

Job Ref: 8862
11 October 2018

Town of Victoria Park
Locked Bag 437
VICTORIA PARK WA 6979

Sent Via Email: admin@vicpark.wa.gov.au

Dear Sir/Madam

**Submission - Town of Victoria Park Scheme Amendment No. 78
Lot 3 (No. 384) Berwick Street, East Victoria Park**

Rowe Group acts on behalf of Hamlen (Client), the landowner of Lot 3 (No. 384) Berwick Street, East Victoria Park (subject site). We have been requested to prepare a submission on Amendment No. 78 to the Town of Victoria Park Town Planning Scheme No. 1 (Amendment 78), which is currently being advertised for public comment.

Our Client recently purchased the subject site with settlement occurring in mid-2018. The existing long-term lease to the National Archives is due to expire in early 2019. The existing building at the subject site was purpose built for the National Archives in the 1970s.

Our Client intends to develop the subject site for residential purposes as will be explained in greater detail below. As such, we make the following submission which proposes a number of modifications to Amendment 78 (as initiated by Council at its 13 February 2018 Ordinary Council Meeting) to facilitate a residential development outcome that aligns with our Client's development aspirations for the subject site. The proposed modifications seek to remove a number of the prescriptive development standards contained within Amendment 78 and alter the coding of the subject site from a split-coding of R40/R60 to R60.

We note that our office and our Client have had discussions with the Town of Victoria Park (Town) administration which have resulted in an agreement/understanding that, should the Town's administration and Council support our proposed modifications to Amendment 78, the amendment will be readvertised in accordance with Clause 51 of the *Planning and Development (Local Planning Schemes) Regulations 2015* (Regulations).



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Amendment No. 78

Amendment 78, as initiated, proposes that the subject site be recoded from R30 to R40/R60 with development subject to the following development standards:

- (a) Development shall consist of a series of individual buildings, clustered around a central, common courtyard;*
- (b) Separation between buildings shall be sufficient to reduce the overall perception of building bulk and to achieve acceptable levels of solar access and natural ventilation to each building;*
- (c) Dwelling design should achieve high design standards, as prescribed within Council's Local Planning Policy 33 – 'Guide to Concessions on Planning requirements for Mixed-Use, Multi Dwelling and Non-Residential Developments' or an adopted State Planning Policy relating to dwelling design;*
- (d) Development should follow the natural topography of the land and gradually step down in height from 3 storeys facing Berwick Street to 2 storeys on the remainder of the site;*
- (e) Car parking shall generally be below ground, largely concealed from view;*
- (f) Open space/landscaping should be provided in useable parcels;*
- (g) Boundary setbacks are to be generally in accordance with the R-codes, however greater setbacks are to be provided where relevant, emergency vehicle access around the site and bushfire management measures; and*
- (h) Vehicle access to the site is to be the subject of Traffic Impact and Road Safety Assessment. Vehicle access being to/from Berwick Street via a left-in/left-out arrangement, with the exception that Council may consider access to Baillie Avenue/Carson Street for emergency vehicles only.*

Importantly, Amendment 78 also contains the following restriction with respect to the higher (R60) density coding:

The site may be developed at the higher density coding of R60, where the proposed use is Aged or Dependant Persons' Dwellings, otherwise an R40 density coding prevails.

We note that Amendment 78 was prepared based on concept plans provided by the previous landowner. The concept plans proposed approximately 120 multiple dwellings being developed at the subject site. We also understand the previous landowner (in the preparation of the amendment request) was of the view that there is a shortfall in aged persons' accommodation in this part of East Victoria Park. This matter will be addressed further in our submission.



The Town's agenda report (as presented to the 13 February 2018 Ordinary Council Meeting) acknowledged that additional density is warranted at the subject site and will have no detrimental impact on amenity of the surrounding area, provided it is appropriately controlled. This is in part due to the size and location of the subject site, including the site being directly adjoined on all boundaries by non-residential land uses. The Scheme Report (accompanying Amendment 78) also reinforces that this amendment will ensure the subject site is developed to its full potential in terms of built form and site planning whilst achieving an acceptable form of development that respects the character of the existing streetscape.

Proposed Development Concept

Our Client has assembled a multidisciplinary project team to assist with the concept planning phase for the subject site.

Our Client and the project team have prepared an indicative concept design and indicative built form sketches for the subject site comprising 52 grouped dwellings, based on a density coding of R60. Refer to Attachment 1 - Concept Design Site Plan and Illustrations.

The grouped dwellings are envisaged to be a mix of two (2) and three (3) storey townhouses and terrace dwellings, with a combination of front and rear loaded products in a strata configuration. The proposed grouped dwelling configuration allows the subject site to be redeveloped in a sympathetic manner with the proposed development terraced in a way that complements the existing topography and allows engagement with Berwick Street and other boundaries.

We acknowledge that public open space (POS) is not provided at the subject site (referring to the concept design). Given the total area of the subject site is approximately 11,029m², providing 10% would not result in the provision of useable and valuable POS. A "pocket" of POS in this locality would be a maintenance issue and a far better outcome would be for cash-in-lieu contribution to be made to the Town for the enhancement of existing local parks such as the adjacent Edward Millen Reserve (for example). Furthermore, the subject site is adjacent to, or within proximity of, areas of existing POS. A cash-in-lieu contribution can assist in the Town enhancing these existing POS assets.

With respect to vehicle access/egress, the concept design proposes vehicular access and egress from Berwick Street and Baillie Avenue/Carson Street. It is not proposed that any restrictions be placed on the existing Baillie Avenue/Carson Street access as is currently proposed in Amendment 78. This is justified in the following sections of this submission and within the Transport Impact Statement (TIS) prepared by GTA Consultants in support of the concept design. In addition, we note that the internal roads are designed to accommodate safe and effective access, egress, and manoeuvring of all vehicles (including refuse vehicles).

The concept design has been prepared with the intent that development of the subject site is in accordance with an approved Local Development Plan (LDP), which would provide guidance on setbacks, garage locations, street frontage, landscaping and other elements which impact built form.

We are of the view that the concept design is an appropriate planning outcome for the subject site, however, it would not be possible to achieve the proposed outcome under the development provisions included within Amendment 78 as it currently stands. For this reason, it is proposed that Amendment 78 be modified as outlined below.

Proposed Modification to Amendment 78

We request that the Town of Victoria Park and Council consider modifying Amendment 78 as follows:

1. *Modifying Town Planning Scheme No.1 Precinct Plan P12 'East Victoria Park Precinct' by recoding the property know as No. 384 (Lot 3) Berwick Street, East Victoria Park from R30 to R60.*
2. *Modifying Town Planning Scheme No. 1 Precinct Plan P12 'East Victoria Park Precinct' by inserting the following development standards for development of the property at No. 384 (Lot 3) Berwick Street:*
In relation to the land at No. 384 (Lot 3) Berwick Street, East Victoria Park, the following criteria are applicable to any development of the site:
 - a. *Development shall be consistent with an approved Local Development Plan.*

As above, we propose that no occupancy restrictions are placed on development at the higher density coding with the subject site simply being rezoned to R60. This occupancy restriction places an unnecessary development provision on the redevelopment of the subject site for residential purposes.

The modifications to Amendment 78 suggested within this submission are consistent with the Town's objective being that the full development potential of the subject site can be realised. It is the intention of our Client that, subject to Amendment 78 being modified and adopted, the built form of the subject site would be controlled through the preparation of an LDP.

Density Coding

The subject site is ideally located for urban infill development given its proximity to the Albany Highway activity corridor some 350m north east of the site and its location on the high frequency bus route along Berwick Street. It is also in proximity to the Oats Street train station (approximately 1.2kms north east of the subject site). These site and location characteristics are consistent with state and local strategic planning documents, as is discussed in further detail in following sections of this submission.

The subject site is physically separated from surrounding R30 residential development by 'Public Purposes' and 'Parks and Recreation' reservations (and uses). As such, allowing development to the (higher) R60 coding will not have a detrimental impact on the amenity of surrounding residential areas. This is acknowledged in the Town's agenda reporting and its accompanying Scheme Report.

The proposed concept design is aligned with the Statement of Intent of Precinct Plan P12, which forms part of TPS 1, to *provide a range of housing types, predominantly of a low scale*. It is our view that the concept design and requested modifications to Amendment 78 presents an opportunity for the subject site to be developed in a grouped dwelling form (townhouses/terraces) that are commonly described in the property industry as the “missing middle”. The proposed grouped housing concept for the subject site provides housing of a type, style and density not widely available across the Town of Victoria Park and the wider Perth area. The “missing middle” product is particularly sought after in a location such as East Victoria Park and by the demographic of this locality (i.e. singles, “DINKs” and down-sizers).

