

Marton Rail Hub

Economic effects – high level commentary

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m.e
consulting



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1 Introduction

The Marton Rail Hub is a development initiative with links to the Provincial Growth Fund. We understand that there is a need to update and refresh the economic assessment supporting the consent application. Specifically, the assessment needs to be broadened to include a wider outline of the economic effects. Consequently, the project scope covers two core parts:

1. The potential effects in GDP and employment terms of the activity that would be enabled and put this in the context of the district economy, and
2. Comment on the uniqueness of the location (rail and SH1) in the context of the district's industrial land base, and the ability to accommodate the growth elsewhere in the district.

The commentary draws on available information about the potential land uses, M.E's in-house datasets as well as official data published by StatsNZ.

1.1 Aim and approach

The aim of the assessment is to develop an understanding of the potential economic effects of the Rail Hub on the local economy. These effects are expressed in terms of GDP and employment. Importantly, the Rail Hub will enable 'new' activity in the local economy. At the same time, the Hub could cause a transfer of some activity already existing within the district. The GDP and employment effects are assessed using a scenario approach. These scenarios illustrate the likely range of effects and are also used to deal with uncertainty. Importantly, a conservative approach is maintained but it is acknowledged that the development has upside potential (i.e., the economic effects could be greater than estimated because additional activities could be facilitated).

The scenarios are based on information provided by WSP regarding the potential development. This information was reviewed and supplemented to frame the potential activities in turnover and employment terms. Detailed market assessments (i.e., financial due diligence) of the different activities were outside the scope of this assessment.

The potential turnover is used to estimate the economic impacts and includes the flow on effects throughout the local economy. The turnover was estimated by using WSP's employment indications as a starting point. Next the activities were mapped to economic sectors and each activity was compared (WSP employment) against the average business size for the relevant sector. The average business size was estimated using different metrics and datasets. By using alternative approaches, a range is provided. This range is also linked to different assumptions around the scale of the activities. Combining the alternative approaches, and considering scale, provides the scenarios.

The final part of the modelling uses the scenarios to estimate the economic impacts of the transactions, specifically how the new transactions flow through the local, regional, and national economies. GDP and employment effects are reported. In addition to the quantitative assessment, the wider effects are considered. These relate to the non-economic benefits of the development.

A conservative position is maintained and areas where biases could be introduced are pointed out.

2 Economic impacts

The Rail Hub will deliver a range of economic impacts. The scale of these impacts depends on the size of the activities (i.e., turnover) and the degree to which the new activities are integrated into local supply chains. This section describes the estimated effects. The section starts with a summary of the core assumptions. Next, the results are presented, focusing on the GDP and employment impacts. The economic impacts are disaggregated to show what share of the impacts will be felt locally. The economic impacts reported here focus on the ongoing components i.e., once fully operational. There will be other impacts during the construction phase. These are one-offs and additional information about the capital expenditure would be needed to estimate these impacts. The ongoing effects are related to annual business activity, but it is continuous, spanning multiple years. Discounting is used to show the Present Value of multiple years' worth of activity in 'today's terms'.

2.1 Assumptions

As mentioned earlier, the modelling started with the WSP information about the potential activities. The activities were mapped to economic sectors. Table 2-2 list the sectors that were considered for the main activities. Note, these sectors are official sector definitions, and StatsNZ publish detailed information for these sectors. The sector information is used to estimate the turnover, employment, and GDP ratios for the activities.

The estimated employment levels for the different activities are shown below. Importantly, this shows the additional employment (and not the total). This is important because some of the employment might simply be a relocation from elsewhere in the district. The size of the overall (and therefore the net) employment was based on the patterns observed across similar business activity across the district, region, and NZ. The average size of similar businesses (same sector) was calculated using detailed data in the Business Demography Survey (BDS). Using these averages as benchmarks, the additional employment levels that could be supported by the activities were set. The following table (see Table 2-1) shows the mid-point employment (only the net additional employment is shown). Importantly, this should not be interpreted as the 'total number of workers' that would work in the area.

