BEFORE THE WAIPĀ DISTRICT COUNCIL

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of Proposed Plan Change 20 – Airport Northern Precinct Extension to the Operative Waipā District Plan

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STATEMENT OF EVIDENCE OF FRASER JAMES COLEGRAVE

(ECONOMICS)

28 FEBRUARY 2023

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INTRODUCTION

Qualifications and experience

1. My name is Fraser James Colegrave.

2. I hold a first-class honours degree in economics from the University of Auckland (1996).

3. I have over 25 years' commercial experience, the last 22 of which I have worked as an economics consultant.

4. I am the managing director of Insight Economics Limited, an economics consultancy based in Auckland, which I founded in 2013. Prior to that, I was the founding director of another economics consultancy, Covec Limited, for 12 years.

5. I have led and completed more than 600 consulting projects. My main fields of expertise are land-use and property development. I have worked extensively in these areas for dozens of large property developers in New Zealand. In addition, I regularly advise Local and Central Government on a range of associated policy matters.

6. I regularly appear as an expert witness before Councils, Boards of Inquiry, Independent Hearing Panels, the Land Valuation Tribunal, the Environmental Protection Agency, the Environment Court, the Family Court, and the High Court of New Zealand.

7. I am familiar with the application site and the surrounding locality. I have read the relevant parts of: the application; submissions; further submissions and the Section 42A Report.

Involvement in Proposed Plan Change 20

8. I have been engaged by Titanium Park Limited ("TPL") and Rukuhia Properties Limited ("RPL") to prepare evidence for Proposed Plan Change 20 ("PC20"). I was the author of economic assessment associated with TPL/RPL's request. I have also been involved in assisting with a subsequent assessment of the proposal against the National Policy Statement on Highly Productive Land ("NPS-HPL")

9. I have visited the Site and the locality several times.

Code of Conduct

10. I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note (2023) and I agree to comply with it. In that regard, I confirm that this evidence is written within my expertise, except where I state that I am

relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

11. In my evidence, I:

    (a) provide an executive summary of my key conclusions;

    (b) summarise the relevant aspects of PC20 from an economics perspective;

    (c) consider the need for PC20 under the National Policy Statement on Urban Development 2020 ("NPS-UD");

    (d) outline the economic rationale for, and benefits of, PC20;

    (e) respond to and elaborate on retail-related issues raised in the joint witness statement (JWS) dated 9 February 2023;

    (f) address the relevant provisions of the NPS-HPL;

    (g) respond to the s42A Report; and

    (h) respond to matters raised in submissions (other than retail having already addressed that issue).

EXECUTIVE SUMMARY

12. This evidence assesses the economic costs and benefits of PC20, which seeks to expand the size of the Northern Precinct at Titanium Park from approximately 41 hectares to approximately 130.

13. Having summarised the relevant aspects of PC20 from an economic perspective, I next consider the need for it under the NPS-UD. I show that PC20 is indeed required to provide sufficient capacity for industrial land demand, including over the short- to medium-term.

14. This is because industrial activity recently grew much faster than expected by me, and by the latest business capacity assessment ("BCA") for the sub-region. At the same time, the latest BCA appears to significantly overstate likely market supply, again particularly over the short- to medium-term.

15. PC20 will have significant and enduring economic effects. These include directly boosting the supply of industrial land to meet demand, plus heightened land market competition, which will deliver sections to the market quicker and at lower average prices than otherwise. In addition, PC20 will support regional economic development, harness synergies/agglomeration benefits with existing land uses, achieve high degrees of infrastructure efficiency, create economic stimulus during construction, and allow the land to be put to a higher and better use.

16. While PC20 is an industrial-led proposal, it also enables a small amount of non-ancillary retail to meet the daily needs of workers, businesses, and their customers/suppliers. I assessed the potential adverse effects of this on the vitality and viability of nearby centres and show that it will not have such effects. This is because it is far too small to credibly affect the role and function of other centres compared to the 540,000m^2 of retail GFA that already exists across the city.

17. Next, I assess PC20 against clause 3.6(1) of the NPS-HPL from an economic perspective and show that it complies because:

    (a) PC20 is required to provide short- to medium-term capacity under the NPS-UD; and

    (b) There are no other reasonably practicable or feasible ways to provide the same capacity in the same market and locality while achieving a well-functioning urban environment; and

    (c) The economic costs and benefits of the proposal outweigh all tangible and intangible economic costs and benefits of hypothetical foregone rural production.

18. Finally, I acknowledge various economic matters raised in submission and respond accordingly.

19. Overall, I consider PC20 to generate significant economic benefits while avoiding any material economic costs, so I support is on those grounds.

CONTEXT AND BACKGROUND

Site Description

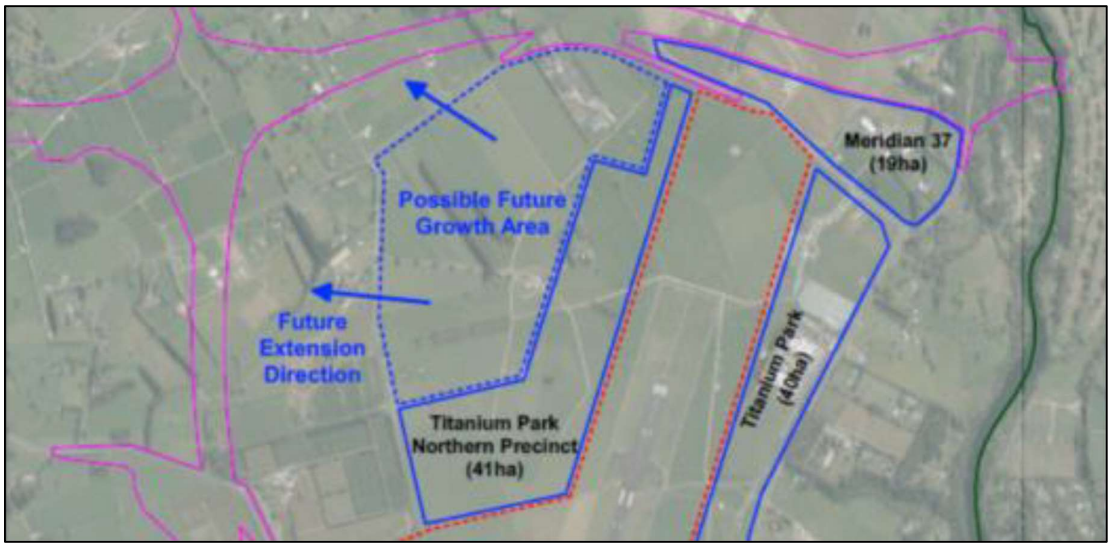
20. The site relates to an approximately 130ha area of land immediately west of Hamilton Airport. It is bound by Raynes Road and Narrows Road to the north, Middle Road,

Ohaupo Road, several rural allotments to the west, and Hamilton Airport to the south and east. The Waikato River flows nearby (approximately 1.2km) to the east.

21. The site contains the balance of land (both airport business and rural zoned land) yet to be developed as part of the Titanium Park Business Park and is known as the '*Northern* Precinct'. Approximately 41ha of the site is Airport Business Zoned land and approximately 89ha is Rural Zone under the Waipā District Plan (the "WDP").

22. Much of the Rural Land is identified under the WDP as being a 'Possible Future Airport Growth Area'. The Hamilton Airport Growth Map, which is contained in Appendix S1 of the WDP (refer to the figure below). This area has also been identified in Appendix S1 of the WDP and is shown in relation to the alignment of Southern Links. The WDP considers that this future extension would provide for future industrial land beyond 2035.

Figure 1: Appendix S1 Hamilton Airport Growth Map dated 14 March 2019



Overview of the Plan Change

23. PC20 will increase the zoned extent of the Northern Precinct at Titanium Park from approximately 41 hectares (now) to approximately 130 hectares in future, thus increasing its ability to accommodate growth in business activities over time. In addition, PC20 provides a small amount of supporting commercial and retail activity to minimise the need for private vehicle travel to meet daily worker and visitor needs. Importantly, the PC20 site is strategically located just east of the Southern Links designation and is only a five-minute drive from Hamilton City's largest future growth node (Peacocke).

NEED FOR PC20 UNDER THE NPS-UD

Recap of Assessment Report

24. My firm – Insight Economics – provided a comprehensive assessment of PC20's likely economic effects, which accompanied the plan change application. Amongst other things, it assessed the need for the proposal under the NPS-UD.

25. While the site falls within Waipā District, my assessment considered the need for PC20 in terms of Hamilton city's broader property market to reflect both its location, and its effective role as part of the city's broader business land market.

26. Although my assessment was completed in 2021, I considered the need for PC20 over a 30-year horizon to 2048 to align with available datasets, such as population projections, which are the key driver of anticipated future industrial land demand.

