

PHILIP JAGGARD – SUMMARY AND HEARING NOTES

1. SUMMARY

- 1.1 In summary, my evidence concluded that:
- 1.2 Focusing development into an existing and compact urban form has several benefits and can generally be viewed as positive as reduces the overall area required to be serviced.
- 1.3 Based on the predicted growth that will occur by 2050 by the Council's economic expert, Ms Fairgray, the demand (and therefore potential water and wastewater infrastructure constraints) are in fact less than those under the PC26 modelling scenario (which has been deemed acceptable by Council's experts).
- 1.4 As the capacity of the water supply and wastewater systems is sufficient to service the growth forecast by Ms Fairgray up to 2050, any future issues identified beyond 2050 need not adversely affect the Waikato River or its catchment so, if managed appropriately are not problematic in terms of Te Ture Whaimana. There is sufficient time to plan, design, consent and construct any upgrades required beyond the existing growth forecast, as Council's PC26 water and wastewater modelling population scenario is likely to be reached sometime around 2080, with the Medium Density Residential Standards ("MDRS") modelling scenario likely to be reached beyond 2100. This assumes that all sites develop to this intensity, which raises the question whether this will even occur. Not all lots/developers or landowners will develop to the maximum permitted under the plan.
- 1.5 Therefore, I do not support the conclusion that an Infrastructure Constraint Overlay is required for managing water and wastewater capacity and effects.
- 1.6 In addition, Council under the existing Bylaws, LGA and Building consent process, has an ability to decline connections to infrastructure, if no capacity is available.
- 1.7 Regarding stormwater, the redevelopment of a site under either the two or three dwellings per lot scenario can and will likely result in the same or similar stormwater discharges and effects as building and impervious coverage controls are based on percentages and are the same irrespective of whether two or three dwellings are proposed.

- 1.8 In addition, the Stormwater Bylaw and Regional Infrastructure Technical Standards (RITS) allows Council to appropriately manage stormwater effects to ensure compliance with its Comprehensive Stormwater Discharge Consents (CSDC) and provide for improved stormwater quality and flow attenuation outcomes from redevelopment of sites.
- 1.9 Therefore, it can be concluded that redevelopment of sites into either two or three dwellings will more than likely have the same stormwater flows and contaminate loads in terms of environmental effects on the Waikato River.
- 1.10 Flood displacement effects generated by development are already addressed through the existing planning rules which require resource consent (as a non-complying activity) where development obstructs an overland and secondary flow path.
- 1.11 To address potential concerns around flood displacement effects occurring in the area between the 50-year and 100-year flood plain, I recommend that the “Secondary flow path” definition is changed from a “1 in 50-year return period rain event” to a “1 in a 100-year return period rainfall event.”
- 1.12 Therefore, I do not support the conclusion that an Infrastructure Constraint Overlay and the Stormwater Constraints Overlay is required for managing stormwater and flood displacement effects.

2. CHRIS HARDY – UPDATED MODELLING - YIELDS

- 2.1 Hardy has now rerun the PC26 Plan Change 26 modelling scenario, with higher growth numbers as they were using inconsistent numbers between the PC26 and MDRS modelling scenarios. Key change in their rebuttal is that the numbers used in the modelling for the PC26 scenario have increased (see table below).

- **Summary of the dwelling data:**

- Table 5-1 summarises the number of dwellings in each area in each different scenario.
- The total number of dwellings for Scenario 1 was taken from the Base model.
- The total number of dwellings for PC26 and MDRS were taken from the population data provided by m.e Consulting.

Table 5-1: Summary of the number of dwellings in each scenario

Network	Existing Growth Baseline Model	2050 - PC26 - Plan Change 26	MDRS (Medium Density Resident Standards)
Cambridge	15,670	19,790 28,173	39,761
Te Awamutu and Kihikihi	13,093	15,653 24,901	35,585

2.2 There are still some discrepancies with numbers quoted by Fairgray and tables provided where they do not align exactly. E.g. Fairgray paragraph 3.2 states” *There are approximately 15,700 existing urban dwellings within the urban towns of Cambridge and Te Awamutu/Kihikihi*”. Table 1 from her s46 evidence below shows 14,300 in 2023 and 15,300 when you add the minor settlements.

