Wellington Regional Growth Framework

Options Assessment Report

August 2020

Introduction

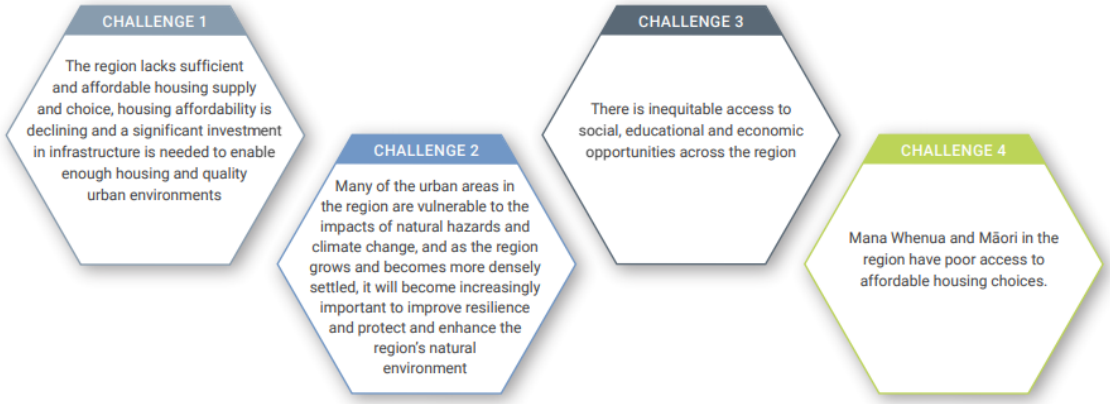
Ka ora te wai ***If the water is healthy***
Ka ora te whenua ***the land will be nourished***
Ka ora te whenua ***If the land is nourished***
Ka ora te tangata ***the people will be provided for***

Mo te iti - mo te rahi ***For the little - for the large***

This report provides a summary of the assessment undertaken for the different spatial plan scenarios and urban development options in the Wellington Regional Growth Framework (the Framework). It also outlines the Emerging Direction as agreed by the Executive Review Group.

The Framework is a spatial plan that will describe a long-term vision for how the region will grow, change and respond to key urban development challenges and opportunities in a way that gets the best outcomes and maximises the benefits across the region.

The region is growing faster than it has done for many decades and is facing immediate and longer-term housing supply and affordability, urban development and infrastructure challenges. The Framework has identified four challenges for the region. These are summarised in the diagram.



In order to respond to these challenges, an agreed approach to future development with iwi, local government and central government is required. The Framework first identified how the region could look in the future through a range of scenarios tested alongside different types of urban form and urban development options. Engagement with iwi, council organisations, infrastructure providers and other stakeholders through workshops and other forums was used for this process.

The Framework developed a series of urban development options using the results of scenario testing with stakeholders. These were then tested against benefits which link to the identified challenges.

The urban development options were analysed using quantitative and qualitative methodologies. This was performed with a range of technical experts and is presented in this report.

The assessment led to the development of an Emerging Direction for urban development in the region. The Emerging Direction is a combination of several urban development options and includes the balance of development occurring in brownfield areas with a smaller proportion of greenfield development. Centres, nodes and greenfield areas of development are spread throughout the region. The Emerging Direction was refined by the Executive Review Group and acts as the base for the final Draft Framework.

Contents

Purpose

The purpose of this report is to provide an easy to understand summary of the process used to identify and confirm the Emerging Direction for the Framework.

In doing so, the report:

1. Explains the process to develop the different scenarios, urban form types and six urban development options.
2. Summarises the assessment of the urban development options – including both the qualitative assessment undertaken by a panel of experts and the quantitative assessment of the options.
3. Describes the Emerging Direction as agreed in-principle by the Executive Review Group.
4. Summarises the process to test and then confirm the Emerging Direction.

The report also outlines further work that will be undertaken to develop the Draft Framework.

Developing spatial plan scenarios and urban form options

The Framework has six project objectives:

1. Increase housing supply and improve housing affordability and choice.
2. Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future.
3. Improve multi modal access to and between housing, employment, education and services.
4. Encourage sustainable, resilient and affordable settlement patterns/urban form that makes efficient use of existing infrastructure and resources.
5. Build climate change resilience and avoid increasing the impacts and risks from natural hazards.
6. Create employment opportunities.

Three scenarios were developed to think about these objectives in terms of the type of region we wanted to have. These are:

1. Respecting the natural environment, climate change and hazards when creating a low impact region.
2. Ensuring a vibrant economy in the context of transitioning fast to a low carbon future.
3. Creating a socially equitable region.

The scenarios provided a way to test how placing differing environmental, social and economic priorities at the heart of future regional development would impact the way we live, work and play spatially throughout the region. It also tested the different investments and infrastructure projects that would be required to transform urban development in line with each of these hypothetical scenarios.

Three different urban form types (nodal, centres and greenfield) were then assessed against each, to see how well they would deliver on the scenarios.

The three types of urban forms were then considered and combined in differing combinations to create six urban development options for the region. The urban form types and urban development options are outlined in later sections.

Assessment of urban development options and requirements for assessment

The assessment of urban development options used quantitative and qualitative methodologies against criteria that relate to these objectives.

Key principles for developing the methodology for assessing the urban development options were agreed by the project team. Any assessment needed to be transparent, replicable, and align with investment benefit measurements that are outlined in Waka Kotahi's Benefits Framework and Management Approach. These are a consistent set of benefits and measures for land transport investment which align with the Ministry of Transport's *Transport Outcomes Framework* and are used within the Business Case Approach (BCA). The Benefits Framework and Management Approach provides an enduring set of benefits and is consistent as it is used across land transport investment nationally.