Traffic Impacts

A TIS has been prepared by GTA Consultants for the subject site, in consideration of the concept design. Please refer to Attachment 2 - Traffic Impact Statement for a full copy of the report.

The TIS identifies that the concept design would generate approximately 310 vehicle trips per day, with 23 being in the morning peak and 31 in the evening peak. In particular, it was estimated that during peak periods only 10-11 trips in the morning peak and 15 in the afternoon peak period would be generated along the Baillie Avenue/Carson Street access. The additional trips are well within the capacity of the surrounding roads and are therefore not expected to have any significant adverse impacts on traffic flows in the area.

The TIS also identifies that the proposed parking provision is suitable and that the subject site is well located to take advantage of existing high frequency public transport networks. It is also noted that the narrow road connection to Baillie Avenue/Carson Street will be able to function even if all traffic generated by the development were to utilise it. Please note, vehicular access to/from Berwick Street will form part of any future development application and LDP.

We note that in accordance with the TIS, the traffic volumes generated by the concept design are considerably less than the 583 – 610 vpd which were estimated to be generated by the development originally proposed as part of Amendment 78. That is, and we refer to the February 2018 agenda reporting in relation to Amendment 78, a grouped dwelling (R60) development at the subject site would produce a significantly lower traffic volume compared to the development of the subject site for multiple dwelling residential purposes only (being 610 vpd) and for a nursing home and independent living units (being 583 vpd).

As further explained in the TIS, existing traffic generation (with respect to the current use of the subject site by the National Archives of Australia) is estimated to be between 230 – 380 vpd. Importantly, the grouped dwelling development as proposed in the concept design (at R60) has a very similar traffic generation rate as compared to the current National Archives of Australia use at the subject site. Further to this, the TIS has modelled traffic generation based on the current R30 density assigned to the subject site. This modelling has shown that traffic generation would be in the order of 240 vpd for an R30 development compared to 310 vpd for an R60 development as proposed in the concept design. GTA Consultants concludes that this 70 vpd difference is not considered to be an issue.

Planning Considerations

Perth and Peel @ 3.5 Million

Perth and Peel @ 3.5 Million (Perth and Peel Framework) outlines the lack of diversity which exists within the WA housing market with 78% of all Perth homes being detached dwellings and only 9% units. It is also noted that this lack of housing diversity places pressure on both infrastructure and the natural environment. The Perth and Peel Framework also makes reference to the issue of housing affordability, particularly for young families and first-home buyers. It highlights that having a diverse range of housing options is an effective response to this issue.

The Perth and Peel Framework aims to optimise the use of land in proximity to existing transport infrastructure and key centres of activity and community amenity. It acknowledges that infill development, where it is well designed, can have significant social, historical, visual and financial value for a community. It also provides greater opportunities for people to live close to where they work.

Modifying Amendment 78, as outlined above, would enable the concept design to be considered for approval and the subject site developed for a more diverse range of housing (i.e. grouped dwellings in a townhouse/terrace configuration as opposed to single detached dwellings or multiple dwellings). As mentioned previously, the proposed dwelling product represents the “missing middle” in terms of density and dwelling type. The development proposed by the concept design will contribute to reducing the dominance of single dwellings in lower density areas and multiple dwellings in medium and higher density areas. Further, the proposed products will provide a more affordable choice for people who may not otherwise be able to afford to live within the Town of Victoria Park. In particular, this type of housing is likely to appeal to a range of potential purchasers including young families, first-home buyers, singles, “DINKs” and down-sizers (some of whom are identified as a demographic group suffering as a result of lack of housing affordability in Perth).

The Perth and Peel Framework identifies that infill development should occur within proximity to transit corridors and stations, activity centres and urban corridors and areas with high-quality open space. The subject site is ideally located in this regard, given its location adjacent to areas designated as an ‘Urban Corridor’, the ‘high frequency transit route’ along Berwick Street, the Oats Street Train Station and the subject site is also in proximity to the Albany Highway activity centre and corridor.

The subject site is ideal for infill development in that it optimises the use of land within walking distance to existing transport infrastructure, the Albany Highway activity centre and corridor and other existing employment nodes including the Perth Central Area and Curtin University. In addition, through the preparation of an LDP, it will be ensured that the development is of a high quality and will be of social and visual benefit to the area.

The Perth and Peel Framework highlights the importance of intensifying development where it does not adversely impact upon the efficient operation of local and regional transport network. As outlined in the TIS, the development of the subject site (in accordance with the concept design) would not impact upon traffic flows in

the locality. All roads surrounding the subject site have sufficient capacity to accommodate a grouped dwelling development at R60 with the traffic volumes generated by the concept design being considerably less than the 583 – 610 vpd that were estimated to be generated by the development originally proposed as part of Amendment 78.

We note that the Perth and Peel Framework sets an infill target of 19,320 dwellings by 2050 for the Town of Victoria Park. Whilst it is acknowledged that the Town is able to attain its infill targets in other areas, we are of the view that a grouped dwelling development at R60 would allow the Town to capitalise on an opportunity for the subject site to produce a high quality “missing middle” development.

Given the above, by enabling a residential development at R60 (without any occupancy restriction) at the subject site, the urban consolidation objectives of the Perth and Peel Framework can be achieved.

Local Planning Strategy

The Town's (draft) Local Planning Strategy (LPS), which we understand is still awaiting consent to advertise by the Western Australian Planning Commission (WAPC), identifies the subject site as 'Urban' and in proximity to the Albany Highway 'Activity Centre' and Hill View Terrace 'Urban Corridor'. The subject site is also in proximity to the 'Curtin University Specialist Centre'.

The location of the subject site, and its site characteristics, makes it an ideal site for a higher density grouped dwelling development.

The LPS sets out a number of strategies aimed at addressing a range of population and housing opportunities as the Town's population grows.

Strategy 1 of the LPS is to: *provide housing development opportunities in identified areas where the capacity of infrastructure and services can support a more intensive form of development and the character and amenity of the neighbourhood would not be prejudiced*. It is acknowledged in the Scheme Report, prepared by the Town, that the subject site is suited to more intense development and is ideally located within the existing infrastructure and services networks. The concept design proposes low-scale grouped dwellings at a density of R60 (i.e. consistent with a “more intense development” scenario) which are consistent with the surrounding landscape and do not prejudice the character and amenity of the East Victoria Park neighbourhood.

Strategy 2 of the LPS aims to: *facilitate well designed and connected urban environments providing a diversity of housing choice serving the needs of the Town's population now and into the future*. The subject site is well connected within the existing transport and activity networks and the concept design provides additional diversity of housing stock within the area. More importantly, the modifications proposed as part of this submission to Amendment 78 will facilitate the development of housing stock that is not commonplace in the Town (or metropolitan Perth), being townhouses and terraces (i.e. the “missing middle”).

Strategy 3 seeks to: *facilitate the continued transition of the Town into a dynamic 'inner city' destination for residents, workers and visitors.* The concept design includes grouped dwellings in the form of townhouses and terraces. These are reminiscent of the type and style of dwellings that can be found within Perth's inner suburbs. This product type is, however, lacking with higher density developments within the inner suburbs generally taking the form of multiple dwellings (apartments).

Strategy 7 intends to: *promote excellence in built form outcomes for the Town that capture the identity and character of its neighbourhoods and centres and promote a sense of place and high standards of amenity and liveability.* It is proposed that the built form elements of the subject site be controlled through the preparation of an LDP. This will facilitate a high standard of design and ensure that development is consistent with the amenity of the locality.

Strategy 13 of the LPS relates to the promotion of healthy, green spaces. As discussed above, whilst no POS is included within the concept design for the subject site, it is proposed that a cash-in-lieu contributions be made to the Town to facilitate the upgrading of existing POS in proximity to the subject site. Such upgrades will benefit residents and visitors to the Town.

Interface with Adjoining Land Uses

We note that the interface of any future residential development at the subject site with the adjoining land uses was of concern to the Town. In this regard, we provide the following in consideration of the proposed concept design.

The proposed R60 grouped dwelling development maximises passive surveillance over the POS to the north east of the subject site with rear loaded dwellings designed with habitable rooms and outdoor living areas looking over the adjoining open space. Furthermore, principles of Crime Prevention Through Environmental Design (CPTED) will be implemented through the LDP process.