Table 1: Waipā District Projected Urban Dwelling Demand by Location: 2020-2050

AREA	Dwelling Demand in Year				Net Change			Net Change + Margin		
	2020	2023	2030	2050	Short-Term: 2020-2023	Medium-Term: 2020-2030	Long-Term: 2020-2050	Short-Term: 2020-2023 (20% margin)	Medium-Term: 2020-2030 (20% margin)	Long-Term: 2020-2050 (15% margin)
Main Urban Areas										
Cambridge	7,400	7,900	9,300	12,600	550	1,900	5,200	660	2,300	6,000
Te Awamutu	4,900	5,200	5,700	7,300	310	760	2,400	370	920	2,800
Kihikihi	930	1,100	1,300	1,400	170	330	500	200	400	570
Total Main Urban	13,200	14,300	16,300	21,400	1,000	3,000	8,100	1,200	3,600	9,400
Minor Urban Areas/Settlements	1,000	1,100	1,100	1,300	30	90	230	40	100	260
TOTAL URBAN	14,300	15,300	17,400	22,600	1,100	3,100	8,400	1,300	3,700	9,600
Non-Urban	6,600	6,700	7,000	7,800	50	350	1,100	60	420	1,300
TOTAL DISTRICT	20,900	22,000	24,300	30,400	1,100	3,500	9,500	1,300	4,100	10,900

Source: M.E 2021 Future Proof HBA.

3. SUSAN FAIRGREY, CHRIS HARDY AND TONY QUICKFALL – GROWTH RATE AND TIMING

3.1 I note that Mr Hardy talked at the hearing that the 2050 Baseline modelling scenario was based on the existing District Plan of one dwelling, but no mapping or

population spatial planning was included in the supporting reports to allow comparison to existing. Its common when assessing issues to compare to existing. However, no existing population/catchment maps or existing system performance maps were provided to assess to compare the likely distribution of growth within the brownfield areas. Also, there were no details or breakdown of costs of projects to compare against.

- 3.2 Susan Fairgray states in her rebuttal evidence (paragraph 3.6) *“that the provisions are unlikely to result in greater population growth across the towns at the total level.”* And *“that the provisions will affect the location and type of growth, and the urban form of the townships.”*
- 3.3 Chris Hardy’s rebuttal evidence paragraph 5.7 states *“I acknowledge that the modelled level of development may not occur by 2050. However, I note that the modelling approach enables a long-term comparison to be made with the current 2050 baseline model used for network master planning.”*
- 3.4 He also states in paragraph 5.14 *“The PC26 and MDRS model scenarios in the updated assessment report (Appendix 1) are based on plan enabled capacity (two and three dwellings per lot) across all urban areas. I agree with Mr Jaggard that this does not represent a scenario that is likely to occur based on a realistic demand. However, it is a reasonable scenario upon which Waipā District Council can assess the risk of development to network capacity and level of service throughout the life of the infrastructure.”*
- 3.5 Ms Fairgray and Mr Hardy’s position above supports my conclusion that that the water and wastewater modelling completed shows that there is unlikely to be any issues prior to 2050, given the results of the “Existing 2050 Growth Baseline Scenario” most accurately reflects growth within this timeframe.
- 3.6 Therefore, the forecast growth within the next approximately 30 years is well within the acceptable limits of Council and is unlikely to cause any issues that would require the Infrastructure Overlay in this timeframe. In fact, Council’s position is that it has accepted the risks associated with the “PC26 modelling scenario” which show some issues. However, this scenario is not likely to be reached until 2080, some 60 years from now, as experience tells us that full development is unlikely to be taken up

- 3.7 Therefore, it is unclear how an Infrastructure Overlay is required for water and wastewater given their acceptance of the PC26 scenario. Noting that if the MDRS scenario occurs, this will not be reached until sometime beyond 2100, if at all, as it is unlikely that all development will be taken to the maximum permissible maximum under the planning rules. Therefore, any effects can be managed between now, 2050 and likely beyond to 2080.
- 3.8 Mr Hardy paragraph 8.5 “*I note that the inclusion of the Infrastructure Overlay was not a question of development timing, but one of ultimate demand and network capacity.*” I disagree, timing is important. If the ultimate development is not going to occur for an extended amount of time (we’re talking decades) and there is more than adequate time (again decades) to work through any issues.
- 3.9 Susan Fairgray considers that “*the removal of the Infrastructure Overlay from all locations would, in contrast, be likely to encourage a more dispersed pattern of growth*”. However, this could be viewed as a positive outcome from an infrastructure perspective as it allows development to be spread across the entire network, spreading the load and demand taking up spare capacity where it is already likely available. Concentrating growth in certain areas will likely trigger local upgrades in addition to trunk upgrades. This is a little subjective as there will always be exceptions to this as it is location specific.
- 3.10 Mr Quickfall paragraph 3.6 (a) state “*As a plan change, the technical statutory timeframe that applies to PC26 is 10 years, being the “life” of a district plan before next review.*” Therefore, again it is unclear why a constraint overlay is required for a period of 10 years, when no major issues are likely to occur beyond 30 years and Council is willing to accept the risks under the PC26 modelling scenario that won’t occur until sometime between 2050 and 2080.
- 3.11 In addition, as noted Mr Hardy rebuttal evidence paragraph 5.18 “*The modelling was not intended to assess specific development constraints at a given location or time, hence the need for Infrastructure Assessments for development above the permitted level.*” This conflicts with the purpose of the Overlay, which is location specific by its very nature.
- 3.12 In addition, time is a factor for consideration. Mr Coutts evidence raises questions around affordability as they will likely have insufficient funding to service the expected level of development of the MDRS. Mr Coutts states in his rebuttal