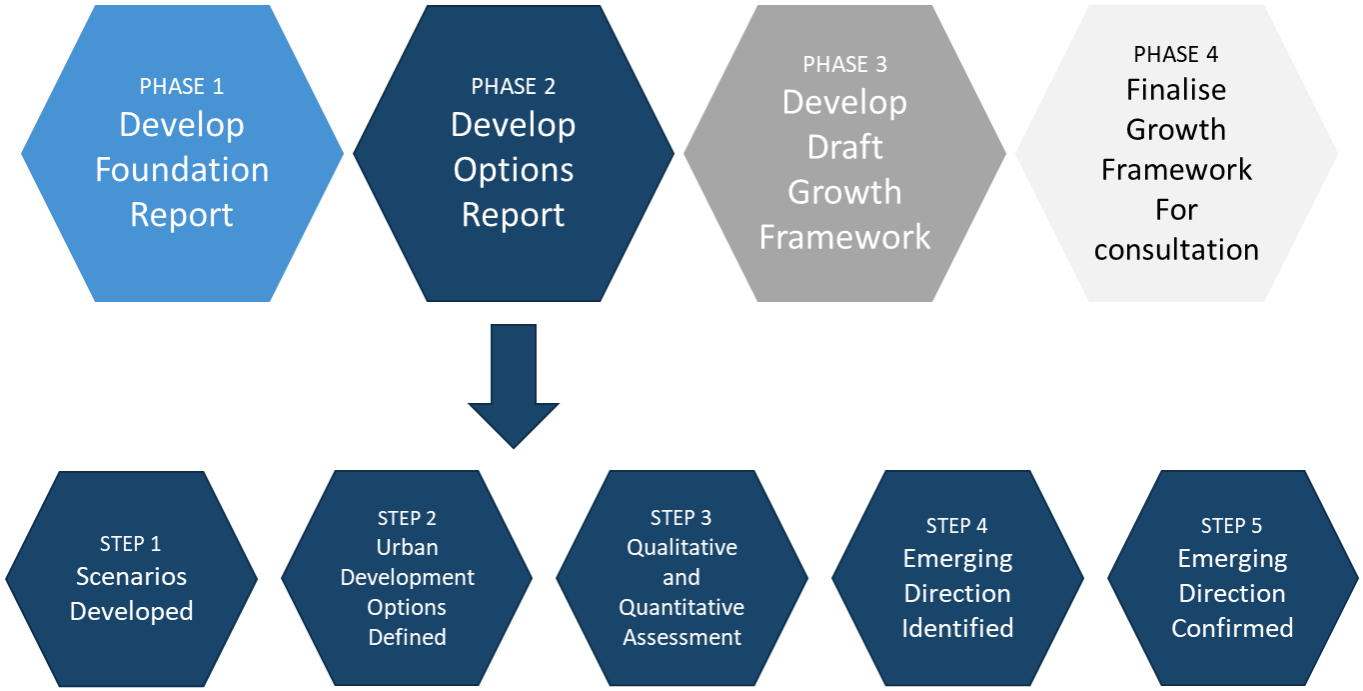
The BCA requires clear evidence which is linked to outcomes and benefits while the investment benefits cover impacts across a range of factors including social, environmental, economic impacts, and impacts on Te ao Māori.

Alignment with the requirements for a Future Development Strategy as required under the National Policy Statement Urban Development, was also noted as advantageous for the Framework.

The qualitative and quantitative assessments were completed in parallel and combined to provide results for an Emerging Direction. The quantitative assessment utilised a range of existing GIS analysis and data sources to align with existing work. The qualitative assessment used a panel of experts to perform a multi-criteria analysis. The full qualitative and quantitative methodologies are outlined in later sections of this report.

Overview of steps in this phase

This Options Assessment report is part of Phase 2 in the diagram. This report summarises the *Qualitative and quantitative assessment* step and contributes to the *Emerging Direction* step.



Scenarios

Three scenarios were developed to test how placing differing environmental, social and economic priorities at the heart of future regional development would impact the way we live, work and play spatially throughout the region. It also tested the different investments and infrastructure projects that would be required to transform urban development in line with each of these hypothetical scenarios. These were:

1. Respecting the natural environment, climate change and hazards when creating a low impact region.
2. Ensuring a vibrant economy in the context of transitioning fast to a low carbon future.
3. Creating a socially equitable region.

The scenarios were not assumed to be outcomes, but were used as a tool to focus discussion, agree on key challenges, and consider aspirations for future development in the region.

For scenario 1, this assumes that in 30 years' time living and working within the region increasingly occurs where people are less impacted by natural hazards and they have less impact on the natural environment. This scenario is also aware of the long-term impacts of hazards and responds to them, including an element of "moving to higher or better ground".

In scenario 2, this assumes that in 30 years' the region will have transitioned to a low carbon economy and society. This means that a whole system approach is taken to understanding and reducing carbon, and this approach has been rapidly implemented across the region.

Scenario 3 assumes that in 30 years' every person living in the region will have better access and opportunities. While a true "equal level of service" is unlikely to be possible due to realities of travel times and distances, or costs of providing significant services, actions would be taken to make sure those people and areas disadvantaged are not under-resourced.

A base case scenario was also considered which takes the region and its current growth, planning, and investment activities. It was used as a comparison against the other scenarios.

These scenarios were tested in workshops with technical experts from different sectors including health, education, economy, natural hazards resilience, and infrastructure (energy, three waters and transport) to determine how the region would look under each scenario. This included how housing and urban form, transport, employment and business, infrastructure, the natural environment, climate change, natural hazards and social outcomes would look in the future under each scenario.

The developed scenarios were then tested at a large stakeholder workshop combining local government, central government, infrastructure providers, and iwi. The scenarios were tested against three different urban form types (nodal, centres and greenfield). This workshop tested stakeholder thinking on how well these urban form types would deliver on each of these scenarios.

It was recognised that no future realistically comprised of just one urban form type. Based on known areas being already considered by councils and feedback from all stakeholder workshops, the project team combined the three types of urban forms in differing combinations to create six urban development options for the region.

Assessment of the six urban development options is outlined in the sections later in this report.

Urban form types

The Framework considered three types of urban form to accommodate housing growth. These were used to develop six urban development options. The urban development types are:

1. Nodes development
2. Major centres development
3. Greenfield development

Nodes development focuses housing growth along existing and possible rapid transit public transport routes. For example, train stations, bus hubs and other rapid transport corridors. This type of development is characterised by medium density development, with dwellings concentrated to about one kilometre around a transport node with density increasing in proximity to nodes. Housing types ranges from terrace houses to apartments and mixed-use buildings. As a public transport focused development type, transport access is primarily driven by bus and train connections.

Major centres development concentrates housing growth in the major centres of the region, including central business districts and high-density areas such as Newtown and Petone. The height of new development would differ depending on the relative height of existing buildings within each centre. Therefore, the housing types could range from mixed-use buildings and medium rise apartments in smaller centres, through to high rise apartments in Wellington City. Transport access would encourage public transport use between centres. There would also be a focus on walking and cycling access within and between centres.

Greenfield development spreads out housing growth across the region to currently undeveloped areas. Greenfield areas could be on the edge of existing urban areas or connected to enabling infrastructure such as transport corridors or employment centres. Housing typology could range from standalone housing, terrace housing and multi-dwelling units with local centres containing employment opportunities and services interspersed throughout a development area. Greenfield developments would be connected to core public transport and active transport routes, as well as developments having internal connections for walking and cycling.

The urban form types share several requirements. For example, ensuring good urban design outcomes for all development types with access to places of employment, services, and recreation close to housing. Employment and services such as health, education, and other social infrastructure as well as greenspaces would be distributed to ensure access by active and public transport is enabled. Resilience is a key consideration for all development areas, with developments needing to ensure urban development and infrastructure in hazard prone areas is resilient.

