

## Specialist Response

**From:** Wissam A. Shumane, Traffic Engineer

**Date:** 08.06.2021

### Overall Summary:

Shumane Consultancy - 2015 (**SCON**) has been engaged by Council to evaluate the likely traffic engineering effects and to complete a design audit of a proposed residential development at 460 West Coast Road, Glen Eden, (**the Site**). Council's reference is BUN60378463. The Site of proposal covers a number of properties located at the southern corner of the West Coast Road / Parrs Cross Road with frontages to West Coast Road and Glengarry Road.

The proposal involves the establishment of 246 dwelling units, three 100 m<sup>2</sup> commercial units, a 100 m<sup>2</sup> café and one 100 m<sup>2</sup> community centre. The proposed development includes three new public roads and several Jointly Owned Access Lots (**JOAL's**).

This peer review and design audit report considers the general requirements of the Auckland Unitary Plan – Operative in part (**AUP-Oip**) and is based on the available information.

To complete this evaluation, we have examined all available documents and visited the Site once.

The specific documents we have reviewed are as follows:

- A Traffic Impact Assessment (**TIA**) prepared by Traffic Planning Consultants (**TPC**) and dated February 2021.
- An Assessment of Environmental Effects (**AEE**) prepared by CIVIX (**Civix**) and dated 23 March 2021 (brief review of the relevant sections).
- Engineering drawings for the project, prepared by Civix, all are dated 18 March 2021 but without a revision number (date is placed in the revision box), there are no signatures on the submitted drawings.
- A response to the application by Auckland Council's public transport assets manager Auckland Transport (**AT**), dated 01 June 2021.

In addition to the above, we have also reviewed other information, such as the Infrastructure Report and the pre-application meeting minutes.

The review below focuses on high level traffic engineering matters and does not cover aspects that have been addressed by AT. It is noted, however, we are largely in agreement with AT's conclusions, which we discuss in the review below.

## 1 Traffic Engineering Effects

### 1.1 Parking Demand and Supply

The parking requirements of the AUP-Oip are discussed fully in Sub-section 3.9 of the TIA. Overall, it is stated that all but four dwelling units will have a single parking space. However, it is

not clear which units are not provided with parking as all parking is provided in communal areas along the JOAL's.

The commercial units (four, including the café) require a minimum provision of 16 spaces and the community centre requires 12 spaces. The proposal includes a small 12-space facility to service all five units. It is noted that two of the four commercial units are located on the west side of the new Road C, away from the parking facility.

From a technical perspective, therefore, the proposal has a parking shortfall of 20 spaces.

In addition to the above, the development contains a total of 47 on-street parking spaces. From a technical perspective, these – being located on public roads – may not be considered part of the proposed supply for specific land uses.

We have reviewed AT's comments in this regard, and we generally agree with AT's concerns and add the following comments:

Residents' and visitors' parking demands:

1. The TIA states that in terms of the four residential units without parking "*future tenants would be made aware of the situation prior to purchasing/renting the property and it would not be unknown to them*" and "*they will not chose [sic] to buy or rent the unit if it does not suite their needs*". On-street parking is available in various places and residents will use this facility if they do not have access to their own private parking.
2. As explained by AT (bullet point 4), there are no plans for an additional rapid transit line in the area and as shown on Figure 4 o the TIA there are only three bus routes along the Site's frontages. The carrying capacities of these routes may not be substantial to cater for high density developments. It is therefore not fully accurate to suggest that the use of public transport can off-set the shortfall as implied in the third bullet point on page 28 of the TIA.
3. While not specifically required by the AUP-Oip, it is a good practice to assess the likely demands when there is a technical shortfall. We note that demands will be generated regardless of what the requirements are. Our observations of other medium to high density residential developments show that a sizeable portion of families who live in three or more bedroom units and some two bedroom units have more than one vehicle. It is accepted that the AUP-Oip requires one parking space, but actual demands are higher. It is noted that service land uses such as supermarkets are not available within comfortable walking distances of the Site.
4. The likely effects of at least four space shortfall (together with potentially higher demands by other units) will be in the form of using the on-street parking bays, and that is a legal activity nonetheless and will result in no adverse effects unless on-street parking becomes oversaturated.
5. Visitors to the residential units also require parking. It is acknowledged that some may use other modes of transport, but the majority are likely to use the private vehicle. Visitors' demands can be as low as one space for every 5-7 units (which is the likely scenario of this development), and as high as one space for every 2-3 units. For 246 dwellings, demands are highly likely to be 35-50 spaces. Taking into account the strong possibility that some

residents will also use this facility, it is therefore expected that all parking bays will be heavily utilised during the high demand periods, i.e. weekends and evening.