Table 2-1: Additional employment (mid-point)

Activity	Mid-point employment (additional)
Food Producer	25
Log Yard	5
Debarker	5
PHA plastics plant	8
PLA & plastics manufacturing plant	8
Biomass Energy Plant	9
Services Area	7
Container Area	5
TOTAL ADDITIONAL	72



Table 2-2: Sector Mapping (sectors considered)

Activities	6D Sector – typical/related sectors
Food Producer	Other food product manufacturing n.e.c.
Log Yard	Logging
	Log sawmilling
	Other transport support services n.e.c.
	Timber wholesaling
	Timber resawing and dressing
	Wood chipping
Debarker	Log sawmilling
	Wood chipping
	Other wood product manufacturing n.e.c.
PHA plastics plant -	Rigid and semi-rigid polymer product manufacturing
	Polymer foam product manufacturing
	Polymer film and sheet packaging material manufacturing
	Other polymer product manufacturing
	Other basic polymer manufacturing
PLA & plastics manufacturing plant	Rigid and semi-rigid polymer product manufacturing
	Polymer foam product manufacturing
	Polymer film and sheet packaging material manufacturing
	Other polymer product manufacturing
	Other basic polymer manufacturing
Biomass Energy Plant	Industrial gas manufacturing
	Other manufacturing n.e.c.
	Basic organic chemical manufacturing
Services Area	Other transport support services n.e.c.
	Other transport n.e.c.
	Other automotive repair and maintenance
Container Area	Other warehousing and storage services

The potential turnover was estimated using turnover per employee ratios¹. This ratio was calculated using several different approaches². The turnover ratios vary from \$200,000/employee to \$1m/employee. Table 2-3 reports the estimated turnover (level of activity) associated with the new businesses.

¹ Turnover per employee ratios were estimated using data in the Annual Enterprise Survey.

² This included estimating total turnover based on employment, and per business count and adding a range (based on recent trends).



Table 2-3: Additional (new) turnover

Activity	Turnover (\$'m)	
	Approach 1	Approach 2
Food Producer	28	51
Log Yard	4	6
De-barker	2	4
PHA plastics plant	3	6
PLA & plastics manufacturing plant	3	6
Biomass Energy Plant	8	9
Services Area	2	4
Container Area	1	2
TOTAL ADDITIONAL	51	88

Based on the figures above, the assumed new activity that would be enabled by the Rail Hub (once fully operational) is estimated at between \$51m to \$88m per year. The lift in business activity will flow through the local, regional, and national economies, generating GDP and employment. The flow-on economic impacts are outlined in the next section. We note that the analysis is informed by the available information, and we did not undertake surveys or primary research. While a conservative position is maintained, the above is an area where optimism bias could be introduced³.

2.2 Flow on effects

The economic impacts are outlined below, focusing on the ongoing impacts. The impacts are reported using different metrics, and by looking at different types of impacts. In terms of the metrics, the following are reported:

- **Gross Domestic Product (GDP):** GDP measures all payments to factors of production (land, labour, and capital), and excludes the cost of intermediate inputs.
- **Employment** is measured in Modified Employee Count (MEC) terms. This is the number of full-time and part-time employees as well as working proprietors on an annual basis. Employment has a direct link to the local population/community. This provides a measure of the labour demand associated with the estimated level of economic activity. Crucially, the additional MECs do not necessarily require that additional persons be employed. It may mean existing employees and proprietors are fully utilised or work longer hours to complete the additional work.

With reference to GDP, it is possible to report parts of the flow-on impacts, including:

- Direct and indirect,
- Direct, indirect, and induced (combined these are referred to as the total impacts)

Appendix 1 describes the different parts and what the impacts encompass, and the limitations of Input-Output modelling are also outlined.

The GDP and employment impacts are presented in Table 2-4 and Table 2-5.

³ It would be useful to revisit the analysis once the finer details of the activities are public. This would be useful from an economic development perspective, but the above conservative positions are sufficient for understanding the potential scale of local effects.