27. Key industrial nodes were identified from Table 6-2 of the Waikato Regional Policy Statement ("WRPS") and cross-checked against the Future Proof Industrial Land Study 2020 ("FPILS") to identify the remaining feasible capacity.

28. These capacity estimates were then scaled down to reflect various factors beyond the scope of the FPILS that naturally restrict the future rate of industrial land supply, such as lack of development intention, infrastructure constraints, land banking, site shape and topography, contamination, plus operational and financing limits.

29. Reconciling these revised capacity estimates with my population-driven estimates of industrial land demand indicated that additional capacity would be required to meet likely demand across all NPS-UD timeframes (short, medium and long term). In other words, PC20 was justified to meet the requirements of the NPS-UD (to provide at least sufficient capacity at all times).

Findings of the 2021 Business Capacity Assessment (BCA)

30. The latest BCA for the sub-region was published after my assessment for PC20 was finalised. It notes that much of Hamilton City's previous industrial floorspace capacity has been absorbed since the last assessment in 2017, with 96% of the city's remaining vacant industrial land residing in only 2 areas (Te Rapa and Ruakura).[1] However, according to HCC's submission on PC20, both areas face binding constraints that limit

[1] Page 84.

their industrial land supply over the short-medium term (which HCC suggest PC20 can and should help address).

31. Given the high concentration of the city's industrial land in two highly-constrained nodes, it is no surprise that the BCA identified insufficient industrial capacity across all city nodes, except Ruakura. Figure 2 provides the details.

Figure 2: Hamilton City Long Term Industrial Sufficiency Summary (ha)

	Demand Growth + Margin (ha)			Estimated Land Availability (ha)			Sufficiency Measure		
Name	Short Term (+20%)	Medium Term (+20%)	Long Term (+15%)	Short Term	Medium Term	Long Term	Short Term	Medium Term	Long Term
Te Rapa	51.4	177.0	328.7	99.3	99.3	278.0		Insufficient	Insufficient
Chartwell	0.5	1.7	4.8	-	-	-	Insufficient	Insufficient	Insufficient
Frankton	0.8	25.8	92.3	21.1	21.1	21.1		Insufficient	Insufficient
CBD	5.2	21.0	64.5	-	-	-	Insufficient	Insufficient	Insufficient
Ruakura	0.3	6.0	22.0	145.8	212.6	336.6			
Other	4.5	34.2	108.2	4.1	4.1	4.1	Insufficient	Insufficient	Insufficient
Total	**62.7**	**265.8**	**620.6**	**270.3**	**337.0**	**639.7**			

32. The BCA goes on to state that localised industrial land demand exceeds available capacity by the greatest margin across all business land types assessed, especially in Hamilton.[2] Accordingly, it suggests that, where significant localised industrial land shortfalls exist, "demand apportioned to specific reporting areas could easily be met in other parts of the wider sub-region."[3]

33. In other words, there is a degree of flexibility in the matching of industrial land demand to locations. That proposition then leads to the following conclusion about the ability for other areas to help address shortfalls:

> "It makes sense to look at demand and capacity as somewhat trans-locational and see the sub-region as a reasonably well-connected network of nodes. In most cases areas where there are insufficiencies will have adjacent areas with ample capacity which are easy to access or make sense from a co-location point of view." [4]

34. I agree, and consider this conclusion to be particularly relevant to PC20, which is less than three kilometres from the area expected to experience the largest industrial land deficits – Hamilton City – and is only two kilometres from the sub-region's largest population growth node (Peacocke).

[2] Page 89.
[3] Ibid.
[4] Page 90.

Problems with the BCA's Methodology and Conclusions

35. Although I strongly support and endorse the BCA's conclusions about needing additional industrial land to meet the city's looming shortfalls, I consider the BCA to significantly understate the extent of those deficits for several reasons. My analysis contained as **Appendix 1** sets out the details, but to summarise:

(a) The BCA assumes that all vacant industrial land will be feasible to develop, and will be developed, over the next 30 years. In practice, significant tracts won't be feasible to develop or won't be developed regardless, because of various factors that limit market supply. These factors include lack of owner development intentions and/or abilities, land banking, site and infrastructure constraints, plus operational and financial constraints. Consequently, actual future market supply will only ever be a fraction of the BCA's capacity estimates, especially over the short to medium term.

(b) The BCA implicitly treats all sources of capacity as the same, which masks subtle yet important differences across sites and locations. For example, some industrial land users may need very large sites, or to be located near specific customers and/or suppliers. Others require a high stud and/or a large yard capable of handling regular truck movements. Many will also seek a freehold site, and therefore be deterred by leasehold opportunities, such as those at Ruakura. The BCA naturally can't address these fine-grained considerations and instead effectively assumes that all plots of land are perfectly substitutable.

(c) The BCA uses a multi-criteria analysis (MCA) to compare industrial land nodes across the sub-region and to assess whether vacant land resides in desirable areas. Notwithstanding the failure to explicitly consider feasibility, the MCA itself is based on sector views garnered nearly five years ago in January 2018. Clearly, we are in a different market now, both from a macroeconomic perspective, and also in terms of the property market cycle, so relying on such old information has its limitations on choosing where and when to best add new capacity over time.

(d) The BCA implicitly assumes that most of the land earmarked for investigation under the Waikato 2070 strategy could/will become capacity into the future. However, this is immediately qualified by noting that there is no guarantee that the areas under investigation will be re-zoned or result in capacity, but this important caveat is not captured in the broader narrative of the report.

(e) The BCA also does not appear to incorporate the impacts of other national policy statements that have recently been enacted or updated, and which significantly curtail future development opportunities. Specifically, it does not mention the NPS on Freshwater which along with the National Environmental Standards – Freshwater which reduces development capacity, and it was published prior to the NPS HPL, so the impacts of both naturally are not reflected in BCA's assessment of industrial development capacity either.

(f) Page 35 of the BCA states that the airport business zone has been included, but it does not appear in any of the subsequent maps, figures, or tables. This makes it difficult to assess whether or how it has adequately recognised the strategic importance of Titanium Park in meeting future industrial land needs.

(g) The BCA assumes a floor area ratio ("FAR") of 38% for industrial land based on recent development patterns, but the latest data from Core Logic reveals a much lower FAR for industrial buildings developed in the city since 2010 of only 23%. This factor alone reduces the floorspace capacity of vacant industrial land in the BCA by 40%.

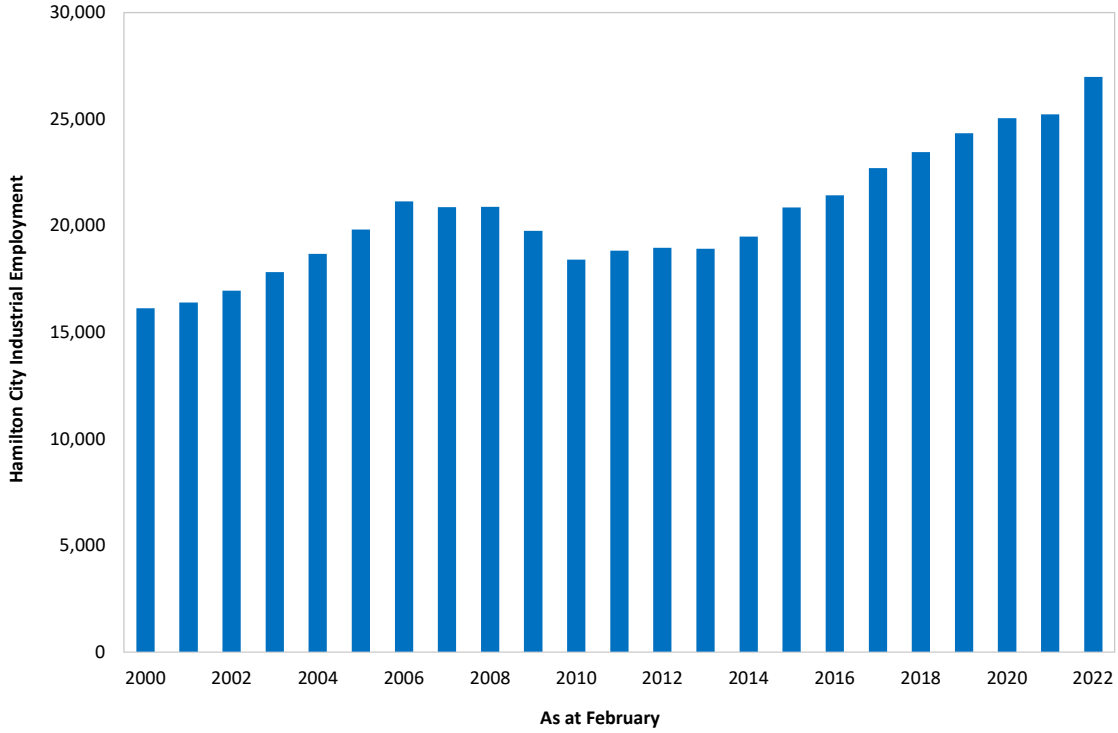
36. Accordingly, the BCA is likely to significantly understate the additional industrial land required to serve future demand and meet NPS-UD obligations.

