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10 December 2018

P0842 dwp Aberdeen Valley Fair Traffic Study

Enef Investments Pty Ltd
c/o. dwp
16 Telford Street
Newcastle NSW 2300

Attn: Christian Barkowski

Dear Christian,

Proposed Mixed-Use Development (Aberdeen Valley Fair), New England Highway, Aberdeen, NSW.

Further to your email and following our site visit and review of the documentation provided for the proposed mixed-use development at Aberdeen, NSW, we provide the following traffic impact statement. This assessment has been prepared in accordance with the Austroads Guidelines and Section 2.3 of the RTA Guide to Traffic Generating Developments which provides the structure for the reporting of key issues to be addressed when determining the impacts of traffic associated with a development. This guide indicates that the use of this format and checklist ensures that the most significant matters are considered by the relevant road authority.

The report has also taken into consideration the planning requirements and comments from RMS and Upper Hunter Shire Council.

The subject site is located on the corner of Perth Street and the New England Highway, Aberdeen as shown in Figure 1. It currently contains an existing supermarket, bottle shop and several retail stores. The surrounding land use consists of mostly residential housing and rural land.

Access to the site is currently provided with separate driveways from both the New England Highway and Perth Street.

Figure 1 – Location of the subject site in the context of the local road network (Source: Nearmap).

Roads and Maritime (RMS) has reviewed the preliminary documentation submitted for the proposed development and provided comments for further consideration. Responses to these comments have been provided throughout the report where appropriate, as highlighted below.

RMS Comment	Section Discussed / Comments
New England Highway - Access	
Two options involving differing alignments on the New England Highway were given within the Traffic Impact Statement for access into the site. The second option, which involves retaining the parking lane fronting the residential properties opposite, reduces the environmental impact on the residents and is therefore the preferred layout.	Preferred layout has been adopted and integrated into the access concept design for the proposed traffic signals at Perth Street. A copy of the relevant concept designs are provided in **Attachment B**.
The egress from the service station onto the New England Highway travels across the proposed painted median, immediately adjacent to the deceleration lane into the service station. This arrangement is not supported and should be revised.	The site layout and access arrangements have been amended to allow for egress onto Perth Street for all vehicles intending to turn right onto the New England Highway, including B-double combinations. Swept paths (Autoturn) have been prepared to demonstrate that a B-Double shall be able to enter and exit the site in a forward direction via the New England Highway (ingress, egress southbound only) or Perth Street (egress northbound only).
A pedestrian refuge is required to be provided on the New England Highway to facilitate safer pedestrian access to the site. Refer to RMS Technical Direction 2011/01a. The pedestrian refuge is to be connected via the provision of concrete footpath connecting to the existing footpath north of Perth Street.	The revised access arrangements allow for the installation of traffic control signals at the intersection of the New England Highway and Perth Street. A concept design for these signals is provided in Attachment B and includes marked foot crossings on all legs.
The existing bus stop on the New England Highway is to be relocated from within the left turn deceleration lane into the service station.	Sections 3.2.6, 4.6.5. Bus stop has been relocated south of the service station access as shown on the concept design in Attachment B.
A left turn deceleration lane is required on the New England Highway on approach to Perth Street.	Not required - the New England Highway / Perth Street intersection shall be upgraded to provide for traffic control signals. See concept design in Attachment B.
The proposed alterations are to provide for on-road cyclists.	Section 3.4.6. See concept design in Attachment B.
Highway Service Centre Rest Stop	
There appear to be a number of conflict points for vehicle paths. All of the indicative Fill Points and the two isolated parking / loading sites closest to the New England Highway (Drawing A004) are in conflict with heavy vehicles either entering the site, reaching the loading docks, or entering / leaving the truck parking area (Traffic Impact Statement, Attachment C).	The location of fill points has been revised as indicated by the site plan in Attachment A. Swept paths (Autoturn) has been provided to demonstrate that a B-double is able to pass around a vehicle stopped at the fill point as required. Swept paths are shown in Attachment C.

There is nothing which would appear to prevent light vehicles or loading vehicles from accessing and / or utilising the truck parking area. This is also not conducive to use of the site as an opportunity for heavy vehicle drivers to stop and rest.	Section 3.2.1. The site layout has been revised with only a single vehicle access to the truck parking area. Suitable signage and linemarking is to be provided to control light vehicle access to this area.
Advice to Council	
An additional pedestrian refuge should be provided on Perth Street at the New England Highway intersection.	Sections 3.2.6, 3.4.6, 4.6.3. Pedestrian access on Perth Street will be available from the traffic signals to be provided at the intersection of the New England Highway / Perth Street. See concept design in Attachment B.
A right turn bay into the shopping centre should be provided on Perth Street.	Section 4.3. Traffic volumes on Perth Street and demands for vehicles turning right into the site from Perth Street do not satisfy the warrants for a channelised turn lane. Sidra modelling for the access off Perth Street confirms that there will be minimal delays and queuing associated with vehicles turning right into the site off Perth Street.

The RMS has also raised several concerns regarding the operation of the truck stop. The site is not intended to operate as an overnight rest stop with truck parking provided on site considered to be ancillary to the various uses proposed on site. The provision of heavy vehicle parking on site ensures that truck drivers travelling along the New England Highway can pull into the site when stopping to purchase fuel, food or other supplies from the service station, drive-thru or various retail stores.

In addition to this, Upper Hunter Shire Council has also provided the following comments which have now been addressed in the revised site layout:

- Swept paths for B-Double egress onto Perth Street and right turn from Perth Street onto the New England Highway (refer to **Attachment C**);
- Provision for Traffic Control Signals at the intersection of New England Highway / Perth Street;
- Internal road layout changes to minimise conflicts and provide increased separation of heavy vehicle movements;
- Increased car parking adjacent to the service station;
- Low height fencing to control pedestrian circulation; and
- Provision of car parking for vehicles with caravans or trailers (Service Station & Bulky Goods).

Traffic Impact Assessment:

Item	Comment
Existing Situation	
2.1.1 Site Location and Access	The subject site is located on the corner of Perth Street and the New England Highway, Aberdeen as shown in Figure 1 above. Access to the site is currently provided with separate driveways to both the New England Highway and Perth Street.
2.2.1 Road Hierarchy	**New England Highway** is the major arterial road running through the township of Aberdeen. It forms part of the state road network (HW9) providing a connection from Newcastle (Hexham) to the east through Muswellbrook and north to the Queensland Border. In the immediate vicinity of the subject site, it provides a wide pavement of 14-20 metres allowing for a single lane of travel in each direction with kerbside parking to each side of the roadway. Street lighting is provided however pedestrian footpaths are inconsistent. The posted speed limit in this location is 50 km/hr. The New England Highway connects with Perth Street via a four-way give way controlled intersection with the New England Highway having priority. All turning movements are allowed for at this intersection. **Perth Street** is a local road which provides a single lane of travel in both directions with opportunities for kerbside parking to each side. It has a sealed pavement which varies in width from 8 metres across the rail overpass located to the west of the site, increasing to approximately 14 metres approaching the New England Highway. Street lighting is provided and a pedestrian footpath is provided to the northern side of the road, east of the New England Highway. The surrounding roads are local roads under the care and control of the Upper Hunter Shire Council.
2.2.2 Roadworks	No roadworks currently planned or ongoing in the locality of the site. A review of Council's website and RMS website indicates that there are no significant roadworks or road upgrades currently proposed in this location.
2.2.3 Traffic Management Works	No traffic management works currently noted in the locality of the site.
2.2.4 Pedestrian and Cycling Facilities	Pedestrian footpaths are provided along at least one side of the New England Highway extending north from Perth Street to the Fitzgerald Bridge. There are no dedicated on-road or off-road cycling paths provided in the locality of the subject site. Cyclists are able to ride on-street along the local roads as required. A review of the Upper Hunter Bicycle Plan 2015 indicates a number of opportunities to improve cycling connectivity through the Aberdeen township including a dedicated cycling lane along both sides of the New England Highway. No specific details or timing have been provided for these works.
2.3 Traffic Flows	As part of the project work, Seca Solution collected traffic data at the intersection of the New England Highway with the exiting site access to determine its current operation and traffic flows. These surveys were completed during a typical weekday morning on Thursday 30th March 2017 and afternoon on Wednesday 29th March 2017.

Item	Comment
	Current traffic flows on the New England Highway (south of Perth Street) were 828 vehicles per hour during the morning peak (8am to 9am) and 906 vehicles during the afternoon peak (4:30pm to 5:30pm). Observation of traffic flows on Perth Street indicate that traffic flows along this road would be less than 50 vehicles per hour during the peak.
2.3.1 Daily Traffic Flows	Advice from the RMS Guidelines indicate that peak hour flows typically represent around 8-12% of the daily traffic flows. As such the daily flows along the New England Highway could be in the order of 7,200-10,800 vehicles per day (vpd).
2.3.2 AADT	Average annual daily traffic (AADT) is available for the New England Highway with a permanent classifier located at Aberdeen, to the south of Gordon Street (Station ID: 6159). The 2016 AADT was 10,210 vpd with peak flows of less than 450 vph per in each direction.
2.3.3 Daily Traffic Flow Distribution	Daily traffic flows are generally balanced in both directions along the New England Highway with 2016 data indicating 5079 vpd northbound and 5131 vpd southbound.
2.3.4 Vehicle Speeds	No speed surveys were completed as part of the survey work, however observations on site indicate that drivers would typically travel within the posted speed limit due to the interactions with driveways and intersections.
2.3.5 Existing Site Flows	The subject site currently generates traffic flows associated with the existing supermarket and associated stores. As part of the site work, the existing site flows were recorded at the access driveway to the New England Highway. These were determined as being in the order of 108 vehicles during the evening peak with significantly lower flows (40 vehicles) during the morning peak. No vehicles were observed to use the access on Perth Street during these surveys.
2.3.6 Heavy Vehicle Flows	The New England Highway forms part of the state road freight network carrying a wide range of vehicles up to and including B-double combinations. As such, heavy vehicles represent a significant proportion of the total vehicle movements; approximately 16% as indicated by the permanent classifier to the south of the site.
2.3.7 Current Road Network Operation	Observations on site indicate that the local roads operate well with very minimal delays and congestion throughout the morning and evening peak.
2.4 Traffic Safety and Accident History	A review of accident data provided by the RMS for the area in the immediate locality of the site indicates that there were four (4) accidents recorded along the local roads in the 5 year period between July 2011 to June 2016. All four of these accidents occurred at intersection with two accidents having occurred at the intersection of Perth Street and the New England Highway and the balance at the intersection of Heliers Street to the south of the site. None of these accidents resulted in an injury. Overall the local road network provides an acceptable level of road safety, with the surrounding roads and intersection being well laid out with good visibility for drivers.
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	On-street parking is permitted along the local roads with typical restrictions associated with driveways, intersections and bus stops. There are 'no stopping' zones located to the front of the site which restrict parking on the New England Highway for vehicles over 6 metres long. These apply between 6pm and 6am.