It is proposed that the mature trees along the north western boundary of the subject site are retained to provide a softened interface between the subject site and adjoining school. The dwellings that face this boundary are also proposed to be rear loaded and will therefore provide passive surveillance to this interface.

Supply of Aged and Dependant Persons' Dwellings

Amendment 78 was initiated based on a proposal for aged and dependant persons' dwellings at the subject site, which we understand was presented by the previous landowner of the subject site. It is understood that the proponent (at that time) suggested that there was a shortfall in aged persons' accommodation in this part of East Victoria Park. We do not agree with this suggestion.

In order to address the suggested shortfall in aged persons' accommodation, we have undertaken an assessment of the existing facilities available within the East Victoria Park, Carlisle, Bentley and St James

localities. Below is a summary of our findings which demonstrates there are a number of facilities within 350m and 2.2kms of the subject site.

- Aegis St James - 38 Alday Street, St James (approximately 350m from the subject site);
- Cura In-Home Care - 8 Welshpool Road, East Victoria Park (approximately 650m from the subject site);
- Tandara Car Facility - 73 Jarrah Road, Bentley (approximately 1.0km from the subject site);
- Waminda Care Facility - 1 Adie Court, Bentley (approximately 1.0kms from the subject site);
- Kingia Care Facility - 5 Allen Court, Bentley (approximately 1.2kms from the subject site);
- Juniper Home Care - 1 Centenary Drive, Bentley (approximately 1.3kms from the subject site); and
- Mercy Place Lathlain - 63 Archer Street, Carlisle (approximately 2.2kms from the subject site).

It is our Client's desire to undertake a residential development at the subject site in a grouped dwelling configuration at R60, meaning that there would not be a focus on delivering an aged or dependant persons' development at the subject site. The above assessment demonstrates that removing the occupancy restriction imposed on the (higher) R60 coding, as currently proposed in Amendment 78, for aged and dependent persons is appropriate given there are a number of such facilities within the immediate locality.

Conclusion

In consideration of the above, it is requested that Amendment 78 be modified such that the subject site is rezoned to a density coding of R60, the development standards are removed and that the built form controls be addressed by way of a Local Development Plan.

The above is considered appropriate and justified for the following reasons:

- The Client's development aspirations have been identified in the concept design. The concept design proposes 52 grouped dwellings as opposed to approximately 120 multiple dwellings contemplated under the current Amendment 78 provisions.
- The 52 grouped dwelling scenario will result in a significantly lower traffic generation when compared to a development consisting of 120 multiple dwellings or an aged care facility at the subject site.
- There is an opportunity to develop a high-quality townhouse/terrace development which addresses the lack of housing diversity in the Town of Victoria Park and the wider Perth area (i.e. addressing the "missing middle").
- Cash in lieu of public open space can be utilised to upgrade and enhance existing open space reserves in proximity to the subject site.
- The requirement of a Local Development Plan will ensure that built form controls are in place for a grouped dwelling development of the subject site.
- Removal of the occupancy restriction for aged and dependent persons at R60 is appropriate given there are a number of such facilities within the immediate locality.



Should you require any further information or clarification in relation to this matter, please contact Paul Cunningham on 9221 1991.

Yours faithfully,

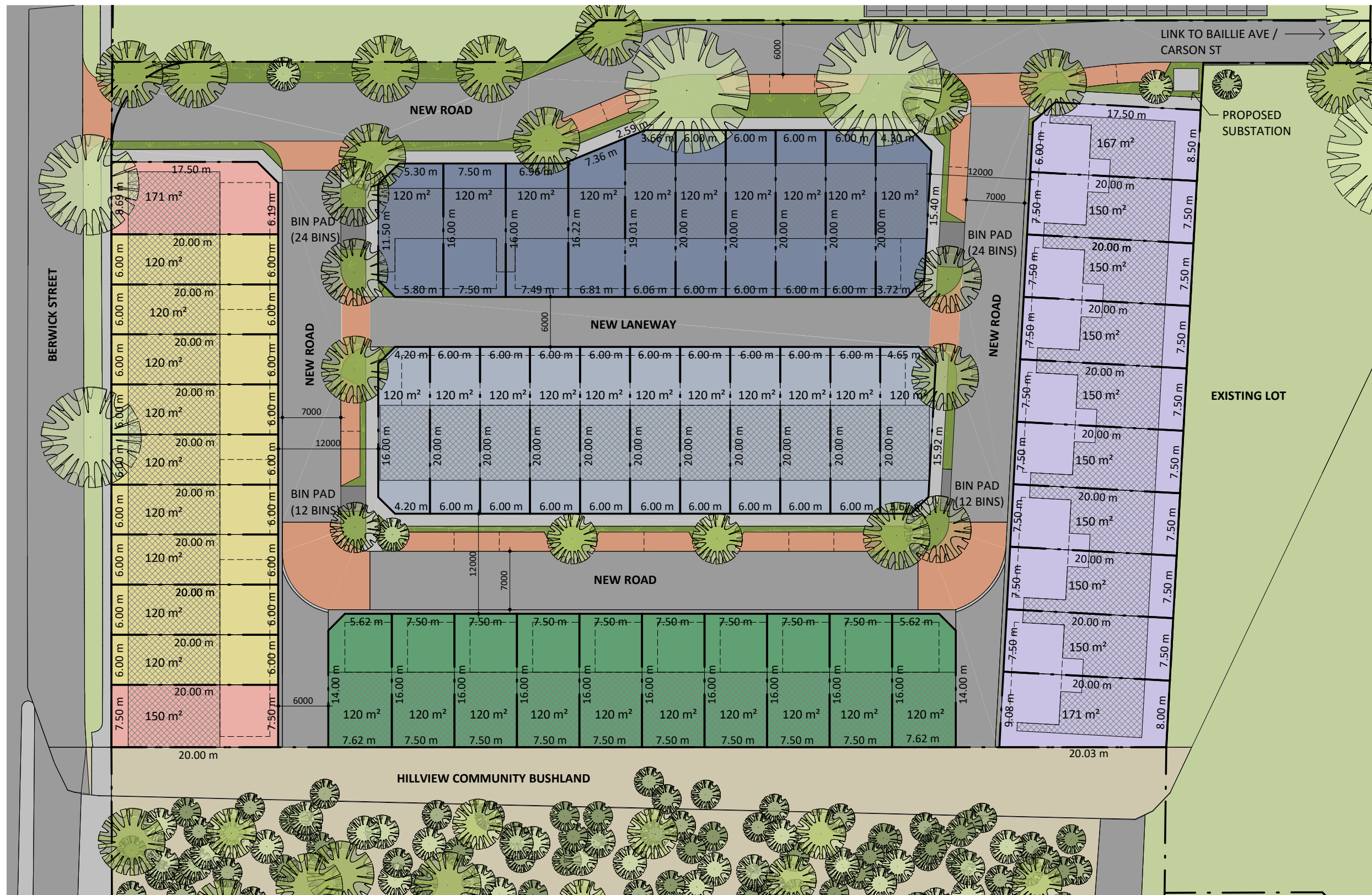
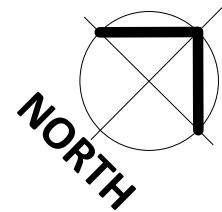
Paul Cunningham

Rowe Group



Attachment One

Concept Design Plan and Illustrations



384 Berwick St, East Victoria Park
Lot No.: **D046173 3**
Area: **11029.178 m²**

Legend

- Building
- Double Garage
- Single Garage (with car port adjacent)

	Total
Laneway Dwellings, North Facing 2 Storey	10
Laneway Dwellings South Facing 2 Storey	11
Park Facing Rear Loaded Dwellings - 7.5m Lots	10
Berwick St Rear Loaded Dwellings - 6m Lots	9
Berwick St Rear Loaded Dwellings - 7.5m Lots	2
Front Loaded City View Tri-Level Terraces - 7.5m Lots	10

Total Lots 52

19 Visitor Car Bays

1 Site - SK1A
1 : 500

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REV	DESCRIPTION	DATE
A	For Approval	09/10/18

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CLIENT Hamlen
PROJECT ADDRESS 384 Berwick Street, East Victoria Park

DRAWING TITLE
Site Plan

PROJECT TITLE
Hamlen EVP

DRAWN: JM
APPROVED: CW
PROJECT No. 18098

SCALE @ A3: As indicated

DRAWING No. **A001**
REV **A**







Attachment Two

Transport Impact Statement



R60 Grouped Dwelling Development 384 Berwick Street, East Victoria Park Transport Impact Statement

Client //	Hamlen Pty Ltd
Office //	WA
Reference //	W153330
Date //	04/10/18

R60 Grouped Dwelling Development

384 Berwick Street, East Victoria Park

Transport Impact Statement

Issue: C 04/10/18

Client: Hamlen Pty Ltd

Reference: W153330

GTA Consultants Office: WA

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
C	04/10/18	Final	Rodney Ding	TM	TM	

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1. Introduction

1.1 Background & Proposal

GTA Consultants (GTA) has been engaged by *Hamlen Pty Ltd* to prepare a Transport Impact Statement (TIS) for the redevelopment of the site at 384 Berwick Street in East Victoria Park. This report is to support a submission on behalf of the client on Amendment 78 in support of R60 development in the form of grouped dwellings.