Suitable areas for different urban form types are distributed throughout the region. The full list of urban form type areas considered at this stage is in Appendix A.

Urban development options

The three urban form types were used to create six urban development options for the region. These six options are a mix of urban form types with a differing emphasis on urban form types between options.

Option 1: Connected urban villages with expanded urban boundaries
The key emphasis in this option is nodal development along public transport corridors with high frequency public transport services. This is combined with the second area of emphasis being greenfield development throughout the region as already identified by councils and developers. There is minimal development in the centres in the option.

Option 2: Connected urban villages and four major centres
The key emphasis in this option is nodal development along public transport corridors with high frequency public transport services. This is combined with the second area of emphasis in being intensive development in four major centres in the region. There is minimal development in greenfield areas in this option.

Option 3: Expanding urban boundaries with urban villages
The key emphasis in this option is development in greenfield areas, including both developments currently identified throughout the region and establishment of two new towns. This is combined with the second area of emphasis of development being nodes along key transport corridors. There is minimal development in major centres in this option.

Option 4: Expanding urban boundaries with four major centres
The key emphasis in this option is development in greenfield areas, including both developments currently identified throughput the region and the establishment of one new city. This is combined with the second area being emphasis of development in four major centres. There is minimal development in nodes areas in this option.

Option 5: Nine major centres connected with urban villages
The key emphasis in this option is development in all major centres. This is combined with the second area of emphasis being of development of nodes along some key transport corridors. There is minimal development in greenfield areas in this option.

Option 6: Nine major centres with expanded urban boundaries
The key emphasis in this option is development in all major centres. This is combined with the second area of emphasis being greenfield development throughout the region. There is minimal development in nodes in this option.

Overview of qualitative MCA panel assessment process

Qualitative analysis of the urban development options was undertaken using a multi-criteria analysis (MCA) by a panel of experts. Maps, data, written explanations and verbal discussions were provided to facilitate the MCA process. The results of the MCA were moderated in workshops by the project team.

The qualitative assessment was done at a project objective level, analysing the impact on the six WRGF objectives rather than a fine-grained assessment criteria level.

In addition, one panel member was also asked to provide some initial feedback on the feasibility, adaptability, and financial viability of the urban development options to inform subsequent work and assessment.

The key questions that were assessed are:

1. To what extent does the urban development option increase housing supply, and improve housing affordability and choice?
2. To what extent does the urban development option enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future?
3. To what extent does the urban development option improve multi modal access to and between housing, employment, education and services?
4. To what extent does the urban development option encourage sustainable, resilient and affordable settlement patterns/urban form that makes efficient use of existing infrastructure and resources?
5. To what extent does the urban development option build climate change resilience and avoid increasing the impacts and risks from natural hazards?
6. To what extent does the urban development option create employment opportunities?
7. How does each urban development option align with mana whenua housing and other aspirations?

The panel used a rating scale to compare each urban development option with the base case over a 30-year period. For the MCA, the base case is housing, business and development growth continuing at its current rate. The rating scale ranges from -3 to 3.

Rating	Meaning
3	Largely better – provides a considerable amount of improvement over the Base Case, so that in 30 years' time there will be a noticeably improved difference in the region
2	Moderately better – provides somewhat of an improvement over the Base Case so that in 30 years' time change is noticeable but not to a large extent
1	Slightly better – provides some but hardly any improvement from the Base Case and will not be noticeably different over the 30 year period.
0	Neutral – no discernible or positive or negative difference from the Base Case
-1	Slightly worse – is hardly, but is still somewhat, worse than the Base Case over the 30 year period
-2	Moderately worse – is somewhat worse than the Base Case so that in 30 years' time negative change is noticeable but not to a large extent
-3	Largely worse – is considerably worse than the Base Case so that in 30 years' time there be a noticeable negative difference in the region

Overview of quantitative assessment process

Criteria for the quantitative assessment was developed by subject matter experts and moderated by the project team. Criteria were chosen based on three requirements:

- Relevant: Criteria should capture the main pros/cons of alternative options and provide information on the project objectives
- Measurable: It should be possible to quantify effects. Due to the short timeframe for the project existing data and models were used rather than relying upon new model development.
- Parsimonious: A large number of criteria would be difficult to calculate within the project timeframes and may be confusing for people to interpret.

Methodology: two to six criteria were chosen for each of the six project objectives. The six urban development options were assessed and measured against each of these criteria and compared with a base case scenario. The base case scenario is estimated residential, household and employment estimates mapped to zones corresponding to where growth is occurring and enabled now.

The urban development options and base case scenario were assessed using future spatial distribution of population and employment estimates for 2036, a medium/long term time horizon. This aligns the assessment with existing modelling work in the Wellington Transport Strategy Model (WTSM), which is utilised in several criteria. A second evaluation year of 2050 was also tested by extrapolating forward growth and impacts from 2036 to 2050.

Urban development options were defined using WTSM model zones, which are 225 zones that cover the entire Wellington Region. Zones for each urban development option contain residential, household and employment estimates for 2036. The total future regional population and employment estimates and supply of infrastructure, transport services and social facilities is the same under each development option to ensure a like-for-like comparison. Horowhenua District is not included in the WTSM so out-of-model adjustments were done to incorporate Horowhenua.

One caveat of the assessment is the analysis held infrastructure, transport services and social facilities constant in each option. The assessment highlighted potential infrastructure deficiencies from development options. This inflates the base case scenario as other options require different policy, planning and investment levers to enable them.

Two limitations of using 2036 as an evaluation year are that it is too short to capture long-term capacity constraints in housing and infrastructure, or some long-term impacts on environmental performance. It is also too short to capture depreciation and replacement of existing buildings and infrastructure.

Expected mean sea level rise estimates for 2100 were used to assess exposure to sea level rise hazards.

Proxy measures for housing capacity, affordability and choice were drawn from the Wellington Regional *Housing and Business Assessment* (HBA). These use district plan enabled capacity which is commercially feasible based on current housing, land and construction prices.

Transport, access, and vehicle emission impacts were modelled from WTSM outputs. For household users, WTSM models car and public transport trips through all stages of the model. One limitation of the model is walking and cycling trips are generated but not modelled further. As a result, the model is capable of estimating impacts on car and public transport demands and network performance but may fail to account for impacts on walking and cycling use. The results show outputs from the AM peak which is defined in the WTSM as 7-9am.

GIS analysis was used to determine the amount of land that would be impacted by greenfield development, and the exposure of development to natural hazards including sea level rise.