Item	Comment
2.5.2 Off-street Parking Provision	Off-street parking is provided within the site for the existing shops and supermarket. No other public off-street parking is available within the locality of the site.
2.5.3 Parking Demand and Utilisation	Observations on site indicate that there is a very low demand for on-street parking in this location with parking for nearby residences being provided within the individual lots. Parking demands associated with the existing use of the site are fairly low and can be contained within the site with no external impact.
2.5.4 Set down or pick up areas	No formal set down or pick up areas noted in the locality of the site.
2.6 Public Transport	
2.6.1 Rail Station Locations	The nearest railway station is Aberdeen Station which is located approximately 550 metres to the north of the site. It is serviced by the Hunter Line which provides services between Newcastle and Scone.
2.6.2 Bus Stops and Associated Facilities	A sheltered bus stop with seating is provided to the front of the subject site on the New England Highway. This bus stop provides for southbound services with a second bus stop for northbound services located on the opposite side of the highway. This bus stop provides seating only.
2.6.3 Transport Services	Buses services are operated along the New England Highway by Osbornes Transport with a small number of services provided each day between Denman, Muswellbrook and Scone. All bus services operate as hail and ride with dedicated bus stops only provided at key locations. School buses also operate through the area. Aberdeen Station is located on the Hunter Line and provides three services daily towards Newcastle with a similar number of inbound services.
2.7 Pedestrians Network	There are currently no footpaths provided along the site frontage, reflective of the limited demands for pedestrian movements. Pedestrians are able to walk along the grass verge as required to access the site from nearby residences, bus stops or to connect with existing footpaths to the north of Perth Street.
2.8 Other Proposed Developments	No other significant developments are currently proposed in the general locality of the subject site.
The Development	
3.1.1 Nature of Development	The proposal allows for the demolition of the existing buildings on the site to allow for a new mixed-use development consisting of: • a supermarket and bottleshop; • specialty retail stores and cafés; • slow trade / bulky goods retail stores; • commercial offices; • a service station with fast food restaurant and drive-thru; • associated car, truck and trailer parking, infrastructure, landscaping and amenities. Given the nature of the development, which will operate in a similar manner to a shopping centre, it is expected that there will be a high rate of cross-use between the various facilities. A master plan for the proposed development is included in Attachment A. Whilst the project may be constructed in several stages, this assessment has considered the traffic and parking impacts associated with the full development of the site.

Item	Comment
3.1.2 Access and Circulation Requirements	Driveway access to the site and the internal site layout are outlined in the planning requirements within Australian Standard AS2890: Parking Facilities and the Upper Hunter Development Control Plan 2015. All vehicles shall be able to enter and exit the site in a forward direction with the internal roads and parking aisles allowing for two-way movements. For the access from the New England Highway, consideration shall also be given to the relevant planning requirements outlined within the Austroads Guides to ensure appropriate turn treatments are provided at the various access points. As part of their preliminary review, Upper Hunter Shire Council has also required all northbound traffic to exit the site onto Perth Street, with separate egress for both light and heavy vehicle traffic.
3.2 Access	
3.2.1 Driveway Location	Access and egress from the site will be provided from several driveways off the New England Highway and Perth Street including: • Separate entry and exit driveways off the New England Highway (light and heavy vehicles) • Combined entry / exit driveway adjacent to the proposed supermarket off Perth Street (light vehicles and service vehicles associated with the supermarket, specialty retail etc). • Egress only driveway onto Perth Street, located opposite Alexander Close (heavy vehicles or cars with trailers / caravans). The southern egress driveway onto the New England Highway will provide for southbound connection only, with a raised central median to be provided to physically control right turns. Northbound connections to the New England Highway will be provided via Perth Street with separate egress for light and heavy vehicles. Directional signage shall be provided throughout the site to assist drivers exiting the site. Details of this signage shall be confirmed as part of the detailed design.
3.2.2 Sight Distances	Sight distance requirements for an access driveway are specified by AS2890, which are based upon the speed limit along the frontage. For the posted speed limit of 50 km/hr on Perth Street, the corresponding minimum sight distance for drivers exiting this driveway is 69 metres, which includes heavy vehicles. For access off the New England Highway, each driveway shall be designed and constructed as an intersection with appropriate treatments. Sight distance requirements for an intersection are provided by the Austroads Guide to Road Design 2009, which specifies a minimum sight distance of 97 metres for the posted speed limit of 50 km/hr along the New England Highway. Sight distances at each of the proposed access points have been reviewed on site as part of the project work completed by Seca Solution. Both Perth Street and the New England Highway provide a straight which ensures that there is good visibility for approaching vehicles and drivers exiting the site.

Item	Comment
	For the combined entry/exit driveway on Perth Street, there is clear visibility exceeding 70 metres in each direction, which exceeds the sight distance requirements specified by AS2890.2. For the two driveways accessing the New England Highway, sight distances exceed 125 metres in both directions along the New England Highway, which exceeds the requirements for an intersection as specified by the Austroads Guides. No right turn is permitted onto the New England Highway and therefore a review of sight distance to the left (south) is not required.
3.2.3 Service Vehicle Access	Service vehicles will be able to access the site from the New England Highway with the separate entry and exit driveways catering for heavy vehicles up to and including B-double combinations. Egress onto the New England Highway shall provide for southbound traffic only, with northbound traffic required to exit via Perth Street. Directional signage shall be provided throughout the site to direct drivers to the appropriate egress driveway. Autoturn has been completed for the site to demonstrate access for heavy vehicles with these vehicles able to enter the site, circulate to the parking or loading areas and exit direct onto the New England Highway (for southbound travel) or via Perth Street (for northbound travel). All vehicles shall be able to exit onto Perth Street without crossing the centreline of the road. Swept paths have also been completed to confirm access to the various loading areas as follows: • 12.5m heavy rigid accessing the R2 Bulky Goods; • 19m semi-trailer accessing the R3 Bulky Goods; and • 8.8m medium rigid accessing the supermarket loading area. It is noted that the layout of the loading area adjacent to the drive-thru impact access for service vehicles. The loading area design shall be refined as part of the detailed design with regard to the kerbs or landscaping.
3.2.4 Queuing at entrance to site	There may be minor queuing associated with vehicles turning right into the site off the New England Highway. A sheltered right turn lane will be provided on the New England Highway which will allow for vehicles to hold while waiting to turn into the site without impacting upon the through movements northbound. There are no vehicle controls located within this driveway, ensuring that traffic can freely enter the site without delay. The intersection of the New England Highway / Perth Street shall also be upgraded to traffic control signals, with dedicated right turn lanes to be provided on the New England Highway in both directions. This has been assessed with Sidra modelling and these turn lanes shall provide sufficient storage for turning vehicles. No queues are expected at the entry/exit driveway onto Perth Street due to the low overall traffic flows along this road.

Item	Comment
	Any queues associated with vehicles exiting the site onto the New England Highway will form within the site with no external impacts.
3.2.5 Comparison with existing site access	The site currently provides two unsealed driveways off the New England Highway with an unsealed access also provided from Perth Street. These driveways will be removed and four new access points created. Separate entry and exit will be provided on the New England Highway which will be designed as intersections with appropriate turn treatments. No right turns will be permitted directly onto the New England Highway from these driveway, with a raised central median to provide control. Drivers intending to travel north along the New England Highway shall exit the site onto Perth Street, with separate driveways for light (entry / exit) and heavy vehicles (exit only). Any redundant kerb crossovers will be removed and kerb and guttering reinstated as required.
3.2.6 Access to Public Transport	The nearest bus stop is located along the road frontage at the north-west corner of the site. Due to the left turn deceleration lane which will be provided at the service station entry, this bus stop shall be relocated further south along the New England Highway. Pedestrian footpaths will be provided throughout the site and along Perth Street as part of the development, with these allowing for connectivity to bus stops on both sides of the New England Highway. Traffic control signals proposed for the intersection of the New England Highway / Perth Street will facilitate safe pedestrian access across each of these roads.
3.3 Circulation	
3.3.1 Pattern of circulation	Vehicles associated with the Supermarket and Retail Stores will typically enter the site from Perth Street with this driveway providing the most direct access to the associated parking for these stores. The majority of these vehicles would exit via this same driveway with some vehicles also exiting direct onto the New England Highway (southbound only). Vehicles associated with the service station and drive-thru, including heavy vehicles, will enter the site via the New England Highway. Southbound vehicles will exit the site direct onto the New England Highway with northbound traffic required to exit via Perth Street. Internal roads within the site allow for connection between the various parking areas and the service station / fast food restaurant. Directional signage shall be provided to assist drivers travelling within the site and direct traffic to the appropriate egress points. Access to the truck parking area and loading bays will be managed through the provision of suitable signage and line marking to discourage entry by passenger vehicles (excluding cars with trailers or caravans).
3.3.2 Road width	Internal roads shall be designed in accordance with AS2890 and the Upper Hunter Development Control Plan. Roads required for servicing and heavy vehicles access shall be designed to accommodate the turning movements of these vehicles as required.

Item	Comment
	Swept paths (Autoturn) has been completed demonstrating that a B-double can enter and exit the site via the respective driveways.
3.3.3 Internal Bus Movements	No requirement for regular buses to access the site. Tourist coaches can safely enter and exit the site if required.
3.3.4 Service Area Layout	Loading areas will be provided throughout the site with a separate loading dock for each building. Truck parking will be provided to the rear of the service station which can accommodate B-doubles.
3.4 Parking	
3.4.1 Proposed Supply	Parking will be provided throughout the site adjacent to the various uses including 275 car parking spaces including 6 spaces for cars with trailers adjacent to the bulky goods stores. Of these, 31 car parking spaces will be provided adjacent to the service station and drive-through with 19 angled parking spaces provided on Perth Street along the retail frontage. The balance of parking is located adjacent to the supermarket and retail/commercial complex. A total of 11 truck parking spaces and 10 spaces for caravans are also provided to the rear of the service station.
3.4.2 Authority Parking	The Upper Hunter Development Control Plan 2015 provides the following parking requirements for the various uses across the site: *Bulky Goods Premises* 1 space per 45 m^2 gross floor area. *Commercial (Business) Premises* 1 space per 35 m^2 gross floor area. *Restaurant or Café* 1 space per 7 m^2 gross floor area available for dining purposes. *Service Station* 6 spaces per work bay; plus 1 space per 20 m^2 gross floor area of the convenience store. Note that additional parking is required if a service station provides a restaurant facility. *Shops (less than 1000 m^2 GFA)* 1 space per 20 m^2 gross floor area. *Supermarket or Shops (greater than 1000 m^2 GFA)* 1 space per 30 m^2 gross floor area. *Take-away Food or Drink Premises* 1 spaces per 12 m^2 gross floor area; plus 1 space per 3 seats. It is noted however that the rate for take-away food or drink premises makes no allowance for facilities that provide a drive-thru. Advice from the RTA Guide to Traffic Generating Developments recognises the reduced parking demands for facilities which provide a drive-thru specifying parking at the rate of 1 space per 2 seats.
3.4.3 Parking Layout	Separate parking areas are provided for the supermarket / retail stores and the service station / drive-through takeaway.

<table>
<tr><th>Item</th><th>Comment</th></tr>
<tr><td></td><td>The layout of the various parking spaces throughout the site shall be consistent with the requirements outlined by AS2890.</td></tr>
<tr><td>3.4.4 Parking Demand</td><td>Parking demands associated with full development of the site have been calculated based upon the authority parking rates and are summarised below.