evidence (paragraph 6.5) that an additional \$600m dollars (all infrastructure) is required to service the MDRS and this is required in the next ten years. This fails to recognise that growth is unlikely to happen no faster than forecast by Ms Fairgray. Funds are likely to be spread over 60-80 years not just the current LTP or 30 years as suggested.

- 3.13 As an example, there is no difference in the demand of the water and wastewater system if 12 houses on 4 sites (MRDS) develops or and 12 houses on 6 sites (Council PC26) occurs to meet housing demand. If the former scenario is required to go through the resource consent process, some developers will opt to develop larger and less houses on sites, as it has a lower risk profile and there are significant savings in delivery timeframes, savings on interest costs and resource consent processing fees. This places more pressure to expand and fast track additional greenfield development areas that present different infrastructure challenges. The emphasis here being meeting housing demand; i.e. the growth will come whether they permit 2 or 3 dwellings per site and it is just how the development will manifest in the urban environment that is the difference.

4. **STORMWATER OVERLAY**

- 4.1 Tony Quickfall states his understanding in paragraph 6.23 *“is that stormwater management is about managing (reducing) the runoff coefficient from developments (the volume and velocity of runoff), in order to avoid, remedy or mitigate adverse effects on downstream pipes, pumps and ultimately point-source discharges effects, and associated regional discharge consent limits.”* Therefore, he states that the “stormwater overlay is whole of system management.”
- 4.2 As per paragraph 4.6 from Michael Chapmans s46 evidence *“The Stormwater Overlay has been located based on the 100-year annual rain interval (“ARI”) flood depth layer”*. As the layer is derived directly from flood modelling (properties covered with flood plain >20%), and only reduces the building coverage (50% to 40%) without decreasing the allowable impervious coverage which remains at 60%, the claim that the Stormwater Overlay helps manage/reduces the runoff coefficient or water quality contaminates therefore cannot be supported.
- 4.3 For stormwater runoff, it is the total impervious coverage that is important, not the split between hard stand areas and building coverage, and the 60% remains from the previous Plan.

- 4.4 For water quality, the inverse is true, the greater the building coverage, the lesser the generation of water quality contaminates. ARC's study (Kingett Mitchell Ltd, 2004) into roof runoff quality, noted that many new roofing materials were found to contribute little contamination and were relatively unreactive. The shift to roofing materials with improved durability such as coloursteel have made a substantial difference to the quality of roof run-off, and hence reduced contribution to stormwater contaminant loads.
- 4.5 Runoff from private trafficked (e.g., driveways) impervious surfaces are likely to have low concentrations of heavy metals and fine sediments compared to roads due to traffic volume etc..., but higher than roof runoff due to risks around activities that may occur e.g. oil leaks, people washing or working on their car etc...
- 4.6 In the Waikato Stormwater Management Guideline (WSMG) (Updated version May 2020) states: *"As can be seen from the table above [Table 6-9], concrete tiles, colour steel and gravel have low contaminant discharge potential and hence it is considered that runoff from these surfaces does not require water quality treatment. All other roof types, other than green roofs, should consider water quality treatment for roof runoff."*
- 4.7 The WSMG also states, *"As discussed in Section 1.3, generally a BPO approach is considered acceptable when determining a stormwater management system for a proposed development."* A BPO approach recognises that there is very little or marginal gain to be had from installing treatment as per the guideline for surfaces where the contaminant loading is minimal. This is because that the accuracy in measuring/determining removal rates of stormwater devices drops away and is not well studied.
- 4.8 This is further supported by:
- (a) In preparation for the Auckland Unitary Plan, Auckland Council developed an approach in Technical Report 35 for design effluent quality requirements (DEQR) that represented a reasonable expectation of the effluent water quality from most of the stormwater treatment practices currently regarded as 'best practice'. The approach recognised that *"where the water quality is not substantially worse than the design effluent quality requirements, there is minimal gain to be had from undertaking treatment"*. While the DEQR approach was not carried into

the final Auckland Unitary Plan, it does provide a useful water quality “standard” to benchmark stormwater treatment devices against.