This report follows the guided methodology of a TIS, prepared in line with the Western Australian Planning Commission publication '*Transport Assessment Guidelines for Development, August 2016*' (WAPC Guidelines). It also considers the Town of Victoria Park's (ToVP) planning policies and the key elements of the site's integration with the existing transport networks and the potential traffic impact of the proposed redevelopment.

1.2 Context

The redevelopment site is at the south eastern extremity of East Victoria Park, situated within the ToVP and approximately 8.1km south-east of the Perth CBD by road (6.4km in a direct line). The proposed redevelopment is within the well-established suburb of East Victoria Park and so benefits from already being well connected to nearby vehicular, walking, cycling and public transport networks.

WAPC Guidelines provide direction on the level of assessment which is necessary to be carried out with respect to the likely traffic impact of a development proposal. Typically, any development which is expected to have a 'moderate' traffic impact, that is, generating less than 100 trips in the peak hour is satisfied by a TIS. Any development which is expected to generate in excess of 100 trips in the peak hour requires a Transport Impact Assessment (TIA) to be undertaken. Both types of assessment consider the operation and layout of the site, but they differ in their assessment of external traffic impact.

In the context of this redevelopment and its land use proposal, it is expected that less than 100 trips generated in a given peak hour if applying 'typical' traffic generation rates (which represent locations outside of non-major activity corridors). In this case a TIS is appropriate.

1.3 Purpose of this Report

This TIS briefly outlines the transport aspects surrounding the proposed redevelopment. The intent of a TIS, as per the WAPC Guidelines, is to provide the approving authority with sufficient transport information to confirm that the Applicant has adequately considered the transport aspects of the development and that it would not have an adverse transport impact on the surrounding area. Of particular relevance is the accessibility of the development by non-car modes, in accordance with Government's sustainable development objectives, and its integration with the surrounding area.

In accordance with the WAPC Guidelines, this TIS outlines:

- redevelopment proposals
- current vehicle access arrangements and existing traffic conditions proximate to the site

- the traffic generating characteristics of the proposed redevelopment and to any low volume residential roads
- particular intersections or sections of road that may be adversely affected
- the potential for rat-running, especially through existing residential areas
- developments operating outside normal business hours in/near residential areas
- information on the pedestrian, bicycle and public transport access arrangements to the site
- suitability of the proposed parking provision within the site
- any issues associated with the heavy vehicles generated by the development
- the anticipated impact of the proposed redevelopment on the surrounding road network.

1.4 Reference Material

In preparing this report, reference has been made to the following:

- Sketch plans prepared by Greg Rowe & Associates showing the proposed development, provided at Attachment A
- Liveable Neighbourhoods Guidelines
- WAPC Transport Assessment Guidelines for Development
- traffic surveys undertaken by GTA Consultants as referenced in the context of this report
- other documents as nominated.

2. Development Proposal

2.1 Indicative Site Layout & Land Uses

A copy of the proposed redevelopment plans is provided at Appendix A as prepared by the project planner, *Greg Rowe and Associates*. The proposed site access and car parking layouts are discussed in the following sections.

The proposal includes the provision of 52 residential lots to allow a mix of one/two car garages, as summarised in Table 2.1. There is no commercial component for this proposed development. There is proposed to be 121 on-site parking bays to be provided as part of the development.

The current site has the National Archives of Australia on the 11,029sq.m block located near the centre of the site.

Table 2.1: Development Schedule

Use	Size
R60 Lots	52
Parking Bays	102 on-site resident & 19 on-site visitors

2.2 Site Location

The subject site is located at 384 (Lot 3) Berwick Street in the suburb of East Victoria Park in the Town of Victoria Park. The site is located on the south-east corner of the Baillie Avenue/Carson Street road and approximately 100m west of the intersection of Berwick Street and Hill View Terrace. The site has two street frontages, Berwick Street to the south/west and to Baillie Avenue/Carson Street to the north via a 5m wide, 20m long portion of the lot.

There is a special needs primary school to the north/west of the site, open space to the north/east and bushland to the south/east of the site. Beyond these the development is typically residential.

The site is located approximately 800m to the East Victoria Park retain hub bordered by Hill View Terrace, Albany Highway and Shepperton Road.

The subject site and its environs are shown in Figure 2.1. on the following page.

2.3 Car Parking

It is proposed to provide each lot with single or double garages, depending on the size of the lot frontage, plus there is proposed to be on-site parking provided within the internal roadway in the form of embayed parking for 19 cars for visitors. Residential parking is to be provided by individual garages on each lot.

The present site has parking provision for 34 cars to park on-site.

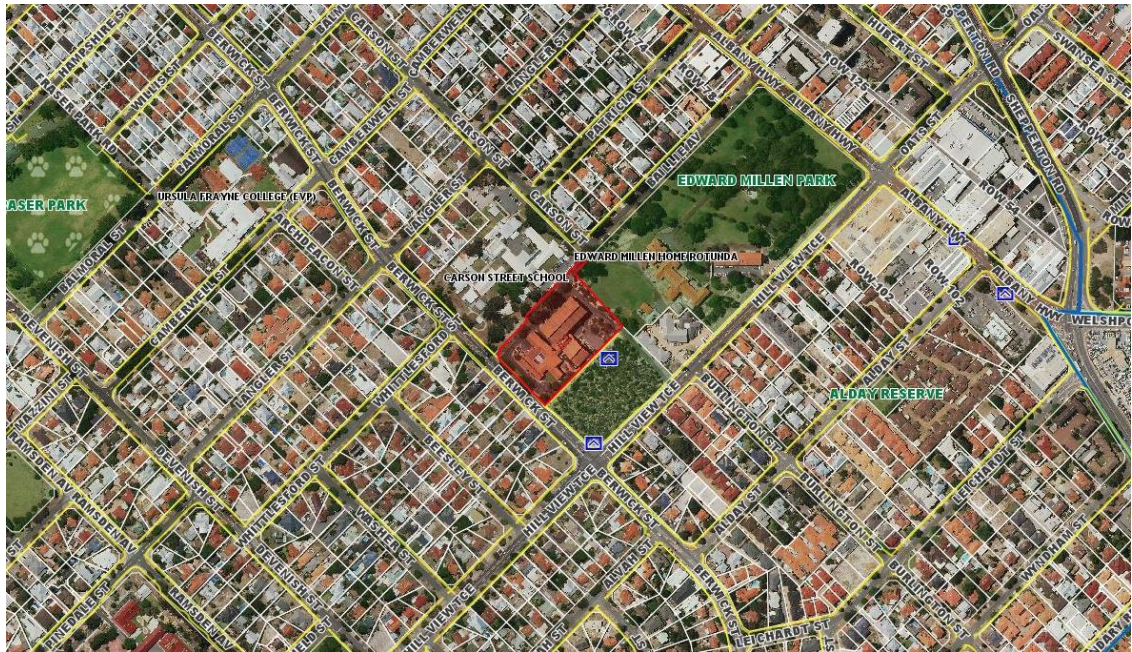
Being a purely residential development no parking for persons with a disability (PWD) is proposed.

There is presently parking permitted on Baillie Avenue/Carson Street but not feasible on Berwick Street.

Under the Residential Design Code and being within 250m of a high frequency bus route on Berwick Street, the site should provide a minimum of 63 parking bays for residents plus 13 for visitors, a total of 76 bays.

With the provision for a total of 121 car parking proposed, the site is in surplus by 45 parking bays on-site and thus there is a low possibility of local street being used to park on by residents or visitors.

Figure 2.1: Site Location Plan



(Map / Image Reproduced Courtesy of Intramaps)

2.4 Vehicle Access

The current vehicular access to the site is via:

- Direct from Berwick Street via a 7.2m crossover located at the western corner of the site (to be retained as part of the development)
- Baillie Avenue/Carson Street via a 5m wide 20m long section of the lot with a 4.8m wide roadway (to be retained as part of the development)
- Hill View Terrace via a 5.8m wide roadway across the adjacent bushland site (to be removed as part of the development).