Table 1 – Parking Demands
<table>
<tr><th>Parking For</th><th>Floor Area / Seats</th><th>Spaces Required</th></tr>
<tr><td>Supermarket / Shops</td><td>Up to 1,200 m^2</td><td>40</td></tr>
<tr><td>Commercial Premises</td><td>Up to 1,400 m^2</td><td>40</td></tr>
<tr><td>Service Station</td><td>100 m^2</td><td>5</td></tr>
<tr><td>Drive-Thru Takeaway</td><td>Up to 396 m^2</td><td>33</td></tr>
<tr><td>Bulky Goods Premises</td><td>Up to 3,195 m^2</td><td>71</td></tr>
<tr><td>Total</td><td></td><td>189</td></tr>
</table>
Note that no allowances have been made in the above rates for shared use between the various facilities. It is considered that there would be significant cross-use between the various facilities associated with a person visiting the supermarket to collect groceries and then shopping at one of the retail stores etc. Similarly, those who fuel up at the service station could also purchase lunch at the takeaway or pass through the driveway upon leaving the site.

No allowances have been made for parking due to seating provided by the drive-thru takeaway. It is considered that these demands would be off-set by the reduction in the overall parking demands associated with cross-use between the various facilities and the provision of a drive-thru (consistent with the RMS Guide). Patrons of the take-away may also be truck drivers who can park within the truck parking area to the rear of the service station.

Allowing for the above, the total parking demands for the site could be in the order of 189 spaces. The development is proposing to provide 275 parking spaces which will be more than adequate to accommodate the potential parking demands for the site.</td></tr>
<tr><td>3.4.5 Service Vehicle Parking</td><td>Loading areas will be provided throughout the site to service the needs of the proposed buildings with trailer and caravan parking also provided in convenient locations to compliment the overall usability of the site.</td></tr>
<tr><td>3.4.6 Pedestrian and Bicycle Facilities</td><td>As part of the development a new pedestrian footpath will be established along the site frontage to Perth Street and pedestrian links created within the site to provide for access from both Perth Street and the New England Highway. Marked foot crossings will also be provided via the new traffic control signals proposed for the intersection of the New England Highway and Perth Street, allowing for safe and convenient access across these roads.
Bicycle access and parking facilities shall be provided throughout the site as required by the Upper Hunter Development Control Plan.

Provisions for on-road cyclists have also been included when designing access off the New England Highway.</td></tr>
<tr><td colspan="2">Traffic Assessment</td></tr>
<tr><td>4.1 Traffic Generation</td><td>Supermarket, Shops and Commercial
The RMS Guide to Traffic Generating Developments provides traffic generation rates for a shopping centre which comprises of various land</td></tr>
</table>

Item	Comment
	uses including a supermarket, slow trade and fast trade retail, speciality stores, offices and medical centres. It provides the following formula for calculating traffic demands for these uses: Weekday Evening Trips (vehicle trips per 1000 m^2 GLFA) = 20 A(S) + 51 A(F) + 155 A(SM) + 46 A(SS) + 22 A(OM) Weekday Daily Trips (vehicle trips per 1000 m^2 GLFA) = 314 A(S) + 528 A(F) + 1475 A(SM) + 555 A(SS) + 51 A(OM) where; A(S) = Slow Trade GLFA (3,195 m^2) A(F) = Fast Trade GLFA (None) A(SM) = Supermarket GLFA (597 m^2) A(SS) = Specialty Shops GLFA (603 m^2) A(OM) = Offices & Medical GLFA (1,400 m^2) Allowing for this, full development of the site would generate 215 vehicle trips during the evening peak with 2,290 vehicle trips daily. A review of the 2011 Census published online by the Australian Bureau of Statistics indicates that Aberdeen has a population of approximately 2000 people with approximately 900 dwellings. As such, the above traffic flows do not reflect the potential demands for the site, with limited demands expected from the surrounding towns of Muswellbrook and Scone. Some demand may be generated by passing trade however this part of the development is expected to meet primarily local demands. The proposed supermarket and shops will replace the existing uses on the site with minimal overall increase in demand anticipated. As a worst-case scenario, allowing 75% of dwellings to access the site each day, these uses could generate up to 1,350 trips per day, equally split between inbound and outbound. Assuming that the peak hour represents 10% of daily flows, this corresponds to 135 vehicle movements in the evening peak hour, which is an increase of 27 vehicles over the current use. These additional trips would primarily relate to the additional staff associated with the increased development. The RMS Guide to Traffic Generating Developments provides the following traffic generation rates for a service station and drive-thru takeaway restaurant: ***Service Station*** Weekday Evening Trips: 66 trips per 100 m^2 gross floor area of the convenience store. For the gross floor area of the service station being 100 m^2 this corresponds to 66 trips during the evening peak (33 inbound / 33 outbound). Note that the RTA Guide does not provide daily traffic rates for a service station instead indicating that the daily trip generation depends upon the sites operating hours.

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<tr><td></td><td>
The service station is expected to attract a high demand for passing trade along the New England Highway, with some shared trips associated with locals who travel to the site to complete their weekly shop.

Drive-Thru Takeaway
There are no specific rates provided within the RTA Guide for a drive-thru takeaway attached to a service station. It does however provide recommended traffic flows for a typical McDonalds of KFC franchise, regardless of the location or number of seats. These are 180 vph and 100 vph respectively. Daily vehicle trips depend upon the hours of operation.

Whilst specific details for the proposed drive-thru takeaway have not yet been confirmed, it is considered that the site will not provide a stand-alone destination with a large percentage of trips likely to be passing trade (more than 50%, consistent with the RTA Guide) or shared trips including those who stop for fuel at the service station.

Allowing for 20% cross-use with the service station, the drive-thru could generate in the order of 80-144 vehicles per hour depending on the franchise.

Given that a high percentage of the vehicles accessing the service station and drive-thru will be passing trade, it is considered that the traffic demands associated with these uses will reflect the typical demands along the New England Highway, varying depending upon the time of day. Peak hour flows in this location typically represent around 12% of the total daily flows between 6am and 10pm. Applying this to the service station and takeaway, the daily flows for these uses would be in the order of 550 vehicles and 1200, vehicles respectively.

Overall the proposed development could see an additional 237 vehicles accessing the site during the evening peak hour, with up to 2,020 additional vehicles accessing the site each day (assuming only minimal increased demand associated with the supermarket or shops).

Table 2 – Trip Generation
<table>
<tr><th>Traffic Flows For</th><th>Additional Peak hour trips</th><th>Additional Daily Trips</th></tr>
<tr><td>Retail and Commercial Complex</td><td>27</td><td>270</td></tr>
<tr><td>Service Station</td><td>66</td><td>550</td></tr>
<tr><td>Drive-Thru Takeaway</td><td>80-144</td><td>667-1200</td></tr>
<tr><td>Total</td><td>173-237</td><td>1487-2020</td></tr>
</table>
</td></tr>
<tr><td>4.1.1 Impact of Passing Trade</td><td>The majority of the traffic generated by the service station and drive-thru takeaway will be passing trade, consisting of vehicles which are already travelling the New England Highway including local residents. These vehicles will divert into the site to stop for fuel or food and then continue along the New England Highway upon exiting the site. As such, these</td></tr>
</table>

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<tr><th>Item</th><th>Comment</th></tr>
<tr><td></td><td>vehicles do not contribute to increased traffic demands along the local road network.

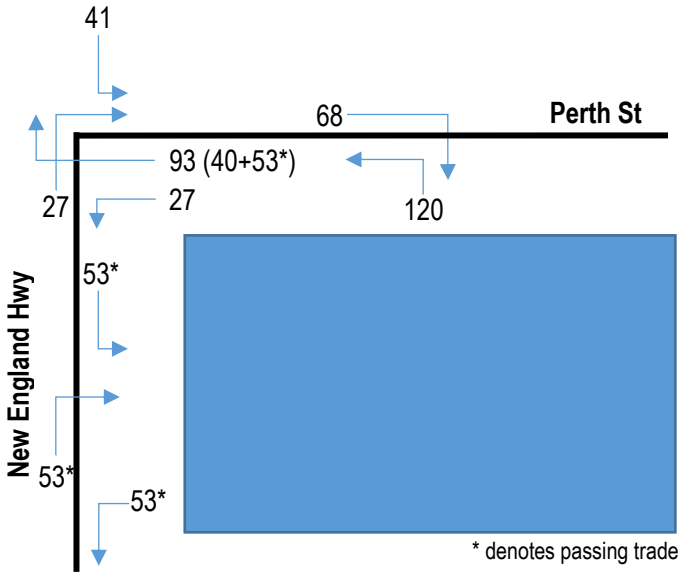
The traffic associated with the fuel station is therefore considered to all be passing trade whilst the Drive Thru Takeaway is being discounted by 50%.

Table 3 – Trip Generation with Discounts for Passing Trade
<table>
<tr><th>Traffic Flows For</th><th>Additional Peak hour trips</th><th>Additional Daily Trips</th></tr>
<tr><td>Retail and Commercial Complex</td><td>27</td><td>270</td></tr>
<tr><td>Service Station</td><td>66</td><td>550</td></tr>
<tr><td>Passing Trade Discount</td><td>-66</td><td>-550</td></tr>
<tr><td>Drive-Thru Takeaway</td><td>80-144</td><td>667-1200</td></tr>
<tr><td>Passing Trade Discount</td><td>-50-90</td><td>-417-750</td></tr>
<tr><td>Total</td><td>57-81</td><td>520-720</td></tr>
</table></td></tr>
<tr><td>4.1.2 Daily and Seasonal Factors</td><td>Minimal daily and seasonal variation in traffic movements associated with the development, other than normal variation between weekdays (working days) and weekends.</td></tr>
<tr><td>4.1.3 Pedestrian Movements</td><td>There may be some demand for pedestrian movements associated with nearby residents walking to the site with pedestrians able to use the grass verge or existing footpaths along the New England Highway to access the site.

There will be a high demand for pedestrian movements within the site associated with customers walking between their vehicles and the various stores throughout the site. An internal pedestrian network consisting of footpaths, walkways and pedestrian crossings will be provided throughout the site to accommodate these movements.

Pedestrian fencing and screening vegetation shall be integrated into the internal landscaping to control pedestrian movements and encourage the use the designated walkways and pedestrian crossings.</td></tr>
<tr><td>4.2 Traffic Distribution and Assignments</td><td></td></tr>
<tr><td>4.2.1 Origin / destinations assignment</td><td>A large percentage of the vehicles accessing the service station or drive-thru are expected to be passing trade along the New England Highway. Vehicles which divert into the site would re-join their current route upon exiting and hence it is assumed that these vehicles would have an origin/destination equally balanced to the north and south, consistent with the existing travel patterns along the New England Highway.