Summary of assessment results

The table below summarises the quantitative and qualitative assessments. It is divided into seven sections. For the presentation of quantitative data and MCA scores, there are six columns, one for each of the urban development options. Expert commentary is also presented. For a reminder on what each option contains, see page 7 of this report.

Quantitative data is presented in numeric terms, with larger numbers indicating a better or worse result depending on the criteria. For instance, a higher figure for transport-related CO2 emissions means that a scenario performs worse on climate change impacts, whereas a higher figure for access to jobs means that a scenario performs better on enabling social and economic opportunities. Cells are highlighted green indicating better results.

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	
Objective 1: Increase housing supply, and improve housing affordability and choice							
KPI 1a: Feasible housing capacity - deficit vs demand (% of added households unaccommodated)	39%	38%	44%	46%	46%	46%	Quantitative assessment: Lower is better
KPI 1b: Housing choice and variety - share of new dwellings that are terraced house and apartment	34%	41%	36%	37%	47%	39%	Quantitative assessment: Higher is better
Expert panel score for Objective 1: To what extent does the urban development option increase housing supply, and improve housing affordability and choice?	**-1**	**-1**	**-1**	**-1**	**1**	**2**	Qualitative rating
Expert commentary	• The better scoring options have more housing growth in centres being a more favourable outcome towards supply and affordability. Centres are already offering urban amenity and jobs, so this makes it easy to live and work and minimizes travel costs. • Greenfield is easy to do and is easier to get supply constant and affordability can benefit where there is good supply. • Nodes offer an 'in between' amenity but may have less employment but could suit different demographic (older people for example). Extent of urban regeneration required in nodes will be influenced by the extent to which these nodes are places of choice to live. Some will be more attractive than others. Distribution of choices may thus be limited to some nodes more than others. Wholesale change to nodes will be needed to accommodate a large percentage of growth being in these areas. • Higher density rather than medium density is assumed to have a greater level of affordability associated with the per unit costs in established urban centres where the size and scale of unit construction can be supportive.						
Objective 2: Enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a no/low carbon future							
KPI 2a: Total quantity of open space consumed for development (ha)	848	712	864	881	687	837	Quantitative assessment: Lower is better
KPI 2b: Quantity of sensitive areas / biodiversity areas consumed for development (Natural forest proxy)	260	232	286	276	262	265	Quantitative assessment: Lower is better
KPI 2c: Quantity of versatile rural land consumed for development (ha)	42	39	32	34	25	31	Quantitative assessment: Lower is better

KPI 2d: Total quantity of greenhouse gas emissions from transport (calculated from total vehicle kms travelled) (tonnes/year)	686,880	676,908	692,983	694,210	684,659	692,142	Quantitative assessment: Lower is better
Expert panel score for Objective 2: To what extent does the urban development option enable growth that protects and enhances the quality of the natural environment and accounts for a transition to a low/no carbon future?	**-1**	**1**	**-3**	**-3**	**2**	**2**	Qualitative rating
Expert commentary	• Greater potential for adverse effects on/loss of significant natural values (biodiversity, ecosystem function, ecosystem services and landscape values) under greenfield-heavy options • Generally, much more carbon-intensive travel patterns under greenfield-heavy options even if some public and active transport options are developed; also, generally more emissions-intensive housing form and energy use. More intensive urban form likely to encourage development of public and active transport modes. • Potential duplication and low efficiency of infrastructure under greenfield-heavy options. Also loss of high-quality soils and food-producing potential in many greenfield sites. • Strongest potential for restored/recreated communal green spaces in centres options. • High population densities with more people seeking active transport and recreation in neighbourhood will have health as well as low-emissions travel benefits if these opportunities are provided. • Economic growth in centres and concentrated demand for environmental quality generally enables better environmental protection and enhancement overall in region. • Increased employment density may lead to higher intensity energy usage and lower car dependency. Nodal growth options are generally likely to be intermediate between the other two pairs of options but very site dependent.						
Objective 3: Improve access to and between housing, employment, education and services, utilising all multi-modal transport options							
KPI 3a: Public transport mode share during AM peak	17%	17%	17%	17%	18%	18%	Quantitative assessment: Higher is better
KPI 3b: Average AM peak vehicle speeds (km/hr)	41.4	41.3	41.2	41.1	41.4	41.1	Quantitative assessment: Higher is better
Expert panel score for Objective 3: To what extent does the urban development option improve multi modal access to and between housing, employment, education and services?	**3**	**3**	**1**	**-1**	**3**	**1**	Qualitative rating
Expert commentary	• Centres options present a much more compact city form and thus overall multi model access is likely to be easier to achieve. In many respects they are like nodes options - it offers similar levels of modal choice, but overall shorter commute times given development is largely within current urban limits. • The greenfield options depend not only on lead investment in high levels of service for rapid transit PT (including new stations) and walking/cycling in order to give modal choice but also will require employment opportunities within the new centres to ensure the average commute times decrease. • The East-West rapid transit connections (SH58 and Seaview-Grenada) are critical to success of nodes and centres options because they allow more journey choices and grid networks are more efficient and resilient – without these being rapid, high quality and high frequency, scores would be lower. LGWM rapid transit from eastern suburb is also critical - without this scores would be lower.						
Objective 4: Encourage sustainable, resilience and affordable settlement patterns/urban for that make efficient use of existing infrastructure and resources							
KPI 4a: Share of household growth in areas expected to have water supply capacity in 2047 (%)	6%	4%	7%	7%	6%	5%	Quantitative assessment: Higher is better
KPI 4b: Share of AM peak motorway travel at LOS E/F (proxy for transport infrastructure constraints)	45%	44%	46%	46%	46%	46%	Quantitative assessment: Lower is better
Expert panel score for Objective 4: To what extent does the urban development option encourage sustainable, resilient and affordable settlement patterns/urban form that make efficient use of existing infrastructure and resources?	**-1**	**1**	**-1**	**-2**	**2**	**1**	Qualitative rating
Expert commentary	• The options that score best are those that build from a base of urban patterns that have established in key centres and nodes. Nodal and centres-based development will also utilize existing infrastructure and potentially enable efficiencies in additional critical mass to support upgrades and renewals (including horizontal and community infrastructure). Centres have propensity to become walkable/compact and well serviced by transport which is efficient.						