New Employment/Demand Data

37. The BCA is now 18 months old, and many of its core datasets are even older. For example, its estimates of future industrial land demand are based on employment from February 2020. Fortunately, new employment data are now available, and they signal that industrial land demand will be stronger than the projections in both my previous assessment and the 2021 BCA.

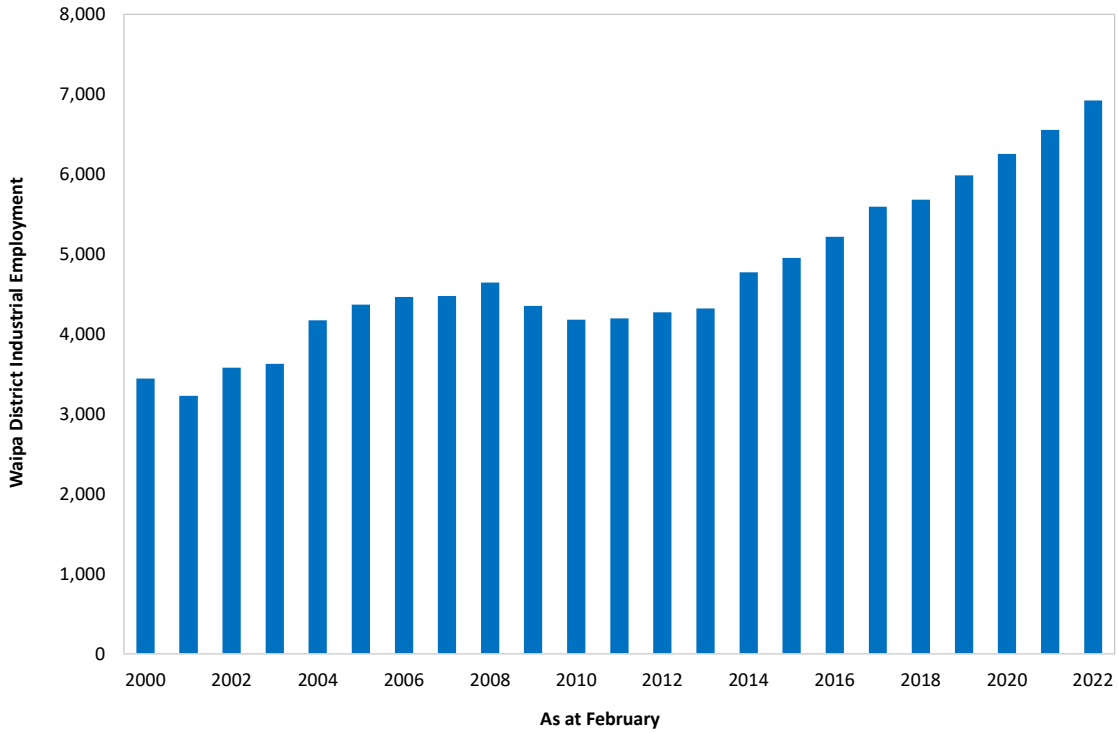
38. To summarise: in my PC20 assessment, I projected city industrial employment to increase from 25,300 workers in 2021 to 26,900 by 2026, an increase of 1,600 jobs. However, my estimate of 26,900 workers by 2026 was already surpassed in February 2022 (i.e. four years early) due to an unparalleled surge in industrial activity since the pandemic. This is demonstrated in the figure below, which plots the city's industrial employment since 2000. The uptick in 2022 is evident, and represents the largest annual percentage change in the city's industrial employment over the last 22 years.

Figure 3: **Hamilton City** Industrial Employment



39. A similar trend has occurred in Waipa, too, as shown in the corresponding industrial employment chart. It is also experiencing significant, sustained growth in industrial employment that is unlikely to be fully reflected in the BCA's demand estimates.

Figure 4: **Waipa District** Industrial Employment



Updated Supply Information

40. As noted in the 2021 BCA, most of Hamilton City's previous industrial floorspace capacity has been absorbed since the last assessment in 2017. To provide an up-to-date snapshot, I used Core Logic's Property Guru tool to extract data for all parcels classified as vacant industrial land (as at 15 February 2023). This returned 264 properties, but nearly 10% included some degree of improvements, so were omitted.[5]

41. The final sample therefore included 241 properties with a total vacant land area of 583ha. While that may appear sizable, these parcels are heavily concentrated in a small number of areas, as also noted in the HBA. In fact, the 10 largest sites accounted for 70% (403 ha) of total vacant land, and all are in areas that I understand (from the HBA and HCC's submission on PC20) are heavily constrained. Consequently, they are unlikely to contribute meaningfully to supply over the short to medium term.

42. Putting those 10 large sites aside, there are 231 parcels spanning 180 hectares. The median size is 3,000m^2 and the average was just under 7,800m^2. Only 10% (23 parcels) were two hectares or larger.

43. Importantly, nearly three-quarters of this capacity resides in the city's northern reaches[6] and therefore caters to a slightly different sub-market to Titanium Park. Further, and most critically, only a tiny share of this capacity is currently on the market and hence is truly contributing to short-term supply.

44. To quantify vacant industrial land available today, I searched several online property websites[7] and collated data on all available parcels in Hamilton City, plus Horotiu to the north, and the airport to the south. This geographic scope matches that of my earlier PC20 assessment (which was based on the FPILS) and, in my view, represents the broader industrial land market in which PC20 would operate.

45. Consistent with the discussion in my assessment report, actual supply as at 21 February 2023 is only a fraction of the supposed feasible, short-term capacity reported in the 2021 BCA (of 270.3 hectares in the city alone over the short-term).

46. In fact, I was able to find only 18 vacant industrial sites available for development, as listed in the table below, with a total land area less than 12 hectares. Of that, only five

[5] These improvements were typically on small lots (up to 2,000m^2) and had FARs of up to 15%. Some very large lots (5 ha+) also contained minor improvements but were retained and treated as purely vacant for this exercise.
[6] Burbush, Pukete, Rotokauri, Horotiu, and Te Rapa.
[7] Oneroof, Property Guru, TradeMe Property, and RealEstate.co.nz.

sites with a total land area of 2.1 hectares are located within the city's boundaries. Accordingly, there is almost no vacant industrial land currently available in the city, and very little in the pockets immediately to the north (Horotiu) and south (Airport).

Table 1: Currently Available Industrial Land in Hamilton City + Horotiu + Airport

Suburb	Address	Land Area m²
Airport	Lot 2, 147 Ingram Road	2,668
	135 Ingram Road	2,500
	7 John Spencer Way	10,284
	Lot 21, Stage 5 Central Precinct, Ossie James Drive	2,284
	Lot 23, Stage 5 Central Precinct, Ossie James Drive	4,110
	Lot xx, Stage 5 Central Precinct, Ossie James Drive	3,500
Burbush	30 Chalmers Road	4,331
Frankton	4 Sloper Avenue	503
Horotiu	Lot 16, Northgate Business Park	23,421
	Lot A, Northgate Business Park	4,540
	Lot B, Northgate Business Park	5,910
	Lot C, Northgate Business Park	5,360
	Lot 9, Northgate Business Park	18,930
	136 Kohia Drive	10,000
	15 Evolution Drive, Northgate Business Park	5,000
Te Rapa	Lot 18 Earthmover Crescent	5,000
	Lot 56, Te Kowhai Road East	10,013
	25 Earthmover Crescent	1,239
Totals		**119,593**

Revised Short-Term Supply/Demand Estimates

47. Based on my research and analysis, as presented above, I categorically reject the BCA's assumption that 270.3 hectares of vacant land will be available for industrial development over the short-term. Current, actual market supply is only 11.9 hectares, which is 96% lower. In addition, I consider the BCA's estimates of industrial land demand woefully inadequate, particularly given the latest industrial employment data plotted above.

48. Accordingly, to assist the panel, below I provide updated estimates of short-term supply and demand to help evaluate the immediate need for PC20 under the NPS-UD.

Revised Short-Term Demand Estimate

49. The BCA estimates 62.7 hectares of industrial land demand in the city over the short-term to 2023, which it derives by:

    (a) translating forecast population growth into increased employment by sector based on assumed employment rates and the future composition of the local economy;

(b) mapping each sector to various land use types, including five industrial activities, to derive projected growth in industrial employment by type (e.g. warehouse, factory, yard-based industrial, and so on).

(c) Overlaying estimates of land per worker by industrial land use type and aggregating to reach estimated demand of 62.7 hectares from 2020 to 2023.

50. To provide a revised short-term demand figure that is a true like-for-like comparison with the BCA's own demand estimates, I reverse-engineered its calculations of short-term industrial land demand, and used those to provide updated projections.