Of the remaining uses, 60% of vehicles are expected to have an origin/destination to the north of the site with the balance to the south. This is consistent with the travel patterns observed for the existing site operation.</td></tr>
</table>

Item	Comment
	The uses across the site will create a high turnover of parking during the evening peak and as such it is assumed that 50% of vehicles movements will be inbound and 50% outbound during the evening peak, consistent with the existing situation.
4.2.2 Assignment of traffic to the road network	Vehicles associated with the truck stop, service station and drive-thru take-away would enter the site direct from the New England Highway. Vehicles with a destination to the south would exit directly onto the New England Highway with vehicles having a destination to the north required to exit via Perth Street due to the proposed right turn restrictions at the southern driveway. Traffic demands associated with the supermarket and shops will replace the existing demands generated by the existing uses across the site. These movements will also not increase the daily traffic flows in this location, however changes to the site access will see these vehicles enter the site via Perth Street with this driveway providing the most direct access to the parking areas associated with these uses. The bulk of these vehicles will exit the site via Perth Street with some turning right to connect with residential development to the north east of the site, with the balance turning left to connect with the New England Highway. Some vehicles will then access the service station or drive-thru from the highway, having completed their shopping. To provide a robust assessment is has been assumed that all traffic accessing the site from Perth Street will do so having approached the site from the New England Highway.  *Figure 2 - Distribution of Trips (evening peak).*
4.3 Impact on Road Safety	All driveways are located on a straight alignment of the roadway which ensures that there is good visibility for drivers entering or exiting the site. Each access provides the required sight distances, consistent with AS2890 and the Austroads Guide (where applicable). A channelised right turn lane on the New England Highway shall be provided to safely accommodate right turn movements into the site. A left turn deceleration lane shall also be provided for the access into the service station. The intersection of the New England Highway / Perth Street shall be upgraded to provide traffic control signals. These upgrades have been

Item	Comment
	designed to accommodate the swept path for B-Double combinations turning right onto the New England Highway. A concept design for the proposed access off the New England Highway and upgrades to the intersection of the New England Highway / Perth Street are provided within Attachment B. Given the low traffic volumes on Perth Street (which were observed to be less than 50 vehicles during the peak hours), the demands for right turning traffic entering the site off Perth Street do not warrant the provision of a channelised turn lane at the entry driveway (per Figure 4.9, Austroads Guide to Road Design Part 4A - Unsignalised and Signalised Intersections). There have been only 4 accidents recorded along the local roads in the locality of the site in the last 5 years indicating that the local roads currently provide an acceptable level of road safety. The surrounding roads and intersections provide an appropriate layout with good road alignment ensuring adequate visibility for drivers. The proposed development will not significantly increase the traffic demands along the local roads, with a significant percentage of the traffic being passing trade or vehicles that currently access the existing site. As such, it is considered that the proposed development will have an acceptable impact upon road safety in this location.
4.4 Impact of Generated Traffic	
4.4.1 Impact on Daily Traffic Flows	Allowing for the above, the proposed development could see the daily flows on Perth Street increase by up 1,350 vehicles per day, with daily flows on the New England Highway (north of Perth Street) increasing by 162 vehicles associated with additional local trips associated with staff and additional trips to the supermarket and shops. While there are no specific limits on daily traffic flows, The RTA Guide to Traffic Generating Developments provides advice regarding the mid-block capacity of an urban road based upon the peak hour traffic volumes. For the New England Highway, the guide indicates a maximum hourly capacity of 900 vehicles per direction, corresponding to a Level of Service (LoS) D. The current peak hour flows on the New England Highway (north of Perth Street) are 468 vehicles per hour (northbound) during the evening peak, corresponding to a LoS C. The proposed development will increase these flows by 41 vehicles during the peak hour, which will not reduce the existing level of service. The RTA Guide also provide advice regarding the environmental capacity of a residential road which is based upon a maximum hourly capacity. For Perth Street, which operates as a local road, the RTA Guide indicates a maximum hourly capacity of 300 vehicles per hour with 200 vehicles per hour being desirable. The existing flows on Perth Street together with the development traffic would be less than 200 vehicles per hour and are therefore within the environmental capacity of this road.

Item	Comment
	Overall the development will have an acceptable impact upon the local roads with traffic flows being well within the capacity of the surrounding road network.
4.4.2 Peak Hour Impacts on Intersections	Sidra modelling has been completed for the proposed entry and exit points located on the New England Highway to determine the suitability of these access points to accommodate the future traffic demands for the site. This modelling shows that both the entry and exit driveway will provide sufficient capacity to accommodate the demands with each driveway operating at a Level of Service A during the evening peak. Traffic demands along both the New England Highway and associated with the subject site would be lower during the morning peak and therefore the access would operate to a similar standard during this time. Observations at the intersection of the New England Highway and Perth Street indicate that there is currently a very low demand for vehicles travelling along Perth Street. Sidra modelling has been undertaken to assess the impact of the reassignment of existing traffic and the additional traffic using the Perth Street access. This modelling shows that there is sufficient capacity for the intersection to continue to operate at LoS A/B. A review of AADT data for the past several years shows no change in background traffic growth through this corridor. As such no further modelling of the intersections has been undertaken with sufficient capacity for the 10 year horizon. Sidra modelling has also been completed to assess the operation of traffic control signals at this intersection, with the results indicating that the concept design in Attachment B will provide adequate capacity to support the traffic demands associated with the proposed development together with potential background growth on the New England Highway and Perth Street to the 2028 design year (allowed 5% over 10 years). Note that this modelling has allowed for filtered right turns on both the New England Highway and Perth Street, and clearances for the diamond turn out of Perth Street have been reviewed for a B-Double passing around a standard B99 design vehicle. Further review of the signal phasing can be completed as part of the detailed design, subject to discussions with RMS.
4.4.3 Impact of Construction Traffic	Given that the site area is large, all construction works can be contained within the site (excluding works to upgrade the site access). During construction, there will be a requirement for construction vehicles to access the site as well as additional traffic movements associated with workers. These movements can be catered for within the local road network. Parking for construction vehicles and staff can be contained within the site with no external impact. As part of the construction phase of the development there will be a need to provide a construction traffic management plan and associated traffic control plan to provide for road works associated with the various access treatments.
4.4.4 Other Developments	No other significant developments are currently proposed in the general locality of the subject site.
4.5 Public Transport	

Item	Comment
4.5.1 Options for improving services	None required. The existing services in the area will benefit from the increased demands created by the development.
4.5.2 Pedestrian Access to Bus Stops	The nearest bus stops are located on the site frontage and footpaths will be provided within the site which allow for pedestrian access.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	A channelised right turn lane shall be provided on the New England Highway to allow for right turns into the site together with a left turn deceleration lane for access into the service station. Right turns onto the New England Highway shall be restricted from the service station southern egress with a raised central median to be provided on the New England Highway. The internal roads will be designed in accordance with the relevant requirements within AS2890 and the Austroads Guide to Road Design allowing for the circulation where appropriate of heavy rigid and B-Double trucks. Minor changes may be required to landscaping / kerb and guttering within the site to ensure that appropriate access is provided for service vehicles to access the loading docks as outlined in Section 3.2.3.
4.6.2 Improvements to External Road Network	Turn treatments as described above shall be provided for access direct off the New England Highway. The intersection of the New England Highway / Perth Street shall be upgraded to provide for traffic control signals as requested by Upper Hunter Shire Council. Whilst a concept design for these signals has been provided in Attachment B, the overall layout and phasing requirements shall be confirmed as part of the detailed design, subject to discussion with RMS as part of a WAD. Any proposed works will require concurrence from the RMS allowing for the status of the New England Highway. A raised central median shall also be provided on the New England Highway to restrict egress to left out only. Right turns onto the New England Highway shall be provided from Perth Street. Perth Street does not form part of an existing B-double route. Approval will need to be sought from the relevant authority for the section of Perth Street along the site frontage to enable B-doubles to egress via Perth Street and turn right onto the New England Highway. A part of this process, the existing pavement along this section of Perth Street may need to be upgraded to the required standard to support heavy vehicles including B-Doubles.
4.6.3 Improvements to Pedestrian Facilities	The proposed traffic control signals at the intersection of the New England Highway / Perth Street will include marked foot crossing on all legs to ensure safe pedestrian access to the site.
4.6.4 Effect of Recommended Works on Adjacent Developments	No works proposed that will impact on adjacent developments.
4.6.5 Effect of Recommended Works on Public Transport Services	The location of the existing bus stop to the front of the site will be relocated further south of its current position to avoid potential conflicts with the deceleration lane.

Item	Comment
	Whilst there may be short term disruptions to the bus stops on the New England Highway during construction, all bus services operate as hail and ride and can stop as required.
4.6.6 Provision of LATM Measures	None required.
4.6.7 Funding	Works associated with the access off the New England Highway and Perth Street shall be funded by the developer. Funding for the upgrades to the intersection of the New England Highway / Perth Street shall be negotiated with Council. It is noted that the current traffic volumes in this location do not satisfy the warrants for the provision of traffic control signals in accordance with the RMS Guide to Traffic Signal Design and are being provided at the direction of Upper Hunter Shire Council.

Conclusion:
From the site work undertaken and the review of the development proposal and associated plans against the requirements of the RMS Guide to Traffic Generating Developments and Austroads Guide to Traffic Management, it is considered that the proposed development application should have no objections raised on traffic and access grounds.

The development does not generate a significant increase in the local traffic along the New England Highway, with a high percentage of passing trade expected to utilise the service station and drive-thru takeaway. Changes to the existing access arrangements will see increased traffic demands along Perth Street with vehicles accessing the supermarket and retail stores primarily entering the site from Perth Street. All egress for vehicles intending to travel north along the New England Highway shall also be provided via Perth Street. The additional traffic movements generated by the development are well within the capacity of the local roads and will have an acceptable impact on the local road network.

Sidra modelling has been completed to demonstrate that the proposed entry and exit driveways on the New England Highway can support the full development of the site. Each access driveway provides clear sight lines which ensure that there is adequate visibility for drivers entering or exiting the site, consistent with the Austroads Guides and AS2890. Sheltered right turn lanes shall be provided to allow for the safe movement of right turning vehicles into the site from the New England Highway as well as a left turn deceleration lane into the service station.

The intersection of the New England Highway / Perth Street shall be upgraded to traffic control signals as per the requirements of Council and shall improve the safety for turning vehicles turning, whilst ensuring a high standard of pedestrian connectivity between the site, the surrounding residential area and nearby bus stops.

Parking for the proposed development is in excess of the DCP requirement.

The internal circulation of the site allows for the swept paths of the appropriate design vehicles including B-Doubles to access the truck stop and circulate to the proposed egress driveways. It is noted however that the layout of the loading area adjacent to the drive-thru shall be the subject of refinement as part of the detailed design.

Please feel free to contact me on 4032 7979, should you have any queries.

Yours sincerely,

Sean Morgan
Director

Site Photos:

Photo 1 – Visibility looking left (south) along the New England Highway from the proposed entry driveway.

Photo 2 – Visibility looking right (north) along the New England Highway from the proposed entry driveway.