	• Greenfield that extends current infrastructure investments provided some affordability and can be sustainable/resilient etc. provided there is a control to this (will still need an urban development entity or some such). • Distribution to existing infrastructure corridors is positive - this is likely to be more efficient and sustainable. • The flatter land areas signalled can enable more flexible patterns of development (i.e. connectivity in form) which allows for better transport options and potentially re-subdivision longer term (adding to resilience and sustainability). • There is a strategic issue that the culture of what good urban is in NZ context will take some generations to change – living more shared lives, public spaces being streets and parks that you share comfortably with others, not owning your own house, using public transport, etc. are going to take time.						
Objective 5: Build climate change resilience and avoid increasing the impacts and risks of natural hazards							
KPI 5a: Population located in areas vulnerable to sea level rise	2.5%	2.5%	2.5%	2.5%	2.7%	2.5%	Quantitative assessment: Lower is better
KPI 5b: Employment located in areas vulnerable to sea level rise	9.9%	9.9%	9.9%	10.0%	10.0%	10.0%	Quantitative assessment: Lower is better
KPI 5c: Population located in areas vulnerable to earthquake hazards	10.3%	10.2%	10.3%	10.3%	10.3%	10.4%	Quantitative assessment: Lower is better
KPI 5d: Employment located in areas vulnerable to earthquake hazards	17.4%	17.3%	17.4%	17.4%	17.4%	17.4%	Quantitative assessment: Lower is better
Expert panel score for Objective 5: To what extent does the urban development option build climate change resilience and avoid increasing the impacts and risks from natural hazards?	**2**	**1**	**2**	**-2**	**-1**	**-1**	Qualitative rating
Expert commentary	• Options that spread the development across several areas, enhancing adaptability over time score well. • Greenfield options that have more of the development achieved at areas not prone to climate change and hazards score higher. • Options with a dependence on centres have all the negative impacts from sea level rise, seismic and other hazards constraining development going forward. Intensification exacerbates the current infrastructure limitations across the centres, especially for wastewater and stormwater going forward with sea level rise and rising groundwater. • Over the next 30 years the access road and rail into and out of Wellington to the west coast and to the Hutt Valley and the Wairarapa, will become increasingly constrained by sea level rise and high rainfall and storm events. Decisions today that lock-in dependence this will create large costs in the future for the adjustments that will be necessary. • Smart development of work hubs dispersed across the region and greater working from home (given the public service and technology-based nature of the workforce) could alleviate travel movements along this corridor. • Development in existing seismic hazard areas increase risk for those located there and place added pressures on lifelines and emergency services and cost of building for higher earthquake standards to be met.						
Objective 6: Create employment opportunities							
KPI 6a: Transport access to jobs via car	46%	46%	46%	46%	46%	47%	Quantitative assessment: Higher is better
KPI 6b: Transport access to jobs via PT	6.0%	6.3%	6.1%	6.1%	6.5%	6.2%	Quantitative assessment: Higher is better
KPI 6c: Transport access to universities via car	50%	50%	51%	51%	51%	52%	Quantitative assessment: Higher is better
KPI 6d: Transport access to universities via PT	12.3%	12.8%	12.6%	12.8%	13.2%	12.7%	Quantitative assessment: Higher is better
KPI 6e: Transport access to hospitals via car	83%	83%	83%	83%	83%	83%	Quantitative assessment: Higher is better
KPI 6f: Transport access to hospitals via PT	18.6%	19.4%	18.7%	18.9%	19.6%	18.9%	Quantitative assessment: Higher is better
Expert panel score for Objective 6: To what extent does the urban development option create employment opportunities?	**2**	**2**	**1**	**-1**	**3**	**2**	Qualitative rating
Expert commentary	• Jobs closer to where people live is a positive and connects well with impacts of COVID-19. • Government job disbursement is a sustainable and good outcome - more likely to drive development and attract other uses in locations that are not already established. • Diversity and intensify at Wairarapa and Horowhenua is viable within reason						

	• Lower value costs associated with non-CBD options is likely to be attractive to employers looking to drive down costs of lease or ownership when workforce able to work more remotely. • Greenfield will be financially attractive to employers as lower rents but impact for region perhaps not ideal as will drive more commuters, onto roads and public transport. This could see an oversupply in greenfield and rather than 20 min commute, people could be travelling more to other locations crisscrossing the region. • Centres and nodes development combined option seems the most likely scenario to happen without a major shift in direction for the region.						
Alignment with mana whenua aspirations							
Expert panel score	2	3	1	1	2	1	Qualitative rating
Expert commentary	• For any development option, mahitahi (partnership) is a key value for mana whenua. The Framework must demonstrate a commitment to best practice consultation and engagement processes, including iwi involvement at multiple levels such as individual plan changes, planning processes, freshwater management plans, and new greenfield development. • Developments must improve wellbeing holistically. Incorporating values from Te ao Māori in development options such as oranga (wellbeing), kaitiakitanga (guardianship), manaakitanga (generosity), and kotahitanga (unity) are important for achieving holistic wellbeing and improving health, education and prosperity outcomes for Māori. • Development in nodes protects high quality land and improves housing affordability/choice/density therefore supports aspirations to cater for the unique needs of the Maori population and lower income earners. • Employment and services closer to home is aligned with marae hubs health improving community access for māori. • Options with a large amount of greenfield is likely to impact negatively on the natural environment and mana whenua values and may not align with mana whenua values to improve environmental outcomes caused by the rural and forestry sectors. • Risks of vulnerable Māori communities/ lower income earners disadvantaged by cost of living in centres dominant options. • If new growth is focused within the existing urban footprint, this potentially enables iwi to develop their own asset base outside of these areas within their own takiwā, whilst providing good transport and employment options. • Improving public transport to/from major centres contributes to improving affordable reliable transport in areas in the region with higher mana whenua populations. Reduces climate impacts and increases resilience (promotes values of transitioning fast to a low carbon economy). It also promotes aspirations around health gains from reducing car dependence, aligning with healthier community. • Improving transport and employment to the centers benefits both the population outside of centres and youthful Māori population who may choose living outside of papakāinga living. • Resilient infrastructure supports aspirations to protect the healthy functioning of ecosystems around infrastructure networks, contributes to iwi aspirations for freshwater outcomes. • Some areas densely populated with mana whenua iwi (Māori communities) need to be supported by infrastructure resilience measures and improved transport options. • One caveat of this rating is not all mana whenua were available for consultation. Therefore, this represents a broad overview of alignment with mana whenua aspirations and more work will be needed in future.						
TOTAL MCA SCORE	**6**	**10**	**0**	**-9**	**12**	**8**	Qualitative rating
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**	**Option 6**	

Explanation of results

Generally, options which concentrated housing growth in identified urban centres scored better on objectives for transitioning to a low carbon future, improving multi-modal access, and encouraging sustainable settlement patterns that use infrastructure efficiently. Greenfield development options scored better on resilience.