51. To begin, Table ***2*** compares the BCA's assumed 3-year growth in employment by high-level sector to actual growth over the last 2 years (from 2020 to 2022).[8]

Table 2: BCA Projected 3-Year Employment Growth vs 2-year Actual Employment Growth

High Level Industries/Sectors	BCA 3-year Projection	Actual 2-year Change	Variance	Variance %
Agriculture, Forestry and Fishing	720	-3	-723	-100%
Mining	90	-43	-133	-148%
Manufacturing	380	727	347	91%
Electricity, Gas, Water and Waste Services	100	222	122	122%
Construction	1,030	2,721	1,691	164%
Wholesale Trade	250	504	254	102%
Retail Trade	220	530	310	141%
Accommodation and Food Services	300	318	18	6%
Transport, Postal and Warehousing	30	363	333	1108%
Information Media and Telecommunications	50	397	347	694%
Financial and Insurance Services	220	317	97	44%
Rental, Hiring and Real Estate Services	10	-77	-87	-867%
Professional, Scientific and Technical Services	790	1,141	351	44%
Administrative and Support Services	840	525	-315	-37%
Public Administration and Safety	310	-500	-810	-261%
Education and Training	550	295	-255	-46%
Health Care and Social Assistance	650	1,897	1,247	192%
Arts and Recreation Services	70	-223	-293	-419%
Other Services	310	63	-247	-80%
Totals	**6,920**	**9,175**	**2,255**	**33%**

52. Table ***2*** shows that growth over the past two years has exceeded the BCA's estimates of three-year (i.e. short-term) growth projection by 33% in total, with much higher variances occurring in specific sectors.

[8] The BCA uses modified employment counts (MECs), which are designed to include owner-operators. My analysis, conversely, uses "normal" employment counts (ECs), which do not include owner-occupiers. Accordingly, to ensure that the two datasets are denominated in consistent terms, I adjusted the employment count data – by the ratio of MECs to ECs by industry – to convert them to MECs. All references to employment counts in the remainder of this section are therefore stated in MEC terms, not ECs.

53. For example, employment growth over the last two years in the transport, postal and warehousing sector, which is a key pillar of industrial land demand, was 1,108% higher than the BCA had projected for the three-year period. Similarly, two-year growth in manufacturing – another key industrial sector – was 91% higher than the BCA's three-year forecast, while construction was 164% higher, and wholesale trade was 102% higher. All of these are key industrial sectors, and their recent growth rates are much higher than the BCA had forecast.

54. To convert growth over the last two years to a three-year projection – to match the short-term period of 2020 to 2023 used in the BCA – I assumed that growth between 2022 and 2023 would be half the rate observed in the previous two years. This limits growth over the full three-year period and ensures that my analysis is as conservative as possible.

55. Having derived three-year employment projections by high level sector, I then overlaid the BCA's estimates of industrial activity associated with each to yield forecast growth in industrial employment by land use type. Finally, I overlaid the BCA's estimates of industrial land per worker to derive my revised estimate of short-term industrial demand for the city.

56. Overall, my analysis produced a revised short-term demand estimate of 137 hectares, including a 20% competitiveness margin. This is almost 120% higher than the 62.7 hectares estimated in the BCA, and naturally reflects the significantly higher-than-expected growth in industrial sectors since 2020.

Revised Short-Term Supply Figure

57. As noted earlier, the BCA estimates short-term, city supply of more than 270 hectares, which is broken down geographically as follows:

    (a) Te Rapa – 99.3 hectares

    (b) Frankton – 21.1 hectares

    (c) Ruakura – 145.8 hectares

    (d) Other – 4.1 hectares.

58. While it is not obvious how the BCA landed on these short-term capacity estimates, they are nearly 20 times higher than current, actual market supply of just under 11.9 hectares (as reported above). When attention is restricted only to nodes that fall within the city's

boundaries (i.e. excluding Horotiu and the airport) actual, current market supply is only 2.1 hectares. This is more than 100 times lower than the BCA's figure of 270.3 hectares.

59. Although a forensic review of the likely supply from each key industrial node is well beyond the scope of this evidence, I have canvassed this with the wider project team.[9] Collectively, they noted that:

(a) Ruakura is fundamentally constrained over the short-term due to infrastructure deficits, which explains none of its land is currently being on the market.

(b) Te Rapa North – this is a deferred zone that is largely owned by Fonterra, and which I understand has no immediate plans for subdivision or release to the market. In any case, it is located on the opposite side of the city and therefore arguably caters to a different submarket to the PC20 site.

(c) Te Rapa – All remaining vacant sections are understood to have been retained by Chalmers Property for design, build & lease. Hence, there is no land left for sale/purchase.

60. Given the status of these key industrial nodes, and noting that there is only 11.9 hectares of land in the broader Hamilton City market available today, I have conservatively estimated short-term supply of (say) 50 hectares**.** This is roughly four times the level of current supply,[10] and acknowledges that new sections may become available over the next year or so.

Revised Short-Term Supply/Demand Balance

61. Given my revised short-term demand estimate of 137 hectares and corresponding supply estimate of 50 hectares, I estimate a short-term deficit of 87 hectares of industrial land.

Implications for PC20

62. The total size of the Northern Precinct, including the land associated with PC20, is approximately 130 hectares. However, approximately 40% will be used for roads, reserves, and other infrastructure. This leaves a total developable area of just under 80 hectares ignoring the effects of setbacks and landscaping etc.

[9] In particular, Rob Dol from Greenstone Group, who is the client representative for TPL..
[10] And it is also 25 times higher than currently supply within the city's boundaries.

63. With an estimated short-term shortfall of 87 hectares, the entire Northern Precinct – including PC20 – is required to meet NPSUD obligations (to provide at least sufficient capacity at all times).

64. When a medium-term view (out to 2030) is adopted, the need for PC20 becomes even greater as the gap between supply and demand grows over time.

ECONOMIC RATIONALE FOR AND BENEFITS OF PC20

65. The main economic rationale for PC20 is to provide additional industrial land supply to meet rapid growth in demand, as just set out above. In doing so, PC20 will unlock a suite of important and enduring economic benefits. They include:

(a) *Land Market Competition* – the Northern Precinct will provide a substantial boost in sub-regional land supply that will directly compete with industrial land provision elsewhere. This competition, in turn, will ensure that new industrial land is brought to the market in a timely and efficient manner and at a lower average cost than it likely would do otherwise.

(b) *Support for Regional Economic Development* – the proposal will support and foster regional economic growth by providing a strategic location for new land uses to establish over time.

(c) *Synergies/Agglomeration* – the proposal expands an existing urbanised/developed area and therefore enables agglomeration benefits to occur. These are economic efficiencies that arise when economic activities cluster together, such as reduced transport costs, and improved productivity.

(d) *Infrastructure Efficiency* – the development will be largely self-sufficient for infrastructure, and thus avoid significant costs and risks on the Council. Plus, it will provide a significant user/customers of the metro wastewater pant being advanced by HCC.

(e) *Economic Stimulus of Construction* – the process of planning for, designing, constructing, and fitting out the buildings that will occupy the additional land will create jobs and incomes for district workers. Including flow-on effects, I estimate that developing the additional GFA enabled could generate a one-time boost in regional GDP of $130 million; create employment for 1,440 people-years; and boost household incomes by $70 million.

(f) *Proximity to Strategic Transport Routes* – not only is the airport part of the golden triangle, but its immediate proximity to key national freight routes also make it a strategic location to accommodate growth in industrial activity over time.

(g) *Highest & Best Use of Land* – the subject land is currently used for low-value rural purposes, while the proposal enables it to be put to a higher and better use, thereby supporting the overarching purpose of the RMA (which is to enable the sustainable management of natural and physical resources).

ANALYSIS OF RETAIL IMPACTS/RESPONSE TO THE JWS

Recap of Assessment Analysis and Findings

66. Although PC20 is primarily an industrial proposal, it also includes provisions for supporting non-ancillary retail activities to meet the daily needs of workers, businesses, and their customers/suppliers.

67. Specifically, PC20 seeks to enable up to 5,000m^2 of non-ancillary retail subject to certain conditions, including that:

(a) Individual tenancies will not exceed 450m^2 of gross floor area ("GFA"); except

(b) One tenancy of up to 1,000m^2 is allowed but it must primarily sell pre-prepared fresh food/groceries and beverages, but may also sell non-food goods in an ancillary capacity; and

(c) All non-ancillary retail must locate either in the hub or a specifically-identified area near the western edge of the PC20 site. Resource consents for retail elsewhere in the Northern Precinct will be processed as non-complying activities.

68. In my assessment report, I acknowledged these provisions and noted that they are rightfully designed to avoid adverse effects on the vitality and viability of other centres in the sub-region (as required by the WRPS).