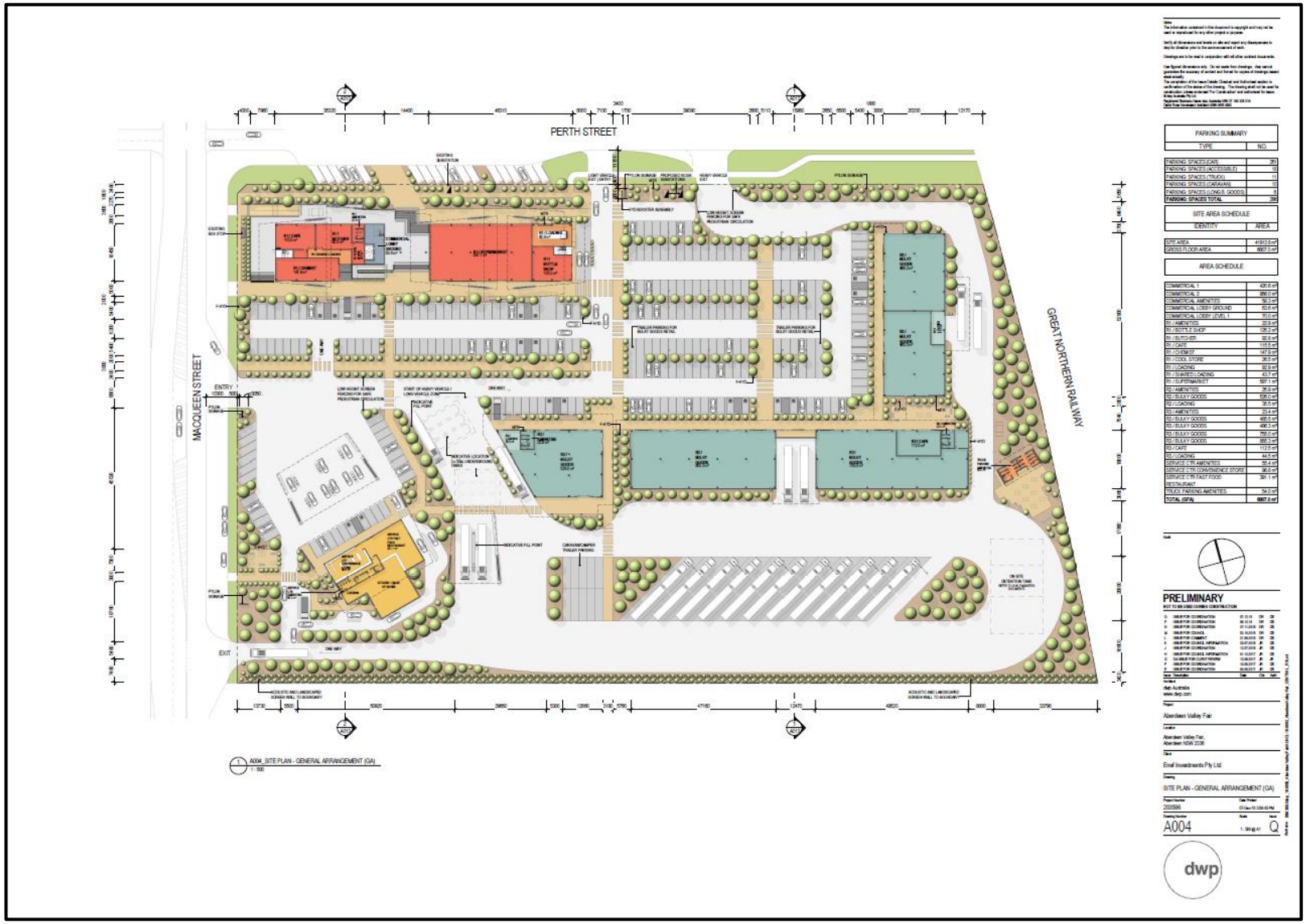
Photo 3 – Visibility looking left (south) along the New England Highway from the proposed exit driveway.

Photo 4 – Visibility looking right (north) along the New England Highway from the proposed exit driveway.

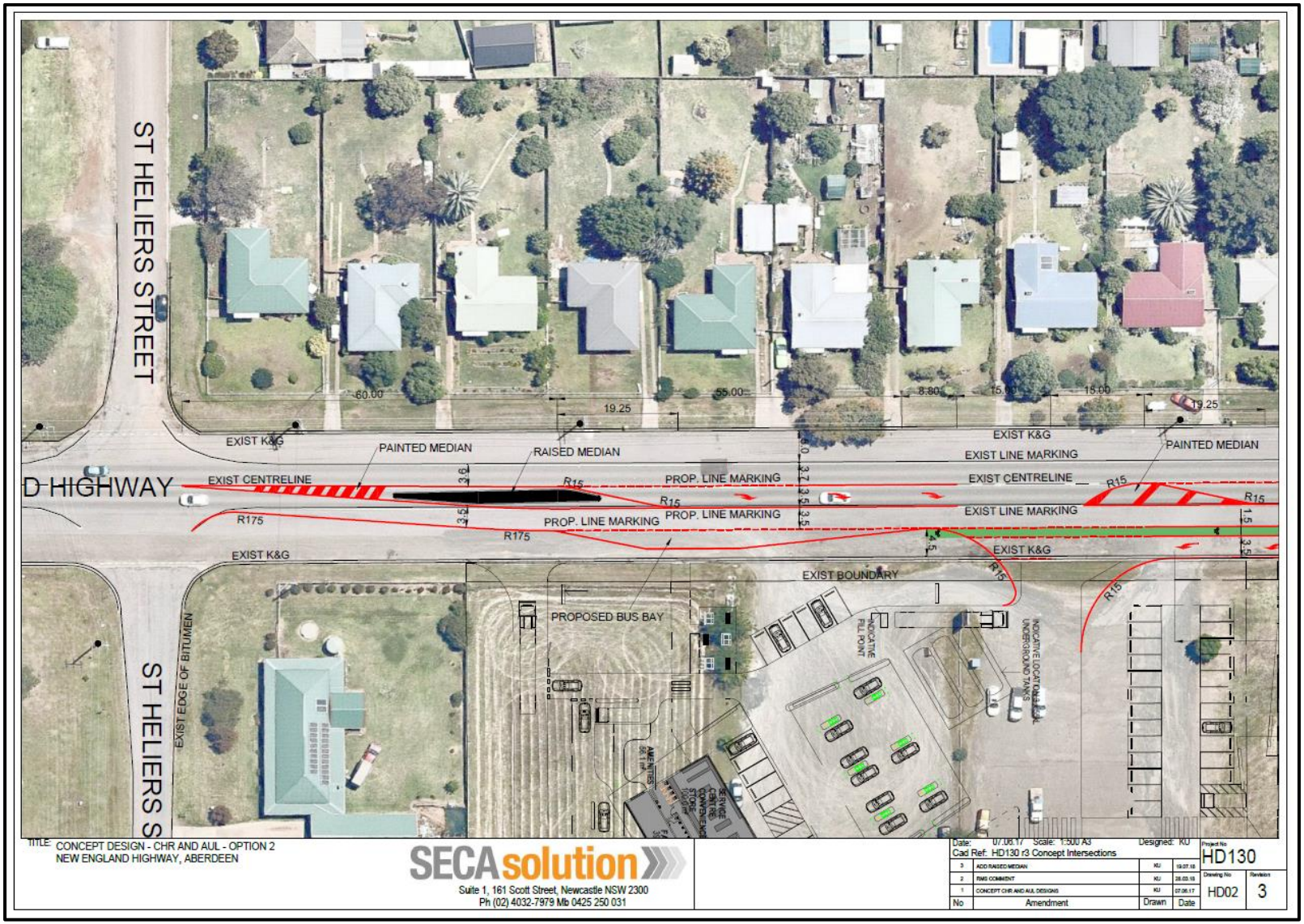
Photo 5 – Existing bus stop on the site frontage near the intersection of Perth Street and the New England Highway.

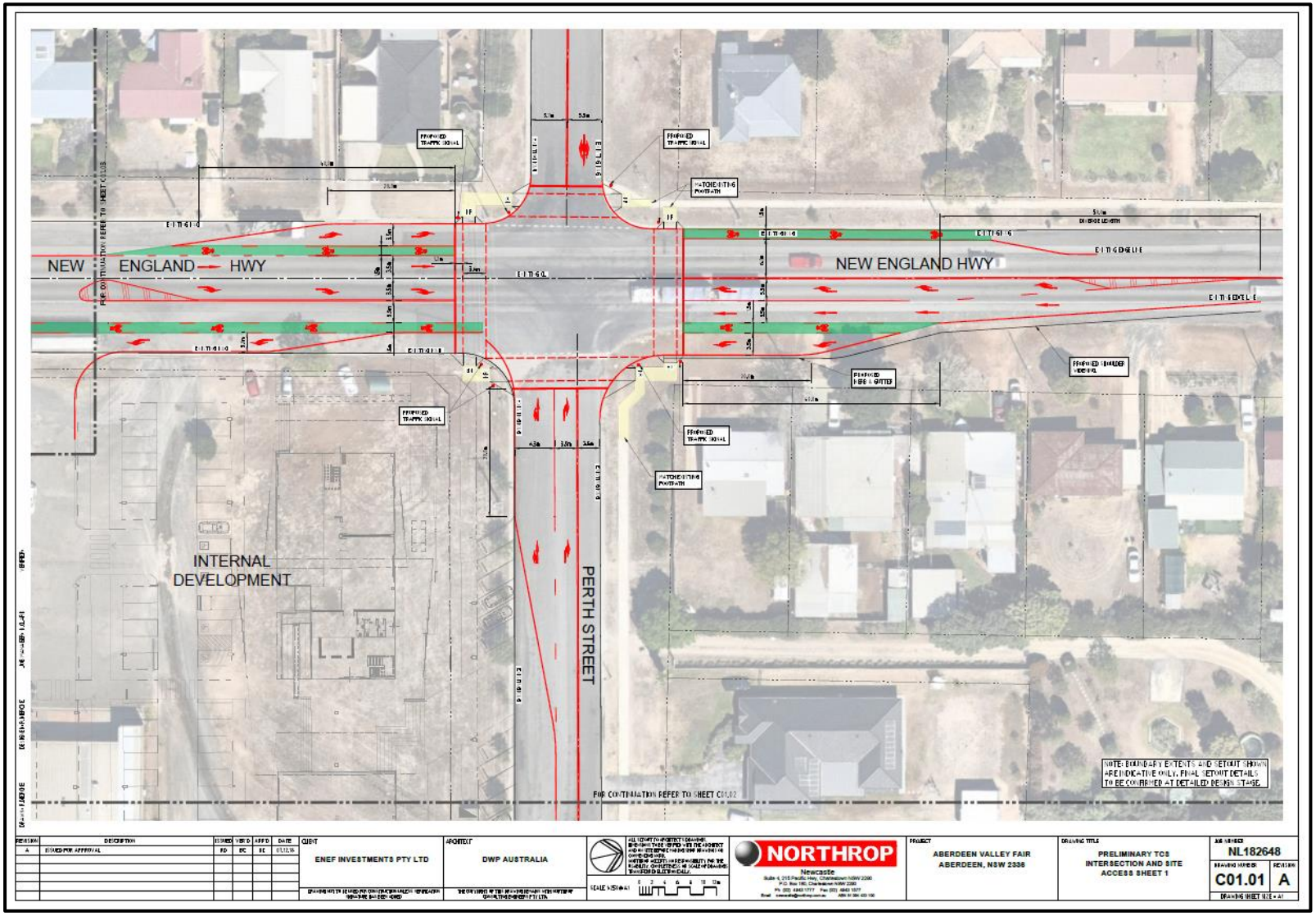
Photo 6 – Showing the typical road layout on Perth Street, looking east from the New England Highway.