The base case scenario, which was used as an input to regional transport modelling, closely followed past growth trends. The analysis held infrastructure and planning settings constant, resulting in the base case scenario performing well on housing capacity and transport access metrics, while performing poorly on resilience metrics. Further development of the Emerging Direction including information on supporting infrastructure requirements, District Plan changes, and other policy changes will be progressed. Including these changes into scenario assessment is likely to balance the Emerging Direction relative to the base case scenario.

Quantitatively, the options that performed the best against each project objective were:

- Option 2 for objective 1 increasing housing supply and choice,
- Option 5 for objective 2 transitioning to a low carbon region,
- Option 5 for objective 3 improving access using multi-modal transport,
- Options 3 and 4 for objective 4 utilising infrastructure and resources efficiently,
- Option 2 for objective 5 climate change and natural hazard resilience,
- And option 5 for objective 6 creating employment opportunities.

The quantitative assessment for all urban development options showed more similarities than differences. The differences between urban development options on individual criteria were often small. For example, results for KPIs in objectives 4-6 were very close for all options.

Across the range of KPIs assessed in the quantitative analysis, option 2 supported objectives the highest amount followed by option 5. A ranked order of options using weighted scoring for performance across each KPI showed options 2 and 5 as highly rated. The table is in Appendix B.

Options 1 and 2 are the urban development options which primarily adopt nodal development. Option 1 scored near the middle of the options while option 2 was second highest. Both were rated favourably for objective 3 enabling multi-modal development and objective 6 creating employment opportunities. Quantitative analysis shows these options rated well for KPIs in objective 2 transitioning to a low carbon region.

Options 3 and 4 represent the highest amount of greenfield development. The MCA process rated both options low. Neither option scored well on objective 2 transitioning to a low carbon region. The quantitative assessment also shows this with both options being near the bottom for the objective 2 KPIs. Greenfield options were noted as being potentially easier to implement based on lower costs. However, the mix of housing types could be less with these options as shown in objective 1's KPIs.

Options 5 and 6 contain the highest amount of development in centres. The MCA rated option 5 the highest and option 6 third highest. Option 5 is rated 3 for objective 3 improving access with multi-modal infrastructure. Both urban development options do not fare well on ratings for objective 5 resilience to climate change and the effects of natural hazards in both the MCA and quantitative assessment. Both options rate favourably for objective 6 creating employment opportunities. An observation noted is that employment growth in centres and nodes seems the most likely scenario without major changes.

For alignment with mana whenua aspirations, option 2 rated the highest followed by options 1 and 5. Commentary on these options showed that more concentrated development is preferable as a way of protecting the natural environment. Although factors such as resilience, freshwater quality, and accessibility for services and community facilities near marae and papakāinga are essential for development options to achieve a high rating.

Significant investment and policy change are required to enable any of these options. For example, there is a mismatch between housing development capacity that is provided by current District Plans, development infrastructure, and market arrangements, and the expected location of growth. All options result in some degree of mismatch meaning that none can be delivered without some policy change.

The impact of each urban development option on the project objectives is variable depending on the location of growth and requirements for investment. For example, some greenfield areas may be prepared for housing growth depending on enabling infrastructure.

And the creation on employment opportunities is dependent on costs for employers based on the distribution of land with capacity for business uses. Three waters infrastructure and roading are expected to result in similar capacity constraints in all options, requiring some investment which may differ spatially.

Confirming an Emerging Direction

The process took the results of the MCA and quantitative assessment with a GIS mapping check to evaluate the capacity for growth in development areas.

This resulted in an Emerging Direction which is summarised in **Map 1** below. This was further refined through discussions with councils and iwi and resulted in an updated Emerging Direction, subsequently confirmed by the Executive Review Group, as can be seen in **Map 2** below.

The Emerging Direction is at its simplest a combination of options 2 and 5 but with more greenfield than either of these two options initially proposed. It has 60-80% of development in brownfield (major centres and nodes) and 20-40% in greenfield areas.

A number of consistent themes emerged out of the discussions with iwi and councils to test the Emerging Direction. These included:

- The need for the region to establish approximately 66,000 more homes over the next 30 years through a range of development options including infill, plan-enabled capacity, and new capacity that goes up and out, and that it is important for the Framework to explain growth that is occurring under a business as usual approach enabled by existing District Plans
- Some areas should be considered together, where there is a larger transport impact or natural grouping. These are reflected in Map 2.
- The potential of marae-based developments needs to be enabled through the Emerging Direction.
- Community making and facilities that enable or empower local communities are particularly important for all development options.

More specific feedback from the council/Iwi discussions touched on the centre, nodal and greenfield areas outlined below.

To achieve the 60-80% of growth in brownfields areas and 20-40% in greenfield areas, the Framework will include the priority exploration of <u>at least</u> the following elements for development in centres:

- Wellington Central as in integral focal point of the region for transport links, economic, employment concentration and as the seat of government.
- Density changes to Lower Hutt centre
- Development of Upper Hutt centre.
- Development of the growth potential of Levin.

The Framework will include these nodal development elements for priority exploration:

- Increased density along the Let's Get Wellington Moving (LGWM) corridor to Newtown.
- Development around train stations throughout the lower Hutt Valley to lift social and economic outcomes supported by public transport.
- Nodal development with more choice for housing and employment in the Wairarapa, Kāpiti, Johnsonville, and Tawa-Kenepuru and Upper Hutt.

The Framework will include the following greenfield development elements for priority exploration:

- Additional greenfield opportunities alongside existing transport corridors for instance, the Northern Growth Corridor in Porirua.
- Additional greenfield opportunities alongside established urban areas such as Wainuiomata North, North Waikanae and Carterton East.

Urban design and sustainability requirements were also considered as part of the Emerging Direction. For instance:

- Housing and other developments being built from low emission materials.
- Space and street design considering frameworks such as the Healthy Streets approach.
- Greenspace with water sensitive urban design being a key part of ensuring development aligns with the objective to enable growth that protects the environment.
- Design being more inclusive and fitting with local character.

Another key component of the requirements for development under the Emerging Direction is working with iwi partners to ensure development aligns with mana whenua aspirations.