69. Next, I assessed any potential adverse effects arising by identifying potentially at-risk centres, assessing their size/role/function/health/vitality, and then considering the likely impacts of the proposed retail provisions on them.

70. The analysis was confined to the three closest existing major centres, namely Cambridge, Te Awamutu, and the Hamilton CBD, but I also acknowledged that the site

was very close to the future Peacocke suburban centre. In hindsight, I now also acknowledge the proximity of the Tamahere Village centre.

71. For each of the three "at-risk" centres, I profiled their roles and functions using employment data and concluded that they all fulfil much broader roles/functions than just being shopping destinations. Instead, all three form the civic, commercial, recreational, and entertainment hearts of their respective areas.

72. Then, I assessed their health and vitality based on their then-current vacancy rates and showed that the retail provision earmarked for the airport was many times smaller than the current retail activity in each at- risk centre.

73. Finally, I concluded that the proposed retail provisions would not cause any material adverse effects on those other centres because:

(h) Future onsite retail will be aimed only at meeting the daily needs of workers and visitors, rather than having broader appeal for a wider mass market; and

(i) The amount of extra retail proposed is small compared to the centres assessed; and

(j) Not only are those nearby centres much larger, but they also fulfil various roles and functions, most of which would not be affected.

Retail Issues Raised in JWS

74. Expert conferencing on retail (and related planning matters) was held on 9 February 2023, and culminated in a Joint Witness Statement ("JWS") dated the same day.

75. As recorded in the JWS, agreement was reached between all participants on several important matters, including that:

(a) The current retail definitions in the Waipa District Plan appropriately control retail activity within the Northern Precinct.

(b) It is appropriate for some level of retail to be enabled with the Northern Precinct to meet the needs of the future workers, businesses, and their customers/suppliers.

(c) The level of Retail within the Northern Precinct should not undermine "the vitality and viability of existing commercial centres" as directed by the WRPS.

(d) Surplus retail GFA from the other precincts in the Airport Business Zone cannot be transferred to the Northern Precinct under Rule 10.4.2.11(A). This is because the total Retail GFA limit is ringfenced / separated between the Northern Precinct and other precincts.

76. However, despite agreement on those important factors, agreement could not be reached on the appropriate size of a non-ancillary retail cap for the Northern Precinct.

Further Analysis of Likely Retail Impacts

77. Based on the retail assessment in section 10 of my plan change report (as summarised above), and as reiterated in the JWS, I strongly consider that up to 5,000m^2 of non-ancillary retail activity in the Northern Precinct will not adversely affect the health and vitality of other centres. The threshold for significance is high, and effects must go well beyond those of ordinary trade competition to be relevant.

78. In my view, 5,000m^2 of non-ancillary retail is far too small to be a credible threat. For context, Property Guru reports that there are currently 870 parcels in the city used for retail activities that span more than 540,000m^2 of GFA, which is 108 times larger than the proposed non-ancillary retail provisions in PC20.

79. However, for completeness, I used my firm's *Integrated Retail Model* (IRM) to formally assess the likely trade impacts of PC20's proposed non-ancillary retail provisions. Based on issues raised in submissions and/or expert conferencing on retail, I focussed on potential impacts on the future Peacocke Local Centre, and the nearby Tamahere Village (which HCC and WRC appear to mostly be concerned about).[11]

80. The IRM integrates real-world data from a range of sources and has been gradually developed over the last 10 years. It has accurately predicted real world transactions worth billions of dollars across all major urban areas of New Zealand.

81. Its high predictive power is achieved by emulating the predictable nature of shopping behaviour, where shoppers are naturally attracted to stores that are large and/or nearby. Leveraging these basic principles and integrating real world data from various sources, the model provides a reliable basis upon which to estimate the impacts of retail

[11] I acknowledge that HCC also raised concerns about potential impacts on Glenview, but this is further away than Peacocke and Tamahere, plus it is an established centre in a mature suburb. Consequently, I do not consider it to be at risk. For the record, though, I note that trade impacts on Glenview will be lower than those for Peacocke and Tamahere given its greater distance from the Northern Precinct.

developments. It was also the subject of a detailed peer review by Greg Akehurst of Market Economics during a recent Environment Court appeal,[12] where both its inputs and outputs were validated and a close match with those of the peer reviewer's own model.

82. To formally estimate trade impacts for a given scenario, the model is run twice. First, the proposed PC20 retail provisions are excluded to estimate the baseline turnovers of existing stores absent it. Then, the model is run again including PC20's retail allowance. By holding total sales constant between runs, each dollar turned over by prospective future retailers at the Northern Precinct represents a dollar diverted from elsewhere, which reveals the proposal's likely trade impacts.

83. Because the Peacocke Local Centre is not yet developed and will occur only once sufficient critical mass has established there, I ran the model at a future date of 2033. By then, PC20's retail provisions are likely to be largely operative, as is the Peacocke Local centre. However, changing this date by a few years either way has no real impact.

84. I was also unsure what sort of retail mix might emerge at the Northern Precinct and at the Peacocke Local Centre, so I ran a "most likely scenario" and then considered the likely impacts of variations thereon.

85. To maximise trade impacts on the Peacocke Local centre, I assumed identical retail mixes for it and future retail activities on the PC20 land. In addition, based on work by Market Economics for HCC, I assumed that the Peacocke Local Centre would have 12,500m^2 of core retail GFA, with the Northern Precinct having 5,000m^2. Thus, in effect, I assumed that all non-ancillary retail enabled at the Northern Precinct would be "core retail" to maximise its impacts on other centres.

86. The table below shows the assumed retail mixes at the Northern Precinct and the future Peacocke Local centre, along with the actual/current core retail mix at Tamahere Village. In short, consistent with their typical roles and functions, I assumed that most future retail activity at the Northern Precinct and the Peacocke Local Centre would be food-related. This includes food retailing, plus food and beverage services. However, in addition, I also allowed for a small amount of core retail across all store types except department stores, which are too large to fit in the Northern Precinct given the 1,000m^2 tenancy size cap.

[12] Environment Court Appeal for Plan Change 30 (Ravenswood) in Waimakariri District.

Table 3: Actual and Assumed GFA by Centre for Most Likely Scenario

Core Retail Store Types	Northern Precinct	Peacocke Local Centre	Tamahere Village
Clothing, footwear, and personal accessories retailing	250	625	0
Department stores	0	0	0
Electrical and electronic goods retailing	500	1,250	0
Food and beverage services	1,500	3,750	657
Food retailing	1,500	3,750	400
Furniture, floor coverings, houseware, and textile goods retailing	250	625	0
Hardware, building, and garden supplies retailing	500	1,250	0
Pharmaceutical and personal care goods retailing & other	250	625	190
Recreational goods retailing	250	625	72
Totals	**5,000**	**12,500**	**1,319**

87. My final task before running the model was to capture the considerably higher employment enabled by PC20 at Titanium Park, which will result in higher spending by future employees in and around the airport.

88. The table below shows the impacts on the two nearby centres of enabling the 5,000m^2 of non-ancillary retail proposed for the Northern Precinct.

Table 4: Estimated Trade Impacts for Most Likely Scenario ($ millions ex GST)

Peacocke Local Centre	w/out PC20 Retail	With PC20 Retail	Trade Impact %
Clothing, footwear, and personal accessories retailing	$5.08	$5.04	-0.8%
Electrical and electronic goods retailing	$11.84	$11.62	-1.8%
Food and beverage services	$15.51	$15.30	-1.3%
Food retailing	$50.62	$49.85	-1.5%
Furniture, floor coverings, houseware, and textile goods retailing	$3.03	$3.00	-0.8%
Hardware, building, and garden supplies retailing	$7.75	$7.70	-0.6%
Pharmaceutical and personal care goods retailing & other	$3.90	$3.87	-0.6%
Recreational goods retailing	$3.30	$3.27	-0.8%
Peacocke Local Centre Total	**$101.01**	**$99.66**	**-1.3%**
Tamahere Village Centre	**w/out PC20 Retail**	**With PC20 Retail**	**Trade Impact %**
Food and beverage services	$1.79	$1.77	-1.5%
Food retailing	$3.14	$3.06	-2.5%
Pharmaceutical and personal care goods retailing & other	$0.85	$0.84	-0.7%
Recreational goods retailing	$0.31	$0.31	-0.8%
Tamahere Village Centre Total	**$6.09**	**$5.98**	**-1.8%**

89. To summarise: I estimated that the most likely non-ancillary retail scenario for Northern Precinct would have little impact on the likely future trade of both the future Peacocke Local centre, and the existing Tamahere Village centre. The maximum trade impact for any store type was only 2.5%, and the total across all store types was 1.3% for the former, and 1.8% for the latter.

90. These impacts are immaterial and nowhere near the threshold to be significant in RMA terms. Accordingly, I conclude that PC20's retail provisions will not affect the viability or vitality of other centres in the sub-region and therefore complies with WRPS directives in that regard.