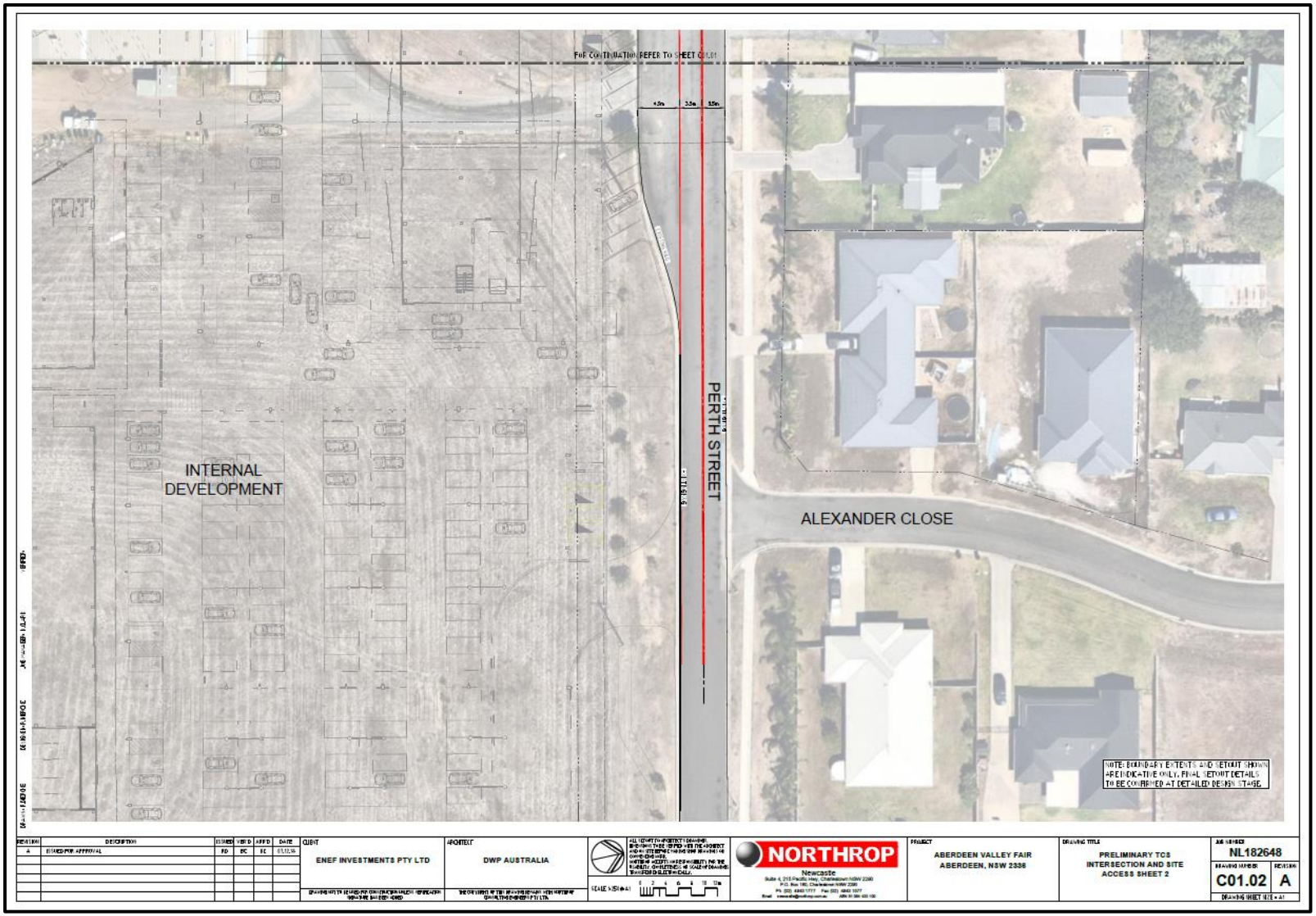
Attachment A: Site Plan



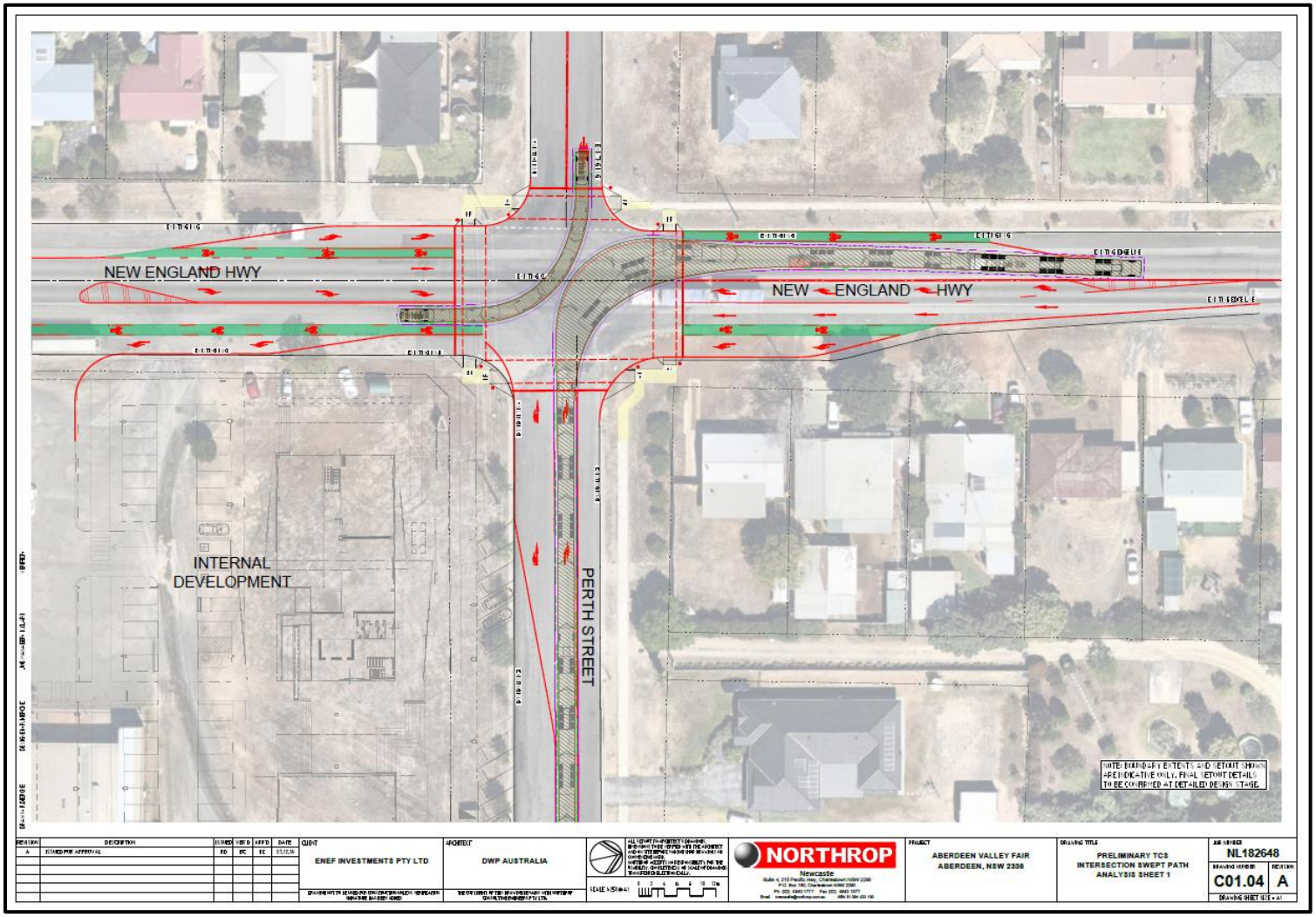
Attachment B: Concept Design for access of New England Highway and upgrades to the New England Highway / Perth Street intersection.