6. Having said the above, it is not expected that the overspill will overflow onto Glengarry Road or other streets in the area. We make this conclusion from observations rather than analysis.
7. The main and most relevant concern with regard to overutilisation of on-street parking is safety. All proposed new public roads have a sufficient carriageway to accommodate low speed two-way traffic, which is an appropriate design. The occasional vehicle using the kerb side (as opposed to a parking bay) can act as a speed calming device, but oversaturation of vehicles along the kerb could result in major safety and operational hazards for the following reasons:
  - a. Minimal visibility may be available between stationary vehicles for a child (or a pet) to see approaching vehicles. While it is acknowledged that children must have a guardian while on the road, this may not be the case always in quiet residential streets.
  - b. Kerb side parking reduces the carriageway to one-way traffic, which could create an operational hazard if it is an oversaturated environment.
  - c. Service vehicles, such as refuse collection or emergency vehicles would not have the comfortable wide carriageway to manoeuvre.
  - d. Refuse collection personnel would have to wheel the bins from behind vehicles to remove waste and quite often just leave the bins anywhere creating hazards to both vehicles and pedestrians.
8. The most effective way to deal with the issue of oversaturation is by installing no stopping yellow lines along all kerb lines away from parking bays and vehicle crossings. It is accepted that this would create wider carriageways, which could result in speeding (to the condition), but the proposal includes speed calming devices for that purpose.
9. As it is highly likely that the parking demands will be more than the available supply we strongly recommend the no stopping restrictions be installed.

#### Commercial and community centre parking demands:

1. Two of the commercial units are located on the west side of Road C, while the minimal parking available (12 spaces) is provided on the east side of the road. It may be difficult for these two units to be serviced by the off-street parking provided.
2. There are two parking spaces available (a parking bay) outside these units and that will effectively be the only available parking. We are not confident that this is sufficient supply at this location (very close to one of the three access intersections).
3. No-stopping yellow lines can be installed to ensure the free movement of vehicles near the intersection and time restrictions (as recommended by AT) can also be imposed to ensure a reasonable turnover of the two spaces. However, the reality is that two parking spaces will not be sufficient for 200 m<sup>2</sup> of commercial GFA.
4. TPC explains that the community centre will operate outside the normal hours of the commercial units so the use of the 12 spaces can be shared. We agree. While it is

recognised that the technical requirement for the commercial units is 16 spaces, a supply of 12 spaces may be sufficient as these will largely cater for the local catchment.

5. In its assessment of the likely effects of the parking shortfall (page 28 of the TIA) TPC makes reference to well over 100 parking spaces on the new roads. This statement is not clear. The parking bays accommodate 47 vehicles only. We are concerned that TPC may be referring to parking along all kerb lines, which as discussed above can result in serious safety and operational hazards.
6. Also as discussed above, all available on-street parking (within the bays) is likely to be heavily utilised at least on weekends and evenings when the community centre has its highest demand, but not necessarily during the peak demand periods of the commercial units.
7. Essentially, while customers to the commercial units on the east side of Road C may be able to use some of the parking bays, guests at the community centre may not. It is therefore our view that the 12 parking spaces are the only supply available, which may be sufficient for the 100 m<sup>2</sup> community centre at most times, but not always if the centre is used for functions by non-residents of the Site.

