in the Open Highway Zone (caused by the Inland Port being closer to the plant than the current Sawyers Bay warehouse), and a 127 tonne reduction in CO₂e emissions per annum in the Urban Area Zone, although transport within the Rail Zone (which will generate an estimated 38 tonnes of CO₂e emissions per annum) does pass through the urban environment of Dunedin, so the net reduction in emissions in the urban environment is 89 tonnes CO₂e per annum (-70%).
- This is relevant because while emissions that impact on air quality have not been modelled (e.g. particulates⁹⁷ from diesel combustion that have health impacts), they

⁹⁷ Nitrogen Oxide, particulate matter and sulphur dioxide.



would be expected to reduce broadly commensurate with the reductions in CO₂e emissions. As such, there will be an estimated net 70% reduction in harmful pollutants per annum in the total urban environment from this one-way section of the [REDACTED] supply chain between the factory and Port Chalmers under the 'with Inland Port' scenario.

The above reductions (benefits) for this case study are conservative in that they do not capture all of the transport components of [REDACTED] export and import supply chain that will be impacted by the Inland Port (including the movement of empty containers). However, the above partial analysis shows that it is not necessary to capture all of the transport detail in the [REDACTED] container supply chains to conclude that the Inland Port will have significant positive effects each year for:

- [REDACTED] (in terms of likely supply chain resilience and reduced carbon footprint),
- the 3PL service providers (in terms of improvements in productivity and efficiency),
- the Dunedin community (in terms of reduced urban traffic congestion and road damage and improved urban air quality linked to freight transport emissions), and
- NZTA (in terms of reduced road maintenance on state highways through the main Dunedin urban area to Port Chalmers).

7.3.2 Customer Case Study 2 – [REDACTED]

This case study relates to the [REDACTED] [REDACTED] have two different supply chains to take export product from [REDACTED] to Port Chalmers. This case study is limited to the exporting of carcass and carton meat only.⁹⁸ An opportunity to further increase Icon's 3PL service role for [REDACTED] [REDACTED] if the Inland Port is approved is discussed later in Section 8.

Currently, [REDACTED] sends Refrigerated Hardsider trucks (treated for this assessment as having the same transport costs and payload as a curtain-sider truck) from [REDACTED] [REDACTED] plant where it collects chilled boxed product (carcass meat) and then drives it to the [REDACTED] industrial zone. [REDACTED] pack the carcass/carton meat into (reefer) containers. [REDACTED] (Dunedin based) then collects the containers and

⁹⁸ This case study was applicable at the time it was carried out/drafted. Some aspects of this case study may be impacted by Icon only recently occupying the JV owned land adjoining [REDACTED] logistics opportunities that site now provides. Such interim arrangements would not continue once the Inland Port was operational and those aspects of the case study are still applicable.



trucks them to Port Chalmers for export. They also collect empty reefer containers by truck from the Port Chalmers depot and drive these to the [REDACTED] (on return trips).

This supply chain avoids un-containerised product needing to be transported through the less productive and more costly Urban Area Zone, and the length of trip between the factory and the warehouse (coolstore) is reduced by having that warehouse in Mosgiel rather than in the main urban area of Dunedin. That section of the supply chain trip is 76km (one way). However, the less efficient transport of containerised product must then travel the relatively long distance from Mosgiel to Port Chalmers (32km in total by road), including 15km of that (approximately) within the Urban Area Zone.

Because this supply chain is dependent on using SH88 on route to Port Chalmers, it is subject to the same natural hazard risks (i.e. flooding/slips blocking SH88) and other unexpected traffic delays on SH88 (car crashes and maintenance) as faced by [REDACTED] export supply chain discussed above.

If the Inland Port is approved and operational, it is possible that the carcass/carton meat (estimated at [REDACTED] exported per annum) could be transported the [REDACTED] [REDACTED] to the Inland Port, where it will be packed in those warehouses by [REDACTED] and stored (plugged in) and/or railed directly to Port Chalmers. Alternatively, it may be road-bridged from the [REDACTED] to the Inland Port (with no change in warehousing). Not only will the mode shift from truck to rail and the additional container terminal capacity improve the resilience of the supply chain to unexpected disruptions, but a range of other significant transport benefits are discussed below (Table 7.2). Again, the modelling considers only the one-way section of the export supply chain from [REDACTED] to Port Chalmers under the status quo (no Inland Port) and with Inland Port scenarios. Full details, including inputs and assumptions for this modelling, are contained in Appendix E.

Table 7.2 shows that if the same supply chain switched from a truck-dominated 3PL service utilising a [REDACTED] warehouse in Mosgiel for packing to a truck and rail 3PL service utilising the Inland Port (also in Mosgiel), that the total trip length from factory to Port Chalmers decreases slightly by 4km (4%). This is because the route utilising rail from Mosgiel to Port Chalmers is 28km compared to 32km by road. For that trip, 14% of the distance occurs within the Urban Area Zone (Figure 7.1) under the status quo. Under the 'with Inland Port scenario' there is no travel by road within the Urban Area Zone (with the entire trip within the Open Highway Zone (73% of the total distance) and Rail Zone (27% of the total distance)).

The total tonne Kms (tonnes moved) per annum decreases by 4% in accordance with the decrease in distance. However, most other impacts of the Inland Port create more significant reductions. This includes:



- 35% less vehicles Kms travelled per annum (i.e. a net reduction of 47,139 vehicle Kms, which includes a reduction of 26,417 vehicle Kms in the Open Highway Zone (i.e. the stretch currently between the Coolstore and the end of the Southern Motorway) and a reduction of 22,496 vehicle Kms travelled within the Urban Area Zone per annum (being the rest of trip from the end of the Southern Motorway to Port Chalmers).

Table 7.2 – Summary of Inland Port Impacts on a Section of the [REDACTED] Export Supply Chain (One-way Factory to Port Chalmers)

	Annual Change With Inland Port (n)	Annual Change With Inland Port (%)
Tonnes Lifted per Annum	38,000	
Kilometers (One Way Factory to Port Chalmers)	-4	-4%
Tonnes Moved per Annum (Tonne km) (One Way Factory to Port Chalmers)	-155,800	-4%
Vehicle Kilometers Travelled per Annum (One Way Factory to Port Chalmers)	-47,139	-35%
Indicative Transport Cost per Annum (s) (One Way Factory to Port Chalmers) **	\$45,000	9%
Vehicle Movements per Annum (One Way Factory to Port Chalmers)	-1,520	-58%
Vehicle Travel Time - Hours per Annum (One Way Factory to Port Chalmers) (applies to transit time only) **	-1,133	-50%
Indicative Transport Emissions (CO2-e Tonnes per Annum) (One Way Factory to Port Chalmers) **	-135	-29%

Source: Savvy, Port Otago, Icon, Dynes Transport Group, MfE (for Emissions Factors). The change in vehicle type represents the warehouse packing stage of the supply chain.

** Refer assumptions listed in Section 7.3 and/or Appendix E.

- 9% more transport costs per annum (i.e. a net increase of around \$45,000 per annum). This is a minor increase in potential transport costs compared to status quo warehousing and transport arrangements. However, [REDACTED] would not be looking at this metric in isolation of the other supply chain benefits for them (and the wider community)



- 58% less vehicle movements (i.e. a net reduction of 1,520 vehicle movements per annum. This reduction is all container skel truck movements. Under the status quo supply chain, 1,118 Refrigerated Hardsider truck trips are required per annum (to move the product in bulk form) plus 1,520 container skel truck trips (to move the product once containerised). With the Inland Port, this becomes 1,118 Refrigerated Hardsider truck trips (still ending at Mosgiel) and the equivalent of 63 full shuttle train trips from the Inland Port to Port Chalmers).
- 50% less hours per annum spent transporting [REDACTED] carcass meat product to Port Chalmers (excluding the time at the coolstore). This is 1,133 less hours spent in transit per annum and represents a significant increase in the productivity of the supply chain (same tonnes exported in less time).
- 29% less tonnes of CO₂e emissions per annum (i.e. a net reduction of 135 tonnes of CO₂e) on account of the emissions reductions associated with rail freight compared to road freight. This is made up of a 69 tonne reduction in CO₂e emissions per annum in the Open Highway Zone and a 95 tonne reduction in CO₂e emissions per annum in the Urban Area Zone, although transport within the Rail Zone (which will generate an estimated 29 tonnes of CO₂e emissions per annum) does pass through the urban environment of Dunedin, so the net reduction in emissions in the urban environment is 66 tonnes CO₂e per annum (-70%).
- Again, while not modelled, there will be an estimated net 70% reduction in harmful pollutants per annum in the total urban environment from this one-way section of the [REDACTED] carcass meat supply chain between the factory and Port Chalmers under the 'with Inland Port' scenario (with associated health benefits).