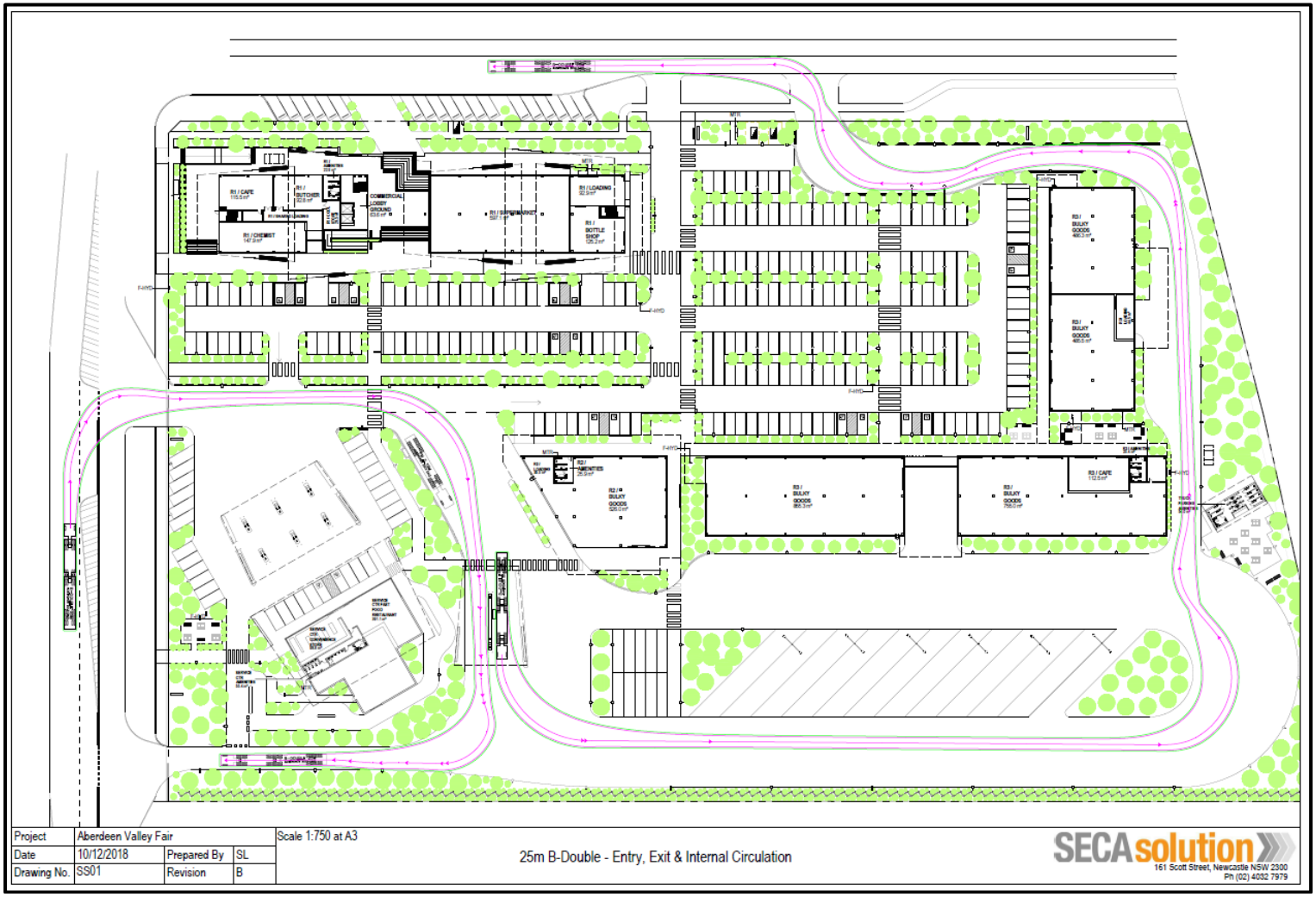


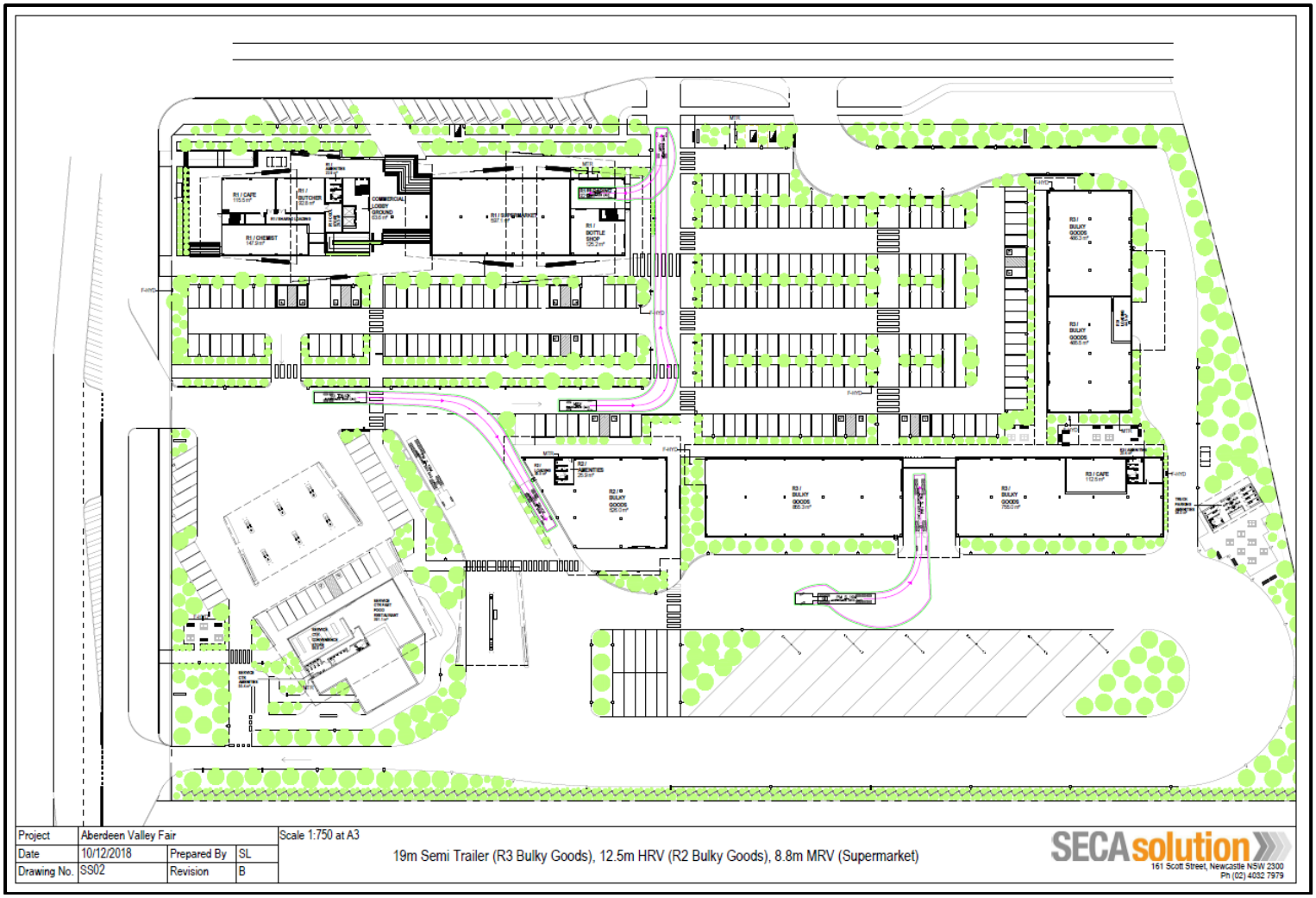

NEW ENGLAND HWY
NEW ENGLAND HWY
INTERNAL DEVELOPMENT
PERTH STREET
FOR CONTINUATION REFER TO SHEET C1.02
NOTE: BOUNDARY EXTENTS AND SETOUT SHOWN ARE INDICATIVE ONLY. FINAL SETOUT DETAILS TO BE CONFIRMED AT DETAILED DESIGN STAGE.
ENEF INVESTMENTS PTY LTD
DWP AUSTRALIA
NORTHROP
Newcastle
ABERDEEN VALLEY FAIR
ABERDEEN, NSW 2336
PRELIMINARY TCS
INTERSECTION AND SITE
ACCESS SHEET 1
NL182648
C01.01
A


FOR CONTINUATION REFER TO SHEET C01.01
INTERNAL DEVELOPMENT
PERTH STREET
ALEXANDER CLOSE
NOTE: BOUNDARY EXTENTS AND SETOUT SHOWN ARE INDICATIVE ONLY. FINAL SETOUT DETAILS TO BE CONFIRMED AT DETAILED DESIGN STAGE.
ENEF INVESTMENTS PTY LTD
DWP AUSTRALIA
NORTHROP
Newcastle
ABERDEEN VALLEY FAIR
ABERDEEN, NSW 2336
PRELIMINARY TCS
INTERSECTION AND SITE
ACCESS SHEET 2
NL182648
C01.02
A

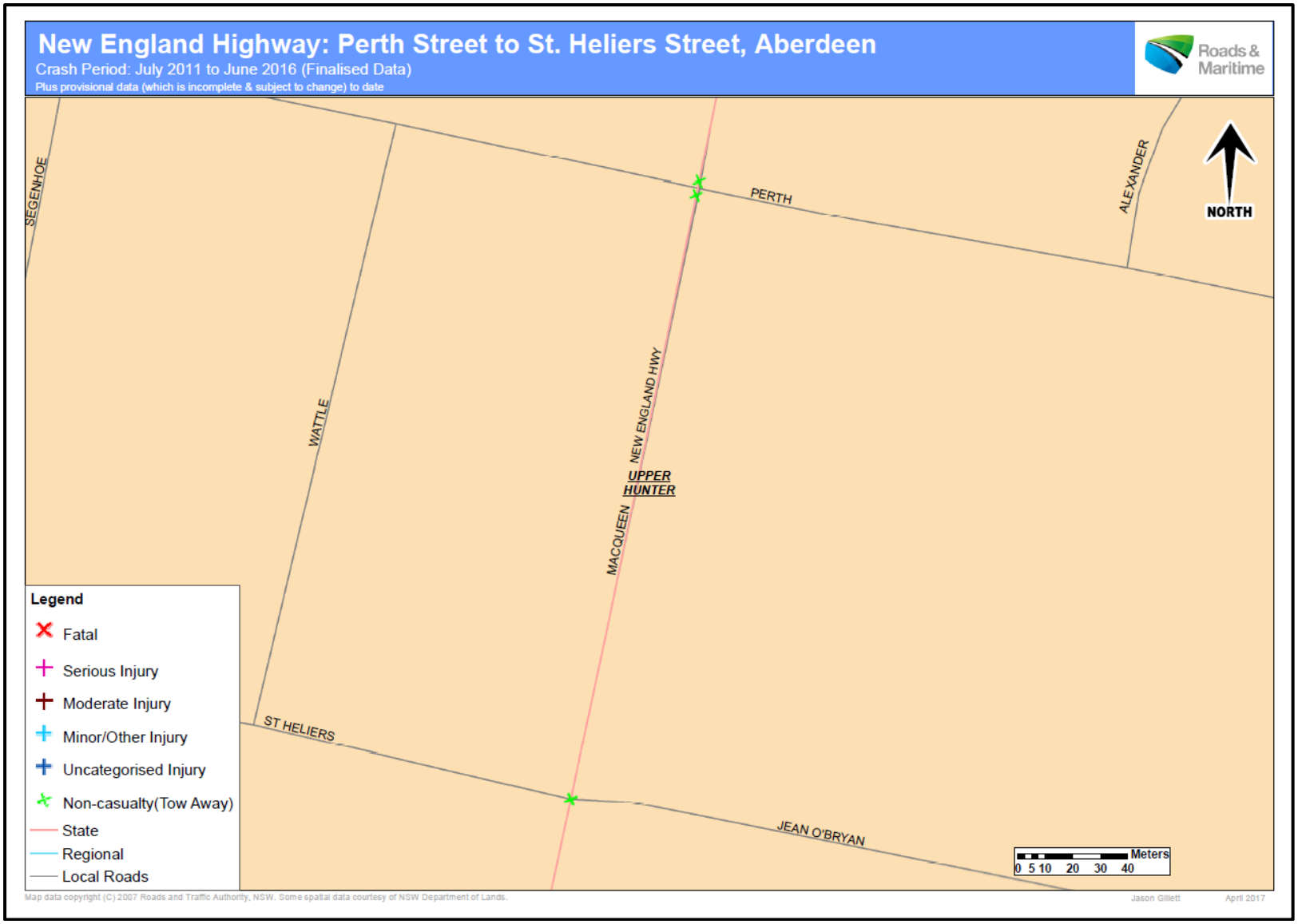
Attachment C: Autoturn (Swept Paths)




Project | Aberdeen Valley Fair | Scale 1:750 at A3
Date | 10/12/2018 | Prepared By | SL
Drawing No. | SS01 | Revision | B
25m B-Double - Entry, Exit & Internal Circulation
SECAsolution
161 Scott Street, Newcastle NSW 2300
Ph (02) 4032 7979



Attachment D: Accident Data and Crash History


New England Highway: Perth Street to St. Heliers Street, Aberdeen
Crash Period: July 2011 to June 2016 (Finalised Data)
Plus provisional data (which is incomplete & subject to change) to date
Roads & Maritime
SEGENHOE
PERTH
ALEXANDER
NORTH
WATTLE
NEW ENGLAND HWY
UPPER HUNTER
MACQUEEN
ST HELIERS
JEAN O'BRYAN
Legend
Fatal
Serious Injury
Moderate Injury
Minor/Other Injury
Uncategorised Injury
Non-casualty(Tow Away)
State
Regional
Local Roads
Meters
0 5 10 20 30 40
Map data copyright (C) 2007 Roads and Traffic Authority, NSW. Some spatial data courtesy of NSW Department of Lands.
Jason Gillett
April 2017

Summary Crash Report

Transport for NSW — Centre for Road Safety

# Crash Type		
Car Crash	3	75.0%
Light Truck Crash	1	25.0%
Rigid Truck Crash	1	25.0%
Articulated Truck Crash	0	0.0%
'Heavy Truck Crash	*(1)*	*(25.0%)*
Bus Crash	0	0.0%
"Heavy Vehicle Crash	*(1)*	*(25.0%)*
Emergency Vehicle Crash	0	0.0%
Motorcycle Crash	0	0.0%
Pedal Cycle Crash	0	0.0%
Pedestrian Crash	0	0.0%

' Rigid or Artic. Truck " Heavy Truck or Heavy Bus
These categories are NOT mutually exclusive

Location Type		
*Intersection	4	100.0%
Non intersection	0	0.0%

* Up to 10 metres from an intersection

Collision Type		
Single Vehicle	1	25.0%
Multi Vehicle	3	75.0%

Road Classification		
Freeway/Motorway	0	0.0%
State Highway	4	100.0%
Other Classified Road	0	0.0%
Unclassified Road	0	0.0%

Contributing Factors		
Speeding	1	25.0%
Fatigue	0	0.0%

Weather		
Fine	3	75.0%
Rain	1	25.0%
Overcast	0	0.0%
Fog or mist	0	0.0%
Other	0	0.0%

Road Surface Condition		
Wet	1	25.0%
Dry	3	75.0%
Snow or ice	0	0.0%

Natural Lighting		
Dawn	0	0.0%
Daylight	3	75.0%
Dusk	0	0.0%
Darkness	1	25.0%

Crash Movement		
Intersection, adjacent approaches	0	0.0%
Head-on (not overtaking)	0	0.0%
Opposing vehicles; turning	0	0.0%
U-turn	0	0.0%
Rear-end	3	75.0%
Lane change	0	0.0%
Parallel lanes; turning	0	0.0%
Vehicle leaving driveway	0	0.0%
Overtaking; same direction	0	0.0%
Hit parked vehicle	0	0.0%
Hit railway train	0	0.0%
Hit pedestrian	0	0.0%
Permanent obstruction on road	0	0.0%
Hit animal	0	0.0%
Off road, on straight	0	0.0%
Off road on straight, hit object	0	0.0%
Out of control on straight	0	0.0%
Off road, on curve	0	0.0%
Off road on curve, hit object	0	0.0%
Out of control on curve	0	0.0%
Other crash type	1	25.0%

