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ŌTAKI TO LEVIN ROADING PROJECT

IMPLICATIONS OF ROUTE OPTIONS ON EASTERN GROWTH AREA LEVIN

LANDSCAPE + URBAN DESIGN

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1 INTRODUCTION

- 1.1 Alternative route options have been investigated for the Ōtaki to North of Levin roading project, including through the area east of State Highway 58 (Arapaepae Road), Levin. The area in question currently comprises rural and rural-residential properties, but part of it (the area south of Queen Street) has been earmarked for further residential development. Two types of development are being considered – a large-lot residential type ('Greenbelt') and urban development at conventional residential densities. The purpose of this brief report is to consider the implications of the route options on such development.
- 1.2 North of Queen Street, the area is zoned for rural purposes, and is intended to remain so. The area south of Queen Street is currently zoned 'Greenbelt Residential Deferred' for which the development standards will provide for a minimum lot size of 2000m² for serviced lots. However, lifting the 'deferred' status depends on reticulated services being provided – in the meantime the provisions of the rural zone remain in place which allow for rural-residential subdivision of 5000m² for unserviced lots. The 5000m² standard provides for a rural-residential character. The 2000m² lot size, on the other hand, provides for a large-lot residential type of development. It would be suburban rather than rural, but would have a spacious character and would likely retain elements of a rural flavour. The preliminary structure plan for the area (Structure Plan 13 in Schedule 8 of the operative Horowhenua District Plan) is depicted below in Figure 1.

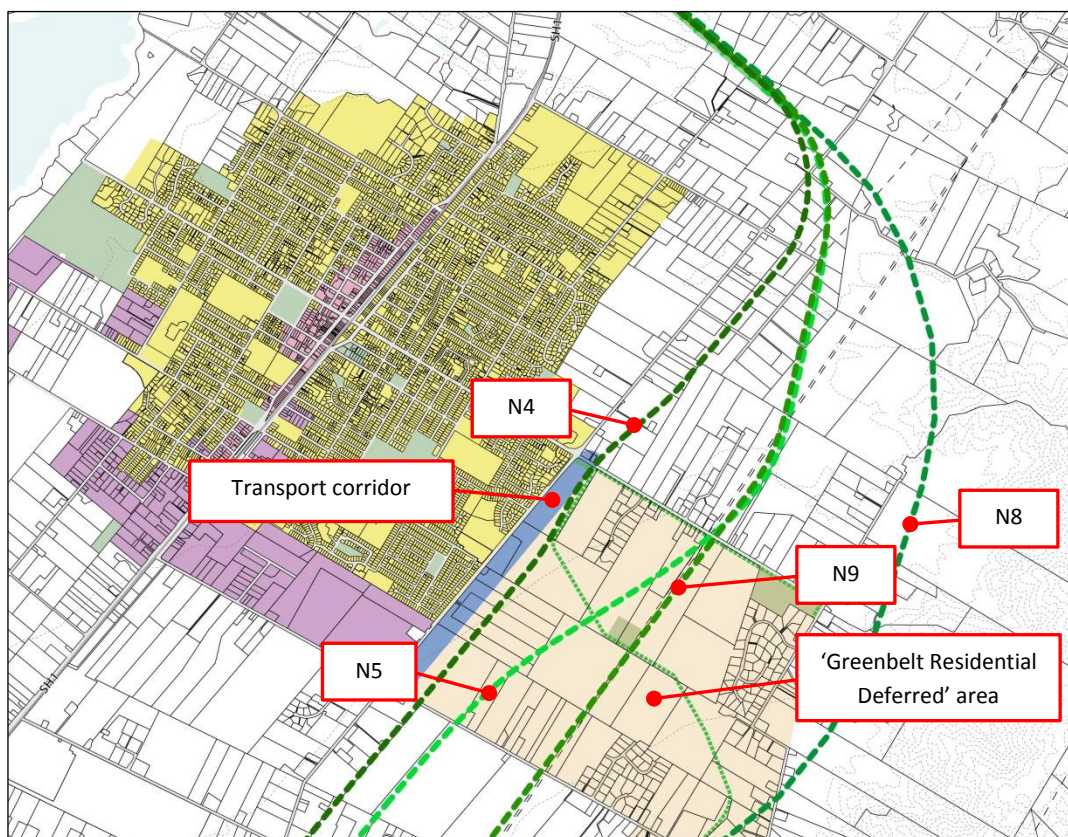


Figure 1: Map depicting route options overlaid on Structure Plan 13
'Gladstone Greenbelt Levin – Queen Street/Tararua Road'