The above reductions (benefits) for this case study are conservative in that they do not capture all of the transport components of [REDACTED] carcass/carton meat export supply chain that will be impacted by the Inland Port (i.e., the movement of empty containers and empty trucks travelling back to [REDACTED]). However, the above partial analysis shows that it is not necessary to capture all of the transport detail in the [REDACTED] carcass meat container supply chain to conclude that the Inland Port will have significant positive effects each year for:

- [REDACTED] terms of supply chain resilience and reduced carbon footprint),
- the freight/3PL service providers (in terms of improvements in productivity and efficiency), and



- the Dunedin community (in terms of reduced urban traffic congestion and road damage and improved urban air quality linked to freight transport emissions), and
- NZTA (in terms of reduced road maintenance on state highways through the main Dunedin urban area to Port Chalmers).

7.3.3 Customer Case Study 3 – [REDACTED]

[REDACTED] is an exporter of whole milk powder (base powders). Their processing plant is located in [REDACTED] where it is close to its dairy farm suppliers (Figure 1.1). The processing plant operates for 11 months of each year, meaning that it generates almost year-round demand for 3PL services and international shipping. Output from the processing plant is estimated at around 80,000 metric tonnes of whole milk powder per annum. This case study is focussed on the 3,000 tonnes per annum (4% of the total) that is exported from Port Chalmers.⁹⁹

[REDACTED] sends curtain-sider trucks to the processing plant (from Dunedin) and brings the 3,000 tonnes of palletised product back to their Carncross Street warehouse in Mosgiel. Empty food-grade dry/ambient containers are brought by Icon's trucks from the depot in Strathallan Street (or Ravensbourne depending on where stock is available) to the warehouse. The product is packed (by Icon) into those containers and then trucked to Port Chalmers for export.

The other [REDACTED] export milk powder is currently exported from [REDACTED] and they pack and ship the product (in their role as a 3PL service provider). The reason that a small portion is exported from Port Chalmers is driven by a combination of constraints with [REDACTED] warehouse capacity in the peak processing period, occasional ship scheduling issues and limited shipping lines calling at [REDACTED]

As the Port Chalmers supply chain is dependent on using SH88, it is subject to the same natural hazard risks (i.e. flooding/slips blocking SH88) and traffic delays (car accidents and road maintenance) as faced by [REDACTED] export supply chain discussed above. There are also risks associated with shipping from [REDACTED]

they omit [REDACTED] from their route. Icon and Port Otago consider that being able to export all of [REDACTED] product from Port Chalmers will reduce that particular risk (as Port

⁹⁹ This can increase up to 8,000 metric tonnes per annum handled by Icon. This case study takes a conservative approach.



Chalmers is serviced by a range of shipping lines, including Maersk Shipping for which Port Chalmers functions as a hub port in the South Island.

The Inland Port will unlock the opportunity to send 100% of [REDACTED] exports via Port Chalmers (as it could provide for the necessary warehouse space, including space that will allow [REDACTED] exports to grow in future). This and other opportunities to improve supply chain efficiencies are discussed in Section 8.

If the Inland Port is approved and operational, it is intended that the 3,000 tonnes of milk powder (currently handled by Icon (conservative)) will be transported the minor additional distance (i.e. 1km) to the Inland Port, where it will be packed in those warehouses and stored and/or railed directly to Port Chalmers. Not only will the mode shift from truck to rail and the additional container terminal capacity improve the resilience of the Port Chalmers supply chain to unexpected disruptions, but there is also a range of other transport benefits, discussed below (Table 7.3). These changes are significant in relative terms, but still only small in absolute terms in the context of [REDACTED] total export supply chains. Again, the modelling considers only the one-way section of the export supply chain from [REDACTED] to Port Chalmers under the status quo (no Inland Port) and with Inland Port scenarios (and assuming no change in tonnes being exported). Full details, including inputs and assumptions for this modelling, are contained in Appendix E.

Table 7.3 shows that if the same supply chain switched from a truck-dominated 3PL service utilising the Carncross warehouse in Mosgiel for packing to a truck and rail 3PL service utilising the Inland Port (also in Mosgiel), that the total trip length from factory to Port Chalmers decreases slightly by 3km (1%). This is because the route by rail from Mosgiel to Port Chalmers is 28km compared to 32km by road (offset by the additional 1km to the Inland Port by road).

For that trip, 6% of the distance occurs within the Urban Area Zone (Figure 7.1) under the status quo. Under the 'with Inland Port scenario' there is no travel by road within the Urban Area Zone (with the entire trip within the Open Highway Zone (88% of the total distance) and Rail Zone (12% of the total distance)).

The total tonne Kms (tonnes moved) per annum decreases by 1% in accordance with the decrease in distance. However, all other impacts of the Inland Port create more material reductions. This includes:

- 17% less vehicles Kms travelled per annum (i.e. a net reduction of 3,660 vehicle Kms, which includes a reduction of 2,024 vehicle Kms in the Open Highway Zone (i.e. the stretch currently between the Carncross warehouse and the end of the Southern Motorway) and a reduction of 1,776 vehicle Kms travelled within the Urban Area Zone



per annum (being the rest of trip from the end of the Southern Motorway to Port Chalmers).

- 5% more transport costs per annum (i.e. a net increase of just \$4,000 per annum). This is a minor increase in transport costs, but as discussed above, [REDACTED] would not look at this cost in isolation of the other benefits achieved for their supply chain (and relative to the externalities of their supply chain on the wider community).

Table 7.3 – Summary of Inland Port Impacts on a Section of the [REDACTED] Export Supply Chain (One-way Factory to Port Chalmers)

	Annual Change With Inland Port (n)	Annual Change With Inland Port (%)
Tonnes Lifted per Annum	3,000	
Kilometers (One Way Factory to Port Chalmers)	-3	-1%
Tonnes Moved per Annum (Tonne km) (One Way Factory to Port Chalmers)	-10,200	-1%
Vehicle Kilometers Travelled per Annum (One Way Factory to Port Chalmers)	-3,660	-17%
Indicative Transport Cost per Annum (\$) (One Way Factory to Port Chalmers) **	\$4,000	5%
Vehicle Movements per Annum (One Way Factory to Port Chalmers)	-120	-58%
Vehicle Travel Time - Hours per Annum (One Way Factory to Port Chalmers) (applies to transit time only) **	-89	-28%
Indicative Transport Emissions (CO ₂ -e Tonnes per Annum) (One Way Factory to Port Chalmers) **	-10	-13%

Source: Savvy, Port Otago, Icon, Dynes Transport Group, MfE (for Emissions Factors). The change in vehicle type represents the warehouse packing stage of the supply chain.