To summarise the above:

- It is likely that the available parking supply for residents (notwithstanding the technical requirements) may not be sufficient to cater for all demands and no stopping yellow lines are therefore recommended to ensure carriageways do not become oversaturated and therefore resulting in safety hazards. TPC expects these restrictions to apply at least along some sections of the internal road network.
- The two commercial units on the west side of Road C do not have sufficient parking.
- Given the location of the proposed development, it is unlikely that parking will overspill onto neighbouring streets.
- While there may be sufficient supply of parking for the community centre and the two commercial units on the east side of Road C, it will be beneficial to introduce time parking restrictions as recommended by AT to ensure some level of turnaround.

In its TIA (page 29), TPC refers to the National Policy Statement for Urban Development (**NPS-UD**) and its mandate to remove all parking requirements from the AUP-Oip (and other district plans) by February 2022. TPC further suggests that while the AUP-Oip is still the guiding document (at present) "*consideration should be given to this new nationally led policy when assessing effects of parking shortfall*".

It is our strong belief that assessment of the effects of any parking shortfall (demands over supply) should consider the likely or expected environment while ensuring the drive to push for a modal shift (away from the private vehicle) is fully maintained.

We understand that removing parking requirements from district plans may not be fully required and in this case there is a possibility that some parking requirements may be retained. In this respect, given that Auckland's public transport's facilities are not yet up to the task of accommodating all demands (and may not be for some time) our professional view is that

removing all parking requirements and allowing all streets to become parking lots would lead to major safety hazards and traffic congestions.

## 1.2 Traffic Generation Effects

The TIA includes a comprehensive traffic generation assessment supported by SIDRA modelling, which AT has also reviewed and commented on. AT recommends that a certain level of sensitivity analysis should have been applied, which we generally with.

The main concern, which does not appear to have been examined by TPC is the effects resulting from the additional density.

The Site is located in a single house zone, while the proposed development is a medium density. If densities similar to those of neighbouring properties were applied, the Site would accommodate 80 to 90 houses (a simple tracing of the site's area over the aerial of the immediate neighbouring dwellings).

Standalone dwellings generate about 0.85 to 0.90 peak hour movements.

The current proposed development is expected to generate 160 peak hour movements (dwelling units only) and a typical development (as anticipated in the AUP-Oip) would generate up to 80 peak hour movements.

Essentially, the current proposal is expected to generate double the volume of traffic that the immediate road may be expected to accommodate. The level of additional generation is not too substantial, but cumulatively it could add unnecessary pressure on an already congested environment. This aspect is not discussed in the TIA.

Notwithstanding the issue of traffic surveys and the possibility of inaccuracies as alluded to by AT, the following are our observations of the modelling results:

1. At priority junctions, including roundabouts, a Degree of Saturation (**DoS**), which is the actual volume over the maximum capacity of a lane, of 85% is considered to be the highest level before upgrades should be considered. Please note that there is currently a drive to phase out the Level of Service (**LoS**) as a performance indicator.
2. In the AM peak period at the roundabout (Table 4) the DoS reaches 91% for one movement (after development) and it is reaching 78% and 80% in two other movements.
3. In the PM peak (Table 5), a DoS of 87% is reached in one movement. It is therefore likely that the additional movements will bring any needs to upgrade the intersection sooner than expected by AT. It should be noted that we have not undertaken any modelling to assess whether halving the trip generation would result in DoS levels lower than 85%.
4. The AM peak at the Glengarry Road / West Coast Road intersection (Table 6) records a DoS of 85% in one movement, but all DoS levels of the PM peak (Table 7) are under 85%.
5. The results of the three new intersections (Tables 9, 10 and 11) show acceptable operation with no unusual queues or delays.

In reading the results and noting that there might have been some inaccuracy in gathering data (as described by AT), we have formulated the view that the proposed development is highly likely to increase congestions at the roundabout (and to a lesser extent at the Glengarry Road

intersection). There is no discussion in the TIA of the need to upgrade the roundabout and any measures to minimise the impact.

Our own observations of the roundabout certainly show a more congested condition than presented by the modelling results. Tables 4 and 5 indicate that the average delay of the whole intersection is 11.0 sec and 9.4 sec during the peak periods, this may not be much greater than the geometric delay caused by the deflection of the roundabout.

We share AT's concern regarding the need to complete a sensitivity analysis.