Table 2-4: GDP impacts (\$m)

		Annual (ongoing)			
		Low \$m		High \$m	
GDP Total	Rangitikei District	17		31	
	Rest of NZ	36		65	
		Ten-year (NPV Analysis)			
		Low \$m		High \$m	
		3%	7%	3%	7%
GDP Total	Rangitikei District	153	131	269	230
	Rest of NZ	319	273	573	490

The analysis suggests that the GDP impacts that will be felt locally (within RDC) are likely to fall between \$17m and \$31m per year (this is every year, and ongoing). In addition, the GDP impacts flow out of the region, across the rest of the region and NZ. The overall ‘outside region’ GDP effects are estimated at between \$36m and \$65m (ongoing, per year). Expressing the GDP impact relative to the size of the Rangitikei economy shows the potential scale. **To put the economic impact into context, the annual GDP impact would add approximately 3.1% to 5.4% to the local economy’s GDP⁴ i.e. this represent an upward step change.**

Looking beyond the annual GDP contribution, the activities are ongoing (not one-off projects like construction) and will have lasting economic impacts. Considering the annual GDP impacts and viewing the potential value over a decade shows the potential value. The future (annual) GDP contributions are expressed in ‘today’s terms’ using discounting⁵. It is worth pointing out that a third (32%) of the GDP impacts are felt outside Rangitikei District. This is because the local supply chains are not (currently) geared to service the additional activity associated with the Rail Hub. However, this is likely to change over time as factors like convenience and transport friction⁶ incentivize local businesses to deliver those services. In turn, this will support local jobs and other demand-driven activities (e.g., retail). Recent work completed for the Rangitikei District Council⁷ suggests that there is sufficient business land capacity in Marton South to accommodate such additional growth to support the Rail Hub (specifically industrial type activities). For the commercial activities the modelling suggests that there should be sufficient capacity over the medium term (depending on the size of the flow-on effects)⁸.

With reference to the employment impacts, the Rail Hub would enable a range of employment throughout the local economy. Table 2-5 summarizes the total employment impacts.

⁴ Based on the pre-Covid levels.

⁵ Discounted Cash Flow analysis, or NPV-analysis.

⁶ That is, the cost to import services from the neighbouring economic centres.

⁷ Rangitikei Business Land Assessment. Report being finalised by M.E.

⁸ However additional, and more detailed modelling is needed to verify these initial observations.



Table 2-5: Employment impacts (Total, MECs)

		Annual	
		Low	High
Employment	Rangitikei District	220	385
	Rest of NZ	360	645

The employment that will be supported across the district economy (including all flow-on effects) is estimated at between 220 and 385 MECs. This level of employment is associated with the modelled lift in economic activity (annual) and is based on the existing relationships between economic/business activity and the level of employment (labour) used. Again, a large share (62% to 63%) of the overall employment impacts will be outside the district. There is potential for the share to shift over the medium to long term as local businesses respond to the opportunities provided by the Rail Hub (especially the activities that locate there). This additional employment is around 4% of the current employment base. With reference to the employment effects, this level of employment impact is seen as aggressive because the labour market is currently constrained, with record low unemployment levels. Nevertheless, even if some displacement is seen (workers moving between jobs), the Rail hub will provide additional employment and diversify the types of employment that are available in the local market.

2.3 Conclusion

The Rail Hub development is expected to generate a positive economic contribution and enable local economic growth. The modelling suggests that the flow on economic activity would provide growth opportunities to the wider business base, helping to diversify the economy.

It is important to note that the above assessment excludes the economic impulse associated with the construction phase. Construction activities are one-offs, including these in the assessment will add to the positive effects.

3 Wider effects and conclusion

In addition to the immediate economic impacts, the Rail Hub will deliver a range of other effects. These wider effects are related to the new economic activity but are beyond those quantified in the previous section. The section offers high level commentary on these effects before presenting concluding remarks.