** Refer assumptions listed in Section 7.3 and/or Appendix E.

- 58% less vehicle movements (i.e. a net reduction of 120 vehicle movements per annum. This reduction is all container skel truck movements. Under the status quo supply chain, 88 curtain-sider truck trips are required per annum (to move the product in bulk form) plus 120 container skel truck trips (to move the product once containerised). With the Inland Port, this becomes 88 curtain-sider truck trips (still ending at Mosgiel) and the equivalent of 5 full shuttle train trips from the Inland Port to Port Chalmers).



- 28% less hours per annum spent transporting [REDACTED] whole milk powder to Port Chalmers (excluding the time at the warehouse). This is 89 less hours spent in transit per annum and represents a moderate increase in the productivity of the supply chain (same tonnes exported in less time).
- 13% less tonnes of CO₂e emissions per annum (i.e. a net reduction of 10 tonnes of CO₂e) on account of the emissions reductions associated with rail freight compared to road freight. This is made up of a 5 tonne reduction in CO₂e emissions per annum in the Open Highway Zone and a 7 tonne reduction in CO₂e emissions per annum in the Urban Area Zone, although transport within the Rail Zone (which will generate an estimated 2 tonnes of CO₂e emissions per annum) does pass through the urban environment of Dunedin, so the net reduction in emissions in the urban environment is 5 tonnes CO₂e per annum (-70%).
- Again, while not modelled, there will be an estimated net 70% reduction in harmful pollutants per annum in the total urban environment from this one-way section of the [REDACTED] whole milk powder supply chain between the factory and Port Chalmers under the 'with Inland Port' scenario (with associated health benefits for the wider community).

The above reductions (benefits) for this case study are conservative in that they do not capture all of the transport components of [REDACTED] Port Chalmers export supply chain that will be impacted by the Inland Port (i.e., the movement of empty containers and empty trucks travelling to [REDACTED]). However, the above partial analysis shows that it is not necessary to capture all of the transport detail in the [REDACTED] whole milk powder container supply chain to conclude that the Inland Port will have moderate positive effects each year for:

- [REDACTED] (in terms of likely supply chain resilience and reduced carbon footprint relative to the status quo),
- the 3PL service providers (in terms of improvements in productivity and efficiency), and
- the Dunedin community (in terms of reduced urban traffic congestion and road damage and improved urban air quality linked to freight transport emissions), and
- NZTA (in terms of reduced road maintenance on state highways through the main Dunedin urban area to Port Chalmers).



7.4 Total Initial Mode Shift Expected

This section provides an overview of the total anticipated initial mode shift (from truck to rail) for full container imports and exports enabled by the Inland Port.

On the assumption of business as usual export and import volumes at the time that stage 1 of the Inland Port could be operational, total TEU movements between Port Chalmers and the Inland Port estimated for stage 1 of the development is expected at around 30,000 TEUs per annum.¹⁰⁰ This equates to around 15,000 wagon movements (based on 2 TEUs per wagon) or the equivalent of 625 full shuttle train movements per annum.¹⁰¹ This new rail activity¹⁰² is indicatively made up of:

- around 13,000 full imported TEUs moving from Port Chalmers to the Inland Port. This is close to 100% of the estimated number of full import TEUs currently departing Port Chalmers by Road (refer Section 3.1.3). This includes the majority¹⁰³ of the estimated 12,500 TEU full containers currently collected by 3PL service providers and 500 TEUs currently de-vanned by Port Otago at Port Chalmers warehouses that will instead be de-vanned at the warehousing at the Inland Port.
- around 17,000 full export TEUs moving from the Inland Port to Port Chalmers. As discussed in Section 3.1.2, approximately 16,380 export TEUs currently arrive at Port Chalmers by truck that are already containerised (some containerised outside of Dunedin but most packed in Dunedin or Mosgiel by Icon and other 3PL service providers) and a further 6,230 TEUs currently arrive at Port Chalmers by truck in bulk and are packed into containers by Port Otago at Port Chalmers. This is a total of 22,610 export TEUs currently received at Port Chalmers by road.¹⁰⁴ The initial 17,000 TEUs mode shift will account for 100% of containerised exports currently arriving by truck and a portion of the export TEUs being packed at Port Chalmers (which will instead be packed at the warehouses at the Inland Port).

¹⁰⁰ Stage 1 relates to the initial amount of warehousing GFA that will be developed and associated terminal and depot capacity.

¹⁰¹ Planned rail transfer of imported empty containers to the Inland Port would be expected to be back-loaded on rail shuttle trips.

¹⁰² It is understood that KiwiRail have the capacity (including rolling stock and staff) to cater for the increased demand.

¹⁰³ Where more efficient, some imported containers destined for customers within central Dunedin may still be collected by truck from Port Chalmers rather than having to get them from the Inland Port in Mosgiel and bring them back into central Dunedin.

¹⁰⁴ This equates to 30% of all export TEUs in the year ending June 2024 arriving by road. The remaining 70% currently arrive by rail.



This initial export mode shift will increase export product (TEUs) arriving by rail to Port Chalmers from 70% (year ending June 2024) to **93%**, with room for this to grow in future stages to get closer to 100%. This represents a significant 75% initial decrease in export TEUs being trucked to Port Chalmers based on YE June 2024 volumes. It equates to taking an estimated 8,500 truck movements off urban Dunedin roads per annum.

The anticipated mode shift for full import TEUs will increase import product (TEUs) departing by rail from Port Chalmers from 10% (year ending June 2024) to close to **100%**. This represents a near 100% decrease in import TEUs being trucked from Port Chalmers. It equates to taking an estimated 6,430 truck movements off urban Dunedin roads per annum.

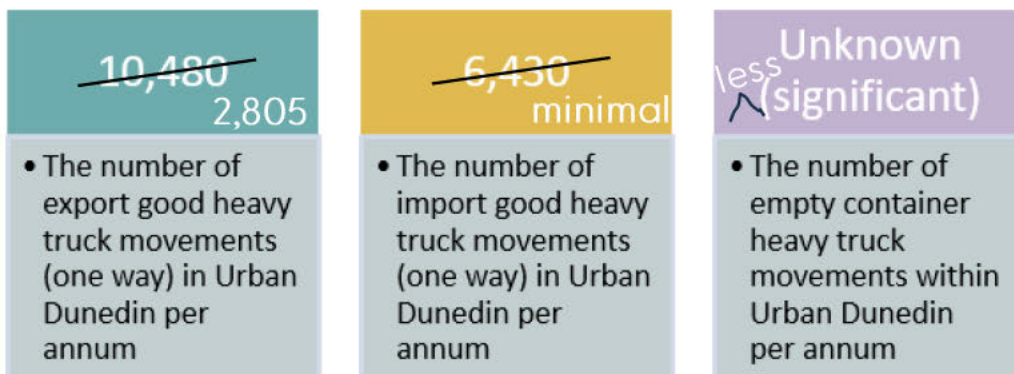
This is a combined total of nearly 15,000 heavy (one-way) truck movements removed from urban Dunedin Roads per annum (or 30,000 truck movements once return journeys are accounted for) just from the initial stage 1 of the Inland Port.

While it is not possible to quantify the GHG savings, as the vehicle tonne kilometres associated with these avoided truck movements is too complex to model for all supply chains, every tonne of freight carried by rail delivers a 70% CO₂e emissions saving over road freight using diesel heavy goods vehicles.¹⁰⁵ See however the case studies above which quantify the CO₂e reductions from an estimated 44% of containerised export receipts that will shift to rail with the Inland Port. If scaled up across the total import and export TEUs (30,000) expected to shift to rail in stage 1 of the Inland Port, the CO₂e reduction could be in the order of 1,050–1,100 tonnes per annum across impacted supply chains (and occurring mostly within the main Dunedin urban environment).

Overall, the initial mode shift enabled by the Inland Port will see a range of immediate and significant benefits for Dunedin City (and Otago Region) compared with a business as usual future. These include reductions in road congestion (including the value of time), GHG emissions and road maintenance costs, and improvements in road safety, fuel consumption and air quality. This is in addition to the improved productivity and efficiency of the import and export supply chains – which in aggregate, will be significant for Port Otago, the 3PL sector in Dunedin and importers and exporters in the Southern Region (as shown by the case studies above).