The proposed development includes the retention of the 7.2m wide crossover on Berwick Street in its present location and format (concrete) as a full movement crossover with the Baillie Avenue/Carson Street crossover also to be retained as a two-way access to the site.

Access to and from the site via the street network is expected direct via Berwick Street and then via Baillie Avenue/Carson Street with access to/from Albany Highway. This then continues to Lockhart Street, Manning Road and then the Kwinana Freeway.

Baillie Avenue and Carson Street are Access Roads under the Main Roads WA functional road hierarchy, whilst Berwick Street is a Distributor A road under the functional road hierarchy.

Sight distance for the proposed crossover on Berwick Street meets the requirements of AS/NZS 2890.1:2004 *Parking facilities Part 1: Off-street car parking*. For a development of this nature, a

sight distance of 65m absolute minimum and 85m desirable minimum should be provided in a 60km/h zone. This minimum can be achieved with a sight distance of approximately 90-95m available to/from the southern approach along Berwick Street on approach from the Hill View Terrace traffic signals. This sight distance is considered appropriate.

The low traffic volumes expected during peak period use of the Baillie Avenue/Carson Street crossover (estimated at approximately 10-11 in the AM peak and 15 in the PM peak) will allow the crossover to operate at this 4.9m width under Clause 3.2.2 of AS/NZS 2890.1:2004 as a low volume Category 1 access driveway.

2.5 Road Reserve Widths

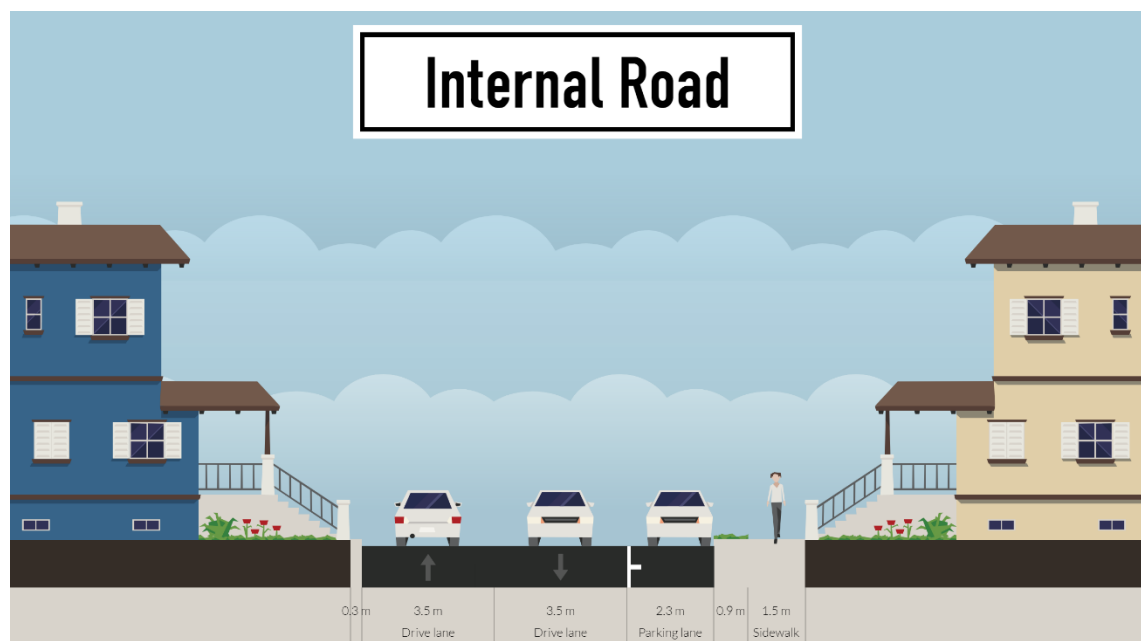
Road reserve widths within the structure plan area are proposed to be typically 12m, with one 6m laneway and a short section of road reserve approximately 10m wide. Apart from the 10m wide reserve all other reserves meet the "deemed to comply" conditions of the Residential Design Codes. The 10m wide reserve will still allow the retention of a 7.0m wide road pavement and will thus not impact of vehicular movement.

2.6 Road Cross Sections & Speed Limits

The speed limit through the site is proposed to be the general built up area limit of 50km/h, but given the short length of straight road sections, the actual speeds are expected to be significantly less than this at approximately 20-30km/h. This is a great design outcome which appeals to the vulnerable road user. The general road cross section proposed for the 12m wide roads are:

- Single 7m wide driving carriageway, an on-street parking lane of 2.3m adjacent with a 1.5m footpath as shown in Figure 2.2.

Figure 2.2: Internal Road Cross Section



2.7 Pedestrian Access & Facilities

Access to the site is presently via an existing footpath network along all roads adjoining the site as summarised below:

- Berwick Street - Both sides of the road connecting to the wider footpath network
- Baillie Avenue/Carson Street - north side of Baillie Avenue and south side of Carson Street connecting to the wider footpath network.

The existing network generally has pram ramps and gaps in the islands at median crossings for refuge and therefore considered friendly for all road user types.

The proposed development does not propose any new pedestrian facilities externally but does propose an internal footpath network on the internal roadways.

There is proposed to be direct pedestrian access to the development from Berwick Street and Baillie Avenue/Carson Street. The Baillie Avenue/Carson Street access will be via the 5m wide section of the site. Due to this new pedestrian connection, a 1.5m footpath should be provided on this link to Baillie Avenue/Carson Street.

2.8 Bicycle Access & Facilities

No specific provision is to be made for cycling parking for the development, except the provision of store rooms for each site which will allow the storage of bicycles. The roads surrounding the site are typically low volume (in the case of Baillie Avenue/Carson Street) and relatively wide, as such, friendly for on-road cycling. There is a dedicated on-road cycle lane in the case of Berwick Street north of the site and Hill View Terrace to the south of the site. The site is within 100m of the SE26 Perth Bike Network route connecting the Causeway to Canning Vale.

2.9 Loading Areas

Loading for the proposed development is proposed to occur to and from the proposed internal roadways with vehicles parked within the embayed parking areas (or the use of driveways for private loading).

Rubbish bins are proposed to be collected by the council rubbish collection from the road verges of the internal road network either outside respective lots or at bin pads for laneway lots.

3. Accessibility Review

3.1 Introduction

This chapter outlines the outcome of a baseline accessibility assessment that was undertaken to establish the transport provision serving the site and its surrounds. It also recognises that walking and cycling are encouraged modes of transport and are also secondary modes of travel for public transport users.

3.2 Access by Road

The development site abuts two 'Access Roads', as classified in the Main Roads WA (MRWA) Functional Road Hierarchy and one 'District Distributor A' road. Due to the site's good connection to the external road network, rat-running through low volume residential roads is avoided.

3.2.1 Local Roads

Access Roads bordering the development site are all of a single carriageway standard, providing one lane for travel in each direction. These Access Roads provide direct driveway access to residential properties with a general urban speed limit of 50km/h (except before and after school where a 40km/h limit applies) and a capacity of up to 3,000 vehicles a day (indicative) although a lower traffic volume would be more realistic. These roads include:

- Baillie Avenue (north of site)
- Carson Street (north of site).

The following traffic volumes on these roads were obtained from the ToVP Intramaps site:

- Baillie Avenue ~320 vehicles per day (vpd)
- Carson Street ~350 vpd.

In general, the road environment with proposed overhanging trees with embayed on-street parking and short street lengths will provide a traffic calmed road environment not conducive to speeds greater than the current 50km/h urban speed limit and most likely significantly less than this.

3.2.2 Arterial Roads

Berwick Street

Berwick Street runs in an east-west direction connecting Hill View Terrace in the south to Canning Highway in the north and has a posted speed limit of 60km/hr. It is classified as a District Distributor A road according to the MRWA Functional Road, and it is configured as a two-lane dual-carriageway with on-road cycle lane carrying around 15,000 vehicles per day near the subject site. Traffic on Berwick Street has shown a negative growth rate of approximately 1.3% compounding per annum in recent years. Berwick Street provides direct access to the Canning Highway to the north/west of site.

Vehicles traveling to/from the site will likely use a combination of Berwick Street and Baillie Avenue/Carson Street. Traffic generated can also utilise Paterson Street to access Manning Road at the signalised intersection at via Ley Street, approximately 850m away if the desired direction of travel is to/from the north/east of the site.