91. For the record, I note that running other retail mixes through the model has very little impact on the trade impacts, particularly on a centre wide basis, so I have not presented the details here. Suffice to note that trade impacts remain below 2% on a centre wide basis and thus remain well below the threshold of significance.

Comments on Other Retail Issues Raised in the JWS

92. Denzil Govender from HCC recommended that ancillary retail in PC20 be limited to 10% of GFA despite no such limits applying in Hamilton City itself. I am not aware of any data or evidence to support his position.

ASSESSMENT AGAINST CLAUSE 3.6 OF NPS HPL

Introduction

93. The NPS-HPL came into force on 17 October 2022 and aims to protect our most productive land for land-based production, both now and in the future. It requires Councils to map highly productive land ("HPL"), and closely manage the subdivision, use and development of it by avoiding inappropriate use and development.

Criteria for Rezoning – Clause 3.6(1)

94. Clause 3.6 of the NPS-HPL allows Tier 1 and 2 territorial authorities[13] to allow the rezoning of HPL if three criteria are met. They are that:

    (k) the urban rezoning is required to provide sufficient development capacity to meet demand for housing or business land to give effect to the NPS-UD;[14] and

[13] Under the National Policy Statement on Urban Development 2020.

[14] NPS-UD clause 3.3 requires all local authorities to provide at least sufficient development capacity to meet expected demand for business land from different business sectors and in the short, medium and long term. To be sufficient the development capacity must be plan-enabled and infrastructure ready and suitable to meet demands of different business sectors and meet the expected demand plus the appropriate competitiveness margin.

(l) there are no other reasonably practicable and feasible options for providing at least sufficient development capacity within the same locality and market while achieving a well-functioning urban environment; and

(m) the environmental, social, cultural, and economic benefits of rezoning outweigh the long-term environmental, social, cultural, and economic costs associated with the loss of highly productive land for land-based primary production, taking into account both tangible and intangible values.

95. I now assess PC20 against clauses 3.6(1)(a) and (c) of the NPS HPL, as set out above, from an economic perspective. Clause 3.6(1)(b) is being addressed by others.

Need for Proposal to Meet NPSUD Obligations – Clause 3.6(1)(a)

96. My PC20 assessment, the BCA, and the new data summarised above, all confirm that PC20 *is* needed to give effect to the NPS-UD over the short-term, so I consider that the proposal satisfies clause 3.6(1)(a) of the NPS-HPL.

Overall Economic Costs and Benefits – Clause 3.6(1)(c)

Introduction

97. Clause 3.6(1)(c) of the NPS-HPL requires the overall costs and benefits of any proposed rezoning to be compared to the most likely uses of the land for rural production absent it. This is not limited to economic matters, but also social, cultural, and environmental.

98. Below I assess the likely economic costs and benefits of the proposal relative to potential rural production to inform the broader analysis under this clause. First, however, I summarise a literature review performed to find the best structure for the analysis.

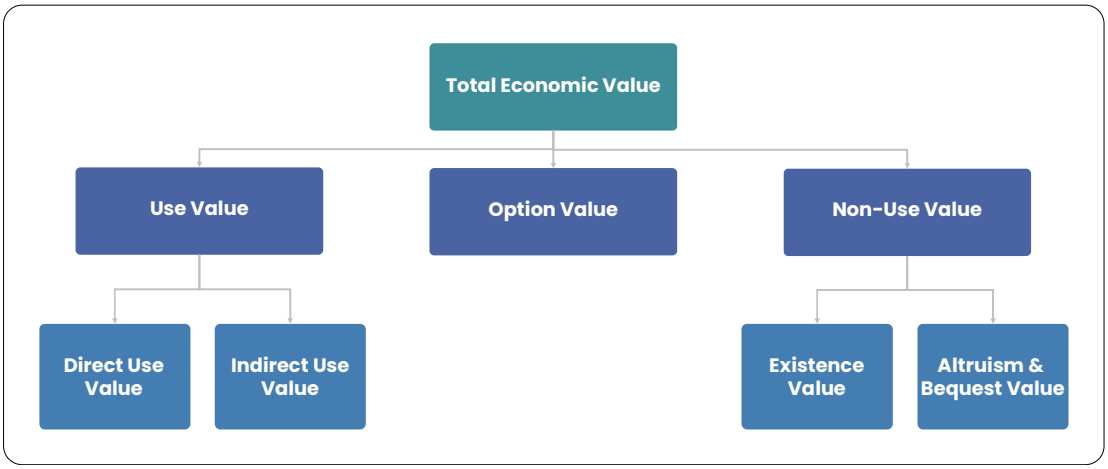
Literature Review

99. I briefly reviewed the New Zealand literature on the economic analysis of competing land uses and was quickly led to a 2013 paper titled "Total Economic Value of New Zealand's land-based ecosystems and their services" (Patterson 2013).[15] It is widely cited by other studies and appears to be the most authoritative, current work of its kind. Accordingly, I rely on it here. For completeness, I acknowledge that this matches the approach set out in the implementation guide of the NPS-HPL.

[15] https://www.landcareresearch.co.nz/assets/Publications/Ecosystem-services-in-New-Zealand/3_2_Patterson.pdf

100. The paper adopts the total economic value ("TEV") framework, which has been widely used in environmental economics since the 1980s to help capture the full spectrum of economic effects, not just those that are readily quantifiable. While the exact structure of the TEV framework often differs from one study to the next, the figure below shows its key components.

Figure 5: Total Economic Value (TEV) Framework



101. In the TEV framework, economic value is divided into those arising from the use and non-use of resources, including possible future use (known as option value).

102. Use values are subdivided into those that flow directly from use, such as food production, and those that flow indirectly, such as changes in air or water quality due to agricultural practices.

103. Non-use values include the benefit that people receive from knowing that something exists, even if they never plan to visit it (existence), plus the benefit of preserving things for the benefit of others both now (altruism), and in future (bequest).

104. Patterson 2013 apply this framework to 12 land-based ecosystems to quantify the economic value that each provides. They split use values into the following four parts to reflect the delivery of different ecosystem services:

a. **Provisioning services** – such as the growing of arable/horticultural crops, plus the rearing of animals for meat and/or milk production.

b. **Regulation services** – which refers to the regulation of biophysical and ecological processes to support life and provide a suitable habitat for human existence.

c. **Cultural services** – which includes spiritual fulfilment, aesthetics, education, scientific knowledge, and cultural wellbeing.

d. **Support services** – which support provisioning and regulating services nutrient cycling, soil formation, and the provision of habitat. However, these are usually excluded from the formal assessment of TEV because they are already included elsewhere and hence cause double-counting.

105. The table below summarises the TEV's estimated by Patterson 2013 using this approach (all values expressed as millions of New Zealand dollars).

Figure 6: TEV of Land-Based Ecosystems from Patterson 2013

Ecosystem type	Use value				Passive value	Gross value[1]	Net value[2]
	Supporting value	Regulating value	Provisioning & cultural value	Total			
Standard ecosystems							
Horticulture & cropping	23	3	2,265	2,291	Note 3	2,291	2,268
Agriculture	7,751	3,345	9,075	20,171	Note 3	20,171	12,420
Intermediate agric–scrub	1,897	1,630	1,112	4,639	Note 3	4,639	2,742
Scrub	609	531	5	1,144	Note 3	1,144	535
Intermediate agric–forest	402	352	218	973	Note 3	973	571
Forest–scrub	704	614	129	1,447	Note 3	1,447	743
Forest	3,495	3,056	7,631	14,182	Note 4	14,182	10,687
Wetlands	3,599	4,103	1,020	8,722	350	9,072	5,473
Estuaries	1,026	314	109	1,449	211	1,659	634
Mangroves	0	103	0	103	41	144	144
Lakes	1,735	544	4,671	6,950	885	7,836	6,101
Rivers	1,289	404	3,470	5,164	1,434	6,597	5,309
Heritage ecosystems							
National parks	Note 5	Note 5	Note 5	Note 5	7,164	7,164	7,164
Forest parks	Note 5	Note 5	Note 5	Note 5	743	743	743
Land reserves	Note 5	Note 5	Note 5	Note 5	1,218	1,218	1,218
Total	22,530	15,000	29,705	67,235	12,045	79,280	56,749

[1] Gross value = use value + passive value

[2] Net value = use value + passive value − supporting value

[3] The passive value of these standard ecosystems could not be estimated due to the lack of data. It is probably small compared with the passive value of the heritage ecosystems.

106. I now compare the likely economic costs and benefits of PC20 to foregone highly productive land for rural production using this framework. I begin with the TEV of PC20.

TEV of PC20 – Direct Use Impacts

107. My economic assessment for PC20 estimated the one-off impacts of constructing the various buildings expected to occupy the Northern Precinct expansion. Those estimates are reproduced below and represent only the one-off impacts of establishing each activity, not the annual impacts of their ongoing operations.