Relative to a business as usual future (Section 5.1), key initial/stage 1 road transport statistics of a ‘with Inland Port future will (based on Savvy’s modelling) change as follows:

¹⁰⁵ KiwiRail.



The mode shift benefits directly enabled by the Inland Port are projected to increase above these initial benefits, including as further increments of warehousing space are added to the site in stages 2 and 3 of development. These, and other facilitated growth effects are discussed further below.



8 Facilitated Effects/Opportunities

In addition to direct economic (and environmental) benefits, the Inland Port is expected to facilitate a range of other economic effects and unlock opportunities for further economic growth in Otago Region and the Southern Region.

8.1 Enabling Churn in Central Dunedin Industrial Zone

Dunedin City has a very tight industrial land market with demand for prime locations exceeding supply. In the Council's 2022 Business Development Capacity Assessment (BDCA), it found that there was insufficient industrial land to meet expected growth in demand over the short term (inclusive of the required competitiveness margin). The shortfall over the 2024-2027 period was estimated at 17ha. The BDCA report adopted a medium growth outlook for the urban environment which is conservative when compared to the more recent 2023 Housing Development Capacity Assessment that switched to a high growth outlook.

Local authorities must respond to a short fall in short-term capacity in accordance with the National Policy Statement on Urban Development. Savvy is not clear what actions are being taken by Council, but the Future Development Strategy 2024 (FDS) identifies “three potential areas within the wider Burnside/Fairfield area that may be appropriate for new industrial zoning, subject to further detailed investigation”.¹⁰⁶ The FDS then notes that all three areas are constrained by infrastructure that is unlikely to be resolved by the Council until the medium-long term (unless developers are able to progress the upgrades themselves sooner).

The Dunedin FDS, which relies on the BDCA 2022 report, states that “The Harbourside area is among the most desirable areas for industrial businesses” due to its proximity to arterial routes, deliveries and customer bases. It confirms that it is at or near capacity. The Inland Port will unlock valuable industrial land in the Harbourside area as follows:

- Port Otago's lease on the Strathallan Depot site (2.7ha) is due to expire in 2030, but if the Inland Port is approved and operational sooner, this rare vacant land¹⁰⁷ could be released in the short term.

¹⁰⁶ Dunedin FDS, page 90.

¹⁰⁷ The Strathallan Depot is a yard-based industrial activity with little or no permanent buildings. Hence, once the depot closes, the land will be effectively vacant.



- The consolidation of Icon's warehousing facilities (attributable to the Inland Port) will mean that T-Shed (which is 2,000sqm GFA wharf side) and 88 Parry Street (11,977sqm GFA) will also be released as it will be surplus to requirements.

Elsewhere, Icon has indicated that they would release their Carncross warehouse in the Mosgiel industrial zone (3,272sqm GFA) if the Inland Port is operational. While collectively the two changes in the Harbourside area and the change in Mosgiel will not solve a short-term shortage of industrial capacity in the Dunedin urban environment, they will help minimise that shortfall. With little or no land or existing buildings available to buy or lease in the Harbourside area, the Inland Port may facilitate an ability for some (albeit limited) churn in the industrial market (which is important to help existing businesses move between premises to better meet their size requirements (larger or smaller) while staying in the same market location).

Alternatively, the availability of these three sites may provide an opportunity to cater for some latent business demand. That is, new businesses wanting to establish in Dunedin City but who have been constrained due to a lack of available industrial zoned land.

8.2 Reduced Leakage and Improved Service

As signalled in the [REDACTED] case study (Section 7.3.1), there are times when Port Chalmers cannot accept export containers from [REDACTED]. In such situations, export product is transported [REDACTED] where it is shipped from [REDACTED]. This occasional export leakage (not limited to the [REDACTED] supply chain) is both inefficient for the exporter (adding freight costs and GHG emissions) and an opportunity cost for Port Otago (lost revenue). It reflects poorly on Port Otago's service reputation to have to 'close' Port Chalmers to export container receipts.

There is also leakage of imported goods destined for Otago businesses/consumers, particularly to Lyttelton Port in Canterbury Region. This includes imports destined for Queenstown/Central Otago. It would be more efficient if these imported goods arrived at Port Chalmers, were railed to the Inland Port and then trucked to the customers. The total road distance (one-way) between Lyttelton Port and Queenstown is 492km compared to a distance of 296km between Port Chalmers and Queenstown (a difference of 196km one way). Port Otago estimated that import demand from Queenstown/Central Otago currently handled by Lyttelton Port equates to around 7,000 containers per annum (10,000-15,000 TEUs). The trigger to securing this leakage out of Otago Region, according to importers spoken to by Port Otago, will be new and improved third party warehousing which the Inland Port can provide.



Improving the capacity and resilience of Port Otago to handle import and export containers will enhance its service levels and reputation. In achieving this, the Inland Port will avoid export leakage and start to facilitate the reduction in Otago's import container leakage – improving the efficiency and productivity of Southern Region supply chains.

8.3 Regional Export and Import Sector Growth

The Inland Port may facilitate economic growth (GDP and employment) in Dunedin City, Otago Region and the wider Southern Region in four ways:

1. The Inland Port improves the attractiveness of Otago Region and the wider Southern Region for new export and import manufacturers and processors (as a place to invest and do businesses) – potentially facilitating growth in GDP and employment.¹⁰⁸
2. The Inland Port improves the ability of Port Otago to compete with other South Island seaports, facilitating an increase in market share of existing/established export and import trade.¹⁰⁹ More container trade through Port Chalmers will have flow-on economic impacts (GDP and employment) across a range of sectors in Dunedin City and Otago Region. Port Otago and Icon have advised they are working on a range of proposals with exporters based north and south of Dunedin City who are currently exporting via Prime Port and South Port.¹¹⁰ They estimate that these proposals could, contingent on the Inland Port being approved and the customers being willing to switch ports, equate to an estimated 44,000-49,000 additional containers per annum (72,000-79,000 TEUs) passing through the Inland Port and Port Chalmers. See Example 1 below.
3. The Inland Port creates an opportunity to consolidate export freight coming out of Southland onto rail (where feasible to do so) to the Inland Port which will magnify the mode shift benefits already discussed in this report (i.e. between the Inland Port and Port Chalmers). Like the Fonterra Taieri Distribution Centre, these are the opportunities created when logistics warehousing has a rail siding.¹¹¹

¹⁰⁸ It is acknowledged that primary production-based export processors, that the ability to sustain new processing plants may be constrained by the ability to increase primary production output in the Southern Region. These same constraints would not apply for import based manufacturers.

¹⁰⁹ This refers to import trade that is not already considered as leakage from Otago Region (and covered above).

¹¹⁰ This includes potentially pitching for 100% of [REDACTED] export trade of whole milk powder.

¹¹¹ The proposal being discussed with [REDACTED], for example, would include [REDACTED] building a rail siding at their plant, or conversely Icon road-bridging (trucking) the bulk product a



4. The Inland Port provides opportunities for value added manufacturing to support existing export customers. This becomes feasible because of the economies of scale created by the Inland Port. Where there is capacity to do so, these new manufacturing businesses/activities would be expected to agglomerate in Mosgiel, close to the Inland Port, or potentially within the Inland Port warehousing space itself. See Examples 2 and 3 below.

Example 1 – [REDACTED]

Separate to [REDACTED] export supply chain for carcass/carton meat discussed in [REDACTED] currently rail their non-carcass meat processed in [REDACTED] plants (which they pack into containers at the [REDACTED] plant) from [REDACTED] ([REDACTED]) directly to Port Chalmers. However, KiwiRail has already had to invest \$1 million recently to maintain the bridge on that rail spur, and there is a further \$3 million required to upgrade the rail spur itself. This would be required in a years' time. Furthermore, the rail siding at the [REDACTED] is around 100 years' old and is at the end of its life. Estimates are that it will cost [REDACTED] around \$8 million to upgrade it. These costs are not considered commercially viable. Without the upgrades, product is expected to be railed directly to Port Chalmers for one more year and then the rail spur will be closed.