- (b) Note that in the Auckland Regional Council document Technical Publication 10 states that “*Airborne sediments deposited on roofs are extremely small, and will not settle out in the tank*” (ARC, 2003), suggesting that any heavy metals are dissolved and pass through treatment devices.
- (c) PC48, 49 and 50 Drury and Waihoehoe Precincts - The memo *Water Quality treatment for private trafficked impervious surfaces (October 2021, T Fisher, P Wadan and C Peyroux)* who state the following: “*There is no known research on contaminant concentrations from private driveways, jointly owned access ways and private carparks as these surfaces hasn’t been an area of concern on the past.*” They attempted to estimate these but came to the conclusion that “*At a minimum private trafficked impervious surfaces should use a catchpit with a grate, sump volume and submerged outlet.*” i.e require limited treatment.

4.9 In summary having a lower ratio of building/impervious coverage, could have the reverse water quality outcomes that Waipa DC is seeking to manage. Also, as the total impervious coverage does not change from 60%, there is no difference in stormwater flows, so again does not achieve the outcome sought to be managed.

4.10 The argument for the bathtub i.e. flood displacement is an area of concern but the difference between 40 and 50% building coverage cannot be assessed accurately by modelling as it is site specific. However, in my opinion they already have a more restrictive rule (non-complying), refer to **rule 15.4.2.26 - development shall not obstruct overland and secondary flow paths** and further discussion below.

4.11 For the improved water quality outcomes, a more targeted, risk-based approach for stormwater management/treatment, such as targeting roads and industrial sites is generally preferred, as these surfaces typically generate the most contaminates per m² of land. Effectively targeting the highest loading sources is key for stormwater outcomes. The Pareto principle (also known as the 80/20 rule) states that, for many events, roughly 80% of the effects come from 20% of the causes. This can be widely observed in the field of stormwater management where a large

proportion of non-point source pollution originates from one or few areas or sites e.g. roads and industrial sites.

5. **COUTTS – EXISTING HAZARD RULES - STORMWATER OVERLAY**

5.1 *Existing District Plan Rule 15.4.2.26 - development shall not obstruct overland and secondary flow paths - path taken by runoff in excess of the primary design flow for a once in 50 years return period rain event.*

5.2 Coutts writes in paragraph 6.16 “*that Rule 15.4.2.26 typically relies on the known overland flow paths that Council may have an easement over, which is not the best metric to review and confirm overland flow protection*”. However, under rule 15.4.2.26, there is no reference to any statutory layer, the Planning Maps, or secondary flow paths covered by easements held by Council. Therefore, I can see there is nothing preventing Council from using existing flood modelling information when assessing developments against this rule. In fact, Council already likely holds this information for the 50-year event as part of its flood modelling, and it could easily be published on its website as per the 1% AEP Flood Hazard maps. Therefore, the effects of displacement can be assessed under the non-complying activity as the matters and scope of review is not limited, as under the restricted discretionary activity.

5.3 In addition, I could not find any planning maps or legend referring to “**High Risk Flood Zone**” as defined the existing District Plan. On face value, it appears Council must be using information not located in the District Plan, to some degree under the *Rule 15.4.2.15 No subdivision and development shall occur within a High Risk Flood Zone* and *Rule 15.4.2.26 - development shall not obstruct overland and secondary flow paths*.

6. **TONY COUTTS – REGIONAL INFRASTRUCTURE TECHNICAL STANDARDS (RITS)**

6.1 Paragraph 6.13 states “*I agree with Mr Jaggard’s comments regarding the outcomes of RITS but note that these outcomes are considered as part of an application under the Resource Management Act. While Council can under the Act enforce these requirements, it cannot do so for permitted activities. Council would expect, as an outcome of the infrastructure assessment, to discuss and impose solutions to enable higher intensification.*”

- 6.2 Also, he states under 6.15 *“Council’s Stormwater Bylaw does not necessarily provide for treatment outcomes and only assists from a monitoring and enforcement perspective to ensure compliance with the Comprehensive Stormwater Discharge Consents (CSDC) Council has with WRC.”*
- 6.3 However, if this claim that Council can’t apply the RITS to permitted activities, this applies to two lots on a site as well. The number of lots becomes irrelevant, as stormwater is not yield specific. It is related to coverage where the building coverage and impervious coverage limits, but are the same in either scenario.
- 6.4 However, Mr Coutts is silent on how the Bylaw may apply in relation to the proposed permitted activities of two units per site, in addition how the following Bylaw clauses do or do not apply in processing connection applications outside a resource consent process:

3.2 Purpose of the Bylaw:

(d) Protect and manage Council's stormwater and land drainage infrastructure

(ii) Contribute to achieving appropriate environmental outcomes consistent with Te Ture Whaimana (Vision and Strategy) and the Future Proof Sub-Regional Three Waters Strategy.