- 1.3 The preliminary structure plan provides for a transport corridor parallel with, and immediately to the east of, Arapaepae Road. It also depicts a basic network of roads, a greenway, and a local commercial node with a central reserve. It recognises the existing corridor of the former transmission lines,¹ depicting a local road parallel to the lines.
- 1.4 In the meantime, the Council is undertaking investigations to accommodate projected growth over the next two-to-three decades. The investigations are outlined in the recently-published draft 'Horowhenua Growth Strategy 2040' (the 'draft Growth Strategy')². This document's growth forecast anticipates another 10,063 people living in the District by 2040 in an additional 5,138 households. This is an increase of approximately 33% on the 2017 population of 32,500. Such growth is anticipated, in part, as a consequence of the new expressway which will reduce travel times between Wellington and Levin to around one hour. Under these estimates, Levin is anticipated to require some 1,250 additional residential properties and approximately 270 'greenbelt' properties.³ Different options to expand Levin east of Arapaepae Road are shown in the draft Growth Strategy.⁴ Option LS6 is to 'up-zone' an area of 'Greenbelt Deferred' to 'Residential' between Queen Street and Tararua Road, depicted on Figure 2 below. Option LS7 extends this area further to the south.

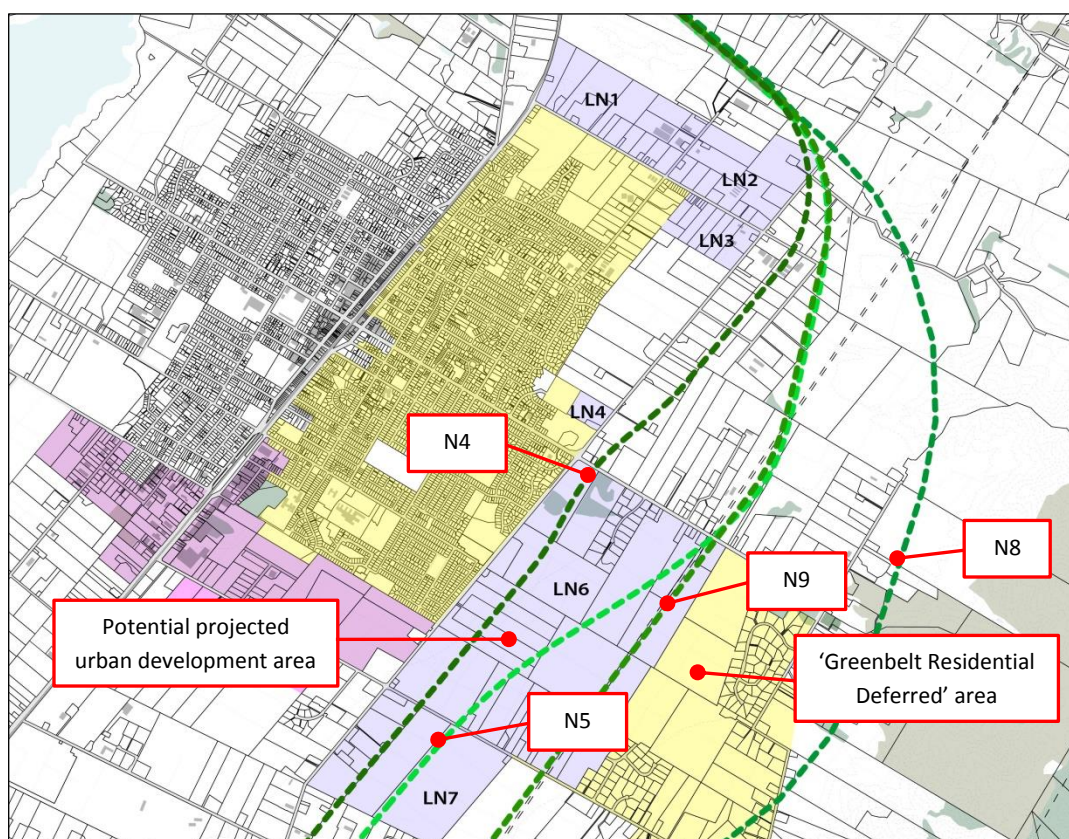


Figure 2: Map depicting route options overlaid on potential development areas

¹ The transmission lines have changed ownership and are no longer part of The National Grid

² 'Horowhenua Growth Strategy 2040 Draft', Horowhenua District Council, For consultation, Feb 2018.