While one alternative is to upgrade the [REDACTED] and road-bridge (truck) the product from the [REDACTED] to that yard where it can be railed direct to Port Chalmers, Icon has proposed that they road all of the product that was going on rail using low carbon Hydrogen vehicles¹¹² and High Productivity units to the Inland Port. As well as avoiding significant capital costs (for KiwiRail and [REDACTED]) this approach further (and considerably) reduces [REDACTED] carbon footprint.

Example 2 – [REDACTED] Plant

As explained in [REDACTED] in [REDACTED] and before being exported, 70% of this needs to be freighted (by coastal shipping and road) to a canning plant in [REDACTED]. There are significant inefficiencies in this supply chain (added cost, time and risk) as well as GHG emissions. These inefficiencies could be solved with a canning plant included at the Inland Port, bypassing the need for any

short distance to the nearest existing rail siding, and railing it to the Inland Port where it will be packed in a dedicated warehouse and railed to Port Chalmers.

¹¹² Icon estimates a full transfer to Hydrogen trucks could be possible within 2 years. Some use of diesel trucks may be needed during the first year.



product to go to [REDACTED] have indicated that such a facility could be incorporated in the warehousing space proposed to be allocated to [REDACTED]. This value added proposition would create additional jobs in the Inland Port (Dunedin City). The cost savings for [REDACTED] could be significant.

Example 3 – Wood Pallet Factory

Fonterra is committed to decarbonising its dairy product manufacturing operations, with an end to coal heating sources by 2037. They are set to convert two coal boilers to wood pellets at its Clandeboye site in South Canterbury.¹¹³ This is a \$64 million investment that will cut the Co-operative's overall manufacturing emissions by 9% with reductions totalling 155,000 tonnes of CO₂e per year. The transition of the Clandeboye factory from coal to wood pellets, and the supply chains that this would create, is quoted by Fonterra as providing further opportunities "for future decarbonisation investments at our other sites, primarily Darfield, Studholme, Tākaka and Edendale"

As far as Savvy is aware, a supplier for the wood pellets for Clandeboye has not been confirmed. If a wood pellet factory could be established in Mosgiel (and the SLPL's vacant land in the industrial zone may be a suitable location),¹¹⁴ then this could offer a range of supply chain benefits for Fonterra, Icon and Port Otago. For example, wood pellets could be railed from the nearby Inland Port to the Clandeboye factory (Temuka) and the same train can bring the milk products back to the Inland Port (for transfer by rail to Port Chalmers).

Icon describes this an 'end to end' solution, which is the best way to maximise the efficiency, productivity and resilience of supply chains. This opportunity would not be possible without the Inland Port (not only because it provides the rail hub, but because it provides the additional warehousing and container terminal storage capacity that would be needed to transfer this export activity from Canterbury to the Otago Region).

All of these wider facilitated effects of the Inland Port will drive increased rail utilisation in the Southern Region. Figure 8.1 provides a summary graphic of rail freight tonnage density (2023).¹¹⁵ Compared to the North Island, the rail network in the South Island carries significantly less freight. While this is a reflection of lower relative demand (North Island cities having a greater population and a greater share of economic activity is based in the North Island) and likely a

¹¹³ [Fonterra announces its largest decarbonisation project to date](#)

¹¹⁴ The Inland Port provides an opportunity for the JV partners to put this land to other uses.

¹¹⁵ Source: New Zealand Ports and Freight Yearbook 2024. Deloitte Access Economics.

Figure 8.1 – KiwiRail Net Freight Tonnage Density (FY23) South Island vs North Island





9 Key Findings and Conclusions

9.1 Summary of Economic Benefits

Port Chalmers and the Dunedin City 3PL sector are facing a range of operational constraints that have direct impacts on import and export supply chains in the Southern Region. With the Strathallan Street container depot lease soon to expire, some existing warehousing in central Dunedin reaching the end of its building life (and no-longer commercially feasible to maintain for food-grade imports and exports), and Dunedin's urban population continuing to increase¹¹⁶ (putting additional pressure on urban area road congestion), a business as usual future is not expected to be a viable option.

The Inland Port is a strategically located development that could address all of those key constraints. Savvy considers that it will have a transformative impact on Port Otago's container operations and provide for growth over the long-term. The need for the development is already recognised in the Dunedin City FDS 2024-2054, with the site in Mosgiel identified in the growth strategy.¹¹⁷ The following provides a summary of key economic benefits of the Inland Port discussed throughout this report.

Short-Medium Term Construction Impacts¹¹⁸

- The direct expenditure on the construction of the Inland Port (rail siding, pavement/yard, approximately 80,000sqm GFA of warehousing and ancillary activities) is estimated to stimulate \$₂₀₂₀147.8 million in total (direct, indirect and induced) value added (GDP) in New Zealand (net present value, 8% discount rate), with the significant majority of that gross impact felt in Otago Region.
- In total employment terms, the direct expenditure over the three construction stages is estimated to support 1,489 FTE jobs nationally (in a mix of sustained existing jobs and

¹¹⁶ StatisticsNZ 2025 released population projections by territorial authority (2023 base, 2053 outlook) rank Dunedin City 15th out of 67 territorial authorities for absolute growth between 2023-2053, with a projected increase under the medium growth series of 15,600 additional residents, bringing the total population to 146,900 by 2053. In percentage growth terms (medium series), Dunedin City ranks 37th (annual average growth of 0.4%), but this is relative to an already large population base. Under the high growth series, Dunedin City is projected to have an additional 33,500 residents by 2053.

¹¹⁷ This is relevant for criterion 22(2)(a)(x) for accepting a referral application under the Fast Track Approvals Act 2024.

¹¹⁸ Savvy acknowledges that not all economic impacts (GDO and employment) equate to an increase in economic wellbeing.



new job opportunities), again with a significant share of these FTE jobs in Otago Region.

- This employment and value added (GDP) impact is spread over a broad range of industries (not limited to the construction sector).

Employment Generation (Operational)

- In total, the Inland Port is expected to create 104 net additional new, high-value jobs in Dunedin City in the short-medium term. This is in addition to 21 existing jobs that will transfer from other Port Otago and Icon facilities to the Inland Port.

Supporting Existing Infrastructure

- The Inland Port will deliver new regionally significant infrastructure and enable the continued functioning of existing nationally significant infrastructure (Port Chalmers and the rail network) which will benefit businesses in the Southern Region.
- It will avoid pressure to expand Port Chalmers through coastal reclamation and provides for sustainable long-term growth of Port Otago's container operations.
- It will improve the utilisation of KiwiRail's existing rolling stock and track assets (and staff). For the route between the Inland Port and Port Chalmers, the initial uplift is estimated at 15,000 containers per annum (30,000 TEUs), with foreseeable projected growth to 25,000, 35,000 and 40,000 containers.
- It is considered that the Inland Port could also facilitate greater mode shift of import and export trade from truck to rail north and south of Dunedin City.

Reducing Externalities of Road Freight

- The stage one of the Inland Port is estimated to remove a minimum of 15,000 heavy (one-way) truck movements from urban Dunedin roads per annum (or 30,000 truck movements once return journeys are accounted for) based on Savvy's modelling.
- This mode shift will improve the wellbeing of communities in the main Dunedin urban area through reduced traffic congestion, improved road safety, improved air quality and reduced road damage.
- One Heavy truck and trailer is equivalent to 21 cars in terms of road degradation, providing significant cost savings in road maintenance, including for NZTA.