### **1.3 Construction Traffic Effects**

The TIA discusses the issue of construction traffic effects in Sub-section 4.4, recommending the use of a Construction Traffic Management Plan (**CTMP**) to manage heavy vehicle movements during the construction period in particular as one access may be off West Coast Road. In the case of this project a CTMP is necessary to ensure minimal to no disruption to pedestrian movements as well as vehicle traffic.

Essentially, the effects during construction will be limited to the ability of trucks to enter or exit the Site without creating delays to other traffic or safety hazards. These effects can be managed at the access point by a suitably designed CTMP.

From a construction effect perspective, it is our opinion that the effects will be acceptable and temporary by nature provided that time restrictions apply if requested by AT at the time the CTMP is reviewed, this is covered by a recommended condition of consent.

Please note that a land use consent for the preliminary bulk earthworks required to form the Site to accommodate the future infrastructure is currently being assessed by Council and will have a condition of consent requiring its own CTMP.

## **2 Traffic Engineering Design Audit**

### **2.1 Design Audit of Private Laneways**

All rear lanes appear to be designed to adequate standards (refer to Civix drawing 1252) with good gradients (refer to Civix drawings 1230 to 1234).

All parking spaces have workable and complying dimensions. However, given that some JOAL's have gradients exceeding 5.0% it is not clear how all parking spaces would have a complying crossfall of 5.0% as described on page 13 of the TIA. Minor increases in the crossfalls (up to 6.3% on Lane D1) maybe acceptable, but they need to be highlighted as a reason for consent. It is noted that the parking spaces on Lane D1 will be used by casual users only (commercial units and community centre).

Most perpendicular parking space end at the internal footpaths. It might be beneficial to install wheel stops in these spaces to ensure that vehicles do not overhang and block the footpaths.

The pedestrian provisions within the Site (and individual blocks) are acceptable, although we would suggest a width of 1.2 m given the number of units each walkway will serve. This is only a suggestion.

The only minor concern we have identified is the ability of drivers using the three parallel spaces in Lane B1 and two spaces in Lane B2 to complete a full turn in the 7.1 m wide JOAL. It is possible these vehicles will require multiple manoeuvres, which is not a major concern and will only affect users of this parking facility.

We note that all vehicle crossings shown on Civix drawings (1200 to 1206) are not to the correct current standards and all appear to be extending for the full width of the JOAL's carriageway (7.1 m), which does not meet the relevant requirements of the AUP-Oip. This can be covered by a condition of consent requiring all crossing to be installed to the correct standard and be not wider than 6.0 m at boundary.

## **2.2 Proposed Public Transport Assets**

AT has completed an initial detailed audit of the proposed assets, which we do not wish to repeat. However, we have identified a few aspects that may require further consideration and / or refinement.

Road B is designed to accommodate two-way traffic, but its approach to Road D allows for exit movements only. While it is expected that most residents will obey the "NO ENTRY" restriction at this location, the reality is that some will ignore it and enter Road B from Road D. At most times and although it is illegal this may not result in any incident (low traffic movements), but there is always an occasion when an exiting motorist will encounter a vehicle entering illegally.

There are no reasons for designing for one-way roads in new subdivisions.

The new solid median on West Coast Road, which is essential to enforce the left movement only controlled access, will also restrict movements to the existing dwelling at 466 West Coast Road. These effects are not discussed in the TIA.

Other matters relating to the new public transport assets are covered by AT.

## **2.3 Refuse Collection, Loading and Servicing**

In Sub-section 3.13 the TIA notes that refuse collection will occur by both private and public contractors. This statement is somewhat vague. It is possible that all dwelling units that front a public road will be serviced by Council's contractors, while all units without a street frontage will require the services of a private collection firm. It may be necessary to clarify this statement and cover the matter by a condition of consent.

We reviewed the tracking curve analyses provided in the TIA and examined the likely effect of trucks reversing out of JOAL's, we have not identified any major issues noting that this will only occur once or twice weekly. The JOAL's are reasonably open and reversing trucks will be visible from the street and footpath giving both pedestrians and drivers ample view of the reversing truck to stop and wait.