³ Ibid, ps.17 and 33

⁴ Ibid, p.33

- 1.5 Urban expansion is to be based on principles and a spatial strategy set out in sections 7 and 8 respectively of the draft Growth Strategy. Principles relevant to this report include providing interconnected street networks and addressing potential severance of main roads and highways. Relevant aspects of the spatial strategy include providing for a ‘transect’ of lot sizes and densities – with higher density close to urban centres (e.g. 25-50 dwellings ha), larger suburban lots further out (330m² minimum), and ‘greenbelt’ (2000m² minimum serviced lots) around the edges but within the urban area.
- 1.6 Four route options have been investigated for the roading project through this area:
- N4 – adjacent to the existing edge of Levin, parallel with Arapaepae Road;
 - N5 – approximately 1km east of Levin, in an arc;
 - N9 – approximately 1km east of Levin, parallel to transmission line; and
 - N8 – approximately 2km east of Levin, adjacent to the hills.
- Note that the location of the routes currently being investigated has resulted from a range of inputs. In particular, options N8 and N9 have resulted from relatively recent community engagement processes, and must be seen in the light of the broader transport planning exercise, including the need to connect both north and south of a future development area.
- 1.7 Each option is a nominal 300m wide strip which would allow for the fine-tuning of the actual alignment within this strip. The actual alignment – including areas for stormwater treatment, landscaping and noise treatment (if required) would be approximately 100m wide or less.
- 1.8 The new road would comprise dual-carriageways, occasional interchanges with the local road network, and will not provide access to adjacent properties. Such characteristics raise the following implications for urban development:
- Areas immediately adjacent to the highway will be exposed to noise and adverse visual amenity effects, which will require mitigation;
 - The highway will create a boundary – which can be an advantage if one is seeking to separate different areas (such as urban and rural), but a disadvantage if one is seeking to integrate areas. It could comprise a permanent urban edge; and
 - The relatively few connections possible across the highway potentially severs areas – specific provision would need to be made to ensure adequate connection to Levin’s schools, commercial centre (main street) and community facilities.⁵
- 1.9 The following is a commentary on the implications of each option for the two types of residential development anticipated.

⁵ It is noted that the proposed highway would take through-traffic (especially heavy vehicles) away from the centre of Levin and enable better integration of the ‘main street’ as the centre of the community)

2 IMPLICATIONS FOR LARGE-LOT RESIDENTIAL DEVELOPMENT

- 2.1 The following section of the report addresses the implications of the route options assuming the existing District Plan provisions – including the preliminary structure plan and potential for either 5000m² or 2000m² minimum lot sizes.

N4

- 2.2 Option N4 would be in keeping with the existing structure plan:
- The highway alignment follows the transportation corridor identified on the structure plan;
 - The alignment is square to the cadastral pattern (both the existing and proposed structure plan pattern), making for efficient subdivision – with that exception that the straight alignment deviates at Queen Street East to avoid an historic homestead;
 - The highway would form a clear boundary between Levin’s urban area and the type of large-lot development envisaged by the preliminary structure plan;
 - There would be no impacts on features of the structure plan, such as the local road network, the green network (‘landscape, stormwater, pedestrian and cycling connection with open spaces’), central reserve, and ‘future local commercial’; and
 - The reduced connectivity between Levin and the ‘Greenbelt Residential’ area caused by the highway would be of less significance given the relatively low density of development.
- 2.3 A matter to resolve would be the use of the strip of land between Arapaepae Road and the highway. It is understood there is a desire to retain Arapaepae Road as an 80kph limited-access distributor road, in which case the land would not lend itself well to urban development. It could be developed for large-lot residential properties but would require a separate road access and would be an isolated strip of such properties sandwiched between two high speed roads: it would be neither integrated with Levin proper, nor have a sense of being in a rural setting. It would be something of a ‘no-man’s-land’. A potential design approach would be to minimise the separation of the highway from Arapaepae Road and to use the residual strip simply as a landscaped buffer and ‘gateway’ to Levin.