3.2.3 Key Intersections

There are three nearby intersections which may be affected by the proposed development. These are discussed below.

Berwick Street/Langler Street

These two streets intersect as a four-way Stop Sign controlled intersection. The sight distances on all approaches and at all stop lines were considered appropriate and acceptable for the road environment and abutting land-uses/property boundaries. Berwick Street is the priority road with right turn pockets of approximately 45-50m in length in a paint/concrete median. Langler Street is Stop Sign controlled on both legs. The median in Berwick Street is wide enough to allow passenger cars to pause in the median to wait in when turning right from Langler Street (ie a two stage turn).

Baillie Avenue/Albany Highway

These two streets intersect as a T-junction. Albany Highway is the priority road with a raised concrete/painted median along its length. The Baillie Avenue approach is not signed but does have a holding line with a barrier approach line. The sight distances on all approaches and at the holding line were considered appropriate and acceptable for the road environment and abutting land-uses/property boundaries.

Berwick Street/Hill View Terrace

This intersection is a four-way traffic signal-controlled intersection. The Hill View Terrace approaches each have turn pockets of approximately 50m in length. The western approach of Hill View Terrace has a left turn lane of approximately 50m length. The Berwick Street north approach has a right and left turn pocket each of approximately 65m length. Right turns are prohibited on the Berwick Street southern approach. The signal phasing provides leading right turns from the Berwick Street north and Hill View Terrace east approaches. Both Hill View Terrace approaches have a painted bike lane provided through the intersection.

3.3 Public Transport

It is considered that access to the site via public transport is applicable to all users including residents and visitors. The nearest bus stops are conveniently located within a short walking distance for both directions of travel to and from Perth. As such the site is very conducive to public transport usage.

The site is located approximately 100m (approximately a 1-minute walk) from bus stops (11770 for to Perth and 11755 for ex Perth) located on Berwick Street either side of Whittlesford Street.

In peak periods the bus services running to and from Perth (170, 176, 177 and 179) run every 10 minutes approximately, making these stops on these routes, high-frequency.

3.4 Walking and Cycling

As with public transport, the site is located in an area where the walking and cycling infrastructure is well established. It is considered that both walking and cycling will be attractive modes of transport for all users – residents and visitors to/from the site.

On-site bicycle parking will not be explicitly provided for, but there are storerooms provided for each lot, which will allow the storage of bicycles to encourage the use of this mode of travel.

Under the Residential Design Codes 17 bays/racks should be provided for residents to park their bikes for the entire site, whilst 5 bays/racks should be provided for visitors. It is assumed that the

resident component will be provided within the storerooms as stated above and thus allow for at least 52 bikes to be provided for the entire site.

The site is well connected to the existing cycling network in the nearby vicinity. Baillie Avenue and Carson Street are classified as “good road riding environments” whilst Berwick Street has on-road bike lanes west of the site, which connect to the SE16 Perth Bike Network route at Kent Street. Hill View Terrace has on-road bike lanes and the SE26 Perth Bike Network between Causeway and Canning Vale. A map of existing cycle routes is provided at Appendix B. Considering the proposed development type, the location of the site is well placed to take advantage of local amenities and transport services through well-connected walking and cycling routes.

The proposed development is approximately 500m from nearby primary schools and 800m from cafes and other shops.

Notwithstanding the above, any further application for development will review and revise the design to ensure it complies with the provision of the necessary walking and bicycle parking.

3.5 Crash Statistics

MRWA Crash Analysis Reporting System (CARS) provides detailed crash data and covers all intersections and midblock sections which have had one or more reported road crashes over a 5-year period from 2013 to 2017. It provides detailed crash data for Paterson Street, Canning Parade, Lockhart Street and nearby intersections over that period.

Crash data has been reviewed for Paterson Street between Lockhart Street and Canning Parade and Lockhart Street between Paterson Street and Manning Road (the most likely route to and from the proposed development) plus the intersections along this route. Only one crash was recorded along the mid-block sections, this being on Lockhart Street; 11 crashes were recorded at intersections, all at the intersection of Manning Road and Lockhart Street. These crashes are reviewed in more detail in Table 3.1 below.

Table 3.1: Crash Record for Roads and Intersections/Road Sections in the vicinity of the Subject Site

Location	State Ranking		Crash Severity				Total Crashes
	Cost	Frequency	PDO	Medical	Hospital	Fatal	
Baillie Ave / Albany Hwy	-	-	0	0	0	0	0
Carson St / Patricia St	9954	7289	1	0	0	0	1
Carson St / Langler St	8234	7289	1	0	0	0	1
Berwick St / Langler St	9954	7289	0	1	1	0	2
Berwick St / Hill View Tce	274	376	41	8	0	0	49
Baillie Ave	N/A ^[1]		0	0	0	0	0
Carson St	N/A ^[1]		0	0	0	0	0
Langler St	N/A ^[2]		1	0	0	0	1
Berwick St	N/A ^[2]		0	0	0	0	0

PDO – property damage only, Medical – roadside medical assistance, Hospital – hospitalisation required

[1] State ranking not considered appropriate for a local access road due to relatively low traffic volumes.

[2] State ranking not considered appropriate for a local access road due to relatively low traffic volumes.

The above summary crashes are discussed below in more detail.

- Carson Street/Patricia Street:
The single crash which was recorded at this intersection was a property damage only right-angle crash.
- Carson Street/Langler Street:
The single crash which was recorded at this intersection was a property damage only right-angle crash.
- Berwick Street/Langler Street:
The two crashes which was recorded at this intersection were a casualty right-angle crashes which both occurred at night. This may indicate an issue with the current street lighting not illuminating the intersection or approaches sufficiently, to provide good night time visibility.
- Berwick Street/Hill View Terrace:
Of the 49 recorded crashes 13 were rear end, 10 right-angle and 24 right-turn-through. Of these crashes 9 occurred in the wet, 17 at night and 8 resulted in a casualty. These crashes also included 2 bicycle crashes. All of these crashes were found to be at a rate higher than expected for an intersection of this type.
The rate of casualty crashes at this intersection is approximately 1.86 casualty crashes per 10 million vehicles entering (10M VE) the intersection. This is less than a network average of approximately 2 casualty crashes per 10M VE for signalised four-way intersections.
- Langler Street:
The single crash which was recorded was a property damage only crash involving a vehicle entering/leaving a driveway near the crest of the slight hill in Langler Street.

This crash rate recorded at the intersection of Berwick Street/Hill View Terrace is the equivalent to approximately 2.3 crashes per million vehicles entering (MVE) the intersection. This rate is significantly higher than the network average compared to other similar intersections of about 0.5 crashes per MVE. This number is considered high and worth noting. The crash types are typical of a signal-controlled intersection treatment and due to the crests near the intersection leads to a high number of right angle and right-turn through crashes.

The traffic volumes generated by the development during peak hours and over the course of a day are considered to be low at approximately 22-30 vehicles in any one hour. This traffic is expected to be split between in/out vehicle movements from the Baillie Avenue access and the Berwick Street access and is further dispersed over a number of turning movements.

A development of this type, with the number of access points as noted, and in this location could not be expected to materially alter the existing frequency and severity of road crashes in the area. Further, the low increase in traffic volumes could not be expected to adversely affect pedestrians crossing roads, or any cyclists that travel on-road.

Accordingly, the road safety characteristics of the proposed development are considered acceptable.

4. Trip Generation and Traffic Impact

4.1 Current Traffic Flows

Traffic volumes on the adjacent road network of Carson Street, Baillie Avenue, Langer Street and Berwick Street were assessed based on the current traffic counts sourced from the Town of Victoria Park Intranet website and MRWA website.

Berwick Street: 14,700 vpd with 4.8% heavy vehicles
 AM Peak: 815 northbound, 520 southbound
 PM Peak: 600 northbound, 730 southbound

Langer Street: estimated at 500 vpd
 AM Peak: 50
 PM Peak: 50

Baillie Avenue: estimated at 320 vpd
 AM Peak: 32
 PM Peak: 32

Carson Street: estimated at 350 vpd
 AM Peak: 35
 PM Peak: 35

4.2 Expected Traffic Flows

With the surrounding residential development having reached maturity, the current traffic volumes are expected to remain relatively unchanged into the near future on the local street network of Langer Street, Carson Street and Baillie Avenue. According to the most recent data, traffic flows on Berwick Street have been decreasing at a rate of approximately 1.3% per annum, but for the purposes of this assessment has been assumed not to change over the next 10 years.

