

# Memo

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## Three Waters perspective on proposed qualifying matter to focus intensification within 800 metres of public transport routes

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### 1. Purpose of this Memo

- 1.1 The purpose of this memo is to provide a Three Waters perspective on the District Plan Change 14 proposal for housing intensification to be allowed within 800 metres of core public transport routes only.
- 1.2 This memo also provides an overview of the infrastructure planning process in support of the impact considerations addressed herein.

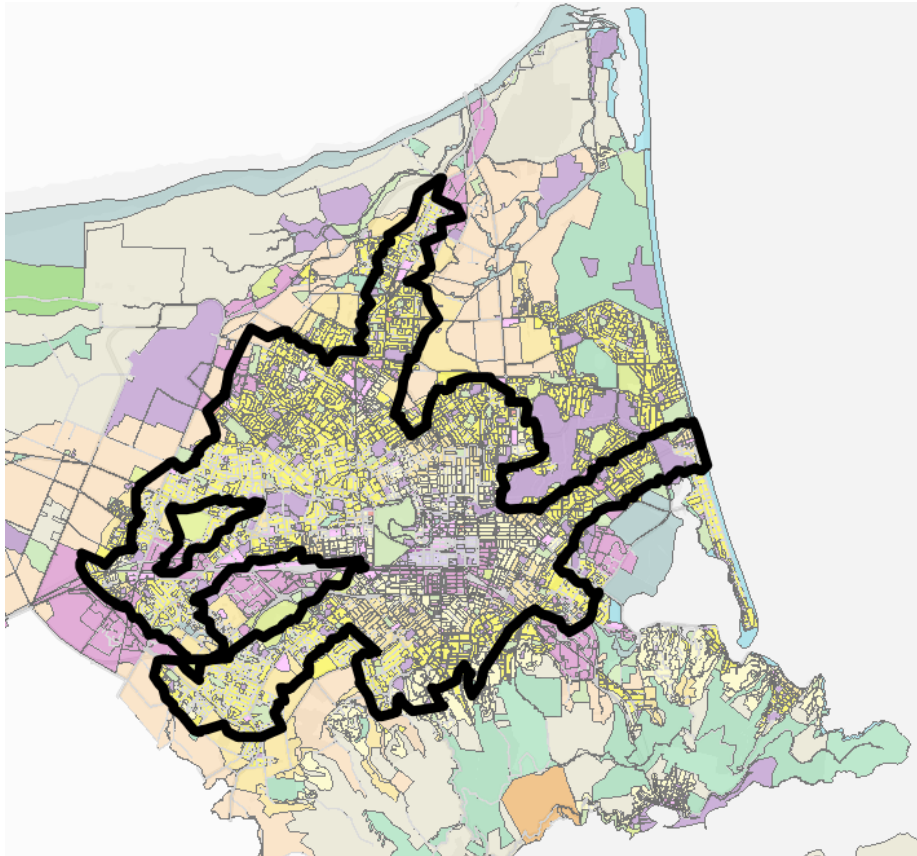
### 2. Three Waters Planning Process

- 2.1 The Council Three Waters infrastructure master plans are based on development growth projections over a 50 year planning horizon. Due to the high cost and extended time required to establish Three Waters infrastructure, such master plans must achieve the right sizing of infrastructure that will remain in service for up to 100 years.
- 2.2 Three Waters infrastructure which was established to service a particular development would have been sized for the number of properties created by the development in accordance with the prevailing zoning at the time (provision for intensification is not built in by developers), whereas collective infrastructure that services more than one development, are sized to meet the expected uptake of several development areas over the planning horizon.
- 2.3 Infrastructure capacity becomes constrained when the growth allowance is exceeded (due to rezoning or intensification) or where demand exceeds the adopted design parameters, example where inflow and infiltration exceeds the factor allowed when the pipe or pump station was sized.
- 2.4 A key objective of infrastructure planning is to develop cost-effective infrastructure, meaning that infrastructure must be provided at the right time and to the right size. It is not cost-effective to 'oversize' infrastructure to service additional growth (intensification) that may not eventuate within the infrastructure life period.