Development of the Draft Framework for consultation

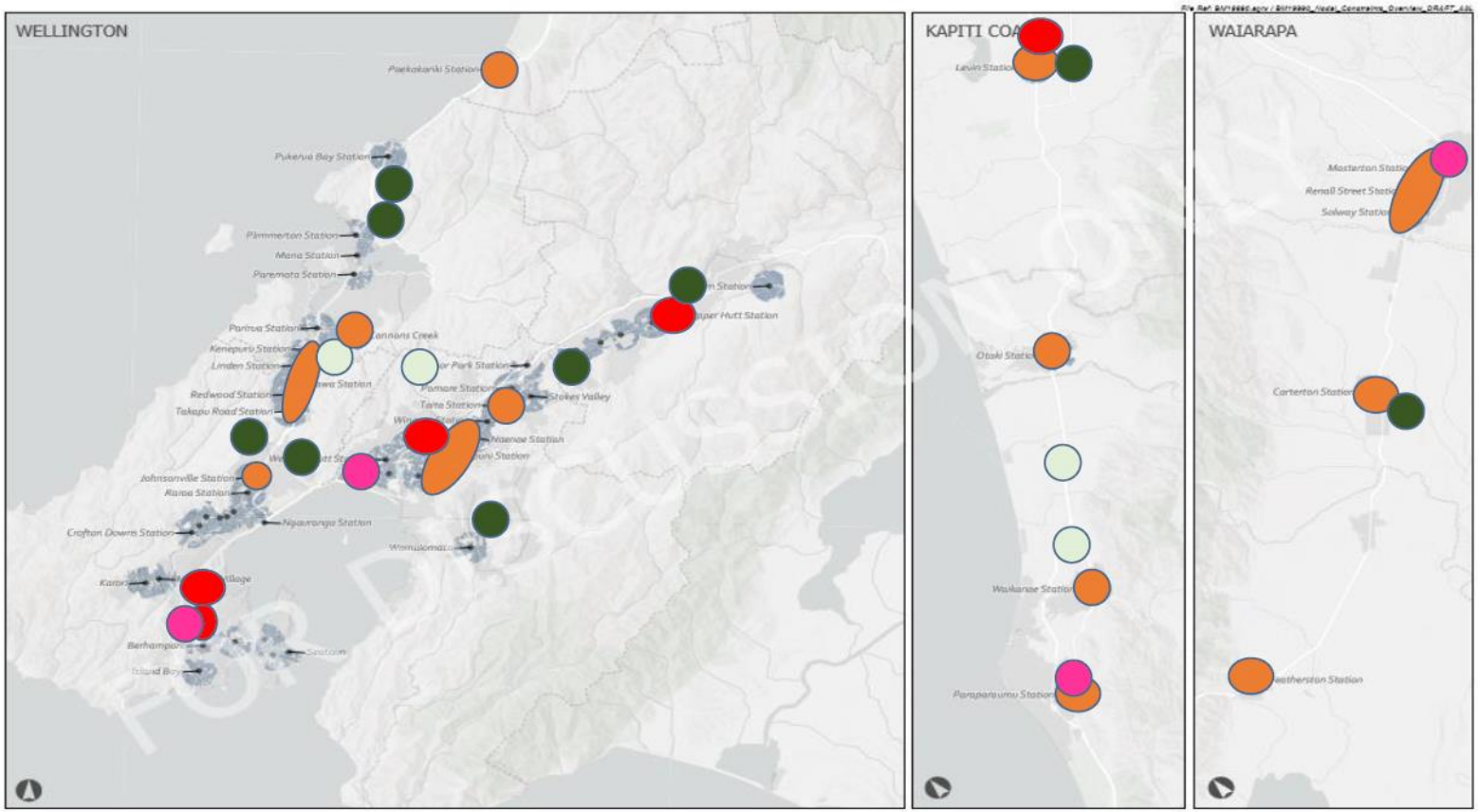
The Emerging Direction incorporates iwi partnership and council and the wider partners' plans and activities for inclusion in the Draft Framework.

This involves both further refinement and testing of plans and projects with iwi partners and infrastructure providers, local testing with communities and councils in relation to the node, centre, and greenfield areas.

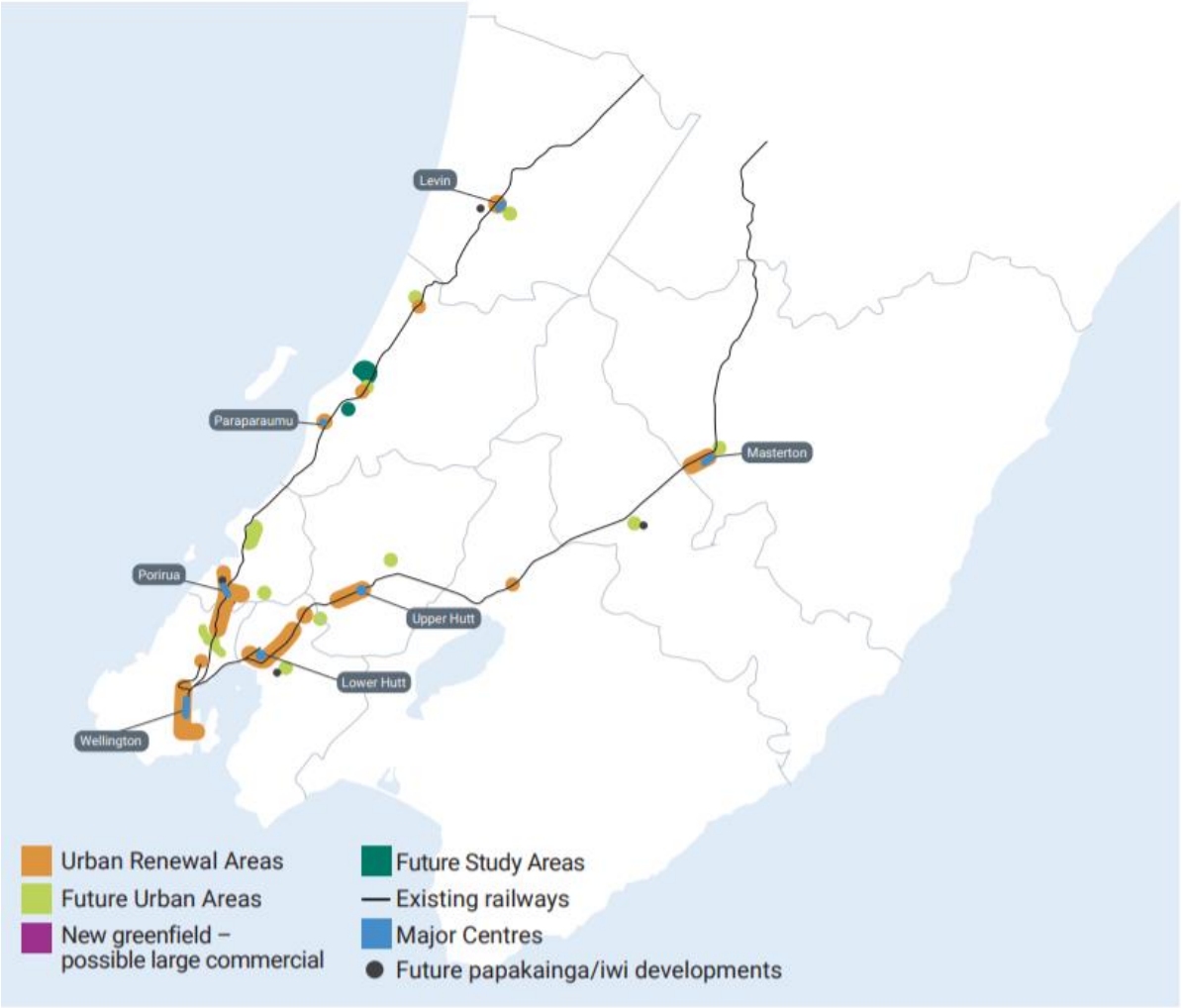
Projects relevant to enable the Emerging Direction will be identified in the Framework as key initiatives. A high-level plan that identifies sequencing, responsibility, and indicative costs and investment streams will be developed as part of the Framework.