Improving Supply Chain Productivity and Efficiency

- The Inland Port will support primary industry import and export supply chains across the Southern Region.
- Assessment shows that it will significantly improve supply chain efficiency and productivity through greater economies of scale, the co-location of container facilities on a single site outside the main Dunedin urban area, and mode shift to rail which lowers freight risk and reduces the time that import and export products are in transit.

Improving Resilience

- The Inland Port will significantly increase container terminal (full container storage) capacity. This is expected to provide critical buffering for export container supply chains when shipping is delayed.
- It will support greater connections and capacity between importers/exporters and logistics warehousing, rail infrastructure and ports in the South Island in the case of major disruptions.
- It will reduce the risk of natural hazard events and other unexpected traffic delays (accidents and road maintenance) impacting import and export supply chains, particularly risks to SH88 to Port Chalmers.

Support the Transition to a Low Carbon Economy

- GHG emissions from the Transport, Postal and Warehousing industry is a major environmental issue for Dunedin City. In 2023 it was the second highest contribution to GHG emissions.
- Between 2018 and 2023, the Transport, Postal and Warehousing industry had the highest increase of GHG emissions in Dunedin City (up 4.8 kilo-tonnes).
- The Dunedin City Council has identified the need for an inland freight hub south of Dunedin in its Zero Carbon Plan.
- Every tonne of freight carried by rail delivers a 70% CO₂e emissions saving over road freight using diesel heavy goods vehicles.
- 3 case studies on export supply chains (which account for an estimated 44% of containerised export receipts at Port Chalmers in 2024) show that the Inland Port could reduce CO₂e emissions by a combined total of 261 tonnes per annum.



- If scaled up across the total import and export TEUs (30,000) expected to shift to rail in stage 1 of the Inland Port, the CO₂e reduction could be in the order of 1,050–1,100 tonnes per annum across impacted supply chains.

Wider Economic Benefits

- The Inland Port will (by allowing some of Icon's operations to move as well as the relocation of the Strathallan Depot) free up some industrial land/floorspace in Dunedin's prime industrial location, enabling some much-needed churn in the market.
- It is expected to reduce existing leakage of export trade to other ports when Port Chalmers has, on occasion, reached capacity for full container storage.
- The Inland Port is likely to provide the market conditions needed to attract Otago bound imports back to an Otago port.
- Savvy considers that it will facilitate growth in Port Otago's annual import and export container volumes (market share) by offering competitive advantages over other ports.
- It may facilitate growth of new import and export manufacturing businesses in Otago Region and the wider Southern Region due to the supply chain efficiency, productivity and resilience benefits able to be offered.
- All of these wider/facilitated economic benefits have the potential to generate additional GDP and employment in the Southern Region.

9.2 Economic Costs

Savvy does not consider that the Inland Port creates any significant economic costs. Those that have been identified are discussed below.

9.2.1 Loss of Land-based Primary Production

The site contains Land Use Capability (LUC) 1 land and therefore constitutes highly productive land according to the National Policy Statement for Highly Productive Land. Development of the site for an industrial activity precludes the opportunity for land-based primary production over the long term, which would in turn supports direct, indirect and induced economic activity in the Otago Region.

A detailed assessment of the commercial (economic) viability of a range of different primary production land uses on the site has been assessed for the application by AbacusBio Limited.



Savvy has taken the estimated annual gross output (turnover) of two of those land uses and modelled them in the same IO model to estimate how those primary production activities would contribute (in gross terms) to value added and employment (once direct, indirect and induced economic impacts are included).

The two land uses modelled by Savvy are sheep farming on all 40ha of the site (with results summarised in Table 9.1) and blueberry farming on half (20ha) of the site (with results summarised in Table 9.2). Only the sheep farming is considered the most likely and viable primary production land use for the site by AbacusBio Limited, with the blueberry option (impacted in extent by flood susceptibility on some of the land) considered high risk and of low probability of being commercially attractive. It is therefore included as 'best case' scenario, and therefore the worst case opportunity cost if the Inland Port is approved.

Table 9.1 – Opportunity Cost of Long Term Sheep Farming on the Site (30yrs, 8% Discount Rate)

	Direct Impact	Indirect Impact	Induced Impact	Total Impact (Annual)	Total Impact 30 years (Undiscounted)	Total Impact 30 years (8% discount rate)
Sheep, beef cattle, and grain farming						
FTEs (annual average)	0.2	0.2	0.1	0.47	14.0	
Value Added (\$ ₂₀₂₀ m)	0.03	0.03	0.01	\$ 0.07	\$ 2.2	\$ 0.81
Gross Household Income (\$ ₂₀₂₀ m)	0.00	0.01	0.00	\$ 0.02	\$ 0.6	\$ 0.24

Source: StatisticsNZ PPI deflators, StatisticsNZ 2020 National Input-Output Table and multipliers. Savvy Consulting, Project team inputs. Results are in \$2020 and employment terms.

Table 9.2 – Opportunity Cost of Long Term Blueberry Farming on the Site (30yrs, 8% Discount Rate)

	Direct Impact	Indirect Impact	Induced Impact	Total Impact (Annual)	Total Impact 30 years (Undiscounted)	Total Impact 30 years (8% discount rate)
Horticulture and fruit growing						
FTEs (annual average)	13.2	8.8	3.7	26	769	
Value Added (\$ ₂₀₂₀ m)	1.0	1.0	0.5	\$ 2.5	\$ 76.0	\$ 28.50
Gross Household Income (\$ ₂₀₂₀ m)	0.4	0.5	0.2	\$ 1.0	\$ 31.2	\$ 11.71

Source: StatisticsNZ PPI deflators, StatisticsNZ 2020 National Input-Output Table and multipliers. Savvy Consulting, Project team inputs. Results are in \$2020 and employment terms.

Both Table 9.1 and 9.2 include the total (direct, indirect and induced) value added, household income and employment (FTE) impacts for a single year of output, as well as the cumulative impacts over 30 years (the long term), and finally the net present value of those long term impacts (using an 8% discount rate). The modelling shows that the net present value impacts on value added range from \$₂₀₂₀ 0.81 million (sheep farming) to \$₂₀₂₀ 28.5 million (blueberry farming). Total employment impacts (gross) range between 0.5 and 26 FTEs per annum, or 14–769 FTEs over a 30 year period.



Savvy considers that these primary production opportunity costs (most likely to be at the bottom of the range presented) are inconsequential relative to the quantified and significant upstream economic impacts of just the construction of the Inland Port over an indicative 10 year period, and once ongoing (but unquantified) upstream and downstream operational economic impacts and wider benefits of the Inland Port are taken into account.

9.2.2 Other Economic Costs and Disbenefits

The Inland Port will cause increased heavy (and some light) vehicle movements through the main street (SH87) of Mosgiel township (including increased congestion and road degradation, and reduced road safety and air quality). These localised changes (which initially reflect a transfer of truck movements from elsewhere in the Dunedin road network – and a net overall reduction at the total network level) are discussed in more detail in the Integrated Transport Assessment.

Savvy acknowledges, but has not quantified (or monetised), the localised transport effects for the Mosgiel community (and associated road owners) but considers, based on conclusions in the Integrated Transport Assessment, that such economic costs would have only a minor offsetting effect on the transport related economic benefits for the total Dunedin urban area.

A key outcome of the Inland Port will be a reduction in truck movements as increasing shares of container trade using Port Chalmers shift from road to rail. A disbenefit of the project is therefore potential reduced demand for truck drivers, particularly those working for (or in relation to) Icon's logistics activity.¹¹⁹

The extent to which this may result in job losses, will be a matter for Icon (and Dynes Transport Group) to determine and has not been specifically discussed. It may, for example, be possible for those drivers to be utilised across other transport services provided by Dynes Transport Group (other than container logistics) which may be experiencing growth. What has been discussed however, are future opportunities to grow container trade across the Southern Region which the presence of the Inland Port will facilitate. Even with the mode shift to rail, any growth in container trade in Otago will generate demand for truck transport, particularly the long-distance road transport of export and import products to and from the Inland Port (which will continue to be most efficient and economical using curtain-sider trucks for companies without rail sidings).