No specific loading provisions are discussed for the commercial activities and the community centre. Many deliveries can be made by vans or small trucks that can use the 12 parking spaces. A truck reversing at this location (Lane D1) is not advisable due to it being located inside of an intersection.

Should larger trucks (8.0 m long) service any of the units it may be best for this to occur outside peak parking demand periods so truck drivers can use the whole paved area to manoeuvre and exit in a forward manner.

The two commercial units on the west side of Road C can only be serviced from the road and the parking bay may not always be available for that purpose.

In terms of loading and servicing, while the commercial component of the proposal (500 m<sup>2</sup> of various activities) is reasonably small, it will require deliveries and some may need a form of a loading facility, this is not provided for and that is not an acceptable approach for a greenfield development.

Loading and servicing activities of the residential component of the proposal are catered for adequately.

### **3 Covid 19 Recovery Act**

In Section 7 of its TIA, TPC acknowledges that traffic engineering may not be entirely relevant to the purposes of the Act, but offers comments that TPC considers to be relevant subclauses.

TPC makes the following statement:

*“The roading provided will contribute to well-functioning environment by providing two links to Glengarry Road and one link to West Coast Road, providing residents with multiple choices to access the wider road network.”*

The Site has two long frontages to both roads. It would be logical for any development on this site to create accesses to both roads.

TPC provides the following additional statement:

*“Traffic calming measures on the public roads will contribute to a safe and well-functioning traffic environment, Furthermore, providing a low speed street network that allows cyclists and vehicles to share the same carriageway on an equal basis.”*

It is the current standard to design all local residential streets to 30 kph standard, which require speed calming devices and this applies to all new developments. The proposed roads are no different to all other new roads in new subdivisions and do not provide specifically for cyclists.

TPC makes the following statement:

*“The roading infrastructure contributes to improving economic and employment outcomes by servicing 246 units which will house people living and working in the West Auckland and wider area.”*

The above statement may be referring to a field outside of our traffic engineering expertise and we are unable to comment on it.

### **4 Conclusions and Recommendations**

Overall, having considered all relevant requirements in the AUP-Oip it is our view that:

1. There is a strong possibility that the on-street parking supply will be oversaturated on weekends and during evenings. It is recommended that no stopping yellow lines be installed on both sides of all roads (outside parking bays and vehicle crossings).
2. While the three commercial units (including the community centre) on the east side of Road C will have sufficient supply of parking to meet their demands at most times, the two units on the west side do not have access to any reasonable parking supply.
3. The proposed development is likely to generate twice the amount of traffic movements that a development similar to neighbouring properties may generate. No sensitivity analysis has been undertaken to determine the “what if” scenario, and there is no discussion of the need to upgrade the transport infrastructure.
4. AT has reviewed the internal road design and identified a number of design deficiencies, these are not covered by our review.
5. All JOAL’s appear to be designed to adequate standards but there is a query about the full manoeuvring of five parking spaces in Lanes B1 and B2 as well as the crossfall of spaces in Lane D1.
6. All vehicle crossings are plotted to an incorrect standard and require adjustments.
7. Loading and servicing provisions for residents are adequate although a clarification is needed. Loading for the commercial units, in particular those west of Road C, is problematic.

Should the proposal be granted consent we suggest the following conditions (SUB and LUC components), some incorporate AT’s recommended conditions of consent:

1. (SUB and LUC) Prior to the commencement of any works on the Site, the consent holder shall submit to and have approved by the Council’s Team Leader North-western Monitoring, a Construction Traffic Management Plan (**CTMP**) The CTMP shall be prepared in accordance with the Council’s requirements for traffic management plans or CTMP’s (as applicable) and New Zealand Transport Authority’s Code of Practice for Temporary Traffic Management and shall address the surrounding environment including pedestrian and bicycle traffic. No construction activity shall commence until the CTMP has been approved by the Council’s Team Leader Northern Monitoring and all construction traffic shall be managed at all times in accordance with the approved CTMP.