4.3 Vehicle Types

The types of vehicles accessing the site will be entirely private motor vehicles. No traffic to and from the site is expected to be truck type traffic, except for furniture delivery vans/smaller trucks parking on the embayed street parking (or on driveways) and the council rubbish collections.

4.4 Traffic Generation and Traffic Impact

In order to estimate the trip generation associated with the proposed development, reference has been made to trip rates within the *WAPC Guidelines* (which often refer to the *RTA Guidelines, NSW*) and the *Trip Generation 9th edition, 2012 - Institute of Transportation Engineers (ITE)*, Washington, USA. These trip rates are considered to accommodate the general vehicle activity at the site incorporating:

- Residents
- Visitors to residents
- Servicing / deliveries.

Table 4.1: Estimated Traffic Generation

Land Use	Peak Hour Rates (vph)	Peak Hour Trip Generation Estimates (vph) (using AM/PM peak)
Residential Dwelling	0.45 / dwelling (AM) & 0.6 / dwelling (PM)	23/31

Residential unit rate is based on both the RTA Guidelines recorded peak hour rate and GTA's Database for grouped dwellings near good public transport provision. However, to allow for a robust assessment a rate of 0.6/dwelling for the PM peak and 6 per dwelling for the daily flows was adopted.

Table 4.2: Estimated Traffic Generation - Total

Trip type	Trips IN	Trips OUT
AM Vehicle	6	17
PM Vehicle	21	10

Assumed Residential in/out split is 25%/75% in the AM peak & 67%/33% in the PM peak as per WAPC Guidelines. 7.5% of the daily flows in the AM peak and 10% in the PM peak.

Based on the above, the total traffic generation of the development site is expected to be approximately 310 vehicular trips in a day with 23 occurring in the AM peak and 31 vehicle movements in a typical PM peak hour.

It should be noted that the above 310 vehicular trips per day will not be all additional traffic as the site is currently used by the National Archives of Australian.

Traffic counts were not undertaken for the current use. However, based on the approximate floor areas of the buildings on the site, the current use (or a similar use) on the site would give rise to the existing following traffic generation as shown in Table 4.3. The current use is a combination of office space and warehousing for the archives on the site.

- Office Use 1,500m² GFA
- Warehousing Use 2,000m² GFA.

Table 4.3: Estimated Traffic Generation for Current Use

Land Use	Daily Rates (vpd)	Daily Trip Generation Estimates (vpd)
Office Use	10-20 trips per 100m ² GFA	150 to 300
Warehousing Use	4 trips per 100m ² GFA	80
Total		230 to 380

Thus, the current use of the site would have very similar traffic generation rates as compared to the proposed R60 Development yield. There would be little to discern between the traffic generated by the site over a typical day.

A final comparison was undertaken if the site was developed in line with the current R30 zoning of the site as summarised in Table 4.4. This assessment is tabled below in similar fashion to the current use of the site. With the R30 zoning the site could have up to approximately 30 lots.

Table 4.4: Estimated Traffic Generation for R30 Zoning

Land Use	Daily Rates (vpd)	Daily Trip Generation Estimates (vpd)
Residential Dwelling	8 trips per dwelling	240

The trip rate adopted is slightly higher than the R60 proposal as larger lots will typically tend to lead to higher car ownership and thus traffic generation for each lot.

Based on the current zoning a development would have traffic volumes slightly less than the site would presently exhibit and also slightly lower than the proposed R60 development is expected to generate. However, the absolute difference of approximately 70 vehicle trips per day between the proposed R60 development and the current R30 zoning is not considered significantly large to be a concerning issue.

The proposed R60 development would have peak flows of approximately 31 vehicles in the PM peak compared to the R30 zoning equivalent of approximately 24. With the distribution of traffic from the development onto the local street network, the differences between the proposed R60 and the R30 zoning would be approximately 1 to 2 vehicles in the PM peak on individual streets. It is clear that this difference would not be noticeable to residents and drivers on the local streets and thus there would be little or no difference in impact between the proposed R60 development and a development in line with the current R30 zoning.

4.5 Road Cross-Sections

All the above traffic flows are appropriate for the proposed road cross sections as discussed previously. The general 6.0m wide pavement streets throughout the estate can cater for daily flows up to 1,000 vpd. With embayed parking bays these roads can cater for traffic flows up to 3,000 vpd. The 7.0m wide main entry road will be able to cater for traffic flows up to 3,000 vpd.

Traffic flows on the laneway lots for the higher density lots are expected to have traffic flows of approximately 100 to 150 vpd. Laneways of 6.0m width can cater for traffic flows of up to 300 vpd.

Based on the calculated traffic volumes expected for the estate, the proposed road cross sections discussed previously are considered appropriate.

4.6 Traffic Impact of Development on Local Area

All roads near the proposed site are expected to have traffic volumes typically less than the maximum traffic flows for similar roads of their type. The mid-block comparisons to maximum flows that these roads should carry are shown in Table 4.5 below.

Table 4.5: Current & Expected Mid-Block Daily Traffic Flows

Road	Indicative Maximum Daily Flow (two-way vpd)	Current Daily Flow (two-way vpd)	Expected Daily Flow in 10 years (two-way vpd)	Expected Daily Flow in 10 years with Dev (two-way vpd)	Expected change in Daily Flow in 10 years with Dev
Baillie Avenue	3,000	320	320	395	+23%
Carson Street	3,000	350	350	425	+21%
Langler Street	3,000	500	500	575	+15%
Berwick Street	15,000	14,700	14,700	14,775	+0.5%

There is not expected to be any significant adverse impacts in the traffic flows to and from the site with the new development (except for the percentage change noted for Baillie Avenue, Carson Street and Langler Street off a low base volume). However, the resultant traffic flows for the affected roads are expected to be significantly less than the maximum traffic flows for roads this type could carry and thus the impact is considered acceptable.

With regards to the intersections, Table 2.4 from the Austroads publication, *Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings* provides advice as to intersection and crossover performance in peak flow conditions about possible further analysis.

This is summarised in Table 4.6. If the calculated expected traffic flows for this development exceed those shown in Table 4.6 further assessment is typically required.

Table 4.6: Austroads Guidelines

Major Road Type	Major Road Flow (two-way, vph)	Minor Road Flow (two-way, vph)
Two-lane	400	250
	500	200
	650	100
Four-lane	1,000	100
	1,500	50
	2,000	25

Examining the “worst case” scenarios of all development traffic flows utilising either only the Baillie Avenue/Albany Highway intersection or the single crossover on Berwick Street traffic for the proposed development, Table 4.7 is derived.

Table 4.7: Comparison to Austroads Guidelines

Intersection	Major Road Flow (two-way, vph)	Minor Road Flow (two-way, vph)
Berwick St/Crossover	1,330	31
Baillie Ave/Albany Hwy	940	65

From the above it can be seen that the crossover and the subject intersection are expected to have traffic volumes significantly less than shown in Table 4.6. Thus, there is no need for the crossover nor most of the intersections to be examined in further detail using such analysis software like SIDRA Intersection (SIDRA). Under these flow conditions, the crossover is expected to operate at a level of service A with minimal delays and queues. The only expected is the interception of Manning Road and Lockhart Street which is assessed in more detail in the next sub-section.

4.7 Intersection of Berwick Street and Crossover

This crossover was modelled as an intersection with Berwick Street the priority road and the crossover the terminating road. To allow a robust assessment, it was assumed that all development traffic would use this access.

The expected operation of the crossover was assessed using SIDRA and a combination of mid-block traffic counts obtained from MRWA and manual traffic counts undertaken in the AM and PM peak periods. To allow a robust assessment, it was assumed that all development traffic utilises this crossover.

The critical results are shown on the following pages for the AM (8am to 9am) and PM (4pm to 5pm) periods in Table 4.8 and Table 4.9.

Table 4.8: Berwick Street Crossover – Expected Operation in AM Peak

Critical Turning Movements					
Approach	Mvt.	Short Lane Length	DOS	Average Delay (sec)	95th Percentile Queue (m)
Berwick St SE	RT	12m	0.01	8s	0.1m
Crossover NE	RT	-	0.04	12s	1m

DOS – Degree of Saturation, # - Intersection DOS

Table 4.9: Berwick Street Crossover – Expected Operation in PM Peak

Critical Turning Movements					
Approach	Mvt.	Short Lane Length	DOS	Average Delay (sec)	95th Percentile Queue (m)
Berwick St SE	RT	12m	0.02	10s	0.3m
Crossover NE	RT	-	0.03	12s	0.6m

Overall the Berwick Street crossover is expected to operate satisfactorily in both the AM and PM peaks. There are expected to be minimal delays and queues either on Berwick Street entering the crossover or on the crossover turning into Berwick Street.