N9

- 2.4 Option N9 would also fit reasonably well with the existing structure plan. The highway would bisect the large-lot residential area, and would impact on some features depicted in the structure plan (i.e. the location of the ‘future local commercial’ node and central reserve). However, it would have a good ‘fit’ with the landscape because it is square to the cadastral grid and it provides the opportunity to make use of the corridor provided by the existing transmission lines (as discussed above, the lines recently changed ownership and are no longer part of the National Grid). The benefits would be maximised if the lines were to be put underground, but the above comments would apply even the lines were to remain overhead.

N5

- 2.5 Option N5 would be similar to N9 but would not achieve quite as good a fit with the landscape because the alignment cuts across the cadastral grid, would therefore potentially result in a

less optimal subdivision pattern (i.e. less flexibility to design a well-connected, integrated pattern of development), and it does not utilise the opportunity to make use of the transmission line corridor for the road.

N8

- 2.6 While option N8 is nearer the perimeter of the structure plan area than options N5 and N9, it would nevertheless divide large-lot residential development either side of the highway. In particular, it would compromise the existing pattern of development along Gladstone Road and potentially Denton Road depending on detailed alignment.

Summary

- 2.7 Options **N4** and **N9** are considered equally favourable for the large-lot residential type of subdivision depicted in the preliminary structure plan, followed by **N5**. **N8** is considered least favourable.
- 2.8 It is important to note that route options cannot be considered in isolation; they need to tie in with route options to the north and south which will influence both the exact alignment and the effects on properties outside the area in question. For instance, while option N9 connects well with option S7 to the south, connections between N9 and other route options may be difficult, and could lead to flow-on effects on properties south of Levin (for example, in Arapaepae Road, Riveredge Terrace or Muhunoa East Road). Likewise, there is some ability to fine-tune routes and alignments. For instance N5 and N9 are somewhat similar, and there would be options to shift N5 slightly east or N9 slightly west.

3 IMPLICATIONS FOR URBAN DEVELOPMENT

N9

- 3.1 Depending on the area of urban development needed, option N9 would likely be the preferable alignment to provide for conventional urban development east of Levin, for the following reasons:
- It would enable the new urban area to be contiguous and integrated with Levin;
 - It would encompass a relatively large area for urban expansion: For instance it would encompass most of the LS7 eastern urban extension area depicted on Figure 6 of the draft Growth Strategy. (Note: The actual demand for urban growth that occurs and the overall planning for the district is outside the scope of this report).
 - The highway could form a clear boundary between Levin's urban area on the one hand, and the large lot area on the other⁶ – assuming the urban rezoning occurs up to the highway. The former would be seen as part of Levin, while the latter would seem separate and within a more rural context;

⁶ For instance, potential access across the highway at Queen Street and Tararua Road would be more suitable for the lower density area east of the highway

- Only one side of the highway would eventually abut urban residential lots, reducing potential requirements for measures such as noise barriers: larger lots to the east would provide more opportunities to address noise by way of setbacks;
- The area encompassed by the alignment has a regular shape and is mostly square to the cadastral pattern which would enable a relatively efficient pattern of urban development – it would enable a more regular street network and block layout; and
- The detailed alignment could make use of the corridor provided by the lines – particularly if the lines were to be undergrounded.

3.2 While alignment option N9 best suits the LS6 and LS7 eastern urban extension areas depicted on Figure 6 of the Growth Strategy, such areas would need to be reconciled with the detailed alignment of the highway: currently, the LS6 extends a short distance beyond N9, and LS7 stops a short distance short. This could potentially be resolved by either fine-tuning the highway alignment (subject to other design constraints), or fine-tuning the extent of the urban extension areas.

3.3 The extent to which such an urban extension area is integrated with Levin would also depend to some extent on whether Arapaepae Road is retained as an 80kph, limited access road. Depending on transport needs, it could be effectively re-purposed as an urban arterial road, connecting directly with a hierarchy of streets within the new urban area and providing for effective connections between the new urban area and Levin's street network.

N5

3.4 Option N5 would have somewhat similar benefits for urban development when compared with N9, with the following differences:

- The urban area encompassed by the alignment would be smaller than N9. As above, this may or may not be significant depending on the actual growth and the overall planning for the district;
- The area encompassed by the highway would have an irregular shape – roughly 450m wide at Tararua Road and 1km wide at Queen Street East – and the alignment is not consistent with the current cadastral pattern. This would impose some constraints on future street and block layouts and likely a slightly reduced yield compared with N9; and
- The route takes less advantage of the corridor provided by the former transmission line.