Table 5: One-Off Regional Economic Impacts of Construction

Regional Impacts	Direct	Flow-on	Total
GDP $m	$46m	$84m	$130m
Employment (people-years)	510	930	1,440
Household Incomes $m	$30m	$40m	$70m

108. To summarise: Including flow-on effects, I estimated that development of the additional GFA enabled by the proposed expansion could:

(a) Generate a one-time boost in regional GDP of $130 million;

(b) Create employment for 1,440 people-years[16]; and

(c) Boost household incomes by $70 million.

109. To estimate the corresponding annual impacts once operational, I assumed that 30% of the approximately 89 hectares subject to the NPS-HPL would be required for infrastructure, roads, and reserves, which leaves approximately 63 hectares of land for industrial and other business uses (ignoring setbacks and landscaping). This was converted to an estimate of likely future employment using data in the latest BCA, which included measures of employment per hectare of land by activity. The table below shows the employment figures per hectare for the most relevant activities in the BCA and applies some estimated weights to derive an average for the northern precinct once built out.

Table 6: Estimated Land per Employee (from 2021 BCA)

Land Uses	Land/Employee	Assumed Share
Offices	25	5%
Warehouse	420	30%
Factory	345	30%
Yard-Based	200	5%
Other Industrial	150	30%
Weighted Average	**285**	**100%**

110. Table 7 shows that the assumed mix of industrial and business activities in the northern precinct will sustain about 1 employee per 285 square metres of land. With 63 hectares of developable land assumed to be available, this translates to total employment for 2,210 FTEs.

111. To estimate the corresponding wages/salaries and annual GDP, I reviewed Statistics New Zealand's latest input output tables, which summarise the national economy's overall structure and reveal the employment and GDP per dollar of output. The table

[16] One person-year means one person employed for a full year. Hence, 100 people-years could mean 100 people employed for one year, 50 people employed for two years, and so on.

below summarises the key information for a handful of industries that I consider to be the most likely future uses of the land under the PC20 scenario.

Table 7: Average Output, GDP, and Wages **per Employee** from National IO Tables

Industrial Sectors	**Output**	**GDP**	**Wages**
Construction	$405,400	$124,000	$67,000
Manufacturing	$462,300	$124,300	$69,400
Transport, Postal and Warehousing	$294,100	$133,500	$73,000
Wholesale Trade	$262,800	$124,000	$69,700
Industrial Average	**$356,150**	**$126,450**	**$69,775**

112. Applying these per employee estimates to the 2,210 workers projected to fill the Northern Precinct upon full build-out suggests that the land could have the following annual economic impacts if used for industrial purposes:

(d) Output/revenue of $787 million;

(e) Employment for 2,210 FTEs;

(f) Wages/salaries of $154 million; and

(g) GDP of $279 million.

TEV of PC20 – Indirect Use Impacts

113. Compared to ongoing rural production, PC20 will also sustain a range of other economic benefits, which I believe would are classified as indirect use values in the TEV framework. They include:

(h) Greater critical mass to establish around the Titanium Park over time including the 41ha of Airport Business zoned land in the Northern Precinct, which will help achieve agglomeration efficiencies. These arise through the co-location of economic activities, which helps reduce transport costs and lifts the average productivity of firms (for example, through the sharing of labour, assets, and ideas);

(i) Maximising infrastructure efficiency by spreading the costs of bulk network upgrades over a greater land area and/or a larger number of lots;

(j) Creating synergies with planned investments in roading and wastewater capacity, while ensuring a planned and integrated approach to land use and infrastructure provision;

(k) Enabling the site's locational benefits to be maximised, including its multimodal potential (connecting road and rail with air);

(l) Providing an easily accessible employment node to meet employment growth arising from the adjacent Peacocke growth cell; and

(m) Providing certainty to encourage investment in the airport.

TEV of Rural Production ***– Direct Use Value***

114. Mr Hunt of AgFirst has reviewed the site's rural productive potential and concluded that the blocks that comprise the site are compromised and limited to alternative productive uses including lack of suitable infrastructure. In addition, the proximity of the sites to the airport and rural residential areas renders them unsuitable for horticultural because of the need for regular spraying, and the potential to attract birds which are a risk for the airport.

115. Further, Mr Hunt notes that both blocks lack improvement options, the RPL site is impacted by fragmentation and its small size, and there is limited infrastructure of that ilk available nearby. Finally, the sites would require irrigation to be successful in any dairy, horticulture or commercial vegetable operation, and this is not guaranteed with surface water being fully allocated, and groundwater yields often not matching demand requirements.

116. I reviewed a range of information sources to determine the likely jobs, incomes, and GDP sustained by the land if continued to be used for maize production. My search led to an online maize grain calculator[17], which showed that each hectare of land used for maize generates about $6,000 of revenue per annum, and nearly $2,000 of earnings before interest, taxes, depreciation, and amortisation (EBITDA).[18]

117. To estimate the corresponding jobs and GDP, I revisited the literature and found various datapoints. For example, a recent BERL report suggested that the total labour input for maize silage farms in NZ was 0.027 FTE/ha.[19] This is a very close match with a 2013 study of the rural productive potential of various greenfield sites in and around Auckland,

[17] https://www.pioneer.co.nz/product-range/maize-for-grain/maize-grain-calculator

[18] EBITDA is a standard measure of financial performance, which can be combined with the wages and salaries paid to directly infer the level of GDP sustained. We leverage that relationship here to estimate ongoing contributions to GDP for maize.

[19] https://www.uwg.co.nz/content/documents/2019%20September%206%20AFIC%20Arable%20Production%20Final.pdf

which produced an employment estimate for various rural uses of 0.029 FTE/ha.[20] For simplicity, I took the average employment estimate across the two studies of 0.028 FTE/ha. Based on the latest TradeMe salary guide, I assumed an average wage of $60,000 per FTE, which is slightly higher than the reported national average for agricultural workers.[21]

118. Applying these per hectare estimates to the 90 hectares proposed for rezoning via PC20 suggests that the land could have the following annual economic impacts if used for maize production:

(n) Output/revenue of $540,000;

(o) Employment for 3 FTEs;

(p) Wages/salaries of $180,000; and

(q) GDP of $420,000.

119. These values are negligible, providing full time employment for only three people. Table 8 elaborates by comparing the GDP, jobs, and wages of each option. Clearly, PC20 is superior in terms of direct use values (i.e. sustaining meaningful economic activity). However, there other facets of TEV to consider before reaching a conclusion on the overall economic merits of the options.

Table 8: Comparison of Annual Economic Activity Sustained by Each Option

Metrics	PC20	Rural	Ratio
Employees	2,210	3	737
Output	$787,100,000	$540,000	1,458
Wages/Salaries	$154,200,000	$180,000	856
GDP	$279,500,000	$420,000	665

TEV of Rural Production – indirect Use & Non-Use Values

120. Patterson 2013 provide estimates of indirect and non-use (passive) values for each of the 12 ecosystems in their study (as reproduced above). Of those 12 ecosystems, only one (horticulture/cropping and agriculture) is relevant here. According to Patterson 2013, this activity generates very little indirect and non-use value. See the image below for further details.

[20] https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/unitary-plan/history-unitary-plan/documentssection32reportproposedaup/appendix-3-2-14.pdf

[21] https://www.trademe.co.nz/c/jobs/product/salary-guide

TABLE 2 Use value of ecosystem services derived from horticulture-cropping ecosystems ($2012 million)

Ecosystem service	Supporting value	Regulating value	Provisioning & cultural value	Provisioning & cultural value not covered by GDP	Gross value	Net value
Water provisioning			2	2	2	2
Food production			2,263		2,263	2,263
Climate regulation		3		3	3	3
Erosion control	12			12	12	
Pollination	11			11	11	
Total	23	3	2,265	28	2,291	2,268

121. In short, virtually all (99.8%[22]) of horticulture/cropping's TEV is from food production (which I have just estimated), with practically non-existent indirect use and non-use values.

122. Given that PC20's direct use values dwarf those of rural production, making allowances for other the elements of TEV has no material impact on the relative economic costs and benefits of the options.

TEV Summary and Conclusion

2. My analysis above shows that PC20 will generate far higher impacts on GDP and employment than rural production, and that the inclusion of other TEV facets has no discernible effect. Thus, overall, I consider PC20 to satisfy the requirements of clause 3.6(1)(c) of the NPS HPL from an economic perspective.

RESPONSE TO THE SECTION 42A REPORT

123. I have reviewed the section 42A report and confirm that there are no economic issues arising that require comment here.

RESPONSE TO POINTS RAISED IN SUBMISSIONS

124. Various economic issues were raised in submissions. The most substantive, which I address below, are:

(a) The positive economic effects of PC20;

[22] Calculated as 2,263 divided by 2,268.