4.8 Intersection of Baillie Avenue and Albany Highway

This intersection was modelled with Albany Highway the priority road and Baillie Avenue the terminating road. Similar to the crossover assessment, to allow a robust assessment, it was assumed that all development traffic would use this access.

The operation of the intersection was assessed using SIDRA and a combination of mid-block traffic counts obtained from MRWA and manual traffic counts undertaken in the AM and PM peak periods.

The critical results are shown on the following pages for the AM (8am to 9am) and PM (4pm to 5pm) periods in Table 4.10 and Table 4.11.

Table 4.10: Baillie Ave/Albany Hwy – Expected Operation in AM Peak

Critical Turning Movements					
Approach	Mvt.	Short Lane Length	DOS	Average Delay (sec)	95th Percentile Queue (m)
Albany Hwy NW	RT	12m	0.01	6s	0.3m
Baillie Ave SW	RT	-	0.04	9s	1m

Table 4.11: Baillie Ave/Albany Hwy – Expected Operation in PM Peak

Critical Turning Movements					
Approach	Mvt.	Short Lane Length	DOS	Average Delay (sec)	95th Percentile Queue (m)
Albany Hwy NW	RT	12m	0.02	6s	0.5m
Baillie Ave SW	RT	-	0.07	10s	2m

Overall the intersection is expected to operate satisfactorily in both the AM and PM peaks. There are expected to be minimal delays and queues either on Albany Highway turning right into Baillie Avenue or in Baillie Avenue turning into Albany Highway.

Based on the above, the proposed development could not be expected to have a detrimental impact on the surrounding roads and intersections in terms of capacity or road safety. Accordingly, the traffic impact of the proposed development is considered acceptable.

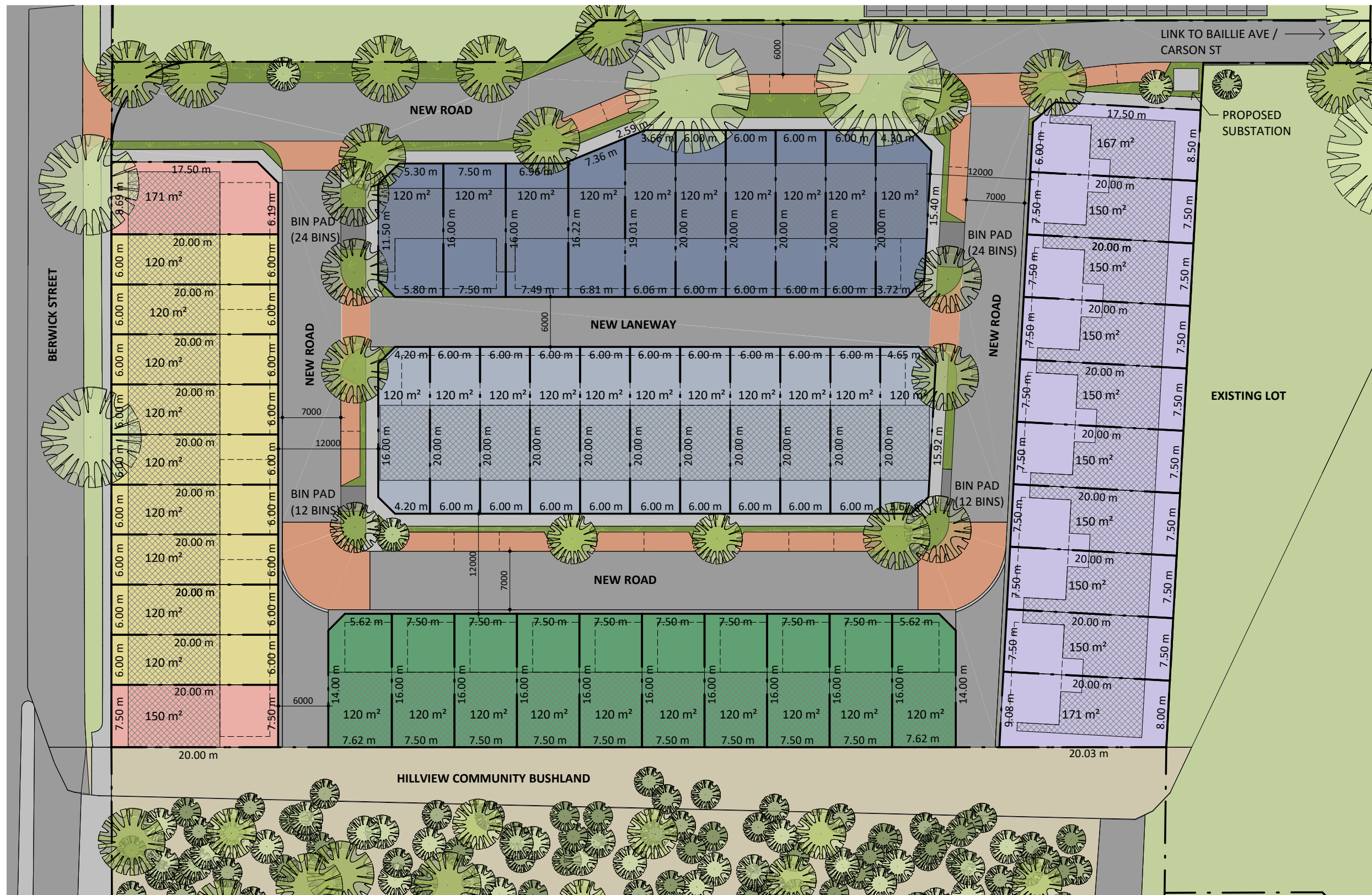
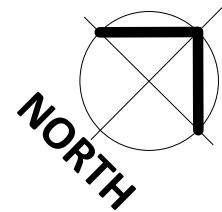
5. Findings, Summary & Conclusions

As a result of the traffic analysis undertaken for the proposed residential development at 384 Berwick Street in East Victoria Park:

- i The development should generate in the order of 310 vehicular trips per day with 23 of these in the AM peak and 31 in the PM peak.
- ii Expected traffic flows for the proposed R60 development is estimated to be very similar to the traffic flows to/from the current site over a typical day and only slightly higher than the current R30 zoning and so does not present a traffic impact concern.
- iii The parking area layout is suitable with an appropriate number of parking bays provided for the demographic use of the development.
- iv Sight distances at the proposed Berwick Street crossover are acceptable for all vehicle turn movements, with minimal delays expected.
- v There is a proposed internal pedestrian network on all streets which will connect to external footpaths on Berwick Street.
- vi Internal streets will be bike friendly with bike parking expected to be provided internally for each dwelling.
- vii The site is well placed to take advantage of bus routes located on Berwick Street within a 2-minute walk of the site.
- viii The narrow road connection to Baillie Avenue/Carson Street will be able to function even if all development traffic were to utilise it, this in accordance with Australian Standards.
- ix Rubbish trucks used by the Town of Victoria Park will be able to collect rubbish from the internal streets at bin pad locations and street verges.
- x The impacts of the traffic volumes associated with the development on the road network are considered acceptable now and in the future.
- xi There is no requirement for any of the road network to be modified as a result of this development.

Appendix A

Development Plans



384 Berwick St, East Victoria Park
Lot No.: D046173 3
Area: 11029.178 m²

Legend

- Building
- Double Garage
- Single Garage (with car port adjacent)

	Total
Laneway Dwellings, North Facing 2 Storey	10
Laneway Dwellings South Facing 2 Storey	11
Park Facing Rear Loaded Dwellings - 7.5m Lots	10
Berwick St Rear Loaded Dwellings - 6m Lots	9
Berwick St Rear Loaded Dwellings - 7.5m Lots	2
Front Loaded City View Tri-Level Terraces - 7.5m Lots	10

Total Lots 52

19 Visitor Car Bays

1 Site - SK1A
1 : 500

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REV	DESCRIPTION	DATE
A	For Approval	09/10/18

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CLIENT Hamlen
PROJECT ADDRESS 384 Berwick Street, East Victoria Park

DRAWING TITLE
Site Plan

PROJECT TITLE
Hamlen EVP

DRAWN:
JM

APPROVED:
CW

PROJECT No.
18098

SCALE @ A3: As indicated

DRAWING No.

A001

REV

A

Appendix B

Cycle Routes



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