Speed Limit				
40 km/h or less	0	0.0%	80 km/h zone	0	0.0%
50 km/h zone	3	75.0%	90 km/h zone	0	0.0%
60 km/h zone	1	25.0%	100 km/h zone	0	0.0%
70 km/h zone	0	0.0%	110 km/h zone	0	0.0%

~ 07:30-09:30 or 14:30-17:00 on school days	~ 40km/h or less		~ School Travel Time Involvement	
	0	0.0%	2	50.0%

Day of the Week												
Monday	2	50.0%	Wednesday	1	25.0%	Friday	0	0.0%	Sunday	0	0.0%	WEEKEND	1	25.0%
Tuesday	0	0.0%	Thursday	0	0.0%	Saturday	1	25.0%	WEEKDAY	3	75.0%			

#Holiday Periods												
New Year	0	0.0%	Easter	0	0.0%	Queen's BD	0	0.0%	Christmas	0	0.0%	Easter SH	0	0.0%
Aust. Day	0	0.0%	Anzac Day	0	0.0%	Labour Day	0	0.0%	January SH	1	25.0%	June/July SH	0	0.0%
Sept./Oct. SH	0	0.0%	December SH	0	0.0%							

CRASHES	4	
Fatal	0	0.0%
Serious inj.	0	0.0%
Moderate inj.	0	0.0%
Minor/Other inj.	0	0.0%
Uncategorised inj.	0	0.0%
Non-casualty	4	100.0%

Self Reported Crash		
	0	0%

Time Group		% of Day	
00:01 - 02:59	1	25.0%	12.5%
03:00 - 04:59	0	0.0%	8.3%
05:00 - 05:59	0	0.0%	4.2%
06:00 - 06:59	0	0.0%	4.2%
07:00 - 07:59	0	0.0%	4.2%
08:00 - 08:59	0	0.0%	4.2%
09:00 - 09:59	0	0.0%	4.2%
10:00 - 10:59	0	0.0%	4.2%
11:00 - 11:59	0	0.0%	4.2%
12:00 - 12:59	0	0.0%	4.2%
13:00 - 13:59	0	0.0%	4.2%
14:00 - 14:59	0	0.0%	4.2%
15:00 - 15:59	1	25.0%	4.2%
16:00 - 16:59	1	25.0%	4.2%
17:00 - 17:59	1	25.0%	4.2%
18:00 - 18:59	0	0.0%	4.2%
19:00 - 19:59	0	0.0%	4.2%
20:00 - 21:59	0	0.0%	8.3%
22:00 - 24:00	0	0.0%	8.3%

Street Lighting Off/Nil		% of Dark
0	of 1	in Dark 0.0%

CASUALTIES	0	
Killed	0	0.0%
Seriously inj.	0	0.0%
Moderately inj.	0	0.0%
Minor/Other inj.	0	0.0%
Uncategorised inj.	0	0.0%
^ Unrestrained	0	0.0%

^ Belt fitted but not worn, No restraint fitted to position OR No helmet worn

Crashes		Casualties
1	2015	0
1	2013	0
2	2011	0

McLean Periods		% Week
A	0	0.0% 17.9%
B	0	0.0% 7.1%
C	0	0.0% 17.9%
D	0	0.0% 3.5%
E	0	0.0% 3.6%
F	3	75.0% 10.7%
G	0	0.0% 7.1%
H	0	0.0% 7.1%
I	0	0.0% 12.5%
J	1	25.0% 10.7%

Crashid dataset New England Highway: Perth Street to St. Heliers Street, Aberdeen - 1/7/2011 to 2017*

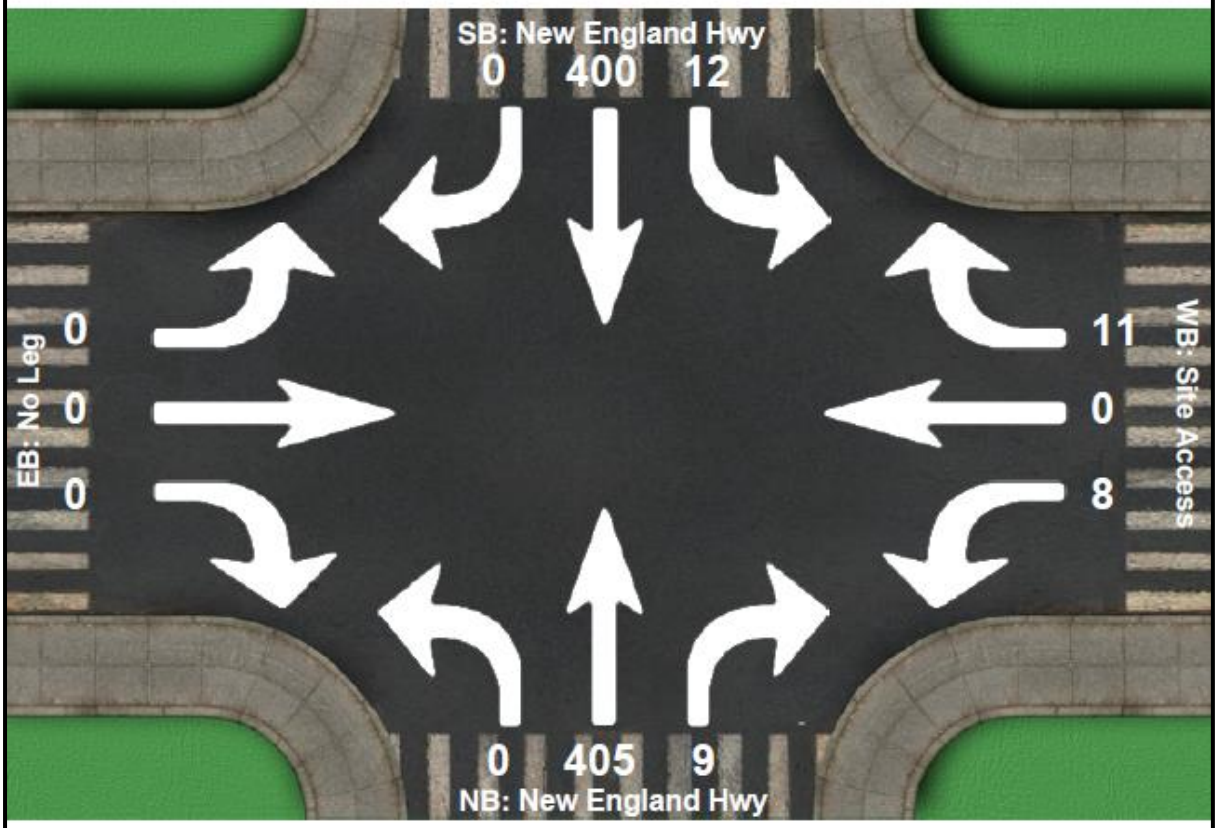
Note: Crash self reporting, including self reported injuries began Oct 2014. Trends from 2014 are expected to vary from previous yrs. More unknowns are expected in self reported data. Reporting yrs 1996-2004 and 2016 onwards contain uncategorised inj crashes.

Percentages are percentages of all crashes. Unknown values for each category are not shown on this report.

Attachment E: Traffic Data

Intersection Peak Hour

Location:	New England Highway at Site Access, Aberdeen
GPS Coordinates:	
Date:	2017-03-29
Day of week:	Wednesday
Weather:	
Analyst:	SM

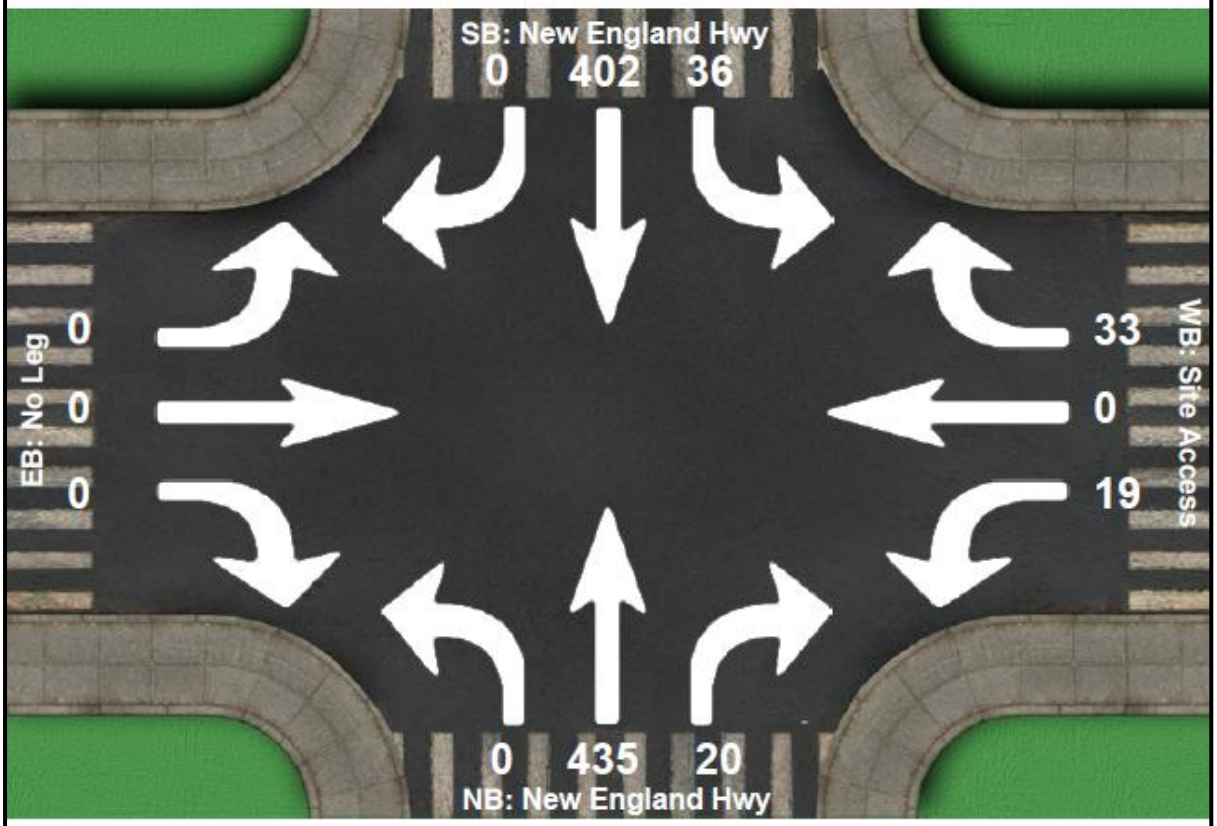


Intersection Peak Hour

08:00 - 09:00

Intersection Peak Hour

Location:	**New England Highway at Site Access, Aberdeen**
GPS Coordinates:	
Date:	**2017-03-29**
Day of week:	**Wednesday**
Weather:	
Analyst:	**SM**



Intersection Peak Hour

16:15 - 17:15