**Advice Notes:**

*The CTMP should contain sufficient detail to address the following matters: measures to ensure the safe and efficient movement of the travelling public (pedestrians, vehicle occupants, local residents etc., restrictions on hours of vehicle movements to protect amenity of surrounding environment during earthworks phase if required by Auckland Transport.*

*It is the responsibility of the applicant to seek approval for the Traffic Management Plan from Auckland Transport. Please contact Auckland Transport on (09) 355 3553 and review [www.beforeudiq.co.nz](http://www.beforeudiq.co.nz) before you begin works.*

2. (SUB) Unless specifically provided for by this consent approval, there shall be no damage to public roads, footpaths, berms, kerbs, drains, reserves or other public asset as a result of the earthworks and construction activity. In the event that such damage does occur, the Council's Team Leader North western Monitoring will be notified within 24 hours of its discovery. The costs of rectifying such damage and restoring the asset to its original condition shall be met by the Consent Holder.
3. (LUC) All new vehicle crossings shall be designed and formed to the Transport Design Manual (Vehicle Crossing Standards released in 2017). This shall be undertaken at the Consent Holder's expense and to the satisfaction of the Council's Team Leader North western Monitoring. The vehicle crossings shall have a maximum width of 6.0 m at boundary.

**Advice Note:**

*When a s224c Certificate is applied for, verification that Auckland Transport has completed approval and a final vehicle crossing inspection before this clause is considered fulfilled. An approval letter and completion certificate from Auckland Transport is required to be submitted to Auckland Council.*

*Should the design of any vehicle crossing not meet the appropriate standards, the Consent Holder is advised that it will need to apply for a Departure from the Standards from Auckland Transport prior to installation.*

4. (SUB) Design, form and construct the access strips included in all private laneways in accordance with Council's Code of Practice for City Infrastructure and Land Development. The design is to provide for stormwater catchpits and/or slot drains within the boundaries of the laneways (or elsewhere within the site, if appropriate). Where necessary the provision of kerbing or similar to prevent water flowing on to other properties shall be provided.

**Advice Note:**

*The Consent Holder is to lodge an application for an Engineering Right of Way application for the construction of the access strips with Council. This can also be included in the Engineering Approval application required for the installation of public assets, such as stormwater, wastewater and public roads.*

5. (SUB) Provide an "as built" plans from a Licensed Cadastral Surveyor at the s224c stage identifying and certifying that all services and access strip formations have been located in accordance with the locations on registered easements, or within legal boundaries to the satisfaction of the Team Leader - Development Engineering.
6. (SUB) The Consent Holder shall provide and install road naming signs in accordance with Council standards for the new private laneways. The names shall be as approved by the Council. In the context of this condition, all three laneways may have the same name if preferred by the Consent Holder.

**Advice Notes:**

*Land Information New Zealand (LINZ) requires that private roads within common access lots or lot accesses comprising panhandle access strips and / or reciprocal rights of way easements that serve six (6) or more lots are to be named. LINZ has indicated that a name*

*for the road or private road should be in place before the survey plan of subdivision is approved by the council under section 223 of the RMA and advises that if no name is in place this could be problematic when titles are later requested.*

*The consent holder should obtain evidence of acceptance from LINZ that the proposed names are not duplicated within the Auckland Council area before submitting the names to the Council for reporting to the relevant Local Board for approval. In giving its approval, the Local Board will have regard to the relevance of the road names to the locality or determine that the names are otherwise appropriate.*

7. (SUB) All works required to install new or upgrade existing public transport assets (if any) shall be covered by an application for Engineering Approval to be lodged with Council. This may also include the construction of all shared laneways.
8. (SUB) No stopping at all times broken yellow lines shall be installed along all kerb lines away from parking bays and vehicle crossings.

**Advice Notes:**

*It is the responsibility of the Consent Holder to obtain an approval in principal for all regulatory signs and markings (yellow lines, give way controls, etc) from Auckland Transport's Traffic Control Committee prior to issuing of the s224s certificate for the subdivision.*

The above recommended conditions of consent are site specific and relate to the internal design of the Site. Other general engineering conditions may be recommended by the development engineer or Auckland Transport.

We trust the above comments (review and audit) are satisfactory for your purposes.

Kind regards

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**06 June 2021**

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