3.1 Wider effects


The economic effects of the Rail Hub go beyond the GDP and employment effects. These wider effects range from diversifying the economy to enhancing local job options. These effects relate to the Rail Hub, and are also related to the transport enabled development. The wider effects include:

- A **diversified economy**: Enabling the Rail Hub will underpin new industries in the local economy. Having additional business types in the economy will help to improve its resilience by widening the type of business activity that is undertaken locally.
- The large manufacturing activity will support additional **agglomeration benefits** (e.g., improved efficiency and sharing knowledge). These agglomeration effects spill over to other businesses, delivering positive outcomes such as improved business productivity. We note that the envisaged activities could also generate co-location benefits, with linkages between them. Such co-location would deliver further growth opportunities and benefits that are often referred to as clustering. These generally reflect benefits associated with improved cooperation, productivity gains and generating scale.
- The larger economic base, with the **additional opportunities for other supporting industries** (i.e., those servicing the businesses at the Rail Hub), will lift the relative competitiveness of Marton and the district. This relative position would support the growth aspirations of the RDC.
- From an employee perspective, the Rail Hub (and the flow on activity) would **enhance the choice of employment** that is available. Greater options are seen as a benefit and will translate into competition for skills and labour (benefitting employees).

Other effects include:

- The Rail Hub will **generate additional vehicle trips**. These include trips relating to employees going to/from work, business trips (inbound and outbound goods) as well as business trips relating to servicing the Rail Hub activities. We understand that most of the in/outbound goods would use the rail infrastructure. This suggests that a large share of the transport requirements associated with the Rail Hub would not be on the public roading network. Therefore, the lift in economic activity is not expected to lead to a comparative (linear) increase in traffic volumes⁹.
- The Rail Hub would **add to the existing industrial land resource** in the district. However, based on the envisaged types of activities, there is little scope for local business to substitute their current locations, and move to the Rail Hub. However, a selection of activities could relocate to the new site (this is factored into the economic impacts outlined in section 2). In most locations within the district, there is a general short-term deficit for industrial land. The deficit due to a lack of zoned industrial land, which is further reduced by factors such as flooding. However, in Marton South and Bulls, a surplus of industrial land has been identified. Therefore, enabling additional industrial land resource would ensure that the opportunities in the local economy could be captured. Importantly, these opportunities are related to the natural endowment (e.g. forestry areas, and farming) in the wider sub-region and are not solely associated with the resource in Marton (or Rangitikei). Based on recent work completed for RDC (and using the most conservative settings), there would not be sufficient

⁹ The traffic and transport effects would need to be assessed by a suitably qualified professional.



industrial land to accommodate the activities associated with the Rail Hub (even if the rail infrastructure could be delivered to the existing areas). This means that providing for the Rail Hub is unlikely to undermine the existing locations in Marton. This is based on the current understanding of the activities that would locate at the Rail Hub. In addition, we understand that the existing industrial locations (zoned land around Goldings Line) would not be able to accommodate the rail development due to the raised nature and gradient of the railway line. Using the existing industrial areas (zoned) for the Rail Hub activities is not viable, and therefore, securing the benefits by locating it elsewhere appear to be the logical approach.

3.2 Conclusion

The Rail Hub project will deliver a range of economic effects. This assessment focuses on the ongoing GDP and employment impacts associated with the operational activities. The one-off, economic impulse arising from the construction activities are not included in this analysis. Information availability limits such inclusion. While the GDP and employment impacts of the construction phases are positive, aspects like disruption and congestion reduce the net benefit associated with the construction phase.

The Rail Hub will deliver a new set of activities to the local economy. Currently, the local supply chains are not set up to deliver all the supporting activities. However, over time the local business sector is likely to respond to the new opportunities. When this happens, a larger share of the economic benefits (GDP and employment) would be captured locally, in the Rangitīkei District.