(b) That PC20 may enable too much retail activity;

(c) That there is already enough industrial land without PC20; and

(d) Technical issues raised by Waikato Regional Council (#11) regarding the numerical analysis in my assessment report.

Positive Economic Effects of PC20

125. Some submitters, such as Te Waka (#26), have identified various economic benefits likely to arise from PC20. They include:

(a) That the Northern Precinct and Airport Business Zone is a strategic industrial node that provides job creation for the region.

(b) The airport is an important regional transport hub, whose economic influence extends beyond the district's boundary into the wider Waikato region.

(c) PC20 provides additional business land to meet future needs, and an be available relatively quickly to meet demand over the short- to medium-term.

(d) PC20 helps make the industrial land market more responsive to growth, thereby reducing pressure on land prices and making industrial development more affordable than it would have been otherwise; and

(e) Agglomeration benefits.

126. Further, HCC (#23) notes that the PC20 opportunity is both significant and unique, with few development opportunities of its scale existing around major airports in the upper North Island.

127. I acknowledge and agree with these observations about PC20's economic merits.

Extent of Retail Activity Enabled

128. Some submitters are concerned that PC20's proposed non-ancillary retail provisions may be too large and thus adversely affect the role, function, health, and vitality of other nearby centres. For example, this issue was raised by Waka Kotahi (#18), WRC (#11), and HCC (#23).

129. This led to a retail and planning conferencing session, which focussed on the appropriate level of retail to enable, and which culminated in a JWS dated 9 February 2023.

130. I have comprehensively responded to retail matters earlier in this evidence, so do not repeat that content here.

Need for PC20 To Meet Industrial Land Needs

131. Two submitters (Jennifer McDowall #1 and James & Marie Snowball #6) consider that there is already sufficient industrial land to meet demand without the need for PC20.

132. I disagree. As shown in this evidence, there is not enough industrial land to meet demand, and more must be provided to fulfil NPS-UD obligations and avoid ongoing shortfalls and the consequential adverse effects on the industrial property market.

133. I also note that paras 17 to 19 of HCC's submission (#23) identifies constraints that will affect the uptake of other areas, and hence drive the need for PC20, while paragraph 20 of HCC's submission explains the economic and planning rationale for providing additional business land around the airport as proposed. I agree with HCC's observations.

Technical issues raised by Waikato Regional Council (#11)

134. WRC have raised concerns about the calculation of likely market supply in my assessment report, particularly the constraints matrices used to convert theoretical capacity into more realistic measures of future market supply. These are mentioned at paragraph 7 of their submission.

135. I acknowledge these concerns but note that actual market supply in the city today is 100 times lower than the theoretical figures promulgated in the 2021 HBA. On that basis, I consider our constraints matrices to be too optimistic. In reality, a much lower proportion of future capacity will translate to market supply than we estimated therein.

136. Para 7 of Te Waka's submission also suggests that our estimates of industrial employment (which flow directly into industrial land demand) are too high. However, as noted earlier, our estimates of future industrial employment are much smaller than the actual values to 2022. In other words, the passage of time has shown that our demand estimates are too low, not too high.

SUMMARY AND CONCLUSION

137. This evidence has assessed the economic pros and cons of PC20 and shown that it will have a range of significant and enduring economic benefits. At the same time, it will avoid any material economic costs, so I support it on those grounds.

Fraser James Colegrave
Insight Economics
28 February 2023

APPENDIX 1: 2021 BCA CRITIQUE

138. While I acknowledge the significant body of work informing the BCA and agree with its overall conclusions on industrial land sufficiency, I consider it to significantly understate the likely magnitude of this shortfall. There are several reasons, as briefly explained below.

Market Supply vs Vacant Land

139. Unlike residential land, whose ability to meet demand is assessed by explicitly modelling the feasibility of development on a parcel-by-parcel basis, the BCA simply assumes that all vacant industrial land will be feasible to develop, and will be developed, over the next 30 years. This is an extreme and highly unlikely assumption. In practice, significant tracts of land won't be feasible to develop and/or won't be developed regardless, because of several factors that limit market supply, particularly over the short to medium term. They include:

(a) *Developer intentions* - some landowners have no clear intention to develop their land, particularly over the short- to medium-term, nor to sell to others that may have clearer development intentions and capabilities.

(b) *Land banking and drip-feeding* – other landowners may intend to develop in future but are currently withholding supply to capitalise on inevitable land price inflation, while some are drip-feeding supply to maintain prices and hence maximise returns.

(c) *Constraints* – the BCA appears to consider only infrastructure as a potential constraint, thereby overlooking several other factors that affect may also affect the developability of land, such as reverse sensitivity, contamination, difficult access, and/or awkward topography.

(d) *Operational capacity* – some landowners face operational capacity constraints, which limit the number of new sections/dwellings that they can supply per annum.

(e) *Financing* – similarly, some landowners face capital/financing constraints that also limit their ability to supply.

140. I also note that the BCA implicitly treats all sources of capacity as the same, which can mask subtle yet important differences across sites and locations. For example, some industrial land users may need very large sites, or to be located near specific customers and/or suppliers. Others require a high stud and/or a large yard capable of handling

regular truck movements. Many will also seek a freehold site, and therefore be deterred by leasehold opportunities, such as those at Ruakura.

141. However, the BCA naturally can't address these fine-grained considerations. Instead, it simply provides an aggregated assessment of supply and demand, where all plots of land are treated as perfectly substitutable. In doing so, it masks the specific site and location requirements of many industrial land users and therefore overstates the adequacy of the current land inventory.

Reliance on Old Information

142. The BCA uses a multi-criteria analysis ("MCA") to compare the suitability and desirability of different industrial land nodes across the sub-region to assess whether vacant land resides in areas that are likely to be developed. Notwithstanding my earlier reservations, namely that this tells us nothing about the feasibility or likely uptake of said land, the MCA itself is based on sector views garnered nearly five years ago in January 2018.

143. Clearly, we are in a different market now, both from a macroeconomic perspective, and also in terms of the property market cycle, so relying on old such information won't help choose where and when to best add new capacity to meet future demand.

144. For example, the sector feedback and views embedded in the BCA predate the Covid-19 pandemic, which wrought unprecedented economic turmoil and caused construction costs to balloon. The impacts of those cost spikes on development viability have since been compounded by the recent rapid recovery of interest rates, which are another key piece of the development feasibility puzzle. However, these effects postdate and hence elude the BCA.

Inclusion of Indicative Future Capacity from Waikato 2070

145. On page 75 of the BCA in a discussion about its limitations, the authors disclose their implicit assumption that most of the land earmarked for investigation under the Waikato 2070 strategy could become capacity into the future. However, they immediately qualify that by noting there is no guarantee that the areas under investigation will be re-zoned or result in capacity, but this important caveat is not captured in the broader narrative of the report.

Impacts of Other Policy Statements

146. The BCA also does not appear to incorporate the impacts of other national policy statements that have recently been enacted or updated, and which significantly curtail future development opportunities. Specifically, it does not mention the NPS on Freshwater, and it was published prior to the NPS-HPL, so the impacts of both naturally are not reflected in BCA's assessment of industrial development capacity either.

Exclusion of the Airport Business Zone

147. Page 35 of the BCA states that the airport business zone has been included, but it does not appear in any of the subsequent maps, figures, or tables. This makes it difficult to assess whether or how it has adequately recognised the strategic importance of the airport in meeting future industrial land needs.

Assumed Development Intensity

148. The BCA adopts what it calls "realistic industrial supply" estimates by assuming a floor area ratio ("FAR") of 38% for industrial uses based on recent development outcomes across the sub-region. It notes that this is significantly lower than the FAR enabled by planning rules, and thus reduces capacity. I acknowledge this, but the latest property-level data for Hamilton City (from Core Logic) reveals a much lower FAR for industrial buildings developed since 2010, as tabulated below. This directly reduces the development capacity of vacant land identified in the BCA.

Table 9: Industrial Building Floor Area Ratios for the Broader Hamilton City Market (built since 2010)

Industrial Land Uses by Core Logic Classification	Land Area ha	GFA m^2	FAR
Industrial, Food Processing and Food Storage, Provincial	1	2,840	40.0%
Industrial, Food Processing and Food Storage, Suburban	1	2,910	28.2%
Industrial, Heavy Manufacture, suburban	22	19,020	8.6%
Industrial, Light Manufacture, provincial	2	6,560	29.1%
Industrial, Light Manufacture, suburban	7	33,930	48.2%
Industrial, Other/Mixed, Provincial	0	870	27.9%
Industrial, Other/Mixed, suburban	4	15,180	40.4%
Industrial, Service, Provincial	3	9,870	37.7%
Industrial, Service, Suburban	13	54,650	42.6%
Industrial, Warehouse, Province	33	10,750	3.2%
Industrial, Warehouse, Suburban	19	88,690	46.7%
All Industrial Land Uses	**105**	**245,260**	**23.3%**