Section 6.3 of the Bylaw

“Where disposal of stormwater is accepted by Council it will be subject to: (a) the premises being situated within an area which is served by a public stormwater system; (b) sufficient existing capacity within the public stormwater system, and the resilience of the system to increasing and extreme volumes of stormwater; (d) alignment with a Comprehensive Stormwater Discharge Consent; (e) alignment with any relevant catchment management plans; (f) conditions as set by Council;”

- 6.5 In addition, I refer to paragraph 4.1.9.2 in the RITS document

“4.1.9.2 Discharge into the Public Stormwater System Council has no legal obligation to provide any property with a connection to a public stormwater system. Council currently provides a public stormwater system to most urban areas, however in some areas the system may already be at capacity.”

- 6.6 **Stormwater Bylaw**

4.4 In principle, compliance with the Waikato Regional Infrastructure Technical Specifications 2016, and subsequent amendments, is acceptable for meeting the requirements of this Bylaw.

6.7 This raises questions around the claim *“While Council can under the Act enforce these requirements [Outcomes in the RITS], it cannot do so for permitted activities.”*

7. TONY QUICKFALL - STATUTORY LAYERS

7.1 Tony Quickfall suggests that flooding information and constraint mapping should remain as a statutory layer. With respect, I disagree. The inclusion of flood and overland flow path/secondary flow path overlays outside the plan allows for updates to occur as stormwater modelling or new information becomes available. Locking flood information into a plan via a statutory overlay will require a plan change to change this information. Plan changes are not a simple exercise, take a considerable amount of time, funds and resources, nor are they a regular occurrence.

7.2 Coutts s46 Evidence (paragraph 7.11) states *“Any programme for review of the Infrastructure Overlay would need to align with the Council’s programme for infrastructure upgrades in its Long Term Plan under the Local Government Act 2002. As development enabled by the MDRS is unplanned and spread across the catchments, it is not possible to identify in advance where upgrades are needed to service development or how those upgrades will be funded. However, if infrastructure is upgraded in the future (for example as part of the development of a growth cell) it may be possible to amend the Infrastructure Overlay to reflect the increased capacity in that location.”*

7.3 However, Quickfall Rebuttal (paragraph 6.20) states *“At the time of writing, Council is looking at updating its flood hazard overlay as a separate plan change, which could also be incorporated into a programmed plan change. Due to capacity, budget and priority constraints, at this stage an update to the flood hazard overlay is in Council’s our work programme, but is not yet funded or scoped.”*

7.4 This suggests any changes to the proposed Overlays, even when capacity or new information becomes available is unlikely to occur in a reasonable time frame for

landowners and developers, increasing the risk of confusion between different data sets e.g. Planning maps and Council's updated modelling.

- 7.5 In addition, it appears that Council's rebuttal evidence suggests it will only plan and fund for two dwellings per site as per the Opening Legal submission dated 21 April 2023 by Wendy Embling, refer paragraph 8.11 *"As a result of these factors, the Infrastructure Overlay essentially acts as a trigger for infrastructure assessment. PC26 shows that the Council will plan and fund for infrastructure to support two dwellings per site, but if development is proposed to exceed that level, the Council will review the proposal to determine the infrastructure effects on a site-specific basis."*
- 7.6 It's unclear from the comments made at the hearing and evidence if any development above two dwellings will be able to proceed, as Council may reserve capacity for permitted developments yet to occur and will only plan and fund for two dwellings per site.
- 7.7 In addition, the Infrastructure and Stormwater assessment criteria under the proposed rules and parameters appears to have not been tested or guidelines developed. Mr Coutts's mentioned at the hearing yesterday that they Council is expecting a lot of preapplications. However, small developments have limited budgets and may submit without a preapplication.
- 7.8 This leads me to the conclusion that even though Council proposes a restricted discretionary activity, the hurdle, time, and costs required to obtain the necessary consent for three units or development above the 40% impervious will result in developers taking the path of least resistance and only develop two dwellings per lot and/or to the 40% permitted. This may limit the potential housing typology being developed to meet market demands.