Therefore, even *if* there are a number of truck driving job losses in the short-term operation of the Inland Port (which is uncertain), these would be minor relative to estimated employment

¹¹⁹ As discussed earlier, no reduction of Icon's warehouse based staff are anticipated, with many roles transferring to the Inland Port alongside further growth of warehouse staff.



growth at the Inland Port, and in the medium-long term, those truck driving job losses are likely to be recouped and exceeded.

Last, the Inland Port provides a number of opportunities to increase Port Otago's market share of container trade in the Southern Region, including recapturing leakage of import and export container activity related to businesses located in Otago Region. While this generates opportunities for economic growth and employment in Otago Region, the reduction of container activity in other ports/regions creates opportunity costs in those economies. This disbenefit of the project – while neutral at the national level – is however akin to trade competition effect between regions and would be disregarded under the RMA. The Inland Port will also provide additional job opportunities in Dunedin commensurate with any increase in container trade using Port Chalmers, which could be filled by specialist workers moving from those impacted ports/inland ports.

9.3 Overall Conclusions

Based on the comprehensive assessment carried out for this report, Savvy concludes that the Inland Port in Mosgiel, Dunedin City, will deliver significant regional and national economic benefits in the short, medium and long-term. Those direct and facilitated economic benefits are widespread and are expected to outweigh any actual or potential economic costs or disbenefits arising from the proposal. Table 9.3 summarises some of the gross quantified economic impacts/benefits (where this has been possible).

Table 9.3 – Summary of Quantified Economic Benefits of the Inland Port

Economic Benefit	Estimate
Construction Impacts	1,489 FTE jobs (gross) created or sustained over an indicative 10 year period. Up to \$ ₂₀₂₀ 147.8 million (gross) value added (GDP) in net present value terms (8% discount rate).
Permanent Jobs Created on Site	104 high-value, new jobs (over and above staff transferring from consolidated facilities).
Annual CO ₂ e Avoided (based on 2024 container trade)	1,050–1,100 tonnes/annum (net).



Increased utilisation of KiwiRail's existing rolling stock and track assets between Mosgiel and Port Chalmers.	Initial uplift of 15,000 containers per annum (30,000 TEUs), with foreseeable projected growth to 25,000, 35,000 and 40,000 containers per annum.
Reduction in heavy truck movements from urban Dunedin roads (based on 2024 container trade)	Minimum of 15,000 one-way or 30,000 return journeys based on Savvy's modelling assumptions.



Appendix A – Author CV

I (Natalie Hampson) am the owner and director of Savvy Consulting, which was established in November 2023. Prior to establishing Savvy, I was a director at Market Economics Limited. I have worked in the field of economics for 25 years for commercial and public sector clients with a particular focus (although not exclusively) on economic assessment within the framework of the Resource Management Act (RMA). Since 2001, I have specialised in studies relating to land use analysis, assessment of demand and markets, the form and function of urban and rural economies and growth, policy analysis, and evaluation of economic outcomes and effects, including costs and benefits.

I have considerable experience assessing economic costs and benefits of proposed plan changes, district plan reviews, structure plans, resource consents, fast track applications and policy proposals throughout New Zealand. I have been heavily involved in the preparation of assessments under the National Policy Statement on Urban Development (including Housing and Business Development Capacity Assessments and Future Development Strategies, particularly in Rotorua and Queenstown. I was the co-author of the s 32 assessment and Cost Benefit Analysis (CBA) for the proposed National Policy Statement for Highly Productive Land. I was the author of the CBA for the proposed National Policy Statement for Indigenous Biodiversity and the amendments to the National Environmental Standards for Plantation Forestry.

My clients include some of New Zealand's largest residential, commercial and industrial developers (e.g. Carter Group, Ngai Tahu and Remarkables Parks). I provide services to Woolworth's New Zealand, Port Otago, and Christchurch International Airport. I have acted on behalf of numerous councils throughout New Zealand as well as the Mana Ahuriri Trust (a PSEG) in Hawke's Bay. Other recent projects have included economic assessments (or expert evidence) for: Winston Pulp and Paper in relation to the closure of their plant in Ruapehu District; peer review of a coal mine expansion in Gore District; the proposed Silverlight Studios film campus in Queenstown-Lakes District; Wellington Airport (submissions on the district plan); and Nelson Airport runway extension plan change and NOR (peer review). I am currently involved in a covenant amendment before the High Court and have provide evidence to the Land Valuation Tribunal.

I have been involved (or continue to be involved) in numerous fast-track applications around the country. I was a member of the Expert Panel for the Taranaki VTM FTAA project.



Appendix B – Data & References

Secondary data sources incorporated in this report include (but are not limited to):

- Freight data by port and commodity, StatisticsNZ.
- Freight Information Gathering System (FIGS) container trade data, Ministry of Transport.
- Port of Otago container data for the year ending June 2023, 2024 and 2025.
- Ministry for the Environment. 2024. Measuring emissions: A guide for organisations: 2024 summary of emission factors. Wellington: Ministry for the Environment.
- Vehicle Emissions Prediction Model (VEPM) v7.1.

Publications and reports reviewed and/or relied on include (but are not limited to):

- New Zealand Ports and Freight Yearbook 2024. Deloitte Access Economics.
- Dunedin Future Development Strategy 2024-2054, Dunedin City Council/Otago Regional Council, April 2024.
- Metcalf, J. September 2023. Effect of Speed on Emissions and Air Quality.
- Infometrics Regional Economic Profile – Dunedin City and Otago Region 2025.
- Gallardo, P. 2023. A shift to coastal shipping and rail could cut NZ's freight transport emissions – why aren't we doing it? Canterbury University.¹²⁰
- Ernst & Young. The Value of Rail in New Zealand. February 2021.
- NZIER. February 2024. Regional Economic Impact Assessment – Assessing the contribution of Port Otago to the economy¹²¹

¹²⁰ Sourced from: [A shift to coastal shipping and rail could cut NZ's freight transport emissions – why aren't we doing it?](#)

¹²¹ Supplied commercial in confidence.



Appendix C – SH88 Images/Articles







Photo: NZTA/WAKA KOTAHI

Work will be carried out to fix a slip affecting Dunedin's State Highway 88 on Friday. Emergency services were alerted on Thursday night after the slip blocked part of the highway near Blanket Bay Rd in St Leonards.

(Source: Otago Daily Times, 19 September 2024)



Dunedin's Port Chalmers Highway: More Material Than Expected, Large Boulders To Be Broken Up, Ongoing Delays SH88

Tuesday, 8 October 2024, 10:38 am

Press Release: **NZ Transport Agency**

NZ Transport Agency Waka Kotahi (NZTA) is advising drivers to expect ongoing delays this week getting to and from Port Chalmers as contractors continue to make SH88 safe for two-way traffic. To make the most of the workday, hours have been extended to start at 7 am and finish at 6 pm.

Investigations to date after last week's downpour have shown much more material needing to be removed than initially assessed and some huge boulders have to be broken up first, says NZTA Journey Manager Nicole Felts.

- There will be up to 30-minute delays between 7am and 6pm for the next four days (including Tuesday) on SH88 at the Parry Street rockfall site (near Forsyth Barr Stadium). Traffic control is in place keeping the road single lane at that point so contractors can remove rocks safely.

Source: Scoop, 8 October 2024



Appendix D – Key Assumptions for IO Modelling

This appendix sets out additional assumptions and limitations of the IO modelling carried out in Section 6.3 (Medium Term Construction Impacts) and Section 9.2.1 (Loss of Land-based Primary Production).