Map 1: Spatial elements as signed off in Emerging Direction on 15th May 2020

- Greenfield planned
- Greenfield possible – to be explored
- Node for early focus
- Major centre for early focus
- Major centre not early focus



Map 2: Emerging Direction position after discussions with councils and iwi (including feedback about changes) – 26th June 2020



Appendix A – Potential development areas by urban form

Nodes development

Note that not all nodes are included in all Urban Development Options.

- Johnsonville
- Simla Crescent
- Takapu Road
- Kenepuru
- Plimmerton
- Melling
- Epuni
- Pomare
- Trentham
- Pukerua Bay
- Levin
- Renall Street
- Elsdon
- Kilbirnie
- Wainuiomata
- Raroa
- Awarua Street
- Redwood
- Porirua
- Ngauranga
- Ava
- Naenae
- Manor Park
- Wallaceville
- Paraparaumu
- Featherston
- Masterton
- Paekakariki
- Berhampore
- Eastern Porirua
- Khandallah
- Ngaio
- Tawa
- Paremata
- Petone
- Woburn
- Wingate
- Silverstream
- Upper Hutt
- Waikanae
- Carterton
- Island Bay
- Miramar
- Strathmore
- Woodside/Greytown
- Box Hill
- Crofton Downs
- Linden
- Mana
- Western Hutt
- Waterloo
- Taita
- Heretaunga
- Maymorn
- Otaki
- Solway
- Karori
- Seatoun
- Stokes Valley
- Titahi Bay

Major Centres development

Note that not all Consolidated areas are included in all Urban Development Options.

- Masterton CBD
- Upper Hutt CBD
- Lower Hutt CBD
- Wellington CBD
- Porirua CBD
- Paraparaumu CBD
- Levin CBD
- Newtown/Adelaide Road
- Petone

Greenfield development

Note that not all Greenfield areas are included in all Urban Development Options.

- Taraika – Levin
- Waikanae North
- Otaki North
- Te Horo/Pekapeka Growth Area (potential)
- Carterton East
- Wainuiomata North
- Lincolnshire Farm
- Northern Growth Area – Porirua
- Upper Hutt Southern Growth Area
- Akatarawa/Gillespies Road
- Paraparaumu North Growth Area (potential)
- Masterton
- Judgeford Hills
- Upper Stebbings

Appendix B – Ranked order scores for 2036 quantitative assessment KPIs

		Quantitative assessment results							KPIs in ranked order (higher score is better)					
Objective	Measure	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Interpretation	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Objective 1: Housing	Plan-enabled housing capacity - deficit vs demand (% of added households unaccommodated)	7%	10%	12%	14%	17%	15%	Lower is better	6	5	4	3	1	2
	Feasible housing capacity - deficit vs demand (% of added households unaccommodated)	39%	38%	44%	46%	46%	46%	Lower is better	5	6	4	1	1	1
	Housing choice and variety - share of new dwellings that are terraced house and apartment	34%	41%	36%	37%	47%	39%	Higher is better	1	5	2	3	6	4
Objective 2: Environment	Total quantity of open space consumed (ha)	848	712	864	881	687	837	Lower is better	3	5	2	1	6	4
	Sensitive areas consumed (Natural forest proxy)	260	232	286	276	262	265	Lower is better	5	6	1	2	4	3
	Versatile rural land consumed (ha)	42	39	32	34	25	31	Lower is better	1	2	4	3	6	5
	Transport CO2 emissions (tonnes/year)	686,880	676,908	692,983	694,210	684,659	692,142	Lower is better	4	6	2	1	5	3
Objective 3: Transport access	Public transport mode share (AM peak)	17%	17%	17%	17%	18%	18%	Higher is better	1	1	1	1	5	5
	Public transport mode share to CBD (AM peak)	48%	48%	48%	48%	48%	48%	Higher is better	1	1	1	1	1	1
	Average AM peak vehicle speeds (km/hr)	41.4	41.3	41.2	41.1	41.4	41.1	Higher is better	5	4	3	1	5	1
Objective 4: Infrastructure	Share of household growth in areas expected to have water supply capacity in 2047 (%)	6%	4%	7%	7%	6%	5%	Higher is better	3	1	5	5	3	2
	Share of AM peak motorway travel at LOS E/F (proxy for transport infrastructure constraints)	45%	44%	46%	46%	46%	46%	Lower is better	5	6	1	1	1	1
Objective 5: Resilience	Population in areas vulnerable to sea level rise	2.50%	2.50%	2.50%	2.50%	2.70%	2.50%	Lower is better	2	2	2	2	1	2
	Employment in areas vulnerable to sea level rise	9.90%	9.90%	9.90%	10.00%	10.00%	10.00%	Lower is better	4	4	4	1	1	1
	Population in areas vulnerable to earthquakes	10.30%	10.20%	10.30%	10.30%	10.30%	10.40%	Lower is better	2	6	2	2	2	1
	Employment in areas vulnerable to earthquakes	17.40%	17.30%	17.40%	17.40%	17.40%	17.40%	Lower is better	1	6	1	1	1	1
Objective 6: Employment opportunities	Transport access to jobs via car	46%	46%	46%	46%	46%	47%	Higher is better	1	1	1	1	1	6
	Transport access to jobs via PT	6.00%	6.30%	6.10%	6.10%	6.50%	6.20%	Higher is better	1	5	2	2	6	4
	Transport access to universities via car	50%	50%	51%	51%	51%	52%	Higher is better	1	1	3	3	3	6
	Transport access to universities via PT	12.30%	12.80%	12.60%	12.80%	13.20%	12.70%	Higher is better	1	4	2	4	6	3
	Transport access to hospitals via car	83%	83%	83%	83%	83%	83%	Higher is better	1	1	1	1	1	1
	Transport access to hospitals via PT	18.60%	19.40%	18.70%	18.90%	19.60%	18.90%	Higher is better	1	5	2	3	6	3
Sum of scores									55	83	50	43	72	60