- 2.5 It is also not feasible to size infrastructure to service a too high future demand because it may cause the current demand to be less than the minimum required for the infrastructure to be functional. The engineering design of infrastructure must comply with minimum demand criteria, which if not achieved, will result in non-functional infrastructure (example flow down a pipe may not be achieved if it is less than the minimum needed to enable a continuous and self-cleansing gravity flow).
- 2.6 Council's long-term planning process must deliver a spatially allocated growth plan. The growth plan is then used to calculate development contributions and to size future collective infrastructure. Due to the extent of work required in reviewing infrastructure plans, growth adjustments to the sizing of infrastructure may occur subsequent to the adopted long-term plan. A major deviation in the growth plan will therefore not be immediately reflected in the long-term plan nor in the development contributions policy.
- 2.7 Due to the reasons given above, intensification in a particular area will require an upgrade of the infrastructure that provides a service to that particular development. There will also be a cumulative effect because of growth changes and intensification in one area will place an additional demand on collective infrastructure servicing several development areas. If the growth in any of the identified areas, does not occur when expected, the collective infrastructure may not be right sized and could impact the functionality of the infrastructure.
- 2.8 Cost-effective infrastructure is best achieved in the context of an agreed and formalized spatial growth plan. Ad-hoc and sporadic city wide growth (intensification) will trigger infrastructure upgrades sized to deliver the maximum plan enabled growth irrespective of whether or when such intensification may occur. Even if such upgrades are limited to meet the minimum functional design requirements that matches the current demand, it may cause untimely and increased capital expenditure on some infrastructure whilst other infrastructure may remain constrained because of funding and resource constraints. Without a realistic spatial growth plan, there is high risk that infrastructure will not be right sized and that required upgrades may not be delivered in time to meet the future demand.
- 2.9 The sizing of infrastructure becomes more certain as and when areas are developed, however, the intensification of existing areas will require a complete review and extension of existing infrastructure master plans.

### 3. Three Waters in context of the proposed intensification zone

- 3.1 The 800 metre public transport buffer (referred to as 'intensification zone') is reflected in **Figure 1** below in the context of the operative District Plan.



**Figure 1: Proposed intensification zone for draft Plan Change 14 in the context of the operative District Plan**

3.2 From a Three Waters perspective, the adoption of an ‘intensification zone’ will exclude the following areas from intensification:

- Serviced areas on the periphery of the Three Waters service catchments;
- Un-serviced urban fringe areas;
- Residential New Neighbourhood greenfield areas;
- Serviced and un-serviced industrial zones; and
- Hill land where servicing constraints and adverse stormwater effects are higher.

3.3 The implementation of Medium Density Residential Standards (MDRS) within the ‘intensification zone’ could increase the demand on Three Waters infrastructure by as much as three times the current demand. It is recognized that some efficiencies may be achieved such as reduced water demand per unit due to less irrigation, however, it does not change the fact that demand could increase beyond the growth allowance or the spare capacity available for a particular area.

3.4 A blanket application of the MDRS within the intensification zone could therefore result in a delayed ‘trigger’ to upgrade infrastructure, causing a reactive response in aiming to meet the growth in demand.

3.5 Council may be in a position of having to refuse network connections from some development due to a lack of capacity or where adverse effects are expected.

- 3.6 Where new connections are allowed to proceed but the infrastructure upgrades needed to respond to such intensification are excluded from the long-term plan, such development will be excluded from paying the appropriate development contributions to cater for such future upgrades.
- 3.7 Intensification within 800 metres of the core public transport routes only will alleviate the additional demand impact on Three Waters infrastructure, because:
- Peripheral infrastructure will not have to be upgraded and the possible cumulative effects on the downstream or source infrastructure will be contained. It will be particularly helpful to avoid infrastructure upgrades in areas where access is difficult (i.e. residential hills suburbs);
  - The development of additional peripheral infrastructure to service urban fringe areas and the resulting cumulative effects on the downstream or source infrastructure will be avoided. The current infrastructure plans / infrastructure strategy does not provide for extending infrastructure into urban fringe areas and therefore also no provision is made in the development contributions policy;
  - Although some intensification could be feasible in Greenfield residential new neighbourhood areas, for the most part, the Three Waters infrastructure constructed to service these areas have been sized for the zoning as per the operative District Plan. It will not be cost-effective nor economically feasible to upgrade infrastructure that is less than 10 years old;
  - Infrastructure for industrial zones have been sized to meet the design standards and demands of typical industrial areas. In order to manage capacity, several industrial areas have limited sewer discharge and other demand constraints placed on them. Although the infrastructure established for industrial areas may be sufficiently sized to accommodate high intensity residential development, the cumulative impact on the downstream or core infrastructure could be high.

## 4. Conclusion

- 4.1 It is expected that the containment of intensification to within 800 metres of core public transport routes will, when compared to the previous proposal:
- reduce the need for the extension of infrastructure;
  - reduce additional demand placed on existing infrastructure;
  - reduce adverse stormwater effects of additional development on hill land; and
  - reduce the size of infrastructure upgrades needed to respond to MDRS within the intensification zone.
- 4.2 It is recommended that Council should agree and adopt a revised spatial growth plan applied to the intensification zone to support cost-effective infrastructure planning. In addition, the scope of infrastructure plans will have to be extended to determine the upgrade requirements of all Three Waters infrastructure that would be triggered by intensification. It will become important to agree the prioritization of infrastructure upgrades needed to deliver capacity enabled by proposed plan change PC14.
- 4.3 Developers within the proposed intensification zone will have to be advised that network connections may be refused where there is no capacity and where adverse effects cannot be contained.

## Signatories Ngā Kaiwaitohu

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