About IO Modelling and Key Terms

Multiplier analysis is a commonly used modelling technique for measuring economic impacts. Direct, indirect and induced economic impacts can be estimated using multipliers derived from regional or national input-output tables. Multipliers are summary measures of the economic interdependence between sectors and final demand. The contribution of a sector to an economy is not limited to the value it creates directly. This is because an increase in final demand for a sector has repercussions throughout the whole economy, causing increases in output beyond the initial change in demand. This is known as the multiplier effect. The higher the multiplier the more far-reaching the value added and employment impacts are likely to be from an increase in demand.

The most common limitations of all input-output based modelling (including multiplier analysis) is the historical and fixed nature of multipliers which are typically calculated from input-output tables from surveys undertaken several years earlier. Therefore, they may not accurately reflect the relationships between sectors in the current economy.¹²² This assessment relies on the latest national input-output table prepared by StatisticsNZ¹²³ which reflects the economy in the year ending March 2020. While the construction sector has faced significant cost increases since 2020, it is considered that the supply chain structure of all sectors (including the construction sector) is still broadly relevant today.

This assessment includes the following types of economic impacts:

- a) Direct effects – which capture onsite and offsite activities directly engaged by the proposed project;

¹²² In the real world, technical relationships will change over time. These changes are driven by new technologies, relative price shifts, product substitutions and the emergence of new industries. For this reason, input-output analysis is generally regarded as suitable for short-run analysis, where economic systems are unlikely to change greatly from the initial snapshot of data used to generate the base input-output table.

¹²³ Accessed, with thanks, from Insight Economics.



- b) Indirect effects – which arise when businesses working directly on the project stimulate the creation of further demand through the purchases that they make in other sectors of the economy; and
- c) Induced effects – which arise from the increased demand for goods and services made by households who have received increased income as a result of the direct and indirect effects of the project.

These economic impacts have been measured in terms of:

- Contributions to value-added (akin to GDP). Value added is the principal measure of economic activity, and is estimated as operating surplus, wages and salaries paid to staff and working proprietors, depreciation, taxes and subsidies. It measures the contribution of individual sectors, or firms to the economy.
- The number of FTEs employed – which is measured in terms of full-time equivalent workers (FTEs) for a 12-month period.
- Total wages and salaries paid to workers, which are often labelled 'gross household incomes'.

Assumptions and Modelling Inputs

Savvy has adopted the multipliers from the following sectors contained in the national input-output table (where applicable):

109 Sectors	PPI Adjuster Applied (Q3 2025 to Q1 2020) *	Valued Added Direct Multiplier **	Valued Added Indirect Multiplier **	Valued Added Induced Multiplier **	Employment Direct Multiplier ***	Employment Indirect Multiplier ***	Employment Induced Multiplier ***
Construction services	0.776	0.41	0.38	0.25	3.50	2.87	1.73
Electronic and electrical equipment manufacturing	0.850	0.50	0.24	0.20	2.67	1.72	1.43
Fabricated metal product manufacturing	0.711	0.36	0.38	0.25	3.79	2.75	1.73
Heavy and civil engineering construction	0.778	0.33	0.47	0.29	2.58	3.58	2.04
Local government administration services	0.754	0.64	0.29	0.40	9.75	2.70	2.82
Machinery and equipment wholesaling	0.862	0.56	0.32	0.31	4.22	2.46	2.18
Non-residential building construction	0.757	0.14	0.62	0.26	1.28	4.95	1.82
Scientific, architectural, and engineering services	0.754	0.59	0.32	0.30	4.02	2.44	2.13
Basic material wholesaling	0.728	0.38	0.45	0.26	3.22	3.25	1.87
Sheep, beef cattle, and grain farming	0.796	0.43	0.41	0.14	2.34	3.02	1.00
Horticulture and fruit growing	0.834	0.43	0.42	0.22	5.56	3.70	1.55

Source: Savvy, Statistics NZ, National Accounts.

* No PPI values are provided for Local Government Administration Services. Savvy has applied the PPI deflator for the Scientific, Architectural and Engineering Services Sector as a proxy. ** per dollar of output. *** per million dollars of output.

Other key assumptions for the modelling contained in this report are as follows:



- Anticipated expenditure is deflated to March 2020 prices prior to applying the 2020 multipliers. This is done using the Producers Price Index, with actual deflators relied on for this assessment shown in the table above.
- Economic impacts are expressed in 2020 dollar and employment terms. It is not appropriate to re-inflate economic impacts to dollars of the day.
- The national multipliers are assumed to represent the multipliers that applied in the Project's district and region in 2020. That is, it is assumed that industries in the district/regional economy have the same interdependencies with other industries as they do nationally. Savvy acknowledges that using national multipliers is not as accurate as applying multipliers specific to the district/region, such as can be sourced from multi-regional input-output (MRIO) tables. As discussed in the body of this report, for construction related sectors in a large city like Dunedin, the use of national multipliers is not expected to introduce any material risk for the reliability of the results for their intended purpose.
- All or most direct expenditure on the proposed development, including indirect and induced spending, is assumed to be with business located in Project's region. In this case, it is assumed that approximately 95% of direct construction expenditure is directed to businesses in the Otago Region. While this does not mean that all indirect and induced spending also occurs in the Otago Region, a significant share of total economic impacts are assumed to accrue to the regional economy.

Other IO Modelling Limitations and Consequences for Interpretation

- The district/region economic impacts calculated in this report apply to the proposed development. It is important to acknowledge that these same or similar impacts would arise from a development of a similar scale and composition in another location in the district or region and are not entirely unique to this proposal/site.
- IO modelling assumes no supply constraints in the economy, which assumes that businesses can source sufficient resources (labour, capital, land, etc) to meet new demands without displacement. In everyday terms, this means the model assumes that extra workers, machinery, and land are always available whenever businesses need them, no matter how big the increase in demand is. In reality, shortages or competition for resources can drive up costs (discussed below) or limit output, so the model's estimates of value added and employment impacts should be seen as an upper-bound



rather than a guaranteed outcome. They should also be considered as ‘gross’ impacts as no displacement effects have been identified or accounted for (if applicable).¹²⁴

- IO modelling assumes constant returns to scale, which means that there are no economies of scale or diminishing returns in the model. In simple terms, this means the model assumes that producing twice as much output always requires exactly twice as many inputs, with no bulk discounts, efficiency gains, or bottlenecks. In reality, businesses may become more efficient—or less efficient—as production scales up, so the model’s estimates of value added and employment impacts should be interpreted as indicative rather than precise, especially when analysing large changes. See also discussion in Section 6.3 on how employment impacts should be interpreted as a result of this limitation of IO modelling.
- The IO model applies static prices, which assumes that prices remain at 2020 values (including over time). The model does not account for substitution effect or dynamic feedback from changes in demand and prices. One potential effect of new projects such as proposed here, is that to secure goods and suppliers in the time frames assumed for development, the purchaser may need to accept a higher price. Price changes could also apply for indirect demand generated by the project. If prices were higher than embedded in the multipliers, the multiplier effect on economic activity would be lower than modelled as less of each dollar spent translates into real increases in output. If labour is scarce (including where unemployment is very low), then higher wages/salaries may be required to attract/secure that labour to meet the increased demand. This can however be more relevant for specialist labour, and is unlikely to apply for the construction of this project which is not dissimilar to other industrial developments (albeit large in scale).
- Employment impacts are calculated assuming constant productivity – that is, each industry and location produces the same amount of output per employee. It also assumes that all businesses are equally as productive. In reality some businesses will be more or less productive than the average for that sector. For future developments such as the proposed project, the exact suppliers may not be known. Even if they were, the IO model operates at a higher economic level than individual business entities.

¹²⁴ Note, the use of ‘gross’ here is in the context of the modelled impacts, and not in the wider sense of cost reducing gross impacts or benefits to give a net result.