3.5 As discussed above, the actual boundary of the urban extension areas would need to be reconciled with the details of this highway alignment option.

N4

3.6 Option N4 would be less suited than N9 or N5 for urban development east of Arapaepae Road for the following reasons:

- The urban expansion area would be separated from Levin by the highway: such effects would be compounded by the combined width of Arapaepae Road and the highway, and the space left to manage between the two roads;

- The limited number of potential crossings of the highway would reduce connectivity between the new area and Levin. It would tend to promote the new area as a stand-alone suburb (such limited crossings are less of a hinderance for a low density large-lot residential development envisaged by the existing structure plan simply because of the reduced number of people using them).
- The offset of N4 from Arapaepae Road would create a long, narrow strip of land with inefficient dimensions for urban development, particularly if Arapaepae Road were to be retained as an 80kph limited-access road; and
- The highway would be exposed to urban residential lots on both sides – which may require such measures as set-backs or noise walls.

3.7 Such shortcomings could be addressed by design. An option, for instance, would be to place the highway in a trench close to Arapaepae Road so as to reduce adverse amenity effects, reduce overall width, and retain local road connections above the highway. However, there would be cost implications for such measures.

N8

3.8 Option N8 would provide few constraints to urban development as it would be located further east than the likely limits of such expansion. It would, however, have significant adverse impacts on the existing rural residential (or large-lot residential) area in the vicinity of Gladstone and Denton Road area. It would also mean that any 'Greenbelt' area remaining becomes sandwiched between urban development and the highway.

Summary

3.9 Options N9 and N5 would best accommodate urban development east of Levin. Of the two, N9 would accomodate somewhat greater growth (which may or may not be significant depending on the extent of growth to be accommodated), would best align with the LS6 and LS6 urban extension options depicted on Figure 6 of the draft Growth Strategy, and the regular shape would enable a regular street network and block layout. N4 would be less preferable. While N8 would provide few constraints to urban development, it would have significant adverse effects on the rural residential (or large-lot residential) area. As noted for the large-lot residential development, there may be opportunities to fine-tune highway options and detailed alignments to best accommodate long-term needs.

4 CONCLUSIONS

4.1 Option **N9** lends itself to both the existing preliminary structure plan (large lot residential subdivision) and potential future urban expansion. It offers the opportunity to make use of the existing transmission corridor, and is square to the cadastral pattern. On the one hand it would minimise impacts on the existing 'Greenbelt' structure plan. On the other hand, it would create a clear boundary between a potential urban area to the west and a residual 'Greenbelt' area to the east. It therefore retains flexibility regardless of which development type is settled upon.

- 4.2 Option **N5** is somewhat similar. However, it is slightly less favourable with respect of the existing 'Greenbelt' structure plan because it cuts across the existing cadastral pattern, and does not take advantage of the corridor created by the transmission line. With respect to urban development, option N5 would create a clear boundary between an urban area to the west and a residual 'Greenbelt' area to the east in a similar manner to option N9. However, the area encompassed by the highway would be somewhat smaller than that encompassed by N9 (which may or may not be significant depending on actual growth and overall planning for the District), and of a less regular shape – therefore imposing some constraints on street and block pattern.
- 4.3 Option **N4** is a favourable option with respect to the existing structure plan; it is consistent with the location of the transport corridor depicted on the structure plan, would provide a boundary between urban Levin and the Greenbelt area, and is (for the most part) square with the cadastral pattern therefore achieving a good 'fit' with the landscape and allowing for efficient development. However, N4 does not lend itself to future urban expansion; it would create severance between the new urban area and Levin, hinder connectivity, and result in residential development adjacent to both sides of the highway. Such effects could be mitigated by the highway design, but at likely greater cost.
- 4.4 Option **N8** would not hinder urban expansion because it is furthest from the edge of Levin. However, it would have a greatest impact on the existing landscape and proposed large-lot residential area. It would also result in a 'no-mans-land' between the edge of the urban expansion area and the highway.
- 4.5 In summary, **N9** is the best option for both the existing structure plan and urban expansion. **N5** is slightly less favourable than N9. Option **N4** is favourable for the existing structure but is not favourable for urban expansion – although design could mitigate some of the adverse effects. **N8** is the least preferred option because of the impacts on the existing rural residential area, and on future large-lot development nearer the hills.

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