Overall, the analysis shows that the Rail Hub will provide a positive economic benefit position to the district. This position is likely to fall between \$17m and \$31m per year (GDP) in the Rangitīkei District. This impact is sizable relative to the Rangitīkei economy, between **3.1% and 5.4%**. **Similarly, the additional employment that would be supported locally by the lift in activities is estimated at between 220 and 385.** However, considering the tight labour market and the constrained economy, the outcomes are likely to fall at the lower end of the estimate. Regardless, the analysis suggests substantial positive impacts. A conservative position is maintained in the analysis, and factors like the ability to co-locate some activities to deliver synergies, and the export focus of others suggests that there is upside potential (i.e., the economic effects could be greater than those estimated here).



Appendix 1: Input-Output modelling

One of Input-Output (IO) modelling’s strengths is that the results are easy to interpret. Similarly, IO models are easy to use and cost effective to develop for different areas. However, despite being widely applied in New Zealand and around the world, IO analysis is not without limitations. The most common limitations relate to the historical nature of IO Tables. We use IO tables derived from Supply and Use Tables.

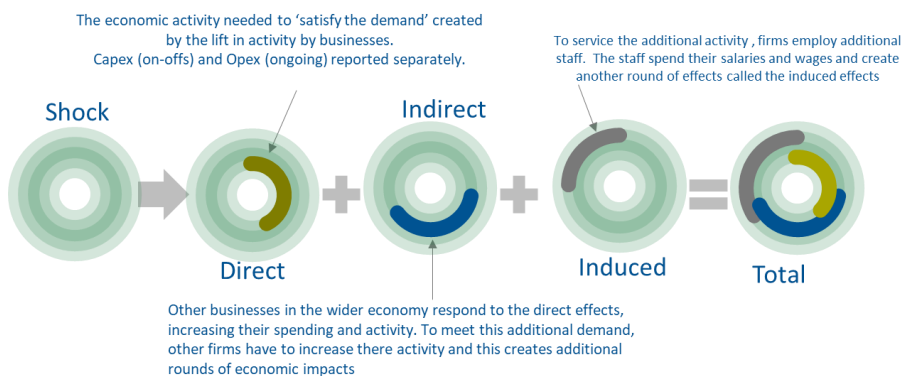
With reference to IO modelling in general, a key assumption is that input structures of all industries (i.e. technical relationships) are fixed. In the real world, however, technical relationships will change over time. These changes are driven by new technologies, relative price shifts, product substitutions and the emergence of new industries. For this reason, IO 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 IO tables. In addition to the ‘fixed structure’ assumption, other important assumptions (and limitations) of IO models are:

- **Constant return to scale:** This means that the same quantity of inputs is needed per unit of output, regardless of the level of production. In other words, if output increases by 10 per cent, input requirements will also increase by 10 per cent.
- **No supply constraints:** IO assumes there are no restrictions to inputs requirements and assumes there is enough to produce unlimited products.
- **The model is static:** No price changes are built in, meaning that dynamic feedbacks between price and quantity (e.g., substitution between labour and capital) are not captured.

In terms of the flow on impacts, different parts can be estimated and reported.

- **‘Direct and indirect impacts’** – when an investment or an activity leads to new activities (or spending), those transactions generate activity in the economy. The local economy responds by firstly increasing (or decreasing) activities supplying the goods and services needed to address that initial impulse. This is the direct effect. All firms supplying the businesses responding to the initial spending adjust their outputs, stimulating further rounds of impacts that flow through the economy. Further (flow on) rounds of activity are needed to meet the extra demand and these rounds are called the indirect impacts.

- **The induced impacts:** As businesses respond to the economic change (the direct and indirect impacts), they employ additional labour (by increasing staffing hours, employing more people, or staff working overtime). This leads to a lift in salary and wage payments to households, i.e., more salaries and wages paid to workers in return for their labour. Businesses also take additional profits as operating surpluses increase – this is partially returned to households through dividends paid to business owners or investors. As households spend their returns or earnings, another round of effects is created (i.e., household spending). These are termed induced impacts.



- The **‘total impact’** reflects the sum of the direct, indirect, and induced impacts.